LINKING RELIEF, REHABILITATION AND DEVELOPMENT PROGRAMME (LRRD) IN AFGHANISTAN

LAND DEVELOPMENT IN THE CENTRAL HIGHLANDS OF AFGHANISTAN
Case study of Shaman plain flood control project (Bamiyan Province)

2005-2006
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ABSTRACT

The Shaman plain (2,400ha) lies along a wide part of the Band e Amir valley (Central Highlands of Afghanistan) at an altitude of 2,450m. Roughly 30 villages, with between ten and fifteen thousand inhabitants use the plain, primarily as meadow (60%), almost 20% is under cultivation and the remaining areas are used as permanent pasture. The Shaman plain can be described as an agro-pastoral system. Population growth over recent years is placing pressure on the availability of irrigated land. In order to cope with this problem, people have no choice but the intensification of their farming systems by having more and more animals and favouring cash crops. The lack of land is also forcing Shaman plain communities to cultivate low yield damp plots. The plain meadows provide fodder (mainly reeds) for animals despite low productivity levels. The main problem that Shaman communities have to confront is the flood patterns.

In view of these observations, local communities requested that the French NGO, Solidarités, oversee the Shaman plain flood control project which consists of digging a rock heap which is blocking water flow in a canyon downstream of Shaman plain. The overall objective of this project is to improve 500ha of land out of the existing 2,400ha. Such a land development project raises a large number of issues related to agrarian systems, land tenure, social organisation and natural resources management. To what extent will farmers be able to modify their cropping and production systems? Will all of them benefit from the project? Will land tenure be restructured and how? Is this process likely to generate any new conflicts? Will the communities be able to ensure the sustainability of the new system?

Plots of land will be affected to different degrees. It is difficult to predict the exact yield increase. However we can expect a global improvement of the agricultural potential and a general increase of family incomes. As a result, the Shaman plain flood control project is likely to accentuate local dynamics of land intensification by increasing productivity.

The irrigation network is used to irrigate meadows and the various plots of cultivated land. However there is no proper drainage network. To attain maximum efficiency, the project needs to include the design of a drainage network, and this is the responsibility of the communities. One main issue is how will people organise themselves if aid is reduced or halted, as expected? Since former authorities have less influence than before, it remains to be seen whether the new shura system will be able to mobilise the community. Moreover, this project emphasises the fact that the recent implementation of new institutions have given rise to new concerns, such as environmental issues. Today, implementing partners need to consult with the GoA who is trying to establish a tighter control on NGO activities. Establishing a reference framework and coordination between the various stakeholders may be two of the main challenges for such projects in the future.

Key words: agrarian system, land tenure, natural resources management, flood control, water social management
RESUME

La plaine de Shaman fait partie intégrante d’un système agro pastoral, c’est une plaine inondable de 2 400 ha située à 2 450 mètres d’altitude. Environ 15 000 habitants utilisent ce territoire pour la fauche majoritairement, le pâturage et les cultures de céréales et fourrages. Chaque année, le débordement des rivières cause des inondations affectant les rendements des parties cultivées, les voies de communications sont, par ailleurs rendues impraticables une partie de l’année et pour les habitations situées dans la plaine, l’excès d’humidité pose des problèmes de santé.

L’ensemble de ces contraintes a été soulevé par les populations locales qui ont demandé l’appui technique et financier de Solidarités pour l’assainissement de la plaine, ce, dans le cadre d’un projet de développement rural engagé dans le district. Le projet d’assainissement consiste à sur-creuser la rivière qui irrigue l’ensemble de la plaine, en vue de rabaisser le niveau de la nappe phréatique submergeant chaque année les prairies et cultures.


Les agriculteurs sont dans une dynamique d’intensification de leurs pratiques, la mise en valeur de la plaine accompagnerait cette dynamique. En effet, l’objectif est d’augmenter les rendements des terres cultivées principalement à l’aval de la plaine, sur une superficie de 500ha ; l’occupation des sols ne serait pas modifiée mais une augmentation générale de la production est attendue pour l’ensemble des parcelles. La majorité de la plaine est divisée en petites propriétés privées, ce qui laisse penser qu’il n’y aura pas de restructuration foncière importante. Un système d’irrigation est d’ores et déjà utilisé pour irriguer la plaine, néanmoins, aucun système de drainage n’a été conçu auparavant. Un nouveau tracé de canaux de drainage devra être mis en place. L’implication des populations dans cette seconde phase est demandée et nécessaire, néanmoins, il apparaît que la mobilisation des villageois pour des travaux collectifs n’est plus possible sans financements. Cela constituera l’un des défis majeurs pour la mise en œuvre du projet. Par ailleurs, le gouvernement central, en cours de renforcement, demande davantage d’étude et d’implication, il sera un nouvel interlocuteur avec qui la concertation devra augmenter au cours de l’avancement du projet.

Mots clés: système agraire, structure foncière, gestion des ressources naturelles, gestion sociale de l’eau, assainissement
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INTRODUCTION

This study formed part of my Masters Degree in Tropical Agronomy, with a specific focus on water social management, at the Centre National d'Etudes Agronomiques des Régions Chaudes (CNEARC).

A partnership agreement was established between Groupe URD and Solidarités Afghanistan. Groupe URD is responsible for the ‘Linking Relief, Rehabilitation and Development research programme in Afghanistan. This two-year project aims at drawing conclusions from current experience to inform policy and programmes for both NGOs and governmental institutions in Afghanistan. In 2005, Solidarités (a French relief NGO that has been working in Afghanistan for 25 years) started a three-year rural development programme in Yakawlang district, funded by the European Commission. The programme includes several activities, such as the rehabilitation of rural infrastructure of which the Shaman plain flood control project is one component.

The Shaman plain flood control project aims at digging out a rock heap which is blocking water, as a natural dam downstream of the plain. The overall objective of the project is the improvement of 500ha of land out of the 2,400ha of the plain. Both organisations requested that a study be carried out of the agrarian system for the project. The analysis of the agrarian system will enable stakeholders to assess the predictable impacts of the project.

This internship took place as a field study with Solidarités staff in Yakawlang over a six and a half month period. While Solidarités is conducting several technical surveys for the project, this study attempts to give an overview of the Shaman situation on different levels. This study should inform and give a clear view of the situation in order to avoid major problems during the implementation phase, especially within social and agricultural fields.

To understand the main issues involved, it is important to present the context of the central highlands of Afghanistan. Then, using bibliographical support, the issues that are involved in the development of this territory are explored. The methodology for conducting the field study was structured around these issues. This section is based on an evolutionary approach and these findings are presented first. After this more general presentation, the Shaman plain is analysed technically and physically through human adaptation, resources management and social organisation. Finally, studying the farming system enabled us to draw up a typology, shedding light how this drainage project will benefit the population. The final section gives an overview of the project impact and provides some practical recommendations.
1 GEOGRAPHICAL CONTEXT

1.1 INTRODUCTION TO THE SHAMAN PLAIN

Yakawlang district is part of Bamiyan Province in the Central Highlands in Afghanistan.

Figure 1: Yakawlang district in Afghanistan

Source: Zikria and Missen, 2002

The Shaman plain lies in a wider part of the long Band e Amir valley. It begins approximately 20km to the west of Nayak and terminates in a canyon 20km away. In Figure 1 above, the plain is crescent shaped lying in a north-easterly position. It is completely flat and resembles a large marsh during spring. One part of the land is grazed and is mostly covered by reeds. At the end of summer, fodder is cut and animals come back from summer grazing areas and stay during the whole autumn and most of the winter. Most of the villages in the area surround the plain and there is a thin belt of irrigated crops on the foothills. There are also some villages located actually in the plain.
The main constraint is the accumulation of water and floods which prevent cropping in most of the plain. Examining the area in greater detail, we observe wide belts where farmers try to grow cereal crops even if wheat tends to be overrun by reed. All around the plain, high mountains dominate, obscuring the plateau where farmers move their livestock in the summer.

The plain is mostly unwooded, with only a few trees growing along the canals and rivers. The main river is Band e Amir, which meanders across the entire plain, and another river crosses the plain in the south. On closer examination, it is also possible to distinguish several canals in the plain. Upstream there are mostly wet pastures and a few canals. In autumn, it is possible to identify a network of canals and small dykes all over the centre of the plain in place of the meadows. Downstream, more lands are cultivated and the density of the canal network is higher.

In the north, high overhanging cliffs dominate the landscape, whereas, in the south, small, round, white hills form a large belt. In addition, three valleys are connected by the Koh e baba range through the plain. In winter, it is obvious that most of the melting snow drains into the Shaman plain.

The Shaman plain is a wetland in a mostly dry area. There is a high population density due to the large swathes of grassland. **Nevertheless, we can ascertain that the system is currently in deterioration.** In the past, a larger proportion of the plain was cropped, whereas today, rivers often overflow and floods represent a major constraint, with resulting salinity problems. Moreover, the current rise in the population is placing pressure on land
availability. The local population is striving to use the plain and intensify agricultural practices in response to their needs, and these difficulties prompted Solidarités to launch a project to control the flooding.

The main objective is flood control but development of this kind raises many questions in several domains:
- Is it possible to assess all the physical impacts?
- Will the whole system profit or will some areas be negatively affected?
- Given the current social context, will people be able to adapt to the new environment?
- Will the overall result of the development be negative or positive taking into account the agrarian and irrigation systems, power struggles and the social organisation? Is flood control a real priority in the current context?

This study gives an overview of the current situation in order to evaluate the impacts of this development project, which will modify not only practices in the area but also regulations and social organisation, especially for specific resources (e.g. land and water).

1.2 BACKGROUND

Before studying the specific area, it is helpful to present the historical and geographical context of this plain.

1.2.1 Afghanistan

Following 11 September 2001, Afghanistan became the focus of the world’s media. However by this time, the country had already been ravaged by war for over twenty years. The Russian invasion in 1979, the subsequent civil war between the various factions of Mujahidin and the Taliban occupation had already left the country in a critical situation. The US-led invasion added to the country’s problems. Afghanistan remains a country characterised by acute poverty and weak social infrastructure, resulting in poor provision of basic services. While agriculture remains the backbone of the economy, the process of urbanisation is accelerating in a chaotic manner (Groupe URD, 2004).

In addition, the educated and skilled workforce has contracted considerably as a result of the war. Many of those who were not killed during the last twenty years of violence have taken refuge in neighbouring countries, resulting in a dramatic vacuum in the workforce.

Hamid Karzai’s new government is faced with several considerable tasks. The first challenge will be to ensure recognition of the new government, especially amongst the various opposing factions. Democratic elections brought Hamid Karzai to power in October 2004 and Afghan citizens also voted again in October 2005 to elect their representatives for the national parliament, which met for the first time in December 2005. After nearly thirty years of struggle, Afghanistan is building a base for sustainable political stability. The process of institution building is underway and local authorities, as well as local representatives of ministries, are proving that they are increasingly capable of fulfilling their duties. Nevertheless, there is a marked difference between levels of funding supplied by the international community for reconstruction activities, and, on the contrary, the limited resources of the new Afghan authorities. The international community does not have the ultimate say in these matters and the Afghan government is now pressing for greater control over NGO activities (Solidarités, 2005).

In 2001, considerable amounts of funding were dedicated to relief and rehabilitation efforts. However, the majority of programmes were directly implemented by NGOs and international organisations without any governmental framework.
However the current phase of transition between a situation of war and humanitarian emergency, and peace and development, raises numerous and various problems and challenges such as: coordination of the myriad of stakeholders and their differences; inbuilt weaknesses of the national institutions; insecurity; planning and programming for both quick impact and long-term effects, etc. In terms of institutional set-up and organisation, there is much progress still to be made. “Policies and other documents produced to this day are (by nature) quite broad and conceptual” (Rivière, 2005). These new institutions are currently facing the challenges of empowerment and coordination, both amongst central institutions and with the provincial level.

1.2.2 The Central Highland province (excluding Hazarajat)

1.2.2.1 An isolated and arid region

There are three main geographical regions which should be considered when discussing Afghanistan: (i) the plains in the North, (ii) the south and the west which are a desert depression, and (iii) the prolongation of the Himalaya chain, the Hindu Kush.

Hazarajat lies at the heart of Hindu Kush chain. The highest mountains are in the Koh e Baba, lying at 5,100m above sea level. Most of the region lies at least 2,000m above sea level. The climate is arid and cold.

In addition to Hazarajat’s geographical situation, ethnical factors contribute to the region’s sense of isolation as the population is mainly composed of Hazaras, a minority Shiite ethnic group.

1.2.2.2 The history of Hazarajat and shifting power relations

While the origin of the Hazaras remains a subject of debate, physical features indicate that they are of Mongol origin. The following events stand out as being particularly significant in the history of Hazarajat1.

Prior to the rule of Abdur Rahman (1880-1901), Hazarajat was governed by tribal chieftains but the area was never unified under a single leader. The region lies on the silk route and plundering was common. Furthermore, Hazarajat was repeatedly overlooked under Abdur Rahman’s rule, who dedicated a significant proportion of the budget to military affairs. In addition, the Hazara population is Shiite and represented a menace to central power as a result of close links with Iran. Abdur Rahman remained extremely suspicious of the Hazara people and as a result, many leaders and Hazaras were imprisoned in Kabul. Over time, the Pushtu population turned their interest to Hazarajat and indeed aimed to colonise the region. This resulted in the first uprising of the Hazaras led by Hazim Beg.

Successive central governments provided some land to the Hazaras although Pashtun interests remained the priority. Indeed successive governments tended to rely on either religion or ethnicity2, or a combination of both, to boost the State’s legitimacy. For example, in 1973, Daoud and the communists attempted to place a Pushtun at the head of the country. During the Russian occupation, a local movement emerged (shura e Ittifaq) which gradually gathered momentum and popular discontent spread. The Hezb I Wahdat began to defend the interests of Hazaras in Kabul. During the Taliban occupation, this movement became fragmented and from 1998 onwards collective action was disrupted by inter-factional fighting.

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1 Study of land relations in the Bamyan province, L. Alden Wily, 2004
2 Dorronsoro, 2000
An economic blockade was imposed on the region by the Taliban. In 1999, armed conflict erupted in Bamiyan between Hezb-I wahdat and the Taliban and 90% of the population fled\(^3\). Moreover, in 1999 and 2001 the country was affected by severe drought and the food security situation became highly critical.

Following the withdrawal of the Taliban in 2001, Bamiyan province remained stable and peaceful due to the presence of the coalition forces. Today, minor disputes still occur at a national level between representatives of the previous government, which was dominated by Pushhtuns, and coalition representatives. Having said this, the region is presently under the control of central government, locally influenced by the Hezb-I-Wahdat and security problems are minimal at the moment.

Isolation of the Hazaras in the Central highlands is partially due to historical inter-ethnic conflict. Over the years, persecution has repeatedly caused them to take refuge in remote areas.

**1.2.2.3 Recent events and the political situation in Yakawlang**

The population of Yakawlang underwent repeated migration during 2000-01 due to fighting and the socio-economic consequences of 11 September 2001. In September and October 2001, over 98% of the population evacuated the district because of the war between the Taliban and Hezb-i-Wahdat. At the time of writing, most of the Hazara and Sadat population have returned to Yakawlang.

However the area continued to be affected by war and drought, as throughout the rest of Afghanistan, especially heavy fighting which lasted up until December 2001 and the last three years of drought. Livestock continues to be a major source of income. The population has partially re-capitalised its assets (seeds, livestock, household items, etc.) but remains dependant on humanitarian assistance. A large proportion of the population has incurred substantial debts (mainly in cash and wheat)\(^4\).

**1.2.3 General presentation of the area**

**1.2.3.1 A mountainous, cold and arid environment**

In 2004-05, rainfall in Yakawlang was 295.4mm\(^5\), most of which fell in the form of snow. In the highest peaks, snowfall can even reach up to 1,000mm p.a. and represents an important water reserve for the region. Records and climatic data are scarce but according to witness accounts, 2004-05 was the wettest season for the last ten years. In addition to low rainfall and the risk of drought, the climate is very cold in winter (four months of snow). These hard conditions are the main constraints for agriculture.

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\(^3\) Solidarités

\(^4\) Solidarités, 2004

\(^5\) Agrometeorological bulletin (Agromet Project) set up by the Ministry of Agriculture, Animal Husbandry and Forestry on 1 January 2004
1.2.3.2 Geological substratum and soil type

The geological map (Annexe 1) provides a detailed overview of the Yakawlang region. The Band-e-Amir river runs along a major fault which helps explain the formation of a wide, flat plain in this mountainous environment. There are various different geological formations. In the north of the plain, a large area is composed of an epihercynian platform (no. 1 in Annexe 1). There are also high plateaux which plunge into deep canyons, where the parent rock is sedimentary: different strata are superposed with an agglomeration of pebble, sand and silt. Our research indicates that this formation is composed of former oceanic sediment (high presence of calcium). The Band-e-Amir river runs through this type of rock which helps explain the water composition.

![Figure 3: canyon, sedimentary rock and high plateau](image1)

To the south of the plain, an ‘orogenic complex’ (no. 2 in Annexe 1) composed of molasse deposit (Figure 4) is equivalent to small hills which are alternatively whitish-grey, yellow or reddish. These hills are eroded and their form is rounded.

![Figure 4: Small hills composed of molasse with a high mountain backdrop](image2)

1.2.3.3 Hydrography

The main valley runs from east to west and is called Band-e-Amir valley (see Figure 5). After crossing Hazarajat, the river runs dry in the plain of northern Afghanistan, hence the term ‘blind river’.

Band-e-Amir river runs through narrow gorges and canyons. In some parts, the valley is wider according to the parent rock type. In the case of Yakawlang, the rock is crumbly, especially in a strip in the southern part. In the northern part, the rock is much harder.

Six or seven secondary valleys are connected to the Shaman plain stemming from the foothills of the Koh-e-Baba. The Shaman plain has a special function of collection of the watershed water and thus acts as a buffer zone against the floods.
1.2.3.4 Vegetation and ecology of hills and valleys

Vegetation is in general quite typical of arid climates and cold winters. This xerophytic vegetation is quite diversified and is composed of short species. *Artemisia* is one of the types of bushes, the only ligneous species, which is used as fuel for heating. The rest of the vegetation is annual or perennial, such as asphodel.

Figure 6: Loads of bushes in the high plateaux
1.2.3.5 **Different population groups**

In the region of Yakawlang, the majority of the population is Hazara. There are also local communities of *Saddat* or *Sayyid*, people who are accepted as being descendants of the prophet Mohammad and are distinguished from the Hazara by the use of the particle Saïd. There are two different lineages, *Sholeka* and *Taleka*, stemming from Muhammad’s two grandsons of his daughter Fatima and son-in-law Ali. Some villages are completely composed of *Saddat*. Annexe 2 shows the distribution of ethnic groups in Afghanistan.

1.2.4 **Bamiyan province and Yakawlang district**

Bamiyan province lies at the heart of Afghanistan and is also central to the Central Highland province (see Figure 7).

*Figure 7: Situation of Bamiyan Province within Afghanistan (Yakawlang district)*
A certain harmony reigns amongst the relatively uniform populations of predominantly Hazaras and Saddat. Bamiyan province forms part of the Central Highlands and is divided into seven districts: Bamiyan, Saighan, Kahmard, Panjab, Shibar, Waras and Yakawlang. Bamiyan province has a population of approximately 250,000 inhabitants. Yakawlang district, the most populated district of Bamiyan province, covers an area of approximately 10,000km². According to Nasser Sharifi (Solidarités, 2002), the former governor of Yakawlang, there are around 18,000 families in the entire Yakawlang district (108,000 people), although according to the district profile (UNHCR, 2002), this number is closer to 124,000.

Nayak, the main bazaar of Yakawlang district, is located at 120km from Bamiyan city, the largest city in the Province (see Annexe 3). The main road connecting Nayak to Bamiyan city is not always accessible in winter, like most of the road network, and this represents a major obstacle for commercial activities. The Koh e Baba range, in the south of Yakawlang has to be crossed in order to reach other important urban centres, such as Chagcharan (Ghor Province). In the north, the roads to Balkhab and Dar I Souf, towards Mazar I Sharif, are in poor condition.

The economy of Yakawlang district is exclusively orientated towards agriculture and livestock. Over 95% of the population generates their income from the land and through rearing livestock. Traditionally Bamiyan province has never developed an extensive proportion of irrigated land. Hazaras tend to be agro-pastoral rather than solely arable farmers. Crops are grown on both rain-fed and irrigated land. Most of the rain-fed land is situated on the slopes at high altitude whereas irrigated land is found on flat land at lower altitudes. In the plains, some rain-fed lands also exist due to the lack of irrigation infrastructure and the difficulty involved in building it. In Yakawlang, the main crops are wheat, barley, potatoes, peas and lentils. Potato crops are the only commercial crop with others vegetables.

In terms of livestock breeding, herders use forage grown in irrigated lands. Flocks graze on the plateau and are brought down to the plain when crops have been harvested. Livestock is highly valued in this region as it provides a regular income and can be used as credit in response to any crisis (war, drought) or uncommon events (endowment). In addition to selling livestock, milk products also contribute to the agricultural revenue.

Given the very harsh conditions in the region in terms of altitude, cold and aridity, the agrarian system is based on a small proportion of irrigated land and extensive range land for livestock.

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6 Robin, G., 2004
2 STUDY FRAMEWORK

2.1 INSTITUTIONAL FRAMEWORK

Before looking at the reasons for carrying out this study, it is important to give some background information on the programmes implemented by Solidarités and Groupe URD and the need to establish a partnership agreement.

2.1.1 General presentation of Solidarités

Solidarités is a French NGO that has been working in Afghanistan for 25 years. During this time Solidarités has maintained a permanent presence in Afghanistan and has implemented various projects in the field of rehabilitation of infrastructure, emergency relief, including food and non-food distributions, and agriculture. Since 1986, several rural rehabilitation programmes have been implemented. Solidarités’ main vocation is to “provide humanitarian aid and to intervene through acts of solidarity, to assist populations under threat of war or political, ethnic, economic or any other kind of oppression”.

In 2002 and 2003, in Yakawlang District, several Food for Work and Cash for Work programmes implemented by Solidarités focused on the reconstruction and rehabilitation of the main infrastructures (bridges, roads, schools, irrigation schemes, etc.). The situation has changed since 2003 and can no longer be described as a humanitarian emergency: a critical situation has evolved to relative self-sufficiency in terms of access to food. Fewer subsidies are being granted and as a consequence Solidarités has reduced its programmes. Its approach has become increasingly development oriented. In 2004, Solidarités employed eleven expatriate staff as well as 250 Afghan employees and received total funds of €3 million. Today, the majority of operations are being carried out in Bamiyan province and activities include rehabilitation of irrigation infrastructures and on site training of farmers.

The rural development project implemented in Yakawlang district (see below) illustrates this kind of intervention.

2.1.2 Groupe URD and the LRRD programme

Groupe URD (Emergency Rehabilitation Development) was founded in 1993 with the aim of improving our understanding of the complexity of emergency contexts and developing new operational procedures. Its activities are based on a learning cycle: field learning through research and evaluation, capitalising lessons learned, development of tools and methods, dissemination of these lessons and tools through training, publications and conferences.

The Linking Relief Rehabilitation and Development programme (LRRD) is a two year project funded by the EC. It aims at drawing lessons from current experience to inform policy and programmes, for both NGOs and governmental institutions in Afghanistan. The LRRD project focuses on the five following sectors: rural development sector (Agriculture/ Water, irrigation), urban development sector, health sector, nutrition and education.
2.1.3 Solidarités in Yakawlang district, Bamiyan province

2.1.3.1 General objective

The rural development project in Yakawlang district, led by the Solidarités-GERES consortium, began in September 2004 and is due to last a total of 36 months. The total budget is €1,675,000\(^7\), of which 90% will be funded by the European Commission.

In the grant application form submitted to the European Commission, the consortium fixed the following project objectives: “The project intends to support the rural development of the Yakawlang district in order to allow the local population and the most vulnerable people to be self-sufficient again for food by giving them the means to increase their traditional source of income but also to develop new sources of income by proposing and promoting alternative rural activities such as horticulture, trade and other rural services”.

2.1.3.2 Main activities

The main activities can be summed up as follows:

- The rehabilitation of agricultural infrastructure (presented below)
- Training programmes for farmers: On-site training programmes are provided in demonstration farms. Greenhouses and potato cellars are constructed, and emphasis is given to community-based seed production, multiplication and marketing systems.
- The rural trade exchange improvement by: financial and technical bulletin boards, collective purchase groups, reinforcement of private sector for agricultural services through support to local agricultural firms and shopkeepers.
- Micro-projects dedicated to the most vulnerable households.

The rehabilitation of agricultural infrastructure component covers two areas: the Shaman plain flood control and the rehabilitation of traditional irrigation network. In 2005 five micro rehabilitation projects commenced. The aim is to finance 90% of the total cost of material and workforce required. This leaves 10% which represents the participation of the villagers in the work. The ceiling investment must not exceed USD100/jerib. The communities are entirely responsible for the implementation of the works, even the choice of contractor and procurement of materials. In 2005, funds have been allocated to the rehabilitation of a dam and four canals, although they can also be used for water catchment or any infrastructure used for agriculture as underground water intakes, protection walls, etc. The Shaman plain flood control project should extend the irrigated land by 500ha.

This present study focuses on the Shaman plain project.

2.2 SHAMAN PLAIN FLOOD CONTROL PROJECT

The rock heap that Solidarités proposes to dig out is indicated by “natural dam” in Figure 8 below. This area lies 3.7km downstream of the plain. The objective is to decrease the level of the water table in the plain and to achieve this, Solidarités plans to dig the natural dam and the river two meters deeper, which should improve 500ha out of the total 2,400ha of land.

\(^7\) USD2,010,000 (100,500,000 afghanis). The exchange rate used for this report is: EUR1 = US$1.2 and US$1 = 50 afghanis.
This drainage project was identified in May 2004 based on the results of the Shaman feasibility study. At this time, both the local authorities and local communities submitted requests to Solidarités for the drainage of the Shaman plain. After a short initial assessment, this project was selected by the committee responsible for “Rural Development Support in Yakawlang District” before being presented and accepted by the European Union for funding.

Due to the intermediate size of this drainage project and the lack of preliminary data a gradual methodology has been implemented including a participative approach. Indeed, the size of the project is too big (500ha) to simply copy the system used for the rehabilitation of traditional irrigation networks. Moreover, the beneficiaries do not have sufficient understanding in drainage systems as opposed to irrigation projects. On the other hand, the drainage project is too small (budget of €100,000) to merit a feasibility study being carried out by an external Design Department, as the cost of these services would use up the entire budget.

“In order to overcome these constraints, we implemented a pragmatic methodology gathering observations, interviews and scientific data based on three years implementation, using the lesson learned in the field to adapt the following steps.” (Solidarités, 2005)

The project review is summarised in the figure below.
It is worth pointing out that this project was initially requested by the local population and indeed, they have been pushing for this development work to be carried out for some years. For the villagers, the plain is a wet territory that they are continually attempting to dry. The local population fully supports the project and their experience shows that the project corresponds to their needs.

When Solidarités started this project they were quickly confronted with the problem of having very little data. Their solution was to carry out a first phase as an on-site trial. Nevertheless, it was still difficult to predict precisely the exact impact on the hydrological functioning of the plain and the river.

Local authorities have requested that the Shaman plain be drained. Solidarités signed “a contract of assistance with the contracting Authority represented by the Governor of Yakawlang. According to this contract, the governor has the responsibility of implementation, especially in the areas of landownership and water management”. Furthermore, an agreement has been signed with 50 representatives of Shaman villages.

In 2004 Solidarités designed the project and, at this stage, only the district and provincial government institutions were involved, rather than central government in Kabul. Besides, the government was undergoing a process of reconstruction (both institutions and policies) and new bodies have been created. While communities were expecting the project to begin and to develop their lands, the National Environmental Protection Agency (NEPA), answerable to the Ministry of Energy and Water (MEW), delayed the project8 until further studies were conducted to assess the impact of implementation, such as on the environment. However, Solidarités was unable to carry out a suitable hydrological study due to a lack of ex-ante data. The NEPA’s decision resulting in twelve months delay, with phase 1 works due to commence in autumn 2006 (initially planned for autumn 2005) and be completed in December 2006.

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8 Reasons of pending asked by the NEPA are based on concerns related to the environmental impacts and to the use of explosives to dig the canyon.
Phase 1 concerns the excavation of materials blocking natural water flow in the canyon downstream of the plain. Moreover a rehabilitation of the drainage system network is planned in autumn 2007 (phase 2) in order to better adjust to the new water profile scheme in Shaman plain itself. These works will be aimed at increasing the value of first phase works in the canyon by better management of water and land in the plain itself. The project will proceed to the second phase only if the results of the first phase are positive.

This delay had several consequences on the course of my study. As the first phase was planned for the autumn 2005, it should have been possible to assess the first impacts and to discuss the implementation of the second phase with the communities. Several aspects of the field work had to be changed and contact with local communities was difficult because they were disappointed by the delays. In fact, for a few weeks, Solidarités was uncertain whether the project was actually cancelled or only delayed.

2.3 CASE STUDY AND KEY ISSUES

2.3.1 Objectives of the study

At this point in the process it was still possible to identify a set of technical issues concerning the hydrological impact, including: What is the likely impact of only digging out the Pool Sanghi? To what extent will flooding be reduced? Will sediment fill in the rivers and canals? However, the purpose of this study is not shed light on these particular issues. It is worth bearing them in mind and acknowledging that it is not possible to precisely predict the impact on production systems. These issues need to be clarified when the project is underway.

Nevertheless, other issues related to the evolution of production systems, social organisation and land tenure remained and Solidarités was interested in carrying out an overview of the general impact of this type of project, including research on the current situation in Yakawlang and predictions on the overall project impact. The purpose of this study is to assist Groupe URD and Solidarités in this process.

The implementation of a rural development programme, such as that implemented by Solidarités in the Yakawlang district, is likely to have an impact on local dynamics in several ways. It is therefore important firstly to understand and analyse current local farming systems and farmers’ practices and, secondly, understand the impact that the implemented activities will have on the target population and to capitalise this information.

The project will firstly have a physical impact on the territory. These technical issues will not be covered by this study. We assume here, that the floods will be controlled by the works and we are interested in looking at the impact of flood control on production systems and social organisation. Solidarités wants to avoid major problems in project implementation in terms of agricultural and social issues, and are also interested in planning what activities need to be carried out in the future to ensure sustainability.

To do so, the objectives of this study were defined as follows:

- Carry out an analysis of the agrarian system in the Shaman valley (concerns both Solidarités and Groupe URD).
- Acquire a good understanding of the different rules that apply to the social management of water (concerns both Solidarités and Groupe URD).
- Carry out an impact study. Given that the improvements to irrigation infrastructure will increase land suitable for cultivation by around 25%, assess potential changes and impact related to Solidarités’ intervention (mainly concerns Solidarités).
- Recommendations: The aim of this study is also to put forward recommendations in order to improve the current programme design (mainly concerns Solidarités).
2.3.2 Key issues and assumptions

We can define the main question as follows: “What are the predictable impacts of the redevelopment of a territory?” In order to evaluate such a question, a comprehensive view of the context of intervention must be attained.

Once the project is complete and the landscape in the Shaman valley has been physically altered, we can assume that farmers will modify their production systems with the improved drainage and irrigation networks.

The other main issue is related to the social organisation of this territory. Will the project have an impact on current social organisation? Will this process generate any new conflicts? Will local communities succeed in managing the new system?

First, we can divide this general question into several themes as illustrated in Figure 10.

**Figure 10: Main issues related to territorial redevelopment**

![Diagram](source: David Lety)

2.3.2.1 Physical alterations to the territory and impact

Solidarités expects that the increase of water drainage will improve cultivation techniques. Additionally, the Shaman project should reduce the amount of salt present in the soil, which
currently represents a major constraint for crop production. **These factors should lead to an increase in yield.** The heterogeneity of the agronomic potential of the plots must be taken into account during the analysis of the expected impact. Salt problems occurred and a large area remains uncultivable\(^9\). First, it is necessary to understand the precise causes and origins of the salinity levels before assessing to what extent drainage could resolve this problem.

### 2.3.2.2 Agricultural practices

It is important to assess the impact that draining the Shaman plain will have on the farming activities. *Given the different types of production systems, the project can expect to have an impact in the following areas: cropping, stockraising, work and time organisation, incomes, use of pasture, amount of forages, of cereals and new crops.*

In order to assess how these systems may be affected, it is important to understand how the system is balanced and the logic behind it. In this analysis, we have to look at the diversity of geographical zones and of the practices adopted by farmers.

### 2.3.2.3 Unequal distribution of land

Land distribution varies from village to village in relation to local leaders. In some cases, it appears that the village has only one landowner and all farmers are sharecroppers\(^10\). In others, there are several types of small properties ranging from 0.2 to 1.6ha\(^11\). In all villages, both landlords and landless are present. The concentration of landlords has increased since the war and the number of landless is also increasing\(^12\). Given this situation, different strategies can be identified. Temporary and definitive migration forms part of the Hazara social organisation\(^13\). Migrants choose to work mostly in Iran and Pakistan, or elsewhere in the region. The landless are more likely to migrate and their revenues contribute significantly to the family economy\(^14\). On the other hand, landlords are increasingly installing motorised mechanisms (like threshing machines, tractors, water pumps, etc.). Land distribution seems to be one of the main distinguishing social features.

One main question is **whether the project will restructure existing land tenure and how?** *What tactics or strategies are different types of farmers likely to adopt in relation to the power struggle? What types of inclusion and exclusion mechanisms are likely to emerge? According to the land tenure and related dynamics, what processes will emerge as a result of the project?*

### 2.3.2.4 Social organisation and power struggle

Social organisation and the power struggle are two areas where the project is likely to have a major impact (will the project create exclusion or inclusion forces, and with what consequences?). Some assumptions and questions that need to be taken into consideration concern the relationship between the governor as a representative of central power, the previous local commander and the rest of the population and how do these relationships influence the local social organisation. We can qualify the relationship between landlords and sharecroppers as clientelism. We may study the current relationship between these two categories. The assumption is that in the past there was an exchange of services whereby landlords provided protection and access to land in exchange for work from sharecroppers.

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\(^9\) Pascal, P.
\(^10\) Bellet and Cousseau, 2000
\(^11\) Franc and Versraete, 1998
\(^12\) Agrarian sector review, Robin, G., 2004
\(^13\) Monsutti, A., 2004
\(^14\) Pascal, P.
and the legitimacy of the landlord depended on their fulfilling this function. Is it possible to draw any comparison with new power holders?

**What impact will the project have on the specific socio-geographic organisation and on local relationships?**

Moreover, analysing potential project impact raises the question of nation building. New institutions are being created in Afghanistan, notably at a national level, and government institutions are looking to control the activities carried out by NGOs, an intrinsic part of the transition from emergency to development. Moreover, a new framework has been established for NGO interventions, causing them to change their approach. The government has also begun to request that NGOs conduct more in-depth studies prior to implementation, as is the case for the Shaman flood control project.

**Given the transitional state between emergency and development, what is the likely impact of the new intervention framework for this type of project (i.e. increased dependence on central government)?**

**2.3.2.5 Natural resources management**

In Afghanistan, land and water rights are not governed by one legal body, which is a common feature of Islamic countries. Rights that are currently in place are likely to be a combination of different sources that have built up over time. To understand these rights, it is necessary to take into consideration all the different sources of right. While each nation was becoming integrated into the Muslim empire, it adapted its own principles to Muslim law.

**Several laws can be distinguished in Afghanistan.** Customary law is established through community practice and adheres to group norms. Religious law, the sharia is laid down in the Koran. Civil law is based on a civil code derived from Islamic law with directives related to property. State laws have been passed by Afghan rulers over the years in the form of decrees or edicts. Finally, several constitutions have been drawn up, the most important being that of 1964 and forms part of the Constitutional law. However, it offers little guidance on land rights.

**Which law presides, how has it been constructed and what impact will this project have on the way laws are established over time?**

Different land classes can also be identified:

- **Government land.** The constitution specifies that these lands belong to the government, but in reality, their current status is unclear.
- **Public land** belongs to the nation as a whole but falls under the control of the state.
- **Private land** is defined as the property of an individual landowner.
- **Communal land.** Conventionally, communal land is owned by the community but in practice, khan families have superior rights.

The drainage will change the physical characteristics of the land according to the different land classes. Will the project exacerbate problems or improve the situation?

15 Bedoucha, G., 2000 in Leblanc, J.M., 2002
16 Bruno, H.
17 Alden Wily, L., 2003
18 Alden Wily, L., 2003
2.3.2.6 Local organisations and resources management

Disputes have arisen due to unlawful occupation of land by commanders\(^{19}\). In the province of Bamiyan, from the beginning of January 2002, 150 land cases were heard over an 18-month period.

In the central Highlands, land disputes in general tend to involve conflict over pasture between the Kuchis and Hazaras. According to Solidarités, there are no such problems affecting the project in Yakawlang region. However, **land is the main cause of conflict.** Commanders have taken fertile lands and redistributed them or appropriated them for themselves. Moreover, records have been lost during the war and the current administration is too weak and the political situation still too fragile to establish strong land policies and land reforms. Thus, land management is at the heart of the agrarian situation and the leadership question as a whole, and it is a key issue at stake regarding the legitimacy of central government.

Case studies give insight into the role of village institutions in relation to water, livestock and pasture management\(^{20}\) and provide an overview on the current situation, power struggles and the role of each player. In one case, pastures were clearly defined; in another, the person in power had ploughed traditional pasture areas depriving flocks of access to pasture.

**In order to understand land pressure, it is interesting to examine to what extent access to pastures and to water has evolved. It is important to establish what institutions and organisations exist at village level and valley level?**

The following hypotheses are based on the assumption that the project will effectively control floods and salinity:

**Production system.** The control of salinity and floods should lead to an increase in yield and should improve the general level of agricultural output.

**Land use** may change as a result of physical modifications to the territory.

**Land tenure** is likely to be restructured and different tactics and strategies will emerge amongst the farming community in light of this changing power struggle. Additionally, different types of inclusion and exclusion mechanisms (conflict, etc.) may arise.

**Social management of natural resources.** According to the spatial repartition of the population, the rights of access to the different territories and predominant laws, exclusion and inclusion phenomena are likely to emerge.

**Institutional coordination.** There will be an increased need for better coordination amongst existing institutions and organisations at both the village and valley levels.

### 2.4 METHODOLOGY

**In order to carry out this study and analyse the main issues, a ‘systems analysis approach’ was adopted** covering the following domains: agriculture, water and pasture management, land tenure, agricultural development of the territory and social organisation at several levels (families, villages, plain, district and emergence of state).

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\(^{19}\) Alden Wily, L., 2004  
\(^{20}\) Pain, 2004
The objective of this study is to understand the diversity and the dynamics of the system. To do so, several methods and research tools were used:

- An evolutionary approach covering several domains highlighted the main dynamics and the actual diversity in land and water management. Semi-directive interviews were held with the oldest villagers about general organisation, history of the region and agriculture.
- Actor-oriented evaluation of the project by participating in the community mobilisation meetings.
- Drawing of canal networks and land use by means of GIS on the ground and satellite photo analysis by GPS.
- Typology of villages with land in the plain or who use the plain.
- Case studies of these villages looking at natural resource management, and more precisely, land tenure and farming systems.
- Study of farming systems and typology to underline the strategies and assess the impact of the project at this level. Semi-directive interviews were carried out with diversified samples of villagers about their activities and production systems, and their role in the different organisations.
- Impact assessment, perspectives and recommendations.

Solidarités has a fully-equipped base (electricity, internet, etc.) in the bazaar of Yakawlang (Nayak) with a team of twenty Afghan staff and a couple of French expatriate. A translator was engaged for the entire training period and a motorcycle was at our disposal. We were autonomous and it was possible to spend time over night in the villages. These good working conditions greatly facilitated our fieldwork. Time was divided between field enquiries and writing up our results in the office.

From the outset, Solidarités had particularly requested a land use map and two weeks was spent ground truthing (GPS) for this purpose. The map was drawn by Gecosat. This time proved useful for improving our knowledge of the whole plain and it was possible to conduct enquiries at the same time.

The first phase of work (excavation) was planned for August 2005 and the first results were to be presented to villagers in December 2005 in order to discuss the second phase of work initially planned for 2006. However, due to the delay in the project timetable, the first phase was postponed until 2006 and this made it was impossible to convok the villagers. A field visit was organised with UNEP, NEPA and representatives of the villages to present the project and our first findings. However, fieldwork became increasingly difficult as local communities were frustrated with the delay. A number of semi-directive interviews were cancelled whilst awaiting NEPA’s decision.

In total, eight villages with lands in the Shaman valley were visited for community mobilisation. Visits took place with one of Solidarités’ extension officers. Introductions to the councils took place at the start of the study. In total, roughly 30 villages have land in the Shaman valley. Semi-directive enquiries were conducted in 20 of the 30 villages concerned by the project. This allowed us to highlight the main dynamics taking place in the villages and study issues related to common resources and social organisation, as well as the characteristics of each village and any recent changes. Moreover, visits were carried out to the high plateaux (aylaks) where Shaman plain villages have several compounds and two villages located in high plateaux. These areas are located at a distance of between 20-60km from Nayak. These investigations provided an overview of production systems used by most of the farmers within the overall territory.

Additionally, one village, downstream of the canyon was visited to speak about the flood problem and the potential negative impacts of the project. Other villages were visited in order to draw comparisons with the situation in the plain and in other valleys. Time was also spent
with Solidarités’ civil engineer in order to gain insight into the rehabilitation of irrigation canals in other villages (four projects). All of these enquiries focused on general issues and the information that they generated enabled us to draw up the typology of villages. Then we interviewed around thirty five farmers to understand production systems and draw a rough typology of farm management strategy. Some of the enquiries mixed general issues and individual case studies.

The ground truthing had to cover the whole diversity of the plain. Around eight full days were spent in the plain in order to analyse the satellite picture. This work gave us a good overview of the land use and it was also the occasion to have informal discussions with farmers.

I also participated in the monthly meeting held by Solidarités for expatriate staff and in some of the weekly meetings held by Afghan staff in Yakawlang. This gave me an overview of Solidarités’ activities and the constraints faced by staff. A meeting was held for the Shaman plain project for all representatives of villages with land in Shaman plain. Another meeting took place with the NEPA, UNEP, the district Governor and some representatives of the Shaman villages. During these meetings we presented our first findings and discussed the issues of community mobilisation and institutional coordination. In total, we presented our assessment on three occasions to Solidarités staff in order to guide and confirm our fieldwork. The results have not been presented to the villagers due to the fact that the project is pending. Finally, this report was written and our findings were presented formally in the Faculty of Agriculture of Kabul and in the Ministry of Agriculture as part of Groupe URD’s LRRD programme. Other informal presentations have been carried out with AREU and the EC21 who gave us advice on our work.

Each interview conducted in the field was written up and the information has been analysed through map drawings, Excel tables and the GIS. To present all this data, we shall firstly highlight the main dynamics and evolutions of the Yakawlang region.

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21 Afghanistan Research and Evaluation Unit and the European Commission.
3 DYNAMICS AND EVOLUTIONS OF YAKAWLANG REGION

In this section the main dynamics and evolution taking place in the Shaman plain will be presented. With this information, it was possible to formalise the questions, problems and hypotheses raised at the beginning of the case, and also to rule out any other questions.

In terms of dynamics in the Shaman plain, research was carried out on the following topics: political structure, social organisation in the villages, agricultural development and land tenure over the past 100 years. Five main periods were identified in the analysis of regional evolution in Yakawlang as highlighted in Table 1 below. Annexe 4 presents a more complete history of national events.

Table 1: Comparison and analysis of national and regional (Yakawlang) events

<table>
<thead>
<tr>
<th>Period</th>
<th>National events</th>
<th>Events in Yakawlang</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 1880 (reign of Abdul Rahman Khan)</td>
<td>In 1747, Ahmad Shah Durrani was elected and founded Afghanistan. Collision between the expanding British and Russian Empires significantly influenced Afghanistan during the 19th century in what was termed ‘The Great Game’.</td>
<td>Local conflict and invasions between Mirs, several qalan (‘big men’), Turks and Uzbeks.</td>
</tr>
<tr>
<td>Reign of Abdul Rahman Khan (1880-1901) and after (until 1932)</td>
<td>The British and Russians officially established the boundaries of what would become modern Afghanistan. King Amanullah (1919-1929) introduced several reforms intended to modernise Afghanistan.</td>
<td>Persecutions and immigration of Hazaras throughout the Central Highlands and emergence of a central power.</td>
</tr>
<tr>
<td>Reign of Nadir Shah and Zaher Shah (1932-1970)</td>
<td>Nadir Shah succeeded to the throne and reigned from 1933 to 1973, helped by various uncles and finally by Daoud as Prime Minister.</td>
<td>Reforms were undertaken such as selling of lands in Shaman and there was an upheaval in social organisation as the Mirs saw their power decrease.</td>
</tr>
<tr>
<td>From 1970’s to the end of war in 2001</td>
<td>Daoud seized power in a military coup in 1973 and declared Afghanistan a republic. In 1978, Daoud was assassinated and in 1979, the Soviet army entered Kabul. This was the starting point of the Soviet occupation, which ended in 1989. The country was in the throws of civil war took place, and anarchy and warlordism prevailed. The Taliban took control of 90% of the country by 1998 up to 2001.</td>
<td>The war and successive conflict have left their mark on Yakawland, especially during Taliban occupation. During this period central power was lacking and regulations were no longer applied.</td>
</tr>
<tr>
<td>From 2001 to present day</td>
<td>After September 2001, which marked the end of the war and the withdrawal of the Taliban, a new state has emerged with significant support from the international community.</td>
<td>New local power structures emerge, such as administrations (Governor, Ministries delegation), and several programmes are implemented with substantial international funding.</td>
</tr>
</tbody>
</table>


3.1 BEFORE ABDUL RAHMAN KHAN

3.1.1 Invasions and local wars between Uzbeks, Turks and Hazaras

During the 18th century, Ahmad Shah Afshar was one of the first Kings in Afghanistan, who strived to unite local Mirs and chiefs under a central power. Most of Central Asia at this time
was the theatre of constant invasions and confrontations between several lords. Kingdoms were frequently swallowed up by other kingdoms and people were handed over into slavery. During his reign, Ahmad Shah Afshar imposed the first taxes on assets and property and was locally well accepted by people because he was seen as a protector.

It is difficult to pinpoint with certainty the different waves of population displacement at this time on the basis of villagers’ testimonies because their recollection of historical events is imprecise. Nevertheless, it is known that before Abdul Rahman Khan, the majority of the Hazara people lived in Ghazni, Uruzgan, Ghor, Herat, Kabul and Wardaks (see Figure 7), and one of the first influxes of Hazara people came from Kandahar.

Numerous Uzbeks and Turks were living in the region of Nayak (current central district bazaar of Yakawlang) and were mainly breeders but also cropped broad bean (bokuli). It is also understood that a minority of Saddat and Tajiks also settled in the region. One interlocutor informed us that “two or three hundred years ago” people lived in cave dwellings of which the ruins are still visible in several places (for example, near the Pool Sanghi). The Tajik inhabitants were responsible for building the first canal (near the village of Naytak) Khan Shôyi, a powerful Hazara landlord, was living in Waras (district, south of Yakawlang). He sent 3,000 soldiers to fight Uzbeks living in Yakawlang in order to gain control this region and to revenge the Hazaras of Uzbeks pillaging. It is said that Yakawlang remained deserted for two years but, after this conflict, Hazaras progressively returned. Growth in the population conflicts elsewhere encouraged emigration through the Yakawlang villages.

These events indicate the instability in the region, both in terms of local powers and population settlements, which helps explain why the region was colonised only relatively recently. The following period was much more stable.

3.1.2 Mid-19th century: conquest and setting up of Mirs

3.1.2.1 Confrontation and waves of population displacement

Figure 11: Succession of events in Yakawlang

<table>
<thead>
<tr>
<th>Wars, invasions</th>
<th>Mir Hussain</th>
<th>Mir Muib</th>
<th>Mir El Khoni</th>
</tr>
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</table>

Mir Hussain, who was driven out by his father from Saighan, came to Nayak in order to take advantage of the absence of any powerful leader and control the region. His son, Mir Muib, fought against the Turks and Uzbeks who once again attempted to acquire territories and against other Mirs. Mir Hussain acquired lands by force, but also by gift or compromise with villagers. The majority of local people were sharecroppers (dekhan) and they kept one fourth of the harvest for themselves, and the rest was given to the Mir. It is said that Mir Hussain built the first canals. His son, Mir El Khoni, built the fort in Deh Sulikh with its high towers and irrigation canals.

The Tajiks, Turks and Uzbeks were defeated but some of them stayed. For example, the Tajiks created Tajekan (not far from the present Tajekan), whose inhabitants lived in cave dwellings, Sar e Kanak and Dahan e Kanak (see Figure 12)²². Several waves of population displacement occurred bringing new settlers to the region, including Hazaras from Behsud. The waves of population displacement were primarily composed of different ethnic groups fleeing conflict in various different places.

²² Figure 12 is the only map indicating all the villages and the reader will need to refer to it throughout the report.
3.1.2.2 Period of divided local power

This period was marked by divided powers and split interests. The area in questions was under the control of the Mir El Khoni, who had settled in Deh Sulkh. Nevertheless, several villages next to Deh Sulkh were under the rule of important families. The heads of lineage or ‘big men’ were in conflict with the Mir and some might have been vassals.23

These powerful leaders did not necessarily control all the lands, nor all the people. In some villages, there were also smallholders cultivating from 2 to 10 jeribs.24

Power was intricately tied to land property and was highly fragmented.

3.1.2.3 Social organisation: the Mirs, sharecroppers and their activities

Each village had a head of lineage, a dôlxq or qalan, also known as ‘white beards’, who was responsible for making decisions in the village. Villages were ruled distinctly depending on the qalan in question. We assume that the different qalan came together under form of council, which may be the precursor to the so-called traditional shura. Nevertheless, these informal councils were mainly composed of heads of lineage who were also landlords.

As a result of the growing competition between the qalan and the Mirs, Mir Hussain instituted the doluga system. To control the qalan, who effectively became vassals, the Mir nominated a representative, a doluga, in every village, who was responsible for informing the Mir of the situation. Under the rule of the Mirs and Khans, the whole village was organised around a structured hierarchy with the Mirs at the top, a few representatives in the middle and sharecroppers lower down. “Society was dominated by powerful tribal chiefs: the Mirs. They had the lands and the production means. Their function was inherited from father to son” (Monsutti, 2004).

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23 For example, in Chardeh, Watapur, Dahan e kanak, Sar e Kanak and Anda the heads of lineage were ruling. Mir Hussain ruled over the entire region except Chardeh where Yasdan Barch ruled. They fought against each other but Barch remained undefeated. Yasdan Barch was head of the village, qalan (the ‘big man’) and the rish e safed (white beard) in his village. In the connecting valleys, other powerful Mirs were settled, such as in Zorin, where the Mir probably enjoyed the same degree of influence as Mir El Khoni. Another example is Mir Mossi Beck who was in conflict with Mir Il Khoni. Mir Mossi Beck ruled over the villages of Naytak and Gazak and began to build a canal in Naytak. Then, he fled the area.

24 One hectare = five jeribs.
Figure 12: Villages in Shaman plain

Source: USDMA Topographical maps, USAID, 1968-86
The Mir El Khoni took lands by force from many villages (including Naytak, Deh Sulkh, Baralak and Bakak). The relationship established between the Mir and the people could be on the basis of sharecropping or paying rent (ijara). This hierarchical system was more common than today because the Mir was unable to look after all the sharecroppers directly and it had the advantage of extending the amount of land under his control. **The Mir alone could not physically maintain power over his lands.** The doluga was responsible for renting land for the Mir. Under Mir El Khoni, people even had to request wedding permits from him and sheep or goats had to be offered in return. The Mirs appear to have had complete power over their people. **This hierarchic system (Mir-Doluga-Dekhans) can be qualified as feudal.** Even though Mir Hussain “acquired lands by offering protection to people”, most of the land was taken by force. Once the Mir had gained control of the village, the relationship can be defined as clientelism: protection was provided to villagers on the condition that they cultivated the lands and paid tax, pawoka, to their patron. Incidentally, “this structure did not evolve in Penjao and Waras” (farmer of Deh Sulkh), where instead a landowner rents land (ijara) to sharecroppers who work on his land. We can assume that this type of relationship persisted because of the remoteness of the area. Central powers are weaker as a consequence of the land tenure and the relations it has perpetuated.

**3.1.2.4 Development of farmland in Shaman plain**

First, the plain was cultivated by Uzbeks and several other tribes, such as Turks during the conquest period. Before Abdul Rahman, especially during Mir Hussain and Mir Muib, certain areas were cultivated during clement periods. It is important to underline the fact that land cultivation depended on flooding and drought patterns. At this time, ditches were dug (for example, in Marouf) and the main crop in the Shaman plain was wheat and barley because the plain was drier than it is today.

**3.1.2.5 History of Pool Sanghi**

The project implemented by Solidarités to dig out Pool Sanghi is not the first attempt. In Gazak, people said that in the past, a lake actually lay where Shaman plain lies today. An earthquake may well be responsible for the present situation, inducing the stone jam of Pool Sanghi. The level of water was much higher than it is today. People showed us ruined walls which used to be submerged and today are ten meters above the water level. These were apparently built around 150 years ago in order to increase the water flow whilst digging out the canyon. People used kolang and karang (pickaxes) to dig the canyon. **For local communities, the plain has a meaning. They believe that it is a wet territory which needs to be dry and controlled.** Villagers are interested in supporting Solidarités’ project to control the floods so that they can cultivate the plain which is coherent with local “territorial memory”.

Local power systems vary considerably according to the former social organisation and conflict. Indeed, the situation may be quite distinct from one village to another. The evolution of the power figure determines the current situation and has to be understood in order to assess land tenure and social organisation. The origins of the population are diverse and for a long time the region was not unified under one power, but remained a feudal and hierarchic society. Throughout the Central Highlands, this system has persisted depending on the successive influential powers.
3.2 1880-1902: REIGN OF ABDUL RAHMAN KHAN

3.2.1 Emergence of central power and waning of Mirs

Abdul Rahman Khan is said to be the first King who succeeded in uniting the whole country under a central power. He fought against most of the Lords and Mirs and he is known to have been particularly cruel towards the Hazaras, embarking on a persecution campaign throughout the country. He wanted to unite Afghanistan as a Pashtun nation (the word ‘afghan’ means Pashtun and is used with this meaning in Hazarajat). During his reign, he imposed a central power by gaining the submission of the Mirs and setting up an administration system to control the country, put common lands under governmental status and finally imposed taxes. “Due to the wars and conquest led during his reign, Abdul Rahman Khan ended the independence of Hazarajat” (Monsutti, 2004). Moreover, he made repeated attempts to exterminate the Hazaras and most of them migrated through the central highlands.

Under the rule of King Amanullah Khan and Habibullah, fighting still continued against the Mirs in the struggle to control all regions. “They put some of the Mir’s family in jail and blackmailed them in order to obtain allegiance” and to widen their area of influence.
3.2.2 Submission of local powers: building a central power

Abdul Rahman Khan fought against Mir El Khoni, who subsequently left to live in exile in Iran. Mir El Khoni was losing his power and his sons sold off some of the land. **At this time (end 19th century), anyone could buy land if they had the sufficient capital.** Since this time, varying sizes of land properties were held. Some of the poorest families had to sell land because they were unable to cultivate or pay taxes and a considerable number of land transfers took place. **Over time, the Mir’s power decreased due to the division of the land**25.

The state became increasingly centralised and powerful, with substantial land26 **under governmental control.** The whole of Shaman plain was requisitioned for royal army horses and a **tax system was introduced.** According to the amount of cultivated land per family in a village, an area unit was defined, namely daftar or xana or xâna e daftar, which corresponds to the amount of land owned by one family (average area per family per village). For each daftar or xana, an amount of tax was fixed.

Abdul Rahman Khan nominated a governor to Punjab and the ruling hierarchy appears to consist of few levels: under the King were the Arbâb and the Dolugas. This system persisted until the communist period. In the region of Yakawlang, the arbâb system was implemented, whereby Abdul Rahman acquired the lands of the Mirs and appointed Arbâb as representatives of central government.

3.2.3 Persecution and migration of Hazaras

Abdul Rahman Khan persecuted Hazaras in Behsud, Ghazni, Joghuri and Uruzgan and pushed them towards Yakawlang region. Other waves of immigrants arrived from Kala, Taïnadasht, Joghur and Behsud. The Hazaras settled in the Nayak region as their refuge. **The high density of Hazara population in the central highlands can be explained principally by the persecution they suffered during the reign of Abdul Rahman Khan.**

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25 We refer here to land in the foothills that has been cultivated for a long time.
26 This refers to the rest of the land, most of which is not irrigated (lalmi, plateaux and Shaman plain).
Abdul Rahman Khan fought against local Mirs, dismantled their territories and imposed a central government. Shaman lands fell under state control. Persecuted Hazaras took refuge in Central Highlands and bought lands from the Mirs.

From Abdul Rahman reign (1880-1902) central power and state construction

Abdul Rahman Khan fought against local Mirs, dismantled their territories and imposed a central government.

Shaman lands fell under state control.

Persecuted Hazaras took refuge in Central Highlands and bought lands from the Mirs.

Source: Personal enquiries

3.3 1930’S: NADER SHAH REIGN

3.3.1 Waning of the Mirs

Basing our findings on villagers’ accounts, it appears that the state became stronger gradually over a period of time, which commenced under Abdul Rahman and continued through the successive Kings. Moreover, this process affected the region to varying degrees depending on the remoteness as indicated by the implementation of a tax system. Before Abdul Rahman Khan, the area was controlled primarily by Mirs and local Lords. During his reign, Abdul Rahman Khan strived to dismantle this system and to implement a central power. His successors: Amanullah Khan, Habibullah Khan, Nader Shah and finally Zaher Shah also worked towards the same objectives. It appears that Abdul Rahman Khan was engaged in long-running conflict against the Mir throughout the whole country and we assume that the tax system and administration begun to be set up in his time. However, central power only began to influence certain areas, such as the region of Yakawlang, much later, under Zaher Shah.

Before 1932 (1311), there were no rules, security or regulations for selling and buying lands. Powerful men could acquire lands by force. Property titles occurred were introduced under Zaher Shah. For a long time, people were subservient to the Mir but gradually, under Zaher Shah, people were able to travel and had access to education. People became aware of their rights which partially explains the drop in the Mirs’ influence.
As the Mirs system began to wane, Zaher Shah introduced the Arbâb system. The Arbâb (or Doluga) provided a link between the government and the villages. The communities elected the arbâb from several important men. The Arbâb was responsible for transmitting general information to the government about the villages and the communities’ problems and both the government and villagers contributed towards his income. This system became more widespread during the reign of Zaher Shah and villagers nominated the candidate that enjoyed the best relations with the government. The Arbâb had to mobilise communities for collective works (such as road construction, etc.). Moreover, some conflicts (davâ), over land for example, were solved by the Arbâb. During Zaher Shah’s regime, a type of solidarity system existed whereby the Arbâb collected money from the richest villagers for poor families. Today, this type of solidarity system no longer seems to exist. Instead, in many cases NGOs fulfil this role of redistribution.

During the Mirs period, communities were mobilised by the landlords. Once the Mir lands had been divided up, so too did their influence shrink and it became increasingly difficult for them to mobilise the communities. Nevertheless, in some case, the descendants of Mirs and landlords were elected to the position Arbâb because the villagers continued to recognise their legitimacy.

3.3.2 Selling and purchasing of Shaman land: farming development

Since Abdul Rahman Khan’s reign, most of the land in the Shaman plain belonged to the government and was used by royal horses for grazing. Villagers were prohibited from cutting forage in the plain. Many Shaman lands were sold at the beginning of Zaher Shah’s reign. Each shura collected money from villagers and they received land in proportion to the amount of money collected. Only the villagers who had capital could buy land and so, progressively, most of the plain became private property. Since this date, people have built houses and developed the plain by bringing it into cultivation and digging ditches for example.

From the 1930’s to 1970’s, lands were cropped according to the flood pattern. Most respondents agreed that a larger surface area of the plain was cultivated in the past: “the grandfather saw the whole plain cultivated”, “half of the land was cultivated” (farmer from Deh Sulkh). We assume that from 1932 up to the 1970’s, the plain was largely cultivated, certainly more than it is today. Most of the people explained that half of their land was cropped leaving the wet areas for pasture. Nevertheless, we have to take into consideration that floods have occurred and farmers had to adapt agriculture to climate. In other terms, Shaman has probably been flooded several times during this period limiting agriculture activities. As a general trend, it appears that the plain has not been cropped to the same extent for thirty or forty years. Shaman lands do not appear to have been cropped extensively for forty years, as indeed, land use varied in terms of time and space.

Once lands began to be purchased by private individuals, villages have been constructed in the plain. At this time, people had been living in Shaman for two generations but then, in the 1970’s, water levels rose and villagers moved to the foothills. It is still possible to observe the ruins of unoccupied houses in the plain.

3.3.3 Stockraising development and transhumance

Over three generations ago, when more land was available, “the villagers of Deh Sulkh did not go to the high pastures (aylaks)”. There were not many families and, as a consequence, not many animals either. In the past, migration was unnecessary. Villagers are thought to have begun migrating with their livestock after Mir El Khoni. “A family had 10 to 15 sheep 45 years ago and with increase of the family and of their needs, they have 250 nowadays” (farmer from Deh Sulkh).
The historical background of villages situated within a very small region, such as Shaman plain, is likely to be very diverse. For example, in Gazak, rights of access have existed since before the reign of Abdul Rahman Khan. As far as people can remember, villagers migrated to summer pasture with their livestock. At this time, land access rights formed part of customary law with the various lineages. It seems that some families or tayefa have preserved the same rights since Abdul Rahman Khan. ‘New comers’ were able to buy rights before or during Abdul Rahman Khan’s reign and could then pass these rights on to their heirs.

Figure 15: The Shaman plain during Zaher Shah’s reign (1932-1970)

Source: Personal enquiries

3.4 FLOODS AND WARS FROM 1970’S TO 2000

Russians entered in Afghanistan in 1979, the war began and it is said that “the plain was flooded from this time”. Many people were unable to work in the fields and the irrigation network fell into disrepair. From 1979 to 2001 the whole country was in turmoil, many people died or migrated. The available workforce was severely weakened and the community organisation systems declined.

• Russian occupation
During the Russian occupation, the army entered the villages under the guise of maintaining security but people were not harmed and they do not harbour bad feelings about this incursion. Unlike other regions, the conflict was not intense. Nevertheless, several organisations and different factions emerged. All the mullah of the region invoked the Jihad to fight against the Russians and received support during the Jihad from the “Etefak e islami” which has since broken up into several factions, such as “Nasr, Sepah, Nasat”. After the invasion of Soviet troops in 1979, the ‘privileges of Mirs and Arbâb’ were abolished. The communist government set up a kind of village council but representatives were nominated
rather than being elected. **The Russians tried to impose an administration model that was eventually fruitless.**

- **The civil war and the local commandants**
  Two factions fought against each other in the area: Nasr and *shura*. Villagers remember this period as being very hard as "*they terrorized them to obtain food and killed animals to eat them*". Villagers were unable to intervene but this clash only lasted a short time. Yakawlang was secure until the Taliban incursion. At this point, the Hazaras mullahs were gathered in a single party, the *shura*, which was represented by Ayatollah Behishti. The *shura* then became part of the Hezb I wahdat, represented by Mazari and Khalili. The influential commandants gradually became less important because "people realised that they had misused their power and functions".

- **The occupation of the Taliban**
  In political terms, the *shura* which was set up under communist rule was abolished when the Taliban came to power. The Taliban entered Nayak in 1999 and 2000, when 300 villagers were massacred. The villages in the plain were alerted and some people succeeded in escaping into the mountains, but many stayed and were killed. Houses were burned to the ground and animals killed. One respondent told of how they stayed in the mountains close to their village, living in tents and came back at nights to irrigate their crops. Others escaped to Kabul and other regions. Families left their villages over a two-year period, and hid in the mountains in remote areas where there was no road access. In 2000, the Taliban burned all the houses and killed everyone in sight.

Nevertheless, the Taliban did not enter all of the villages in the Shaman plain and surrounding areas. People were killed and the bazaar was burned in Nayak, and Said villages from Nayak to the plain, including Katakha, Gird Bed, Dahan e Kanak and Tajekan. However they did not travel further west and no-one was killed in Deh Sulkh for example because the village was informed in time and they fled.

- **The consequences of war: destruction of villages, livestock and migration**
  Many families lost their flocks and were unable to replace them. The reduced livestock meant that many families no longer had any reason to go to the *aylaks* as they did in the past.

- **Floods and wars worsened the situation**
  It is worth highlighting the impact of the severe drought (1999-2001) in addition to widespread destruction as a result of the war. Most of the irrigated fields had very little water, although this varied considerably depending on the situation (for example, water was in abundance in Band e Amir valley but extremely scarce in the tributary valleys), and yields were very low. Rain-fed plots did not produce anything. As a consequence, people were obliged to sell most of their flocks and herds during these three years of drought. Farmers were affected to varying degrees: some had to sell all of their reproductive females; others sold half of their flocks. The situation was worst for the poorest sharecropping families.

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**Wars effectively wiped out central government but local organisations and movements led by several different leaders prominent figures can to be taken into account. Political movements and parties gained in strength during the wars. Nevertheless, besides these political movements, all other forms of local organisation were non-existent. Although wide variations can be found from one village to another, it appears that local commanders did not engage in taking lands or animals during the war.**

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3.5 THE POST-WAR PERIOD: FROM RELIEF TO DEVELOPMENT

3.5.1 New actors and the new power struggle

- Electoral process, the beginning of democracy?
The post-war period is marked by the attempt of the international community to establish a democratic system and government through the Bonn conference. The most recent parliamentary elections in October 2005 are an example of this democratisation process. In the region of Yakawlang, a local mullah got into power during the Russian occupation and civil war and formed an army of between 100-2,000 soldiers, before standing as a candidate in the last elections. Members of the armed forces before the Russian invasion gained power during the revolution. This mullah and other similar candidates have the support of their partisans to acquire votes, and are working at gaining the recognition of the most influential families (mullah, educated, landowners) who then influence the whole village.

Two women from powerful families also stood as candidates in the Yakawland area. One has strong ties with networks in Iran and the other is the sister of the Police commander of the province of Bamiyan. They both received the support of large political parties (Khalq Parcham, Modjahidin Khalk).

In most cases throughout the country, the main candidates at these elections were former commanders, mullahs, descendants of Lords and Mirs. The above examples highlight the fact that candidates often belong to a large network of acquaintances. They are able to gain recognition in several ways. Migration also plays an important role in terms of widening these circles and making connections in Iran for example. In general, former leaders are gaining their legitimacy nowadays through elections.

Nevertheless, one should not assume that these candidates are necessarily winning the elections. New forms of social organisation and funding represent an alternative means of gaining legitimacy for new kinds of people, such as educated people. The situation varies considerably in the different villages and areas. The commanders have not necessarily retained their power since the end of the war. Nowadays, the chief rai's or the namayenda are emerging as new powerful leaders. The growth in NGO activities meant that people with strong external contacts, such as with NGOs, could also claim stakes in the new power game. The means of winning recognition are evolving from taking over command by force to the granting of funds. In some cases, the same people are still in power having adapted their means of winning recognition, in others not. People with influence in Afghanistan are changing.

- Implementation of the village council by National Solidarity Programme
Throughout the country as a whole, World Bank funds are being used to implement the National Solidarity Programme (NSP) through the Ministry of Rehabilitation and Rural Development (MoRRD). In Yakawlang, UN-HABITAT is responsible for overseeing NSP programmes. Households are gathered into clusters (each household benefits from US$200 for the project). A council, the shura, is elected to manage project implementation from start (budget) to finish (monitoring). Within the present institution building process, these councils will be under government control and the overall aim is to build a structure of representatives at different levels: villages, district, province and national. The role of the new shura system is to organise collective works and community projects, and is currently focusing on improving communication between the various government bodies.
There seems to be some confusion over the term *shura* which translates roughly as ‘village council’. Most authors refer to ‘traditional *shuras*’ but in our case study, this term remains unclear. In the past, the *shura* was a council of landowners, even if there was only one lord and, in most cases, it is difficult to talk about a council, in the strict sense of the term. Some people say that these councils are much more ‘democratic’ nowadays thanks to the new system of participation. For the sake of this report, the term *shura* will be used to refer to former village organisation and council to refer to the NSP councils.

As in the case of national elections, there are several different scenarios for the outcome of council elections. In some cases, people who previously held important positions in the village are being elected. In several examples, families of former big lords are at the head of these councils. *As for the democratisation process, former influential people are also being elected to NSP councils*. On the other hand, educated people or simply people who are well appreciated in the community, may also play an important role. In some cases, these new councils are being run by younger people.

To a certain extent, the former power hierarchy (*shuras* or lords) still manages traditional issues such as canals and collective work. The main difference now is that these new councils are managing funds to implement projects and have widened their external relations.

- **Government institutions**
  Governors are elected at both the province and district levels as representatives of central government. They are linked to the police for security issues and are responsible for all the internal affairs of their administrative territory. In Yakawlang district and in Bamiyan Province, the governors have control of the territory and, in general, they are the accepted authority which cannot be said for many other provinces in Afghanistan. Even where these authorities exist, their impact on restoring public infrastructure is limited by lack of funds. As a result, most activities in this domain are still being run by international organisations.

  Yakawlang’s head district is the bazaar of Nayak. Different public services are available, including a hospital run by a Hazara NGO and various primary and high schools. It is worth bearing in mind that “*the condition of the sharecroppers is better nowadays because the children can go to school and they can work outside and get other revenues*” (Nissar, a sharecropper in Deh Sulkh). “*In the past, the sharecroppers were illiterate*”. We assume that education is one of the most important factors affecting the country given that most children can now go to school, even girls. This will have a significant homogenisation impact on society because, to this day, education remained one of the main social differences. However, poor road infrastructure and limited access to many villages remains a huge problem. Since the summer of 2005, a bus now runs from Shaman plain up to Bamiyan.

- **External funds, organisations and their impact**
  Afghanistan benefited from large international assistance since the withdrawal of the Taliban. To follow is an overview of the different organisations and projects carried out in the Yakawlang region and in the plain of Shaman. In Yakawlang, most of the assistance is provided by the World Food Programme, which has been active in the region for over twelve years. Additionally, many NGOs, including PSD, CCA, ARO, RSDO\(^{27}\) have benefited from WFP funds, implementing food-for-work programmes to construct roads, schools and canals. The other main organisations present were the UNHCR (four years), the World Health Organization (three years), OXFAM from 1988 to 1999 and Shoada (a Hazara NGO).

\(^{27}\) We do not know here the meaning of these acronyms
• Activities led in Pool Sanghi (Canyon downstream Shaman)
In our field of interest, the plain of Shaman benefited from several activities especially in Pool Sanghi. In 1993, five tons of wheat were distributed to villagers in exchange for their participation in digging Pool Sanghi. In 1998, an Afghan NGO, financed by WFP took over these operations. The last attempt at digging Pool Sanghi was Solidarités in 2004 who subcontracted the excavation work out to a local private company.

UN-HABITAT and NSP programme
UN-HABITAT is in charge of the NSP budget in the district of Yakawlang. In Naytak, a hydro-electric project with a capacity of 80kW which should be capable of lighting 300 houses is currently being financed with a budget of US$23,000. In Dahan e tarnuk, an underground dam for irrigation is under construction.

• Communities’ perceptions of this type of aid (a long term project or direct help)
In many cases, cash-for-work projects have been widely implemented, although, nowadays, most people are aware of the problems related to this approach, such as community work now comes at a price and clientelism. Solidarités has also adopted these methods for the rehabilitation of irrigation infrastructure (community participation represents 10% of the total budget, in line with the level set by the NSP). As for the NSP programme, the community manages funds in the general interest. Nevertheless, in some cases, projects are being designed by external actors with the result that they do not always correspond to the villagers’ basic needs. In this case, people are primarily interested in working in order to earn money rather than the project itself and expect to be paid for work which previously would have been an individual or community initiative.

It is worth considering the impact that this injection of cash into the community is having on traditional organisation systems. The cash distribution system means that collective work is becoming increasingly merchandised. If external aid were non-existent it is possible that community mobilisation would have a better chance of re-establishing old networks. For example, local communities were at first granted aid from Solidarités and the Governor to rebuild a primary canal in spring 2005 but they finally repaired it themselves. When primary needs are affected, community mobilisation remains extremely efficient.

The direct impact of NGOs on the local economy with the employment of local staff, buying furniture, accommodation and renting local vehicles is sometimes more visible for local population than their activities, such as training. Moreover, local communities often do not understand the working methods used by NGOs which leads to resentment: disillusion, suspicion, rejection, distrust, etc. “A lot of NGOs came, asked questions and did not do anything.” (Villagers in Sum e malek and Sum e takhak). “The local population rarely differentiates between NGOs, donors, UN agencies and other foreign actors, who are all grouped together under the term NGO” (ALNAP, 2003). There was a massive influx of aid into Afghanistan following the withdrawal of the Taliban and an emergency approach was adopted for these interventions with ample resources, direct gifts, etc. “In some respects, affected people appear to be spectators of aid, unsure how to engage proactively with the aid community” (ALNAP, 2003). It is necessary to take into account the current context in which NGOs, such as Solidarités, are trying to adopt a development approach as they try to field the resentment from local communities. At present, it appears that the community does not fully understand the purpose of the fieldwork. **NGOs are trying to change their methods but the local population still sees aid as a donor-beneficiary relation.**
3.5.2 Demographic growth towards land intensification

3.5.2.1 Migration issue: refugees, returnees, economic migration

The war affected the Hazaras of Yakawlang mainly during the Taliban regime. At first, people migrated to neighbouring regions, Kabul and abroad. However, population displacement varied in terms of distance and time according to the social category and the remoteness of the villages. The situation is complex and the conditions of return merit further investigation. Nevertheless, it appears that as a general rule, the status of Afghan refugees in Iran was the same for all Afghans. Afghans in Iran felt rejected by the Iranian people and a loss of social status. Nevertheless, on returning, they regained their previous status and this indeed represents one of the main incentives for returning to their country. Moreover, whereas some families succeeded in legalising their situation, others did not. It seems that many workers in Iran did not earn enough to save money and invest when they came back. On the other hand, some returnees were able to invest in shops, minibuses for public transport or in agriculture (mechanization).

The economic situation varies considerably according to the condition of the migration. In many cases, on returning people begin to cultivate their lands again that would have been looked after by a close relative during their absence. Of a village of seventeen families in Shaman, only eight are currently living in the village and the remaining nine are living in Iran. Most of them rent their lands (ijara) but they are not ready to sell because they represent security should they have financial problems. Some invest by purchasing animals, others have to start from scratch again. Many Afghan families still remain in Iran, and although we can assume that some will return many of them will probably stay. One of the farmers shares the revenues of the land with his brothers, one of whom is in Iran. He is a basic manual labourer and is unable to send much money to his family.

“Migration opens up people’s minds. It makes them aware of their situation in Afghanistan. People paid less attention to the problem of ethnic difference. It was a means of discovering modern facilities which was also an incentive to stay in Iran. Moreover, young people who spent their childhood in Iran will not accept to live what their father lived in Afghanistan. It is also a desire to lead another way of life. Migrants can receive education, learn practical skills (carpenter, driver, etc.) Young people are also aware of the low availability of lands and the limited perspectives offered by agriculture” (Abbas, Translator).

It is possible to say that migration opens up possibilities of innovation, but “In Iran, Afghans worked in large farms with modern means on vegetable production but these crops cannot grow in the Central highlands. Moreover, villagers lack of cash to invest in motorised means” (Abbas, translator).

Migration is a strong factor of change in this rural society. It is a means of gaining recognition as people learnt new languages and acquired new practical skill which are valued in Afghanistan.

Moreover, the return of large numbers of people is also having an impact on the amount of land available. Even though some people have succeeded in finding work in non agricultural activities, many villagers remain without employment and only small plots of land for their subsistence.

3.5.2.2 Legacy and land property transfer: land tenure diversity

Since the lands of Shaman were bought up (1932 onwards), few changes have occurred with land being divided amongst heirs.
In general, sharecropping families remain sharecroppers because they have not benefited from land transfers. The lands in the foothills have not been sold, or bought, only inherited. Only a small proportion of land has been sold in the past because people were unable to pay state taxes.

It is possible to identify **two main trends in the evolving land structure**. The first concerns villages which were ruled by a powerful Mir or landowner who, under the former hierarchical society, had many sharecroppers working for him. These feudal societies have been dissolved but the land has been divided amongst the descendants of the landowner and other new families, and the families of sharecroppers remain landless. In these villages, the proportion of landless families has increased.

The second case concerns villages in which a head of lineage had large plots. Nowadays, the villagers are all descendants of this lineage and the lands have been divided between them. In these villages, most families have land but the size of the property depends upon the number of children.

**Figure 16: Evolution of farms in the case of Deh Sulkh (division of foothill lands)**

As an example, in **Deh Sulkh**, twenty five families are landowners of around 280 jeribs. Properties were sold 60-80 years ago, at least two generations. Sixty years ago, the biggest landowner of Deh Sulkh had 40 jeribs (eight hectares). Other families had fifteen-twenty jeribs. Today the richest families in Deh Sulkh have no more than ten jeribs each and 200 animals. In Deh Sulkh, 20% of the families have lands on the foothills and in Shaman, 60% have only Shaman lands and the remaining 20% do not own land (in the figure above, Shaman land is not distinguished). The larger landowners divided their property between their sons and daughters (one part for men and half for women). Within two or three generations, the last generation is likely to inherit only one jerib of their grandfather’s fifteen jeribs.

In Chaman I joguri, of 21 families, twenty have land (total 192 jeribs). The biggest landowner has 24 jeribs. In Larasi, only 20% of the population does not have land, 80% has lands even if the properties are small. In **Khokis tarak**, four brothers initially had 120 jeribs. Today, this land is shared among 26 families. Everyone has land in Shaman and access to aylaks.
These examples show that **there are numerous families with small amounts of land due to the constant division of land.** Although the above examples illustrate the main trends, we can assume that in some villages, there are big landowners and in others, smaller ones, but in most cases, a minority of landless families and large numbers of smallholders are still present. It is worth underlining that, in general, **properties are becoming smaller and very few land transfers are taking place.**

When the Shaman plain was in the process of being sold up, many people were able to buy these lands. This explains why, in Deh Sulkh, 20% of the village own land in the foothills and, of the remaining 80%, 60% have lands in Shaman. **Shaman plain is divided up among larger numbers of landowners than land in the foothills.**

### 3.5.2.3 Decrease in cropping surface area as a result of flooding

Depending on variation in rainfall, spring rain and water from snow melting flow down into the Shaman plain and water table levels vary considerably. During the drought, groundwater levels are low and cultivation is possible in areas that are usually flooded. If rainfall and snowfall is higher, the plain is flooded and none of these lands can be cultivated. **The amount of land that can be cropped is highly dependent on variation in rainfall.**

Most of the farmers interviewed believed that water levels in rivers had risen from the 1970’s onwards. Lands were flooded and the rivers and canals were full, and as water levels rose, the potential for flooding was even higher. The amount of cropped lands decreased and the war prevented people from maintaining canal networks. Nowadays, many people agree that less land is cultivated in the plain than in the past. The different characteristics of the plain and the water table need to be taken into consideration (see following section). Much of the land that was cropped in the past is no longer cultivated and is instead used for fodder, i.e. water meadows. Downstream, some areas in Gazak were cropped twenty years ago but these plots are now overrun by reeds.

As we saw above, the lands are continuously being divided up into smaller plots. Population growth and returnees are also placing pressure on land availability. In the case of the plain, the amount of land under cultivation has also decreased as a result.
of recent flooding. As a consequence, the agrarian system is undergoing a general process of intensification.

3.5.2.4 Intensification of farming

The price of land has continued to rise and has reached exorbitant levels, reducing the number of land transfers taking place. One of the consequences of these changes is that the agriculture sector is undergoing a process of intensification, which is affecting different families in different ways, depending on their financial situation. A typology of farmers and their strategies is presented in section 4.10 but here it suffices to say most of the properties are very small, around one hectare, and families have to survive within this capital.

- Cropping system
In the past, farmers in Naytak adopted an alfa-alfa/wheat rotation system but at present, it appears that crop rotation has intensified and farmers are more likely to alternate winter wheat and potato as a cash crop to increase their revenues. Winter wheat was introduced five or six years ago and potatoes were introduced 30 years ago and have become increasingly prominent in the crop rotation. Certain crops, such as spring wheat, barley and broad bean, continue to be cultivated when conditions are unfavourable for winter wheat or potato (scarcity of water, high altitude). Moreover, very little land is threshed mechanically by cooperatives and we can interpret this as an investment and a sign of intensification.

Within the plain itself, people try to grow crops if the land is dry enough but recently it has only been possible to cultivate a few isolated plots. A recent phenomenon has emerged over the past ten to fifteen years whereby plots are enclosed by walls in order to protect crops from animals. This can be interpreted in two ways: an attempt to cultivate land that was not cultivated in the past and the growth in livestock numbers.

- Breeding system evolution
As the number of people living on the same amount of land increases, livestock breeding is an excellent way of making the most of the available workforce. The main constraint facing livestock breeders is feeding animals during winter. Nevertheless, large territories (aylaks) are available for summer migration and fodder can be brought back to the villages from these areas. As a result, most of the landless families and small landowners are tending to invest in livestock. Given the growth in population over the past two generations, the number of animals appears to have increased despite the fact that many families were obliged to sell their livestock during the war. For example, where four families had forty sheep two generations ago, now there are thirty families with three hundred sheep. We may also assume that the number of animals per family has increased to compensate for the lack of land. People lost many animals under the Taliban but the number of livestock has significantly increased since the end of the war in 2002. Farmers are adopting different management strategies depending on the type of livestock and the size of the flock or herd.

Intensification of farming should be interpreted as a result of changes in cropping patterns (more winter wheat and potatoes) and the increase in livestock.

- Consequence of population growth: pressure on natural resources (bushes for fuel)
One of the consequences of recent demographic changes is the increasing pressure on natural resources. “In one day, he can gather three donkey loads of bushes, but his father could gather ten in the same time. More bushes were available within a closer proximity.” (Watapur farmer). Gathering enough fuel for the heating needs of one family represents three months of work for one person. Without carrying out an in-depth study, spontaneous vegetation (in remote areas) is considerably denser compared with vegetation in heavily used rangelands (in close proximity to human settlements). It is not possible to make a direct
link between this phenomenon and the floods but deforestation appears to be an important factor in increased soil degradation and erosion in the watershed.

Figure 18: Dynamics in the region of Shaman plain (1970’s to present day)

From the 70’s: floods, wars and post war period

Floods, decrease of cultivated area

New stakeholders: central government, NGOs

Population growth, continual division of lands

Source: David Lety

The current changes taking place within the agrarian system can be characterised as a general intensification of farming. As a result of natural population growth and the number of returnees, more land is being cultivated compared with a century ago. However, over the past 30 years, the cropping area has decreased in the plain due to recurring floods. The assumption is that the project will support the endogenous dynamics of farming intensification. The following section of this report examines the diversity of the production system within the plain.

The study of farming development shows that this process is relatively recent (the current population settled in the area 150 years ago on average). As a result, land has been cultivated and canals have been dug while the population grew. The political framework was established during the reign of Zaher Shah (1932) and land rights were appointed at this time.

Most of the plain is divided into small private properties even though some of the wetter areas remain under government control. If the project succeeds in improving the land as expected, we assume that land tenure will not pose a major problem because land cannot be redistributed and the divisions are clearly established amongst the different communities. While presenting the issues raised by the redevelopment of a territory, we underlined the exclusion and inclusion forces that come into play as a result of land ownership. However the power struggle that is taking place at the national level should not have a significant bearing on local dynamics over the coming years.

The question of social organisation raises the issues of power and authority in the region. While central government was being established, local society was based on a feudal hierarchy and war merely served to reinforce power divisions. As a result, communities tended to evolve independently on the basis of clientelism.
In the transitional state from emergency to development, donors and the international community are supporting the implementation of a democratic process and are promoting participation and a sense of responsibility amongst the population. However, community work is being turned into a commodity and the population still expects external aid to be delivered as and when necessary. We assume that the development approach advocated by the international community will be hard to implement given the local social structure and feelings of resentment expressed by the population. Even if this development approach is relatively new, it appears that democratic processes are widely accepted by the population. The main problem is establishing who will mobilise communities and how this can be achieved.

At the outset, we underlined certain issues that are related to the impact of territorial redevelopment. It is also important to consider the evolution within the intervention context and ensure that they are taken into account in project implementation, such as state building. Central government is undergoing a reconstruction process and is looking to establish greater control over NGOs, as illustrated by the request for further assessment in the case of Shaman plain project.

Figure 19: Dynamics and evolution of the agrarian system of Yakawlang region

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Source: David Lety
4 AGRARIAN SYSTEM WITHIN SHAMAN PLAIN: DIVERSIFIED PRODUCTION

4.1 GEOGRAPHICAL CONTEXT OF SHAMAN PLAIN

The current field study focuses on the Shaman plain and the project implemented by Solidarités within this territory. Nevertheless, the plain is part of a larger system. An overview of the whole territory used by the villagers was carried out, including interaction between the different surrounding territories. As a consequence, we have to take into consideration several geographical units: the plain, the foothills surrounding the plain, rain-fed cultivation in the mountains and finally the high plateau used for migration.

The Shaman plain system is not representative of the situation within the district as a whole, as it is relatively close to the centre of Yakawlang, the bazaar of Nayak. The district also comprises a considerable number of very remote communities living in the long tributary valleys and high plateaux. The following section presents the agrarian context of the plain only.

Figure 20: Land use in Shaman plain and production territories

Source: Interpretation of a SPOT image by GecoSat for Solidarités, June 2005

In general, the inhabitants of the plain use four types of production territory: the plain, cultivated lands in the foothills (yellow) with high agricultural potential, rain-fed fields
in mountains (orange) and the plateaux, the “aylaks” (purple) as illustrated in Figure 20. The villages in the region can roughly be categorised in two groups:

- Villages at altitude in the plateaux: mostly isolated, their production system is based on rain-fed cultivation and livestock.
- Villages in the irrigated valleys: their production system is based on irrigated fields but these communities also use the high plateau for transhumance and rain-fed cultivation. There is significant diversity within this category depending on access to the plateaux and the availability of water for irrigation.

Within this last category, it is also worth highlighting that the production system within the plain itself is based on both irrigated lands and meadows, and there is significant interaction between these territories. The plateaux provide villagers living in the irrigated valleys with fodder, pasture and fuel.

Figure 21: Geographical and agrarian units in the region of the Shaman plain

The villages in the plain are highly diverse and the typology is presented in the following section on village diversity. The scope of this study does not include villages in the plateaux but some findings will be presented relative to this group thanks to research carried out in the village of Baghalak (Figure 20). This case is representative of many villages.

**Baghalak: a village in the plateaux, based on rain-fed cultivation and livestock**

In the mountains, rain-fed cultivation, which requires a certain degree of humidity, is possible in the foothills. As a consequence, rain-fed crops (*lalmi*) can be observed up to 3,000m depending on exposition (even though this is not the general rule).
The village of Baghalak, which lies below 3 000m, illustrates these practices all too well. This village is characterised by difficult access, lack of water, altitude and close proximity to highland pasture (aylaks), which provide fuel, bushes, fodder and land for rain-fed cultivation.

**Figure 22: Patchwork of rain fed fields, lalmi**  
**Figure 23: The high plateaux, aylaks**

Agriculture based on rain fed cultivation  
In Baghalak, 90% of land is dedicated to rain-fed cultivation and the remaining 10% is comprised of irrigated land. Rain-fed land accounts for two thirds of the total production. Crop rotation is by no means fixed and land may lie fallow from one to three years. The yield of rain-fed land varies from two to ten times the quantity sowed. As a general rule, rain-fed fields are not left fallow as much as in the past. Rain-fed fields are ploughed and sown without taking into account snowfall levels. As a consequence, the yields of rain-fed fields are decreasing as the fertility of the soil diminishes. Due to the lack of water, villagers do not fertilise these lands as the manure or fertilizer could ‘burn’ the crops. Moreover, manure is used in irrigated land (abi) and the rain-fed fields are too far away. In order to cultivate rain-fed lands, villagers need to own oxen or be able to rent them, which only a few people can afford. Even though access to the lalmi appears to be free, farmers still need cash in order to invest in this type of production. For these reasons, this type of production is uncertain and it represents an investment for farmers: if cash is available, they can invest.
Conflict over lalmi
When the flocks belonging to communities in the valleys return to Shaman plain from the aylaks, they graze in the lalmi. The owners of these flocks do not distinguish between pasture and lalmi and argue that villagers of Baghalak have no right to grow wheat in these areas. The area of land dedicated to rain-fed cultivation is tending to increase each year, even though some villagers have given up this type of production. The owners say that they have title deeds, but, in order to acquire lands without title deeds, they plough the land and then claim it as their own. The consequence is that less land is available for grazing and forage cutting.

Few irrigated lands
In Baghalak, the communities have built a small dam and water thus accumulates in a reservoir. Each night, the outlet is closed and water accumulates during the night. In the morning, the outlet is opened in order to irrigate the land. The dam is used for two and half months in the year.

Livestock as a coping strategy
The main constraint facing stockbreeders is the availability of grass. Without land, a sharecropper has to buy grain food for his family. He feeds his animals with the grass he cuts in the aylaks every year. However, farmers also need enough cash to make the initial investment in livestock. Near the aylaks, without buying grass, one man can cut enough grass for 30 sheep and goats for the three months winter. Investing in livestock is a means of reinforcing coping strategies, as in case of drought, people can sell their livestock. On the contrary, they increase their flocks when the climate is clement for agriculture. During last drought (1999-2001), most people sold many animals; for example, people that have fifteen animals today had 40 to 50 before the drought. The majority have begun re-invest and build up their flocks again but some of the villagers sold all of their animals and, until now, were unable to buy any more.

In the case of Baghalak, many people have migrated to Iran given the pressure on land availability. On average, each family has at least one family member who has migrated.

In the region of Yakawlang, the territory is highly diversified and depending on the geographical situation of each village, production systems are either more oriented towards rain-fed cultivation or irrigated land.

Having examined the different geographical units in which the plain is integrated, the next section presents an in-depth typology of the villages using the plain. Others factors such as history, population, water availability and access to the plateaux influence the production systems. This information has enabled us to give a precise portrayal of the diversity of Shaman plain villages, highlighting the interaction between the situation in this type of village and others (in the foothills or in the plain, for example).

4.2 Hydrological and ecological characteristics

In this section, the main environmental features, including hydrology and topography, and their impact on land use are presented.

4.2.1 Main and secondary rivers

Solidarités measured the water flow in the rivers (data from 27 June 2005) and this data indicates that the tributary rivers make up 25% of the water flow in Band e Amir river. Figure 25 and Figure 5 (larger scale) illustrate the role of Shaman plain in collecting water. The rivers in the foothills are formed by melted snow from the Koh e Baba mountain range in the
south and these eventually form the Kanak river. The confluence of Kanak river and Band e Amir river is known as “Ali Cheikh”. Naytak river is another important tributary river. The water flow in Kanak and Naytak rivers is sluggish (0.2 and 0.4 m/s respectively) in comparison with Band e Amir river (1.7 m/s) (Solidarités, 2005). This can be explained by the fact that the two tributary rivers have deeper river beds than the Band e Amir river. As a result, water flow in Kanak and Naytak rivers is blocked by Band e Amir and water stagnates, which accounts for the phenomenon of water accumulation in the plain.

Figure 25: Main rivers in Shaman plain and water flow

Source: Solidarités

4.2.2 Groundwater: flooding and drought

- **Flooding**
  Solidarités measured changes in water flow for the year 2005. Although this year saw higher rainfall than previous years, meaning that this data should by no means be considered an average, it does give an indication of the degree of change in water flow from the end of winter to the middle of summer. Water flow was multiplied by ten (from 5 to 50 m$^3$/s) over this period. Groundwater floods the plain from 15 March-15 April (Hamal) to 15 June-15 July (Saraton) and water levels are highest between 15 May and 15 June (month of Saur). In the wettest villages in the plain, the land is flooded most of the year, even the houses, and villagers complain that the floors in their houses are damp.

- **Drought**
  The last major drought to hit Afghanistan was from 1999 to 2001. According to farmers, the plain was drier and yields were “excellent”. The last time that the region was affected by drought of similar magnitude was from 1968 to 1973. Roughly a century ago, the drought was so severe that even the river bed dried up, and grass and crops shrivelled in the plain. At this point, it is worth considering whether flood control may well exacerbate the negative impact of drought in the plain.
4.2.3 Topographical survey

In Annexe 5, the topographical map shows a total drop in height of 20m over a distance of 20km, which gives a gradient of 1-2:1000. It is worth highlighting the fact that the southern part of the plain is lower than the northern part. In other terms, the river of Band e Amir is higher than the lands in the south which helps explain why these areas are flooded.

4.2.4 Soil and salinity

A soil analysis was carried out in July 2004 in the Shaman plain for the ‘Shaman feasibility study’ (Solidarités, 2005). According to INRA Versailles, the soil is of type ‘Clay-Limon’ (clay 38%, limon 52%, sand 10%). The plain is alluvial and the soil is composed of sediment that has settled over time from upstream areas. Most of the geological substract is sedimentary, and as a result, water contains clay and limon elements which have not decomposed adequately due to the cold climate.

Throughout the whole plain, whitish deposits can be observed in large quantities. The pH tests for soil and water were high: an average of 8.0-8.5 for all the rivers, and 8.0-9.5 pour the soil. The analysis showed the high levels of salinity were mainly due to Mg, Cu, Mn and B sulphates, while sodium levels are normal. The highest pH values were found in the driest non-irrigated areas of the plain, which are currently covered with the liquorice plant. Liquorice is the most resistant plant to salt and is an indicator of dry and highly alkaline zones. These high pH levels are a result of the percentage of calcium. Upstream of the valley of Band e Amir river, the lakes of the same name are formed by large natural dam of calcium deposits. The same deposits are crystallized in the plain.

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28 Soil analysis was carried out by Agro Systèmes France, www.agro-systemes.com.
29 INRA: French institute of agricultural research.
30 Analysis of pH levels in the soil and water was carried out with the UNEP expert.
The topography of the plain and the hydrological system are the main factors that influence the distribution of flooded areas within the plain (see Annexe 6: darkest areas are the most flooded). Differences in soil quality and salinity levels are linked to these flood patterns. Water-related constraints have a significant impact on land use patterns.

4.2.5 Land use

Land use in the plain varies widely, depending on the level of water and flooding. According to a farmer in Deh Sulkh, the main problems facing farmers trying to cultivate the plain are “water excess, salinity and flock grazing”.

Figure 27: Pasture upstream of the plain (Zone I)

We can identify four main zones as illustrated in the map below. Moving from east to west (from upstream to downstream), in Zone I pasture stretches from the mouth of the plain. Animals graze in this area throughout the whole year and grass is short.

Figure 28: Reeds in meadow (Zone II)

Zone II is comprised of meadows and a few cultivated areas.

Figure 29: Plot of wheat overrun by reeds (Zone III)

In Zone III, the majority of land is cropped but reeds grow in every plot and before the grain is ripe, it can be difficult to distinguish wheat from reeds. Liquorice is being grown in a large area separating Zone II and Zone III. It appears likely that this area remains un-cropped because it is not possible to build irrigation canals to land lying this much higher than the Band e Amir river. As a consequence, salt and liquorice seems to be well adapted to these conditions and people sell liquorice for medicinal purposes.
In the mouth of the tributary valley, the land is flooded most of the year and only reeds can grow here. In the north west of Shaman, in Zone IV, the land is drier and for the main part cropped. Land use depends on water levels but also on land tenure, because the lands of Shaman are not distributed equally among the villages and landowners and, as a result, land availability varies considerably. Moreover, some of the wettest lands which were not sold initially remain government property, and therefore cannot be cultivated nor used as pasture or meadows.

Figure 31: Land use map of Shaman plain

Villagers estimated that two thirds of Shaman plain is used for grass and the other third for cultivation. However, according to enquiries (community mobilisation) carried out by Solidarités, it would appear that only 12% of the plain is cultivated.

In this context, the term ‘meadow’ refers to all land used for cutting fodder. This land is too wet to be cropped but dry enough for fodder. On the other hand, ‘pasture’ refers to wet lands where the vegetation is hydrophilic. Throughout the plain there is a gradient of humidity and vegetation changes according to the different conditions. In the wettest areas, a species of juncus grows, whereas in the wet meadow plots, there are only reeds. Where the meadows are drier, there are more species and the vegetation is denser. Humidity is one of the factors...
limiting grass cutting in the pastures. Moreover, the majority of this land is government property which the communities have been using as village pasture. Here, land tenure is another factor influencing land use. In conclusion, there are two different types of land status, private and governmental, as a heritage of previous land tenure.

| Depending on the topography, the water table floods the plain to varying degrees and land use is diversified as a result (pasture, meadows, cultivated lands). |

4.3 IRRIGATION AND DRAINAGE INFRASTRUCTURES

Even though the plain is regularly flooded, most of this territory has been subject to a certain degree of development over the years. The network within the plain has been analysed and comparisons have been drawn with other systems observed in the valleys. Having analysed the irrigation networks in the region of Yakawlang, a distinction was drawn between the plain and the foothills. Compared with the plain, the foothills are never flooded, and as a result, this was the first area to be cultivated.

4.3.1 Irrigation networks in the foothills

The foothills are quite steep and are always irrigated by an upper canal. Nevertheless, it is possible to distinguish two sub-categories.

- Canals fed by Band e Amir river which irrigate the land in the valley. We assume that water is always available in these parts and irrigation issues are rarely a constraint for farming strategies.

- Land which is irrigated by tributary valleys, streams or other sources (in the south of the plain in our case). In Kanak valley, for example, water scarcity is a problem. In the Tajekan foothills, Dahan e Kanak and Sar I Kanak irrigation is the most limiting factor affecting farmers’ choice in crop rotation as it is not possible to grow crops with large water needs. In Sar I Kanak, small reservoirs are used for water catchments and are filled up several times, enabling farmers to cultivate more land in this manner. This represents a type of security for farmers. Another means of dealing with water scarcity is the construction of a ‘ground dam’ to catch ground water to feed into canals. This type of project can only be undertaken with external funds, such as the NSP.

4.3.2 The Shaman plain

- Water intakes (sar i band)

As illustrated above, the Band e Amir river runs through the whole plain and is used to irrigate cultivated land and pasture. According to field observations and interviews, there are in total four water intakes in the plain fed by the Band e Amir river: Khalkholak in El Dudar, Jua y Begal in Deh Sulkh, Doabi-Marouf and Khami Garmak in Shoshuri (see Figure 32). Upstream, the water intake of Khalkholak irrigates 768ha (3,840 jeribs) mainly composed of meadows. Next to the bazaar of Marouf, the water intake crosses the Band e Amir river, filling up three main canals. In total, these canals irrigate 400ha (2,000 jeribs). The Shoshuri water intake irrigates 100ha (500 jeribs) in the north of Band e Amir river. These data were based on farmers’ accounts and there is no data available for the fourth water intake of Deh Sulkh.

As in the rest of the region, two different types of system are used for water intakes in the plain. The first system consists of a dam which raises the water level in the river and fills the primary canal. The second system does not completely cut off the water flow, but consists of a dyke (daqa) which pushes the water through the primary canal.

The downstream area of the plain is also irrigated by a secondary valley, the Tarnuk valley. A wide stream runs through the Tarnuk valley which feeds six main canals in the foothills. This...
valley widens out at the end where it joins the plain. A spring feeds the main canals which irrigate the downstream area of the plain: Shoshuri and Gazak villages.

In total, five water intakes irrigate the plain from Band e Amir and the tributary valley of Tarnuk.

Figure 32: Irrigation and drainage network of Shaman plain

- The irrigation network
  Water intakes feed the primary canals in the plain. **We assume that most of the plain is covered by the irrigation network except the permanent pasture** where lands are not irrigated. Primary canals are divided into secondary canals and the plots of land are irrigated directly by primary, secondary or tertiary canals. The secondary canals that are made of mud irrigate the meadows. As illustrated in Figure 31, the areas downstream are more cultivated that upstream, and the irrigation network is in better condition as a result. Upstream, the irrigation canals are functioning correctly in the meadows.
Plots infrastructure
In Shoshuri and downstream areas, the plain is dotted with canals and small dykes (*jim* or *bandi*) all around the plots in order to keep water in the meadows. Figure 34 illustrates the inlet (*awandas*) and the outlet (*erokash*).

Farmers keep the water in the plots for three hours before opening the outlet. On analysing the network presented in Figure 32, some of the canals (WI Marouf) that originate in Band e Amir river and Kanak river function as an outlet. However, in some cases, the canals terminate in the plain and there are no drainage canals passing through the outlet to evacuate the water. The water just filters through the soil. As a result, after irrigation, water stays in the plot and then seeps in the soil.

In general, potato crops are irrigated by furrows. The most common technique is *irrigation by submersion*: water flows into horizontal compartments separated by dykes. This technique is used for cereal crops, fodder and meadows.

Early stages of drainage network (*zabur*): the problem of evacuation
In some cases, the canal network stretches throughout the plain; in other cases, the canals are connected to the Kanak river, in the south of the plain. The topographical survey shows that the Kanak river lies at a lower level than the Band e Amir river. As a result, water is taken from Band e Amir and collected in the Kanak river which function as a drainage canal (*collature*). The Kanak river then rejoins Band e Amir in “Ali Chekh” (see Figure 25) but, as illustrated earlier, Band e Amir’s higher riverbed and sluggish flow prevents the evacuation of water from Kanak river. Even if the Kanak river is dug, drainage does not function effectively. An Afghan organization with Japanese funds (CARO: Center for Afghan Rehabilitation) organised a Cash-For-Work programme which involved digging the Kanak river, but the impact was limited given the problem of water evacuation through Band e Amir.
Moreover, some canals function as drainage ditches:
- the Marouf canal, which collects water in the centre in the plain and then flows into Kanak river;
- a second canal in Tarnuk valley, which collects extra water from the resurgence and also flows into the Kanak River.

Both of these canals have recently been dug out by NGOs but as the problem of outlet persists in Ali Cheikh, the drainage canals connected to Kanak river are ineffective.

Kanak river indeed functions as a drainage canal but it would only have been effective in the past when Band e Amir river was not full. Kanak River will only evacuate correctly if the Band e Amir riverbed is deeper, hence the proposal from Solidarités to dig out the Band e Amir river up to Ali Cheikh.

The existing irrigation system functions well but requires maintenance work. Given that irrigation systems are independent and often have various water sources, the rules governing water management vary considerably. In this sense, the plain is an exception because there is an excess of water to control. In the past, water drained naturally and there was no need for specific drainage networks. However, sediment has accumulated in the rivers preventing them from carrying out their drainage function correctly.

4.4 USER PRACTICES FOR WATER SHARING: DIVERSITY IN MANAGEMENT

The following questions were raised: Which law predominates? How have these laws been established? Land and water regulations have evolved over time but the occupation of the lands may have evolved more quickly in comparison. Is there a gap between the way that the laws have been established and how irrigated lands have been developed? Current water rights were analysed in order to build our understanding of how they have evolved over time in comparison to the laws governing cultivated areas. Taking into account how water is allocated for each territory, we shall look at how the communities manage water.

4.4.1 Appointed water rights and the increase in cultivated areas

According to farmers, water rights have been established over time and have thus become customary law. In the past, landowners appointed water allocation for each plot. Nevertheless, today several farmers are cultivating land without having any water rights which means that they can only irrigate their land only if surplus water is available, i.e. if there has been sufficient rain throughout the year. In years with less rainfall, water becomes scarce and there is no water left over for them.

A farmer from Watapur uses a resurgence to irrigate his land in the plain situated at the bottom of the foothills, but it rapidly dries up in summer. This land is situated in the plain and does not have water rights on streams irrigating the upper parts of the village because it has only been cropped for the past twenty years.

In Sar I kanak, the village land is composed of one area that has a good water supply and another that is mainly meadow. However, due to the pressure on land availability, some farmers only have land in the dry area.

In the downstream areas of Dahan e Tarnuk which are connected to Shaman plain, the land is flooded and reeds are cut as fodder. During the years of drought, it is difficult to irrigate this land because farmers do not have water rights for water allocation for these areas.
These examples illustrate that it is not possible to irrigate all of the land on the basis of current water allocation. The amount of irrigated land depends on the availability of water and it is difficult to envisage how this area could be enlarged. As a result of pressure on land availability, land is being cultivated without allocation rights. The assumption is that irrigated areas were extended after water allocation had been established.

This raises the problem of land availability. In several villages, farmers are using motor pumps in order to extend the amount of cultivated land.

- **Irrigation by motor pump**
  In several cases where water is scarce, such as Tajekan, people are using motor pumps. These foothills are irrigated by the small stream running through the Kanak valley and in mid July, there is not enough water in the stream. Often farmers have to harvest dry unripe barley and they use a water pump to alleviate this problem.

In the Gazak canyon, irrigation is only possible by motor pump because there is no irrigation canal that can reach the land. If landowners do not have access to canals, they grow grass. In some cases, people pool their money (sharik) in order to purchase a motor pump. When canals are destroyed by flooding, such as in 2005, some landowners resort to using motor pumps.

The use of a motor pump can be seen as the community’s solution to the pressure on land availability. This strategy can be termed intensification by investment.

| The use of motor pumps and cultivation of land without water rights have arisen as a result of the pressure on land availability due to population growth. |

### 4.4.2 Water management practices: mirab and water round

The availability of water varies considerably depending on the location. In the foothills, irrigated by Band e Amir, canals appear to have enough water. Secondary valleys, such as Kanak, are regularly confronted with the problem of insufficient water. In the villages in the foothills, such as Chardeh and Naytak, there are a number of streams to irrigate the land but most of the year, there is still not enough water to irrigate all the crops. In Shaman plain, water intakes on Band e Amir river feed into the canals and, as in the foothills, enough water is available and there is even frequent flooding.

| Irrigated areas are small in size and independent. As a result, there is much diversity in water sharing regulations and organisation. |

In view of the existing diversity in water availability, a comparison of case studies in the foothills and the plain was carried out in order to examine the diversity in water management.

#### 4.4.2.1 The foothills

There are two types of land in the foothills: land irrigated by the Band e Amir river where water is plentiful and land irrigated by tributary rivers, which is often affected by water scarcity.

| Irrigation by Band e Amir: Case study of Deh Sulkh (no water constraints) |
| If the canal provides irrigation for several villages, each village is allocated a number of days of water supply, according to the amount land that is cultivated. This system was observed elsewhere and the assumption is that it is a general rule. |
The canal of Deh Sulkh can be divided in two parts: the tail end of the canal where water is shared over a wide irrigated area; and, upstream where no water round is required because only a small amount of land is irrigated. In the upstream area, people can use water at any time and the general rule is just to avoid wasting water. Downstream, a water round is organised over a five-day cycle (three days in one area, two days in another). Landowners gather every year to decide on water allocation in an informal manner. The “landowners manage themselves” and no authority is required to check on water sharing. In this case study, the mirab does not play any role in water allocation or water sharing. According to landowners “no rules have been instituted for 100 years” but recently problems have arisen as a result of division of land between heirs. Water rounds may become erratic and water may be wasted.

The village hires a mirab to check the condition of the canal infrastructure every day from the water intake up to the beginning of the tail end of the canal. The mirab is responsible for repairing the canal if it is in a poor condition and ensuring that water arrives in the wide irrigated area. In the case of a major problem, he can ask for help through collective work (hasher). The checking of the canal and maintenance takes place on a daily basis. Given that lands have been divided so much over recent years, people only have to repair their own part of the canal. “The population preferred to individualize maintenance because with collective work, one would only work hard and pay attention if the canal crossed one own plot”. For three days, the water intake is closed and the mirab organises collective work to maintain the shared part of the canal which stretches from the water intake to irrigated parts.

**Foothills irrigated by tributary valleys (water constraints)**

In Naytak, a village located in a tributary valley, a large canal irrigates 25 sub-villages. From time to time, there is a lack of water in the downstream area. The shura employs a mirab who is responsible for water management. We can assume that in large villages, such as Naytak, Chardeh and Zorin, irrigated lands is fairly extensive and it is therefore necessary to establish regulations for the management of water sharing and water rounds. In Kanak valley, there is no mirab: water is allocated in proportion to the area on the basis of mutual consent. In this case, we can assume that water sharing is fairly simple and does not justify employing a mirab.

Depending on the diversity of the situation (water availability, size of irrigation system) the village may employ a mirab, although the size of the irrigation system is a more important factor than water scarcity. Landowners decide upon water allocation on an informal basis. The role of the mirab also varies: they may be responsible for checking on the condition of the canal or for determining a water sharing system.

**4.4.2.2 The plain**

In the plain, farmers did not mention the need for a mirab, given that water supply is ample. Water rounds are organised on the basis of an informal agreement between landowners and an appointed time and hour is determined for each plot.

The following example is based on interviews in the centre of the plain (Deh Sulkh water intake). In Tarnuk valley, water is shared thanks to a division box that has been renovated by an NGO. One canal irrigates Gazak land in Shaman plain for a period of seven days before being directed to Shoshuri for the following five days. Farmers measure the number of hour/unit area (48 jeribs are irrigated for 24 hours). No mirab is required to check on the water sharing system. About 60 canals are supplied by one of these two canals and water is driven into each one by one. The water round lasts for a total of 20 days.
During periods of drought
Irrigation infrastructure in Shaman plain was designed for an average year of rain and snowfall. Nevertheless, during the drought (five years ago), villagers were required to adapt the system. Collective work (hasher) was carried out to repair and build water intakes on the Band e Amir river in order to increase the amount of water in the irrigation canals. This illustrates that water management is not organised and no-one is specifically appointed to fulfil this function. As water was scarce at this time, one of the former arbâbs exceptionally organised a water round between the different water intakes on Band e Amir: Shoshuri, Il Dudar, Marouf-Doabi and Deh Sulkh. On the one hand, this drought illustrated that water management is flexible and organisation is not a priority because the system does not usually have to cope with a lack of water. On the other hand, it shows that when necessary communities are capable of organising themselves in order to adapt the system by constructing new water intakes and setting up water rounds.

Depending on the availability of water, different options for managing water (mirab, water round) exist. Regulations are also flexible in time. The example of the drought in the plain illustrates the capacity of the communities to adapt their rules.

Water management is not a priority in the case of the plain and in the foothills irrigated by Band e Amir given the sufficient availability of water. Nevertheless, in other cases, water availability lies at the very heart of community problems.

4.5 ADAPTATION TO ENVIRONMENTAL CONSTRAINTS

4.5.1 Irrigation

A wide range of conditions determines water availability and water management. In this section, we shall look the consequences of water availability on decision-making processes and cropping patterns.

- **Crops**
  Between 12% and 30% of the land in the plain is cultivated according to the yearly conditions of flood. Crops are irrigated in Shaman plain, as well as in the foothills, although irrigation practices in the foothills were not assessed in detail. Nevertheless, the particularity is the management of the meadows which are irrigated.

- **Pasture, meadow and water meadows**
  Water levels vary depending on the time of year (in relation to water flow variables) and topography (location in the plain). In Chaman I Joghuri, the land is underwater for a longer period. In Shoshuri, where the water table is lower, the plots are flooded for a few months, and then the water table drops rapidly. At this time, plots need to be irrigated in order to increase fodder production. In Naytak, a farmer believes that “the best yields can be obtained when the meadows are irrigated”. There are different ways of carrying out pasture management according to the water level. In Shoshuri, people reap tall reeds at the beginning of August and farmers need to irrigate their plots around ten times. In Chaman I joghuri, the land is wetter than in Shoshuri and farmers do not need to irrigate meadows. At the beginning of August, there is still water (5-15cm) and farmers of Chaman I joghuri reap the meadows later. Where there is excess or lack of water, lowers yields are achieved from the meadows and crops. **Higher levels of fodder production can be obtained in dry plots which are flooded to a lesser extent and irrigated at will.** In pasture areas, farmers have built dykes (jim) to irrigate by submersion. **The difference in water levels in the plain has a direct impact on the scope of the irrigation network.**
4.5.2 Management of salinity

The second reason that communities irrigate the pasture is to wash out the salt. The high level of water table increases percolation, crystallisation and concentration of these deposits. When the water table rises to the surface and drops rapidly, percolation causes white deposits to form. "During the drought, more salt appeared. When water stagnates and then evaporates the level of salt increases. To remove salt, we need to irrigate and drain" (farmer from Marouf). As a result, higher concentrations of salt and white plates are found in the non-irrigated areas. Some farmers explained that they practice crop rotation with wheat and Lucerne. Wheat only needs two irrigations but this is not enough to remove the salt so by including Lucerne which needs more irrigation than wheat, farmers are able to reduce salt concentrations.

4.5.3 Erosion, flooding and river flow control

The whole region is dominated by steep, high mountains with low vegetation coverage. The problem of natural erosion is accentuated by over-cutting of bushes in many regions. The Shaman plain is a reception area for much of the rainfall in the area and the Band e Amir river also cuts through the plain. Water flow of the Band-e-Amir river fluctuates considerably depending on high rain and snowfall. Hazarajat is the so-called reservoir of Afghanistan, but its capacity for holding water does not prevent floods from occurring and people are accustomed to controlling water flow in the river. For example, this year, due to exceptional snowfall, floods poured through some of the cultivated land.

Figure 35: Breakwater or daqa in Band e Amir river

One of the best examples of river flow control is the construction of protection walls and breakwaters. In Gazak, villagers constructed the protection wall to dyke Gazak river, apparently 50 years ago. In Shoshuri, the current protection wall was built 25 years ago. All along the Band e Amir river, several breakwater or daqa have been built in the river out of stones and wood to prevent flooding.

The process of intensification and the pressure on land availability have meant that communities have had to adapt to increasing environmental constraints. Over time, more land is being cultivated in the plain and along the banks of the river and this has an impact on the problem of flooding and salinity. Communities adopt practices to improve their environment, for example controlling salinity and flood management. Even if water management is not a real constraint, salinity and flood control are central to several technical strategies.

4.6 ORGANISATIONS FOR RESOURCES MANAGEMENT

Having looked at the varying environmental conditions and how communities adapt their water management practices as a consequence, this section focuses on community mobilisation. How are communities mobilised and by whom? How is community mobilisation changing over time? Has community mobilisation become more or less important? What institutions and organisation exist at the village level and at the valley level?
It appears that for some time, until the communists came to power, the only community institution that existed was the Mirs and Arbâb, who held most of the land and were the local power figures. At this time, they used to organise ‘collective’ work for the building and maintenance of the canals. These headmen lost some of their power at the same time that lands were divided up. The building of the central state meant that the Arbâb became the power figure but the war rapidly weakened these organisations. The withdrawal of the Taliban has prompted the international community to establish a democratic framework for Afghanistan. In 2001, the Ministry of Development set up the shura which are responsible for managing the National Solidarity Program.

Today, in the case of Shaman villages, two institutions exist: one is the remnants of the old Arbâb system and the other is the recent-established shuras. In the first case, some headmen, rish e safed or landowners’ councils are responsible for canal maintenance. In the second, NSP shuras are responsible for managing budgets for community projects.

4.6.1 Informal and old institutions for traditional functions

In the plain, a water intake feeds three main canals irrigating 2,000 jeribs (400ha). Each year, all the families living in the nine villages that receive water from this canal have to provide one worker. A total of 200 people carry out maintenance work on the canal for nine days. This type of work is mainly organised by informal councils between landowners. They are not referred to as shura even though they do function as a type of council for mobilising workers. Every family knows that they have to ensure that one family member is available for collective work.

At the end of June 2005, one part of the canal in Naytak was destroyed by floods. Repair work was carried out under the hashar system whereby two hundred people worked together for several days. At the same time, five people were sent to the government to obtain financial aid. It appears that the rish e safed and big landowners are mainly responsible for mobilising people. The Arbâb still possesses a lot of land and has conserved his influence, and he requested that villagers participate in repairing the canal. The shura can collect money for collective work and if people are unable to pay, they have to work according to the amount owed (a system which is known as urao). For example, the mosque was built on this principle: money was collected to pay the workers.

In every village, the rish e safed meet regularly as a council but they only make decisions exceptionally. It is difficult to discern the various degrees of organisation in the villages. In Afghanistan, the traditional shura are well known as councils in which all rish e safed had a seat. Nevertheless, it appears that most villages were led by one influential person, who owned most of the land. Some of the villages were led by lineage Tayefa only and, in this case, most of the elders could take part in the village council. The most important factor determining village organisation is the amount of land that has been divided among the descendants.

This type of committee, the shura, can be established in different ways. It can be organised (i) at the village level, (ii) amongst several villages, (iii) at the valley level, and (iv) at the district level, although this is rarer.

Councils meet exceptionally to rule on any problem that occurs on a regional scale. It seems that on an informal basis, headmen are very capable of mobilising local communities, as the case of local conflict and war has illustrated all too well.

31 The term ‘traditional’ is used here with reference to tasks that communities have undertaken since settling in the region: construction of canals, annual and exceptional maintenance. This work mobilises large numbers of people over several days for collective work known as hashar.
4.6.2 Local authorities

Local administration plays a ‘last resort’ problem solving role. The governors are responsible for resolving conflicts and communities respect their authority. They have to rule on lawsuits for issues such land status.

4.6.3 The new shura and external organisations

Before the war, it was common for the communities to mobilise themselves. The shura organised community labourers to carry out collective work. Since the end of the war, external funds have been provided and, today, the NSP shura receive the money from external institutions to pay the labourers. Many NGOs, including Solidarités, have adopted this ‘cash for work’ method. It remains to be seen whether the shura are still capable of mobilising the communities for collective work without the support of external funds. It appears that collective work is increasingly being turned into a commodity. Some of the heads of NSP shura clearly believe that it would be difficult to mobilise communities without cash. This raises the problem of the sustainability of external funds. If communities no longer receive external support, how will they maintain or build new infrastructure? What can the shura impose on villagers and what should it not impose? Collective work organised by a headman is being undermined by ‘cash for work’ modalities. External organisations are trying to support community mobilisation, helping them to become independent yet, paradoxically, this type of funding appears to be undermining the inherently ‘free’ nature of community work. People are arguing that an income can be earned out of development aid.

This new type of organisation promotes change in the communities. In the case of projects that are being implemented by NGOs, or by any international organisations, the participation of younger men is high, thanks to better education and literacy (they can read and write Dari, sometimes English). The chief of the shura is responsible for communicating with any other stakeholders, such as UN agencies and NGOs. According to one villager, the chief of the shura in his village was elected because “he speaks well and he is serious”. This indicates that the electoral process can elevate people’s social status, which is very positive.

In Naytak village, people say that “there is no traditional shura, they were called in case of emergency: repairing the canal, serious and widespread illness, flooding”. Today, there are four different NSP shuras, which has raised serious coordination problems and water conflicts have emerged because projects are managed independently. The shuras did not consult each other even when the project involves a common natural resource, such as the river.

Conflicting interests between the different shuras raise the problem of coordination. Inter-village councils do not exist and it remains to be seen how community projects, such as the Shaman plain flood control project, can be implemented. Collective work was traditionally organised by the Mirs and then the Arbâb. Some former Mirs and Arbâb are still active and believe that they are still capable of mobilising communities for collective projects. It is difficult to draw any general conclusions as the situation in each village differs according to its history.

The former authorities are not as operational as before and the new authorities are incapable of mobilising communities without cash. There is an emergence of a new type of organisation which focuses on providing services.
4.7 LAND TENURE AND LAND ACCESS: DETERMINING FACTORS IN VILLAGE DIVERSITY

The characteristics of each village vary in accordance to the demographic history of the region. The main distinguishing factor is when the village was founded and what type of local power was established (Mirs, etc.). Amongst the 30 villages in the plain, there is much diversity in terms of production territory.

Even villages situated within the relative small area of the plain are significantly different. Some villages do not have any land in the foothills, which may imply that they were settled more recently than those with land in the foothills. In some villages, very few families use the aylaks, some families own large areas of pasture in Shaman and others do not.

4.7.1 Land status: Government land and common land

As mentioned above, most of the Shaman land was sold around 1932. Highly flooded areas were not sold and the government decreed that these lands would be used as common pasture. According to some farmers, 300ha of the total 2,400ha in the plain belong to the government. However, this information remains unclear for most of the communities and even for local authorities. The wide eastern area which is used as pasture has no clear status. We can only assume that most of this land belongs to the government but there is also some private land as well. Moreover, villagers from Dahan e Kanak explained that these permanent pastures have been bought from the government but have not yet been divided up. “If it is brought into cultivation, they would distribute lands to the villagers according to the current properties”.

This common pasture land is a source of conflict. In Tajekan, villagers are using grassland which belongs to the government. In the past, they used to pay taxes to the government but now are continuing to use them. Nevertheless, it seems that people in other areas, such as Sariqol and Feroz bahar, want to use this land and claim that it is their property.

As a result of population growth, more people need to use this territory. In some cases, government land is used as meadows and farmers have acquired a customary right. For example, 40 families out of 120 in Deh Sulkh have land in the plain. The 80 remaining families use government land and buy grass from other landowners.

4.7.2 Access to aylak, lineage and rights

With regard to the aylaks, it is unclear whether rights have been established and if access is regulated. Firstly it is necessary to distinguish between the aylaks in the south of the plain, which are narrower and also used by the southern District of Penjao, and the aylaks in the north, the extensive Band e Petab which is used mainly by Shaman people. In the south of Shaman, the aylaks are divided unlike in Band e Petau.

In the aylaks, the valleys belong to the villages. Each village has defined a territory for its compound, but grazing pasture is not limited. In some case, farmers hold “a kind of title or certificate attesting their right to come here”. In both Gazak and Deh Sulkh, only 10% of the villagers have land but the entire village has access to aylaks. None of the respondents mentioned that access is regulated so we can assume that this territory is so huge that there is enough space for everybody. This contrasts with the south of the plain, in Chardeh and Watapur, where the shared territory is smaller and access is well regulated.

Even though people claim that access is free, “the villagers of Aral cannot go to the aylaks because they don’t have the right, even they want to buy goats and go”. Different rights have been established on a customary basis. For example, the village of Deh Sulkh was one of
the first and biggest villages of the plain to have access to Band e Petab. At this time, people went to the *aylaks*. We may assume that land rights are based on the history of population settlement: those who arrive first establish their right. These rights are also linked to territorial identity, which in the case of Yakawlang, refer to the origin of the village’s founder. As an example, Joghuri (village of Chaman I Joghuri) is the name of another district in the south of Central Highlands. Affiliations are highly changeable because they refer to political conditions, migration and assimilations, the takeover of one group by another. (Monsutti, 2004). *This may explain the relative low unity among the different communities in comparison with the Pashto organisation* (Bellet & Cousseau, 2002).

Another example of the non-existent regulations is the case of a farmer from Shaman plain who happens to own a truck. To reduce the time spent in transport, he decided not to travel by foot for two days to the *aylaks* but identified a new area accessible by truck on the road to Bamiyan. He installed his compound here and put his animals out to graze. Many questions remain about access to these territories but these issues are not covered in this research study. It is unclear to what extent the Kuchi nomadic tribes used these territories. It is reported that “caravans of hundreds of camels went here” and that “last year, some of them came back”. Relations were apparently good before the war. It is not clear whether the Hazaras have increased the practice of transhumance since this period, but if the Kuchis were to return what impact would this have? It shows the lack of clarification pertaining to the status and rights on pasture, but when the territory is smaller, regulations and boundaries tend to be clearly established.

| On the basis of each village’s history (power, settlement, etc.), access rights to the different production territories vary considerably. This variation results in a diverse range of agrarian and production choices. |

### 4.7.3 Village diversity

In order to analyse the agrarian system, villages are classified according to various criteria. Given that this survey is being conducted within the framework of the redevelopment of Shaman plain, *land use is one of the main criteria*. We shall first categorise villages depending on access to the various types of land according to land occupation in Shaman, as this parameter determines the choice of production systems. Most of the rights are customary and, as an assumption, most of the older villages have access to the different types of land. Both the history of the village and land characteristics define access to and availability of various types of land.

Around 30 villages own and use land in Shaman. A representative sample of villages has been selected in order to portray the wide diversity of production systems. Our analysis is based on the following distinguishing characteristics:

- **Land tenure within the village: distribution between sharecroppers and landowner**
  Land tenure within a village can broadly be divided into two categories. The first case concerns villages in which the former power structure was dominated by Mirs-dekhans. In these villages, the descendants of the *Mirs* families are still landowners and the families of sharecroppers are still sharecroppers. The best example is the village of Deh Sulkh where the land in the foothills belongs to 10% of the village population. The second case concerns villages in which all families are descendants of the founder. As a result, all the land has been divided amongst the families and everyone owns land. According to a FAO survey carried out in five villages in Yakawlang district, “from 6% to 75% of villagers are landless depending on the village” (Pound, 2003), which illustrates the great diversity of land tenure.
• **Access and availability of different types of land: Shaman (pasture, meadow, cultivated land), abi in foothills, lalmi in mountains and aylaks**

Access and availability of land can be studied using a historical approach. Having established these factors for each village, it is possible to make assumptions about the main types of farming system (breeding, rain-fed cultivation, irrigated land). Some of Solidarités’ staff who are originally from Shaman plain were able to assist us in categorising the villages. Annexe 7 presents the main characteristics (number of families, cultivated land and pasture in Shaman, livestock). Four main groups can be distinguished as illustrated in Figure 36.

**Type I**
**Tajekan** and Dahan e Kanak. These villages have a **lot of pasture in the plain, no rain-fed cultivation and they only use a few aylak**. The valley of Kanak is characterised by its water scarcity but they also have land irrigated by Band e Amir river. In Dahan e Kanak, there was no Mir in charge and distribution of land is relatively even (large number of smallholders and a few bigger landowners).

**Type II**
**Deh Sulkh**, Shoshuri, Gazak, Chardeh, Naytak, Dahan e Tova and Larasi. These villages are the **oldest** and they have land throughout the **whole territory**: considerable amounts of land in Shaman, irrigated land in the foothills, rain-fed cultivation and **aylaks**. This helps explain why they have the biggest flocks. All of them have distinguishing characteristics. Deh Sulkh was the biggest village in the past due to the presence of the **Mirs**. Knowing when a village was founded helps us to understand the social organization. For example, in Deh Sulkh, only a few people are landowners compared with more recent villages where the land was divided up at the beginning.

Chardeh and Naytak are situated on the slopes and have a lot of **lalmi**. They have access to **aylak** which is divided up in the south and not in the north of the plain. As a result, their production system is based on irrigated fields, rain-fed cultivation and stockraising. Moreover, Gazak and Shoshuri have less irrigated land in comparison with other villages. These villages primarily focus on stockraising but, given the low land availability, they use motor pump in order to extend cultivated areas.

**Type IIb**
**Dasht e malek, Watapur, Shamsudin (Chardeh and Naytak), Dahan e tarnuk, Sar I tarnuk, Gardenembar, Sharafak.** They **use the low plateau in the south of the plain** and also possess large areas in the plain.

**Type III**
**Chaman I joghuri, Nawabad, Marouf**, Tangu Safedak, Sar I jar, Doabi, Hazar Kushta, Lora, Khokis Tarak and Sum I malek. These villages have most of their **land in Shaman** and some of the villages are situated in the plain. They have no rain-fed cultivation.
**Figure 36: Typology of villages using Shaman plain**

Source: Interpretation of SPOT image by GecoSat for Solidarités, June 2005

**Table 2: Characteristics of each type of village using Shaman lands**

<table>
<thead>
<tr>
<th>Type</th>
<th>Villages</th>
<th>Access to production territories</th>
<th>Type of production system</th>
<th>Distribution of land</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I</td>
<td>Tajekan, Dahan e Kanak</td>
<td>Lots of pasture in the plain</td>
<td>Mixed farming with both small ruminants and cattle</td>
<td>Land distribution is relatively even (large number of smallholders and a few bigger landowners)</td>
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<td></td>
<td></td>
<td>No rain-fed cultivation</td>
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<td></td>
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<td>Few aylak</td>
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<tr>
<td>Type II</td>
<td>Deh Sulkh, Shoshuri, Gazak, Chardeh, Naytak, Dahan e Tova and Larasi</td>
<td>Land throughout the whole territory:</td>
<td>Mixed farming (irrigated fields, rain-fed cultivation and stockraising) with the biggest flocks</td>
<td>10% of landowners in the foothills of Deh Sulkh. Situation varies according to the former structure of villages (more or fewer smallholders and sharecroppers)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- a lot of land in Shaman</td>
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<td>- irrigated land in the foothills</td>
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<td>- rain-fed cultivation</td>
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<td>- aylaks</td>
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</tr>
<tr>
<td>Type IIb</td>
<td>Dasht e malek, Watapur, Shamsudin, Dahan e tarnuk, Sar I tarnuk, Gardenembar, Sharafak</td>
<td>Use of the low plateau in the south of the plain:</td>
<td>Mixed farming (irrigated fields, rain-fed cultivation and stockraising) with the biggest flocks</td>
<td>Situation varies according to the former structure of villages (more or less smallholders and sharecroppers)</td>
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<tr>
<td></td>
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<td>- wide part of the plain</td>
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<tr>
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<td>- irrigated land in the foothills</td>
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<td>- rain-fed cultivation</td>
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<td></td>
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<td>- aylaks</td>
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</tbody>
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### 4.8 Farming Systems

#### 4.8.1 Crop systems

The two limiting factors which influence the choice of cropping pattern is the availability of water (excess or deficit of water) and the quality of the soil. In most of the cultivated land in Shaman plain, humidity prevents the cultivation of crops. Potatoes and Lucerne are the most sensitive. In some wet parts, only winter wheat, cow pea and clover can grow. On the other hand, in the foothills where water is scarcer, it is not possible to grow winter wheat and potatoes but instead farmers can cultivate barley, Lucerne and spring wheat.

The main crop systems (CS) have been identified in the irrigated valleys as follows:
- **CS1.** The most intensive rotation is composed of winter wheat/potato. This cropping system is adopted in areas where water is plentiful, such as in the valleys irrigated by Band e Amir (Nayak)
- **CS2.** Winter wheat/potato/fodder allows for breeding in some of the tributary valleys where water is not in excess (Zorin, Feroz Bahar)
- **CS3.** Spring wheat/barley/fodder where water is scarce (Tajekan)

If the availability of water is taken to be the main limiting factor, these cropping systems can be classified as follows: **winter wheat/potato (CS1) > winter wheat/potato/fodder (CS2) > spring wheat/barley/fodder (CS3)**

The case of the plain has been included:
- **CS4.** Meadows can be included as another crop system

And finally, the system of rain-fed cultivation/
- **CS5.** Rain-fed cultivation

- **CS of gardens:** There are some vegetables and fruit grown and some gardens with high walls. This is mainly for self-consumption and little is sold. This type of production is problematic due to frequency of frosts, lack of technical knowledge and also marketing constraints.

Several crop systems have been identified on the basis of the analysis carried out within the Shaman plain project study. Within the five crop systems described above, it is necessary to differentiate between some of them, in terms of the inputs used, degree of mechanisation and also the quality of land. Nevertheless, the purpose of the current study is not to provide a precise description of the crop systems but rather present an overall idea of the income generated by the land in the Shaman plain and the foothills, and thus highlight the variation in the different types of lands. The objective of the Shaman plain project is to improve the land and in this way it is important to assess the difference in value of each type of land. Incidentally, the data on yields are only indicative because the samples are not sufficiently representative. Whereas the previous sections highlighted the diversity of...
agricultural conditions, in the following section will not provide a quantitative assessment of this diversity due to a lack of data. This issue may be the subject of another assessment.

4.8.1.1 Valleys with scarcity of water

For example, Kanak valley is a flat, large and fertile area but water is scarce and represents a limiting factor for crop production. Farmers adapt the amount of cultivated land according to the amount of water available. This year, due to heavy snow and rainfall, most of the plots have been sown. In this valley, the main crop is spring wheat followed by barley and fodder crops because they have low water needs. When rainfall is heavier, farmers cultivate most of the land: when there is a water shortage, fewer plots are cultivated. As a result, they only grow spring crops here. This year, barley yields in Tajekan ranged from 100 to 200ser/jerib (3.5t/ha)\(^{32}\).

4.8.1.2 Valleys with an abundance of water

The Central Highlands, the so-called ‘reservoir’ of Afghanistan, have many large rivers that are capable of irrigating the narrow strip of cultivated lands. For example, the Band e Amir river feeds numerous canals. In this territory, water is not a limiting factor. However, the availability of water is one of the main factors influencing farmers in their decision to grow winter wheat which produces much higher yields (in good conditions). In this valley, the yields vary according to inputs but farmers often harvest at least 80 ser/jerib and averages may even reach 135ser/jerib (Solidarités). The main differences between winter and spring wheat are: farmers are required to spend more time weeding winter wheat (WW), altitude represents a limiting factor for WW, and spring wheat (SW) requires less water but produces lower yields.

- Winter wheat
  In well supplied plots with irrigation water, the most common crop rotation is potato/winter wheat. Yields average out at around 47 quintals/ha (Solidarités) in the old cultivated lands where fertilisation is probably high. With these yields and taking the price of wheat at 10 afghanis/kg, production is 9,000 afghanis/jerib.

- Potato
  The region has an average yield for potatoes at 400 kg/jerib sowed (Solidarités), i.e. 60 ser/jerib produces around 15 times the quantity sowed, 6000 kg/jerib (25-27t/ha). The quantity of inputs required for potato and wheat were not calculated so it not possible to compare potato production with wheat production in real terms.

4.8.1.3 Case of Shaman plain

- Crops in Shaman plain
  In Shaman plain, yields depend on flood levels although the amount of water in each plot varies according to altitude. In some cases studied, plots that were sown with wheat and subsequently flooded had yields of around 25 ser/jerib (8.75 quintal/ha). During a drought, the same plots had yields of around 70 ser/jerib (24.5 quintal/ha). Highest yields stand at around 100 ser/jerib (35 quintal/ha). Production varies between 1,750 afghanis/jerib and 7,000 afghanis/jeribs depending on water levels.

Potato is only sown in the driest lands of Shaman, where it gives high yields of 200 to 300 ser/jerib.

**In the case of cultivated land, yields vary significantly between Shaman plots and the foothills plots which are irrigated by Band e Amir.**

\(^{32}\) 1 hectare:5 jeribs:25 sers.
• Meadows of Shaman

Just as our description of Shaman highlights the great diversity in land use, the same applies
to management of meadows. Incidentally, unit areas are not immediately obvious to many
villagers making it difficult to estimate the yield of their plots. This produces rough
estimates for yields ranging from 140kg/jerib to 2,100kg/jerib, with an average of
around 700kg/jerib (35t/ha freshly cut). A wide diversity of meadows and water meadows
can be observed with the most common species being reed (*phragmites*). The level of water
is the most influential factor for this diversity. Based on indicative data, it is possible to
estimate the income generated by meadows. The yield of pasture in Shoshuri (mostly reed)
is around 400-500ser of grass for 10 jerib (350kg/jerib). Pasture in Tajekan is composed of
low vegetation (less than 50cm), mostly meso-hygrophile and *zebon bara*. The yield is
roughly 750kg/jerib (2 donkey loads/ser). In another type of meadow composed of two main
species of grass, *Kiok* and *aujar* (*poa sp.*), the yield is around 840kg/jerib (30 donkey
loads/2.5 jeribs). Incidentally, poa has a higher nutritive value than reed. Moreover, farmers
do not feed small ruminants with reeds.

There are wide variations in yields with the lowest standing at around 350kg/jerib (taking an
average price of grass at 200 afghanis/load) and the highest of 1,000 kg/jerib. If we take
higher yields of over 1,000kg/jerib, this represents an income of around 3,000 afghanis. The
best plots can generate an income of between 1,500-6,000 afghanis depending on rainfall
and the harvest. In the wetter plots, the yield will probably generate between 500-2,000
afghanis.

These estimates illustrate the wide range of pasture yields. The wetter plots give lower
yields in comparison with the mesophilic meadows. Moreover, incomes may vary on a
ratio of one to four depending on the climate and the price of grass. “We can compare
pasture and crop production. We can harvest, in one jerib, more straw than grass, in addition
to the grains” (farmer fro Marouf). Moreover, straw has better nutritive value than reeds or
poa. Figure 14 illustrates the difference in production of lands in Shaman plain and irrigated
valleys (see Annexe 8 for data).

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33 The price of grass varies considerably in relation to the quantity produced in Shaman and the
plateaux. When rainfall is high, prices are lower given the large amount of grass available throughout
the whole area (around 100 afghanis/load in 2005). Farmers say that prices can soar up to
400 afghanis/load.
Rain-fed cultivation
In *lalmi* fields, the harvest may produce twelve times the quantity sown. Rain-fed cultivation produces significantly different quantities compared with irrigated fields. The average yield in Roy Doab is between 2 to 5 times the quantity sown (Robin, 2004). In Yakawlang, the average yield is around five times the quantity sown (ranges from two to ten times the quantity sown).

4.8.2 Stockraising: transhumance to aylaks and use of the plain

Several distinguishing characteristics can be identified within the animal husbandry system. Some farmers have small ruminants; others are engaged in cattle husbandry. Some have large herds or flocks; others have just a few animals. Farmers with small flocks of small ruminants tend to have less than 15 sheep/goats (see Annexe 9 for the reproduction scheme). For the herds of cattle, small herds are composed of one, two or three cattle, whereas big herds may reach eight to ten cattle. Evidently, these figures only provide a broad indication of the different categories of farmer engaged in animal husbandry.

There are two main factors which prompt farmers to choose between these systems: the **amount of time required and inputs**. In the case of small ruminants, the amount of time required for shepherding is roughly nine months and the inputs need to cover the three month period when the animals are in stables. In the case of cattle husbandry, shepherding covers about seven months with a five month period in stables. Although, the fodder needs are higher for cattle, they represent less of a constraint in terms of shepherding time. Large families have greater labour force availability which helps for shepherding. Villages situated in the plain, such as Shaman i Joghuri, have access to large amounts of fodder as well as pasture, and as a result, they favour cattle because sheep are more sensitive to parasites likely to be found in wetter areas (*kirmi jiggar*). The villages of Dahan e Kanak and Tajekan have access to the large pasture in upstream Shaman and they also have more cattle than small ruminants.

Farmers select the type of livestock on the basis of availability of time and fodder. Access to pasture is a deciding factor.
Grass is grown in meadows for one harvest before animals come back from the *aylak*. Then, plain is available for common grazing.

- **Shepherding**
  Many of the families interviewed have around fifteen sheep and goats. They often select partners in order to share certain investments (*sharik*). For example, five families may pool their resources in order to share the cost of the shepherds. In this way, they manage to avoid the problem of labour availability. In June, a large herd comprising roughly 100 heads of cattle, gathers to graze in the plain. “*All the owners of cows gather all their animals and shepherd one after another*” (shepherd from Tajekan). The rotation in the plain may last from one to fifty days depending on the number of landowners and cattle.

- **Period of transhumance**
  Two main territories are used by flocks over the year: firstly, the *aylaks* (high plateaux) and the mountains around villages; secondly, the plain which highly important for animal husbandry. In winter, depending on the temperature and snowfall, animals are kept in stables. Given that small ruminants and cattle have different feeding patterns, they will be analysed separately.

**Band e Petab** is a large plateau in the north of Band e Amir river which is used for transhumance. People and flocks migrate to the *aylaks* where they may stay for three or four months during summer. These high plateaux are at an altitude of over 3,000m. From May to the beginning of September, the amount of time that people spend in *aylak* depends on the temperature. For example, 2005 was particularly cold and most people had abandoned their camps by 15 August. Usually, families migrate with all their animals, and while the women stay in tents (*Aimôk*) to milk the animals and make dry cheese (*krout*), men cut down bushes and return to their land to look after crops. For shepherding, either families hire shepherds or families members take turns lasting ten-fifteen days. During these summer months, men usually go up to the plateaux to cut bushes for heating and return to the village having loaded up all the donkeys, staying for a few days in *aylaks* each time. When the weather becomes colder, all the animals are brought back to the village. The journey from Deh Sulkh to the compounds takes more than twenty hours.

On return from the *aylaks* in August, both the cattle and the sheep are taken to Shaman plain to graze during the day and are shut up in stables at night. One month later in September, sheep and goats are taken to the mountains next to the villages for the day, whereas the cattle remain in Shaman to graze. When the snow begins to fall, the cattle are permanently shut up in the stables for a five-seven month period, whereas sheep and goats stay in the mountains until snowfall is too heavy.

In Chaman i joghuri, a village situated in the middle of water meadow which is frequently subject to floods, people only have cattle because small ruminants are too susceptible to *kirmi jigar* (parasite). Moreover, they have access to large areas of meadow and pasture and can thus keep their animals in Shaman instead of travelling to the *aylaks*.

A small number of families in the villages of Zorin and Chardeh, especially those that do not have large cattle herds, are also using the Shaman plain as *aylaks* over the summer. They mainly stay to watch over the village’s meadows and, in this way, they can also let their cattle graze. The village of Chardeh and other villages in the south of the plain traditionally use *aylaks* in the Koh e baba range.
Figure 38: Calendar of use of Shaman plain by herds and flocks

<table>
<thead>
<tr>
<th>Month</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
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<tbody>
<tr>
<td>Small ruminants</td>
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<td>Shaman</td>
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<td>Aylaks</td>
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<td>Aylak</td>
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<td>Stable</td>
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</table>

Source: David Lety

- **Fodder**
  It is not possible here to provide precise figures on the food needs of each type of animal but cattle do have a longer stable period than small ruminants. Additionally, small ruminants are not capable of feeding satisfactorily on reeds. People used to cut *ghor* (a thorny species of asteracea similar to a thistle) in the *aylaks* and bushes which are then chopped finely before feeding the animals. There is a lot of fodder available in Shaman plain for cattle. Furthermore, all the animals are fed fodder crops such as Lucerne, cow pea, vetch and cereal straw. Cultivated lands provide much better food (nutritional and feed values) than meadows.

### 4.9 Off Farm Activities

Most families have very little land, and even landowners have relatively small farms (maximum 10 to 15 jeribs, i.e. two-three hectares). As a result, most families have at least one member who works as a labourer or sharecropper or invests in other sectors. Yakawlang, as the district centre, provides some employment but this is limited compared with the size of the population. People's options are: investing in cars, trucks, small businesses, shops but these economic activities are restricted to a minority of wealthy people. “*In Deh Sulikh, due to the lack of land, there are few families who only have agricultural activity; people are shopkeepers, drivers, etc.*” (sharecropper from Deh Sulkh). Small landowners and sharecroppers rarely have the capacity to invest in this type of commerce. Their only opportunity is to work as daily labourers for the large aid programmes and Cash For Work contracts (building schools, canals...) “*But it is not possible to find more than two or three months work as a labourer per year*” (sharecropper from Deh Sulkh). Educated people, who are often the richest members of society, are able to work for NGOs but they are the minority. Opportunities in other sectors are rare, and, as a result, families
have developed a way of life which requires low household consumption. The only alternatives for the majority of people are agricultural activities including: cutting of fodder in aylaks, selling bushes and collecting manure\(^34\). These represent the main coping strategies for vulnerable families (smallholders, landless).

Moreover, migration is another alternative but lots of people are discouraged from moving to Kabul because they do not know anyone and job opportunities are slim. Most migrants moved to Iran because of the war and stayed there to work. Today, there is little opportunity to emigrate because the Iran government is no longer accepting Afghan refugees and indeed is requesting that they leave\(^35\).

### 4.10 Farming Typology

- **Why a typology?**
  
The purpose of this section is to provide insight into the local situation, linking previous information on production systems with the different types of farmers. **We seek to understand the farming decision made by each type of farmer from landowners to sharecroppers.** For each category of farmer, we identify the **range of strategies available to them.** This will allow us firstly to assess the **benefits of the Shaman plain project for all categories** of farmers. Our typology is based on farmers using Shaman plain. Secondly, by assessing the various strategies and production systems all around the plain, it is possible to put forward **hypotheses for the evolution of Shaman plain** if the drainage is successful. This is useful information for all stakeholders carrying out activities in the area.

#### 4.10.1 Structural factors for a typology of farmers

- **Structural factors**
  
In the previous section, four categories of village were identified in and around the plain, and information on remote villages was provided as a comparison. We assume that for each village, access to various territories influences the type of production system.

As well as environmental conditions and access to various territories, structural factors (land and workforce) of each type of farm need to be identified. In the group ‘old villages’, such as Deh Sulkh, strategies vary considerably.

We assume that the primary structural feature is land tenure but we shall also be looking at the availability of workforce. The ratio of number of workers per area of land will determine whether:

1. the household has enough people to work on its land;
2. the number of people in the family enables them to work alone on their land;
3. there is enough land to provide work for the whole family.

This study uses the same ratio as Robin (2003) in his analysis of the agrarian system carried out in Saighan Province\(^36\). This ratio is more efficient than simply looking at the area that is being cultivated. “How can we compare a family of 25 members which has 10 jeribs and

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\(^{34}\) Two main sources of heating exist: manure and bushes. The manure, which is stocked in kulaj (1 kulaj: 400 afghanis), is collected in Shaman plain, the mountains, grazing land, stables, etc. Farmers cut bushes puta (100 afghanis/load) in the hills, the mountains and especially in the aylaks during the summer. It is estimated that one family requires from 6,000-12,000 afghanis worth of heating resource per year.

\(^{35}\) There is little data regarding migration and it is another subject of research. How many types of migration exist and who is migrating?

\(^{36}\) Robin (2003) distinguishes three main categories of farmers based on the ratio: available workforce/area cultivated; low workforce in comparison with the area cultivated; workforce fully employed in the area cultivated; and, surplus workforce for the area cultivated.
another family with four members with 6 jeribs? Which one is the most fortunate?” (Duchier, 2006).

This ratio has to be analysed along with the geographical situation. Villages are classified according to access to the production territories. We assume that within this framework, structural factors (land and workforce) influence the strategies adopted by farmers.

In conclusion, there are two different structural factors which define a framework in which farmers adopt various strategies. These factors are the ratio of workforce/land and geographical situation (type of village).

In his typology, Duchier (2006) distinguished different classes based on the ratio of area irrigated/masculine worker37. This study does not have the necessary representative samples in order to distinguish between the different types of farmers, so here the main tendencies are outlined. Three main groups can be identified: big landowners, smallholders and the landless38. If we apply the ratio defined by Duchier (2006), a family of eight adults with ten jeribs and a family of two adults with three jeribs may be considered big landowners. However, a family of six adults with six jeribs can be considered a smallholder39. Smallholders may be broken down into two sub-categories: households with extra workers (ratio<<1.25 jerib) and households for whom the cropping area employs the full family workforce (ratio#1.25 jerib). Households may rapidly move from one category to another due to changes in workforce (when children are old enough to start working or if land is divided up, the ratio decreases).

4.10.2 Different strategies adopted by each type of farmer

4.10.2.1 Influence of geographical situation of village on production system

The group of villages located inside the plain focus on fodder production in meadows. Given that small ruminants are sensitive to parasites in the wet meadows, farmers only have cattle.

The group of villages located next to Shaman pasture (in the upstream area of the plain, Tajekan and Dahan e Kanak) has privileged access to this pasture where they let their cattle graze, but they do not have access to rain-fed plots. Additionally, they also have access to the aylaks and families focus on cattle or/and small ruminant production.

The group of old villages (Deh Sulkh) and villages with access to low plateaux in the south of the plain use all the different types of territory. Nevertheless, land is limited in comparison with the high population and these villages focus primarily on animal husbandry. The main distinguishing features between the old villages, such as Deh Sulkh, and villages in the south are the division of aylaks and the availability of water. In the south, villages have access to streams from Koh e Baba range and the crop system is better adapted to water scarcity as opposed to villages in the northern foothills of the plain which receive water from the Band e Amir river and crop systems are more intensive (CS1 or CS2). Finally, the main difference between all of these villages is the type of crop system but this does not have a major impact on production systems.

37 Duchier estimates that families need at least 1.25 jeribs of irrigated land in order to feed one adult. In this way, big landowners have a ratio above 1.25 jeribs and small landowners have a ratio of between 0-1.25. Finally, there are the landless.

38 It is not possible to give accurate distribution figures. In our research, we interviewed seven big landowners, twelve smallholders with enough land to employ a workforce, seven households with very little land and four landless families.

39 The 1.25 jerib does not include the meadows in Shaman where it is not possible to grow crops.
In remote villages, such as Baghalak, strategies are based on livestock because there is not enough irrigated land available. The drought had a greater impact on these villages and people had to sell most of their livestock to purchase food. In Baghalak, they have since increased their livestock, with the maximum being 30 sheep and goats per breeder. Villagers use forage that is gathered in the aylak ghor and two different strategies exist depending on the availability of workforce. The first strategy involves cutting more ghor than is needed and selling the surplus; the second strategy applies to households that are unable to cut enough grass and hence buy their forage from the former category.

4.10.2.2 Worker/land tenure ratio: a deciding factor in production systems

- **Big landowners**
The big landowners have usually obtained their land and status by inheritance. They have generally received a good level of education or have developed social networks. They are appreciated in the village and are more likely to be offered qualified or well-paid jobs (for example, with NGOs).

Big landowners employ sharecroppers (maybe traditionally these families had sharecroppers in the past) or rent their lands. According to interviews conducted with seven big landowners and other accounts they have usually developed off-farm activities, which in general enables them to diversify their revenue. They may also invest in private transport, trucks and shops in the bazaar. In general, the richest families migrated during war to Kabul, Iran or further afield, where they may have found good jobs abroad. This helps explain their capacity to develop alternative incomes as opposed to poorer families who did not have the means to migrate to Iran. Some of the farmers export grass by truck from Shaman to Bamiyan: only the richest landowners have enough capital to pay this type of transport. Similarly, some of the Shaman villagers travel by truck to the aylaks for practical reasons.

This category of big landowners usually has the largest flocks thanks to the availability of fodder for winter (grass, straw, legume fodder) which is gathered from their land, from Shaman or other plots. The example of Deh Sulkh shows that the biggest landowners (a joint family with several brothers with roughly 10 jeribs) have flocks with about 100 heads of goats and sheep. In terms of livestock, this category can be divided into two sub-categories: families who have large flocks and those who do not have large flocks but usually have off-farm activities instead. Families that do not have any sheep or goats (require time for shepherding) usually have cows (require fodder).

In Deh Sulkh, it seems that only biggest landowners have orchards. This production appears to be more risky and people are unaccustomed to it. For example, three years ago, trees froze. We assume that fruit tree production is the most valuable crop but marketing and technical knowledge is lacking. Moreover, the process of marketing fruit is problematic because fruit is more delicate than potatoes. Fruits trees represent an innovation in the region which is mainly being promoted by big landowners.

- **Small landowners**
The category of small landowners can be divided into two sub-categories:
1. families owning a cropped area which enables them to work only on their farm (ratio of 1.25). These families can work alone on their farm without employing a sharecropper and they do not need to look for off-farm activities.
2. families whose land is too small to occupy the full family workforce (ratio<<1.25). In this category, families tend to develop some off-farm activities. To increase their revenues, they may work as stonemasons, for example. Many of them work as sharecroppers for the biggest landowners. “As an average, they are getting off-farm revenues for 15 days to one month out of one year if they stay in Yakawlang” (farmer from Deh Sulkh). These
households often have family members who have migrated (to Iran, for example) but do not necessarily represent a source of income because, as daily workers, they are unable to save enough money due to the cost of living in Kabul or abroad. However, in this case, they are not included in the family’s expenditure.

Small landowners may have from five to twenty sheep and goats, and/or up to five cattle. The number of animals depends on the size of cultivated area and the same applies for the amount of fodder. Moreover, the availability of workforce determines whether the family is able to shepherd flocks or not.

- **The landless**
  Families without any land have to work as sharecroppers and they generally belong to former sharecropping families. They have never achieved a high social status nor a good education, and this limits their access to well-paid jobs.

  Within this group, the poorest families do not have any animals and wealthier families may have up to ten sheep and goats, and/or one or two cows. Each year, they sell, if possible, two or three sheep and one cow to fulfil their needs.

  In general, we can assume that **most landless families, especially sharecroppers, base their family livelihood on livestock breeding**, as they have no land. The only limiting factor for breeding is the availability of fodder for winter which they have to buy: the size of the herd roughly depends on the area cultivated. Breeding can be considered as a coping strategy in the sense that landless families compensate for the lack of land by selling animals when fodder is limited. Usually, farmers adopt this strategy when they do not have any off-farm activities.

  **Pound (2003) concluded his survey as follows: “Mixed farming is the major contributor to the livelihoods of village families in Yakawlang District. A very small percentage of people earn their living from other trades, and there are villages with no full-time trades apart from farming. While farming is the mainstay of people’s lives, the sample chosen for this survey suggests that it is a very fragile existence, with a minority of families achieving self-sufficiency in staple foods, and for many the sale or exchange of their own produce does not provide sufficient food for the household.”**

- **Relations between landowners and sharecroppers**
  One sharecropper can look after 4 to 5 jeribs alone but can be helped in burst of work. Usually, the sharecropper receives a quarter of the produce and the landowner provides inputs and oxen. In the village of Chaman e Joghuri, a type of pledge exists even though it only concerns a few lands. Farmer can borrow money from a landlord or a richer man and, in return, he can rent him some of his land.

  In conclusion, Figure 39 illustrates the three different structural factors, the various strategies available and the different categories of farmer.
4.10.2.3 Types of farmer using Shaman

In the previous section, we presented the three structural factors which determine the type of production system. In this section, we shall focus on farmers who have land in the Shaman plain and this should enable us to better understand the impact of the Shaman plain drainage project. We assume that, by analogy, we may compare the management of well-irrigated lands in the foothills to the land in Shaman after drainage.

Figure 40 below provides a summary of the main types of farmer using Shaman lands.
Given that much of the land in Shaman plain has been divided recently, many smallholders only have land in this area. For other landowners, Shaman land is part of their production territory. To a certain extent, the distribution of Shaman land has reduced the degree of disparity.

The wide range of environmental conditions and different types of access to production territories are the main factors which determine production systems. Moreover, the amount of land available on the farm and the size of the workforce also contribute to defining farmers' strategies.

This chapter presents an analysis of the agrarian system of the plain. It reveals the great diversity of the overlapping production territories. The high plateaux represent the main production territory for the remote villages, or part of the production territory for farmers in the valleys. Customary rights have been established over time and, as a result of the selling and purchasing of land, farmers often dispose of a variety of territories. Having analysed how the plain is used, we underlined the fact that land in the plain may also represent only a part of farmers’ production systems or the main territory. Depending on the level of the water table, the plain is flooded to varying degrees. As a result, land use is diversified (pasture, meadows, cultivated land).

In addition to environmental factors, other structural factors such as availability of land and workforce influence the decision-making process at the level of the production system. As a consequence, farmers may adopt a variety of strategies. In most cases, farmers do not have enough land to employ the full family workforce and have adopted livestock raising or off-farm activities as a coping strategy.

Over the long term, a general intensification of farming and of the cultivation of Shaman land has taken place. To do so, farmers have developed practices to control
the main constraints: salt and floods. The irrigation system within the plain is part of the development process of the land. It is still functional but, in time, the effectiveness of the system will be compromised by its lack of drainage network.

We also assessed the management of the territory at the community and inter-community level. To do so, we provided an overview of water and resources social management. Given that the irrigation systems are independent and have various water sources, regulations on water management vary widely. In this domain, the plain is an exception because there is an excess of water. Regulations are flexible or appointed in certain cases. Village organisations ‘traditionally’ managed this system by arranging collective work for the maintenance of the canals. This type of organisation is only responsible for overseeing canal maintenance and is not involved in inter-community management or innovation. Today, investment is provided by means of external funds and this is undermining traditional mechanisms for mobilising collective work.

The following chapter will present some of the predictable impacts of the project. In conclusion, we shall discuss some of the issues presented in the introduction, clarify new issues and finally put forward recommendations for project implementation.
5 THE SHAMAN PLAIN FLOOD CONTROL PROJECT

The main objective of this study is to assess the impact of the redevelopment of Shaman plain, excluding technical issues. In this chapter, the main issues related to hydrological functioning and environmental impact will be presented briefly but our analysis will mainly focus on the impact on land use, the agrarian system, social organisation and new issues raised by this project.

5.1 OBJECTIVES

“A direct impact is expected on the lower half of the plain (1,400 ha), with an emphasis on the lower quarter (700 ha). But, as the project will be implemented only on the main river, the real drainage efficiency on the crops will depend on the secondary hydrologic system (tributaries) and the field’s ditches. These networks will become the limiting factors of drainage. It will be easier and more economic to assess their drainage effect after this phase of work” (feasibility study carried out by Solidarités). The objective of this project is to improve land in the downstream area but not throughout the entire plain. In this way, Solidarités expects that families using Shaman land will be able to increase their revenues.

Initially, the first phase of work was planned for autumn 2005. One of the initial objectives of this study was to evaluate the first phase of work with the communities and start discussions about the second phase (opening drainage ditches inside the plain or digging the river upstream of the plain). Given that the precise outcome of the first phase is not yet known, it is difficult to predict the impact on production systems. In this chapter, we shall discuss the impact of the project as described in the project objectives (i.e. to drain the downstream part, namely 700ha). The first phase may have major positive impacts and a second phase may not be a priority. Alternatively the first phase may also be considered as compulsory in order to implement the second phase and meet the stated objectives. These questions result from Solidarités’ methodology and the implementation of the second phase will not be discussed n this chapter.

5.2 THE IMPLEMENTATION PROCEDURE OF SOLIDARITÉS’ PROJECT

5.2.1 The social challenge for project implementation

As a comparison, we shall present the principle of rehabilitation of agricultural infrastructure. In 2005, six projects were completed: four canals, one protection wall and rehabilitation of one dam. Solidarités’ role is to allocate funds, monitor technical issues and carry out a sustainable project. However, the shuras are responsible for the organisation and implementation of the work. It is not Solidarités’ role to identify skilled people or to find the necessary material but Solidarités must present plans and indicate the types of materials that they are expecting. The communities are given an advance to allow them to buy materials. A civil engineer from Solidarités has to check and manage the rehabilitation work. He also attributes the rest of the funds on the condition that the rehabilitation work is satisfactory in terms of materials and solidity for example. Funding represents 90% of both materials and labour needs, with the community contributing 10% (Solidarités plans to increase this participation to 30-40% in 2006). This procedure illustrates that the community is entirely responsible for the implementation of the work. They select representatives and decide how to implement the project. This principle follows the “cash for work” implemented by most organizations up to now. Nevertheless, the fact that communities pay for 10% of both materials and labour is no guarantee of strong participation, priority or acceptance of the need for such a project. Out of the six projects implemented in 2005, two
of them were poorly executed in order to limit the amount of materials used and labour. This example shows that the communities were, in this case, mostly interested in the cash.

Community mobilisation is one of the major challenges facing this type of project. Given that the community is only required to contribute 10% of the costs, it is difficult to ensure that they have enough incentive to implement the project.

In the case of Shaman plain flood control, Solidarités will carry out all the excavation work and the communities are responsible for digging new water intakes, primary canals and secondary drainage ditches. The shura will be responsible for resolving any problems related to land tenure and arranging for land to be redistributed if necessary. The shuras are keen to design plans for the new irrigation network after drainage, if the project achieves its objectives effectively. The project is being implemented in such a way as to give as much responsibility as possible to the community, the principle being that Solidarités will carry out any work that the communities are unable to accomplish themselves. A contract has been signed to this end between community representatives, the district governor and Solidarités. However it remains to be seen to what extent the communities will be able to successfully carry out the tasks expected from them and overcome any eventual problems.

5.2.2 Consequences of a changing intervention context

In section 2.2, we presented a summary of the project review along with the reasons why the NEPA (answerable to the Ministry of Energy and Water) put the project on hold. Central government is undergoing an intense reconstruction process and is looking to achieve a tighter control of NGO activities. In this sense, the NEPA is now making decisions and demanding more in-depth studies. Consultation between Solidarités and the NEPA is another main challenge, as henceforth they are both responsible for overseeing project management. “One year ago, when the project was designed, this consultation was not planned, but the changing context means that we have had to change our approach” (Solidarités). The main problem is the lack of preliminary studies due to insufficient ex ante data on hydrological functioning. Solidarités faces an unsolvable problem that is inherent to Afghanistan: the absence of reliable data. It is unclear what impacts digging will have on the downstream area of the plain and whether these impacts can even be assessed in advance.

5.3 IMPACT AND PERSPECTIVES

This section presents an overview of some of the foreseeable physical impacts within the limits of this study.

5.3.1 Physical changes and hydrologic functioning

In section 4.2, we presented the hydrological functioning of the rivers inside Shaman plain. Figure 41 illustrates the profile of the river from upstream of the plain (on the right) to downstream of the canyon over a total length of 12km. Within the plain itself, there is a 1:1000 gradient compared with a 50:1000 gradient in the canyon, i.e. the natural dam.
The natural dam is situated 3.7km downstream of the plain. It stands at about 80m high and is divided into two falls. A geotechnical survey was carried out in order to check the location of rocks in the river. This survey showed that the only rock present forms a 150m long ledge. Subsequently, a topographic survey was conducted along the river in order to ascertain its profile. The river profile has a slope of between 0.8:1000 close to the dam and 1.5:1000 near Larassi in the eastern limits of the plain. The shallow slope close to the dam confirms the impact of the ledge on the water runoff (Solidarités, 2005).

The first phase of the project, planned for June 2006, is represented by the solid line. This gives an indication of the new river profile after excavation. It is worthwhile pointing out that digging down by two to three meters is relatively small compared to the total height of the natural dam (80m). The second phase which will be planned only if the first phase is successful is represented by the dotted line. In this way, the upstream area of the plain should also benefit from a new river profile.

The first physical impact that is expected is the improvement of water circulation, notably in Kanak river. In section 4.2, we presented the hydrological functioning and explained the problem of confluence (Ali Cheikh) between the main river, Band e Amir, and its tributary, Kanak river. Water flow is slower in Kanak river than Band e Amir river, and Kanak river is deeper than Band e Amir at the confluence, causing the water in Kanak river to stagnate. By digging Band e Amir river deeper, this blockage should be removed and water flow in the tributary river should be increased (as illustrated in Figure 42).

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40 Survey carried out by Solidarités inside the canyon every 100m at a depth of two meters.
The proposal to lower Band e Amir riverbed raises a series of questions, including salinity issues, the risk of erosion, possible exacerbation of drought, increase in flooding downstream, and negative impact on aquatic fauna and flora.

- **New flood patterns**
  It remains unclear to what extent the digging of the river will affect the canal network. It is worth highlighting that in the past (roughly forty years ago), the irrigation system functioned without a drainage network and that, since this period, the main change appears to be increased sedimentation in canals and the rivers. We can assume that if water circulation in Band e Amir is improved, water flow in Kanak river would also increase. Some areas in the plain are likely to benefit from this first phase. Other areas will only benefit if more drainage ditches are dug. It is difficult to assess to what extent water levels will drop as it depends on a variety of factors (topography and satellite picture). **In conclusion, the drop in water table depends on current levels, distance from the rivers and canals, and finally digging of new ditches and canals within the plain.**

- **Salinity**
  Figure 43 illustrates how the lowering of the canals and the river should reduce salinity problems.
In theory, according to this figure, the deeper the canal, salt is less likely to reach the upper parts of ground, due to better circulation of groundwater. As a result, we can expect a reduction of salinity problems thanks to abundant irrigation.

- Exacerbation of drought versus reduction of the risk of flooding?
The new flood patterns can be analysed in terms of space but also in terms of time. There is little reliable data on the averages and extremes of rain and snowfall. Given that over a ten-year period, both droughts and floods may occur, will the effects of flooding be reduced and will the risk of drought be exacerbated?

Is it possible for communities to accept an increased risk of drought if they are unaware of the consequences that this implies? One of the representatives from Shaman village recognises that drainage will increase the effect of drought. Some people agree that in the case of drought, the water flow in Band e Amir could be insufficient to irrigate the land. On the contrary, Naytak villagers believe that there is enough water in Band e Amir to irrigate the plain even if it is drained. **To what extent will drainage exacerbate drought and the lack of water during the driest months?**

- Buffer zone for regulation of floods in downstream
The main objective of the Shaman plain flood control project is to reduce the retention capacity of the plain, and thus reduce flooded areas. Nevertheless, the plain currently functions as a buffer zone. Data on flooding levels points to a maximum between April and August, with a peak in May. Will the digging reduce the period of flooding and raise the highest level of the river downstream? We know that water is found in the gravel in the plain, but we do not know how much time is needed to attain the maximum retention capacity or how much time is needed for the water to evacuate. **In conclusion, we do not know to what extent the plain functions as a buffer zone.**

If floods become more severe in the downstream areas, this could have a negative impact on the project. The village of Kiligan, which lies downstream of the canyon, a few kilometres beyond Pool e Sanghi, was severely hit by flooding in 2005: meadow production was destroyed and some of the cultivated land was affected by erosion. This village may be increasingly affected by this type of phenomenon. The representatives of Kiligan have not been consulted about this problem by Solidarités.

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**Figure 43: Comparison of salinity evacuation according to the depth of drain**

**Source:** S. Bouarfa, CEMAGREF
• **Accumulation and sedimentation issue: a condition for project sustainability**

Based on the hypothesis put forward by Solidarités, the proposed change to the river profile should limit the amount of sedimentation available to accumulate in the river. In theory, when the natural dam is removed, sediments will be removed automatically with the water flow. Knowing that sedimentation seems to be recent (roughly forty years), how can we be sure that the issue of sedimentation will not occur again in the future? If we consider that sedimentation may reoccur, what is the minimum amount of time required for the project to be profitable?

• **Erosion of the river banks**

The digging of the river will cause some of the riverbank of the canyon to fall into the river, and land will be lost. Only the village of Gazak is concerned by this problem. The villagers claim that they fully accept the risk of salinity (sulphates), erosion (collapse of riverbanks) and drought.

• **Impact on ecosystem**

Given that the main objective of this project is to change flood patterns, and thus reduce flooded areas, much of the land which is uncultivated because it lies underwater most of the year will become drier. In the wettest parts of the plain, the vegetation mainly consists of high reeds and, in terms of botany and different species of animals, these areas are not the most diversified. However, a much higher natural diversity was observed in the “meso-hydrophilic” meadows, with numerous species of dragonflies and toads.

It is difficult to assess to what extent fauna and flora will be affected by the project because we assume that habitats are specific: the surface area of certain habitats may be increased and others reduced. A specific Environmental Impact Assessment (EIA) should be carried out in order to shed more light on the impact on the ecosystem (as requested by the NEPA).

Figure 44 illustrates the expected changes in land use and it is worth highlighting that the downstream area is most used by villagers. Given that this area is already cultivated, we do not expect any major negative impacts.

**Until outstanding technical and environmental issues are taken into account and clarified as far as possible with the population, it is not possible to predict the overall efficiency of drainage. A set of measures should be drawn up in order to resolve these outstanding issues.**

The following impacts are based on the assumption that the project will achieve its technical objectives.

**5.3.2 Land use: technical overview of rehabilitation**

The initial objective of the project was formulated as follows: “*increase the area of cultivable land by around 500ha*” (Solidarités, 2004). While studies were underway, the objective was altered: “*an impact is expected on the lower half of the plain with an emphasis on the lower quarter*” (Solidarités, 2005). The objectives formulated by Solidarités evolved as they gained better knowledge of the plain. On the land use map (Figure 44), three zones can be identified in order to describe the foreseeable impacts of the flood control project.
Given that a second phase is planned, we can expect an improvement of the lands at several degrees.

- The whole of Zone I is currently being cultivated even though half of this area faces flooding problems as in 2005. As Solidarités plans to dig the Band e Amir river all along Zone I, we can expect that the majority of this land will dry out. This zone will be the first to benefit from the project.

- In Zone II, the first half of the land is ploughed and sowed mainly with winter wheat. The second half consists of meadow. The cultivated part is overrun by reeds most of the time. During the first phase of the Shaman flood control project, Solidarités plans to dig the river up to the confluence with the Kanak river, and we can therefore expect a better circulation of groundwater through the Kanak river and also in the Band e Amir. As a result, we can expect a decrease in the amount of reeds and also in soil humidity in the cultivated plots and, therefore, an increase in yields. Moreover, some of the meadows in this area could also be ploughed and the cultivated area may increase. Phase one will have less of an impact in Zone II than in Zone I. Indeed, the digging of Band e Amir proposed in phase one will not suffice to fully redevelop this area.

- In Zone III, which despite being cultivated in some areas is flooded for most of the year will probably not benefit visibly from phase one. A few more plots may be ploughed but would still be overrun by reeds.

We may assume that the project will not enable farmers to cultivate the most flooded areas and that a large amount of land will remain in meadow. Nevertheless, in this case, yields are likely to be higher in the drier meadows. The farmers also confirm that the wettest meadows are the least productive in terms of fodder.
• Finally, in the upper half of the plain, which is used as meadow and common pasture (dark green on the map), no major impacts are expected given the distance from the digging work. This zone can only be redeveloped if phase two goes ahead.

<table>
<thead>
<tr>
<th>Some areas stand to benefit from the project more than others, depending on the distance from the planned digging work and current diversity in the plain.</th>
</tr>
</thead>
</table>

In view of the foreseeable impacts on land use, we may wonder what the perception of communities is.

• There is a large consensus in favour of the drainage project mainly because farmers are only using 12% of the area for crops and they would prefer to grow wheat and fodder rather than natural pasture.
• The population would like to drain the entire plain instead of just the one quarter planned.
• Depending on the location of the villages, people have put forward different ideas on how to drain the plain, but, in general, there is a consensus that it is necessary to dig Pool Sanghi dam, the Band e Amir river and a network of ditches inside the plain (Solidarités, 2005b).

**Points of view**

In addition to the formal arguments above, “People are in favour of the drainage in order to cultivate their meadows and if there is less pasture, they can grow Lucerne and wheat to feed animals.” (farmers from Marouf and Khokis tarak). “If the level of Band e Amir and Gazak river was deeper by around two metres, it should resolve the problems.” These comments refer to the small area of cultivated land and dense population all around Shaman. The main arguments in favour of drainage refer to flooded crops, low yields of the meadows, salinity problems in highly flooded parts, disease (both livestock and people), mosquitoes and transport problems (blocked roads and footpaths, cut off villages).

**Overlooked communities**

The Larasi and Deh Sulkh villagers explained that they will not benefit from the project as their villages are situated upstream. They are interested in controlling the water flow in their area of the plain.

**5.3.3 Land tenure**

In earlier sections, we identified that land is often a source of conflict and that communities in the plain are composed of several social classes. In conclusion, most of the plain is private property. The only land that is owned by the government are the most flooded areas which are used as common pasture. This land will not be affected by the project given its distance from the planned digging work. The redevelopment of government land would indeed have been a major source of conflict, in terms of land use, customary rights and redistribution of land. Moreover, it is forbidden to modify government land. “The project will not affect directly this point (far from the works) but it must be followed by means of an extension of the project” (Solidarités, 2005). One of the priorities will be to avoid the modification of government land. Since most of the land is private, it is clear to whom each plot belongs. Thus, we assume that no redistribution of land will occur. Conflicts may have arisen over customary law on public or government land.

We also need to take into consideration any processes that are likely to emerge as a result of the project. Table 3 below underlines the difference in land prices between the foothills and the plain.
Table 3: Lands prices in different depending according to various locations and qualities

<table>
<thead>
<tr>
<th>Village</th>
<th>Type of land</th>
<th>Price afghanis/jerib (euros/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deh Sulkh and Nayak, high population density</td>
<td>Best irrigated land (foothills)</td>
<td>100,000 afghanis/ser (€41,000/ha)</td>
</tr>
<tr>
<td>Shoshuri, lower population density</td>
<td>Good irrigated land in Shaman</td>
<td>30-40,000 afghanis/ser (€15,000/ha)</td>
</tr>
<tr>
<td>Shoshuri</td>
<td>Water meadow in Shaman</td>
<td>10-12,500 afghanis/ser (€5,000/ha)</td>
</tr>
<tr>
<td>Baixab (remote area in the district)</td>
<td>Good irrigated land (foothills)</td>
<td>15,000 afghanis/ser (€6,250/ha)</td>
</tr>
</tbody>
</table>

Source: Personal enquiries

We can assume that some of the plots will increase in value after the project. Nevertheless, in some cases, farmers do not have sufficient capital to bring their plots into cultivation. Some communities have established different types of pledge but this mainly concerns large meadows. In other cases, it is likely that rent, pledges and credit rates would increase.

In terms of cost effectiveness, the objective of the project is to improve 700ha in the downstream area of the plain for a total budget of €100,000, which gives an investment of around US$170/ha. A group of NGOs, including Solidarités, has set an upper limit of US$500/ha, which means that investment for this project is lower. Seeing that the project has been extended, it appears that project expenditure is likely to exceed initial estimates although there is still room for manoeuvre in this respect. In view of the communities’ capacity to invest, it would be worthwhile examining the appropriateness of this set limit but this is not the purpose of this study.

Finally, the possibility of a second phase of work was raised during community mobilisation enquiries. There is no consensus about the likelihood that communities will dig ditches in straight lines as this could lead to landownership conflicts (according to most of the community representatives). Solidarités has been told to adhere to the existing network. In other words, villagers will not easily agree on building a new irrigation network inside the plain, which implies that conflicts will arise. If Solidarités intends to dig new drainage ditches inside the plain, it is essential that they engage in meaningful dialogue with the communities. “In many cases, people prefer to keep their property instead of losing some of their land in the construction of canals. They are not ready to change the irrigation system for fear of losing something” (Maizi, personal enquiry).

5.3.4 Changes to the farming system

5.3.4.1 An increase in yield and cropping areas

Changes in land use are likely to vary depending on the location of plots within the different zones presented in section 5.3.2. It is necessary to distinguish between two types of land use: the meadows (water meadows, the wettest plots and the drier meadows) and cultivated land (wheat overrun by reeds, crops insensitive to floods, all crops and intensive crop rotation found in the foothills). Zone I is likely to undergo the most significant changes and indeed meadows may become suitable for the most intensive crop rotation. In Zone II, we may expect an increase in yield from the meadows and cultivated lands or/and plots may change from a category to another. For example, a plot overrun by reeds may be suitable for crops insensitive to floods. In Zone III and the rest of the plain, few changes may occur and it

is unlikely that plots of land will change from a category to another. In other words, in this area, the meadows will not necessarily produce better yields.

**Figure 45: Expected increase in land value after drainage**

![Diagram showing the relationship between value of lands and humidity, with categories like All crops, insensitive crops, wheat overrun by reeds, meadows, water meadows, and the impact of drainage on land value.]

**Source:** David Lety

Most of the people met in the *shura* said that, where possible, they will probably take the whole plain into cultivation as there is a need for more irrigated land.

There is a correlation between the value of land and humidity. We assume that the wettest lands are less expensive because flooding prevents cultivation and that the driest plots are the most valuable, as shown in Table 3. **Farmers should be able to generate more income from their land after drainage, although this will vary from one location to another.**

The risk of **intensification** of the crop system in terms of pollution (increased use of chemical fertilizers and reduction in the use of manure, i.e. physical and chemical fertility) and increased use of machinery (i.e. tractors)? What impact will this have on the soil? How is intensification within the plain likely to evolve?

Additionally, if cropping patterns change, **what impact will this have on the raising of livestock?** If the cropping area increases, the question is how to reconcile this change with the need for pasture for animals?

### 5.3.4.2 A better capacity to feed livestock

In terms of the raising of livestock, it is necessary to take into consideration the amount of food available for the animals and available space for grazing. Given that that the value of land is high when humidity is low, we can assume that the driest well-irrigated land will produce higher value fodder, in terms of quantity and quality: straw from cereal crops and fodder are better for feeding livestock than reeds. On a **like-for-like basis, it is possible to grow more, better quality fodder in a cultivated plot than in meadows.** In theory, if the whole plain were cultivated more animals may be fed than with today’s meadows. In this way, **how can breeding be developed given that the limiting factor is the availability of forage in winter?** Flood control is one option for increasing fodder production.

It is necessary to take into account grazing areas because, even if more fodder is produced, flocks also use the plain for open grazing. What impact will the reduction of pasture and livestock have on farming systems? The Shaman plain is a multipurpose territory and one of the problems is how to reconcile grazing and cropping. Looking at the calendar of land use, animals mainly graze in Shaman just before migrating to the *aylaks* and on return. A comparison of the management of meadows and cultivated lands reveals that both types of land are harvested at the same time and the flocks return just after the harvest. However in
spring, animals also graze in the plain. This is does not pose a problem for meadowland as grass grows from April onwards but animals are unable to graze on land where winter wheat has been sown at this period. **The main problem would be coordinating grazing time in spring with crop growing.** There is an increasing tendency for cattle to graze on Shaman plain and yet some villages prioritise cultivating their land, such as in Zorin valley or in the downstream area of the plain. “It is not a problem because we have a shepherd who drives the flocks in order to avoid grazing in cropped lands, such as winter wheat” (farmer from Zorin). Taking these villages as an example, cultivation does not appear to prevent livestock raising but “wandering animals and the lack of regulation are the main factors preventing cultivation in Deh Sulkh” (farmer from Deh Sulkh). This issue may require further investigation.

These questions related to the production system implies that further research should be carried out on the change in land prices, cropping patterns and the combination of cropping and livestock systems.

### 5.3.4.3 Impact on farming systems

We shall now look at the typology of different farming strategies according to two structural factors: location of village and the worker/land ratio. Firstly, we shall look at the likely impacts on the different types of village and secondly on the different types of farmer.

Taking into account the aforementioned zones, the downstream area of the plain is likely to be the most affected by the flood control project. As a result, the group of villages using pasture upstream in the plain (Tajekan, Dahan e Kank) is not concerned by the project. Villages located upstream, such as Chaman I Joghuri inside the plain or Deh Sulkh, will not benefit from the first phase of work. Amongst the villages using Shaman lands and concerned by the project, we shall make a distinction between villages with all or most of their land in Shaman and those that also have irrigated land in the foothills.

In terms of the different types of farmers, some only have land in Shaman. We assume that this category of farmer is more vulnerable because production in Shaman is less predictable and the land is not very valuable. However, the project is likely to increase the value of land to varying degrees. **As a result, all the different types of farmer may benefit from the project if their land enables them to generate higher incomes. We can assume that the project will have a positive effect on villagers’ incomes.** In terms of production alone, the amount of fodder produced in an improved plot should increase, and farmers will thus be able to feed more animals. Moreover, we saw that farmers who mainly use Shaman plain have more cattle than flocks, compared with other villages where farmers choose cattle or/and small ruminants. In other words, the flood control may give them greater choice and more flexibility in their strategies.

**Flooding represents the main constraint for agriculture inside Shaman plain. Indeed, high water levels prevent cultivation and, despite the pressure on land availability, farmers are restricted to using Shaman land as meadows. The flood control project provides a possible solution to the lack of cultivable land with its objective to improve the quality of Shaman land.**

It is interesting to consider to what extent people depend on agricultural activities. Do migration and external revenues play an important role? Where do people’s real motivation lie and how will this change in the future as the region opens to external influences? Fewer people work in the fields than before and it remains to be seen whether there will be enough labour in the future.
5.3.5 Irrigation and drainage network

Firstly, we need to assess how the infrastructure needs to be changed in order to carry out the project and, secondly, how the territory will be managed.

- **Irrigation network**

  The current irrigation network is functional and is used by farmers. In the downstream area, where the project is being implemented, the canals are working well, except for some of the wetter areas consisting of meadows. Maintenance work needs to be carried out on the existing irrigation system, but does not require major rehabilitation. Moreover, collective work is organised to clear out the canals.

- **Water allocation**

  Some plots are not irrigated at present (in the plain near Watapur and the mouth of the Tarnuk valley) and after drainage there will not be enough water to irrigate them. In Gazak, the land is higher than the canals and a motor pump is required for irrigation. How much land will not benefit from drainage because of a lack of irrigation water? The irrigation system functions well and most plots are irrigated yet it is worth bearing in mind that this case may not be isolated.

- **Construction of new water intakes**

  The first phase may affect the water intake of Shoshuri, in which case, a new water intake will be needed in the upper parts of the river. The plain has a 1 to 2:1000 gradient, which means that if the river is dug two metres deeper, a new water intake will be needed 1,000m further upstream. This also implies that a new primary canal 1km in length will also have to be dug.

  Moreover, if a second phase includes digging of Band e Amir and drainage canals, again new water intakes would need to be constructed around 1km further up (taking into account the 2:1000 gradient). Four main water intakes, a new canal and a new water intake would need to be built for each phase in order to adapt the network to the new river profile.

- **Need for a new drainage network?**

  It remains unclear whether it will be necessary to dig new drainage ditches inside the plain. There are three possible scenarios after the first phase of work. In the first scenario, if the results of the first phase are unsatisfactory, the second phase is cancelled. The second scenario is that digging work continues further upstream along Band e Amir and/or Kanak river. “In the past, the plain was more cultivated and not flooded because the rivers were deeper, that is why there is no drainage network” (farmer from Watapur). We assume that this second scenario would restore the system to its former state. In this case, Solidarités (or some other external organisation) would have to implement the work mainly because machinery is required. Finally, the third scenario is that funding is reduced for the main rivers and open primary drainage ditches inside the plain. This scenario may arise if the digging of rivers alone is not sufficient. We may expect communities to dig new secondary and tertiary canals if relevant. Farmers are aware of the difference between drainage and irrigation networks. In Shaman, two drainage canals were dug four years ago by an NGO in Marouf and Dahan e Tarnuk “but they are useless” (farmer from Dahan e Tarnuk) because the water is not evacuated effectively through Band e Amir.

  If the second phase goes ahead as planned, this raises the question of how and who will oversee the construction of drainage canals and new water intakes if not Solidarités? We shall now consider the question of coordination and mobilisation.
5.3.6 Community organisation and coordination

We have seen that the first phase of this project aims at allowing communities to construct a series of water intakes and primary canals. Moreover, the second phase may also involve community participation in building more water intakes and possibly new drainage ditches. Assuming that technically, the digging of new canals is possible, uncertainty persists as to whether the communities will manage the work themselves. The construction of new water intakes and primary canals should pose no problem, but communities need to be convinced that the digging of new drainage ditches is in their common interest. Otherwise land conflicts may emerge implying concerted liaison and negotiation efforts.

- **Need for a new water management committee?**
  Is it necessary to set up a committee that is responsible for managing water issues, and if so, what type of organisation would be the most suitable? Water management varies throughout the plain and surrounding areas depending on local conditions (size of irrigation system, scarcity of water). In the plain itself, a water round already exists and given that villagers do not have to contend with a lack of water, there is no need for a *mirab*. **We assume that there is no particular need to create a new water management organisation because a local framework already exists for managing water issues.** Nevertheless, if the observed problems regarding water allocation (see above) are widespread then it would be worthwhile promoting community discussions on this issue.

- **What type of community mobilisation is required for the new building work?**
  Two different types of building work need to be taken into consideration. Firstly, communities need to build new water intakes and primary canals in order to preserve the existing irrigation network. Secondly, they are required to build a new drainage network.

  Maintaining the existing irrigation network is a necessity for communities and they understand the importance of taking part in this building work: “It’s our duty” (farmer from Deh Sulkh). In this case, it seems likely that communities will be mobilised to carry out this work collectively, as for the annual maintenance work. Even if representatives agree in principle that this is their responsibility, community mobilisation remains a challenge. Communities may try to negotiate funding because they believe that “Solidarités should rehabilitate water intakes with concrete” (a representative from Watapur). Indeed, the work needs to be monitored to ensure that it is carried out correctly.

  With regards to the drainage network, convincing people of their incentive to participate is the main challenge. Unlike the irrigation network, drainage may be considered an innovation because people are no longer accustomed to using this type of system. Communities firstly need to be convinced of the importance of this work and indeed it will be more difficult to mobilise them. “People can participate in constructing the new irrigation and drainage network, we are ready to make a new irrigation network” (farmer from Naytak). More generally, concerning the conditions of participation for the project, it appears that some of the villagers have not yet been informed about the drainage project.

  All the villages have agreed to participate in repairing the irrigation network as their contribution to the project, even though six villages asked for support for water intake rehabilitation. These water intakes are on the Band e Amir and it is true that the digging of this river will probably cause damage to their water intake (phase 2). (Solidarités, 2005b)

This raises the question of how maintenance work should be organised. **Does the shura have enough power to mobilise communities and oversee construction and maintenance work?**
Until outstanding technical and environmental issues are taken into account and clarified as far as possible with the population, it is not possible to predict the overall efficiency of drainage. A set of measures should be drawn up in order to resolve these outstanding issues. Some areas stand to benefit from the project more than others, depending on the distance from the planned digging work and current diversity in the plain.

Farmers should be able to generate more income from their land after drainage. As a result, all the different types of farmer may benefit from the project if their land enables them to generate higher incomes. The flood control project provides a possible solution to the lack of cultivable land with its objective to improve the quality of Shaman land.

Maintenance work needs to be carried out on the existing irrigation system. We assume that there is no particular need to create a new water management organisation because a local framework already exists for managing water issues. Does the *shura* have enough power to mobilise communities and oversee construction and maintenance work?
6 CONCLUSIONS AND RECOMMENDATIONS

6.1 STUDY OBJECTIVES

Solidarités and Groupe URD stipulated that the main objective of this study is to analyse the agrarian and irrigation system in order to assess the predictable impacts of the Shaman plain flood control project. The overall objective is to avoid major problems for project implementation, especially within agricultural and organisational fields, and finally to put forward recommendations to improve the current programme design.

6.2 MAIN FINDINGS

The agrarian system is undergoing a general process of intensification and the Shaman plain flood control project may accentuate this dynamic by enabling farmers to generate higher incomes from their land. However, in view of the current diversity of land use in the plain, the project will benefit some areas more than others. As a consequence, different categories of farmer with land in Shaman stand to benefit from the project in different ways. Most of the plain is divided into private property although some of the wetter areas remain government property. However, we assume that land tenure will not pose a major problem.

Moreover, it remains several technical questions which prevent us to predict precisely the physical impacts of the project.

The existing irrigation system functions well but requires maintenance work. Given that irrigation systems are independent and often have various water sources, the rules governing water management vary considerably. In this sense, the plain is an exception because there is an excess of water to control. We assume that there is no particular need to create a new water management organisation because a local framework already exists for managing water issues.

Over time, communities evolved independently on the basis of clientelism, and can be described as feudal and hierarchic societies. Village organisations are ‘traditionally’ in charge of the water management system by arranging collective work for canal maintenance. This type of organisation is only responsible for overseeing the maintenance work and is not involved in inter-community management or investment. Collective work for setting up the new network is being achieved with the support of external funds, but unfortunately this appears to be undermining the inherently ‘free’ nature of community work. The international community is trying to promote democratic processes, participation and a sense of responsibility, yet paradoxically this is weakening traditional organisation. Does the shura have enough power to mobilise communities and oversee construction and maintenance work?

Moreover, the changing context has to be taken into account in project implementation, including the question of national building. Central government is undergoing an intense reconstruction process and is looking to achieve a tighter control of NGO activities, hence the request for more in-depth studies in the case of the Shaman plain project.
6.3 OUTSTANDING ISSUES AND CHALLENGES

These findings highlight the fact that one of the main challenges that lies ahead is unresolved technical issues because if they were resolved or clarified, consultation with communities and central government would improve.

We have seen that a number of technical issues still need to be addressed. The main issue is the uncertainty regarding groundwater circulation, which prevents us from knowing to what extent floods will increase downstream and how quickly rivers will fill up with sediment again. It is also unclear to what extent digging the river will improve drainage and whether digging new drainage ditches is necessary. Improving our understanding of these issues would enable us to assess with greater precision the potential negative impacts on the environment. Similarly, priorities may emerge, i.e. the identification of areas that merit preservation (fauna and flora) or areas that require urgent redevelopment. Finally, if communities had a better understanding of how the plain is to be drained technically, their participation in the decision-making process is likely to improve.

- Lack of consultation with authorities and impact analysis

Consultation with central government was not planned when the project was designed but as the intervention context changed, it became a necessity. The fact that the project was placed on hold raise two distinct issues: lack of consultation with central government while the reconstruction process was underway; and insufficient technical surveys. A lack of technical data was the main reason that central government decided to put the project on hold.

Now that the project is pending, these two issues should be resolved with support from central government. On the one hand, Solidarités may carry out in-depth technical studies and an environmental impact assessment, as requested by the NEPA. The NEPA will be involved in this process. “It is a matter of full involvement of NEPA in the project in order to lead a common agreement and acceptance of the Project positive impacts, and therefore its implementation” (Solidarités). Even if these elements were not originally planned, Solidarités is now adapting its methodology to the new requirements, which are line with central government’s general objectives presented below.

The Ministry of Energy and Water (former MIWRE) has been designated as the core institution to manage water resources. The new policy framework and institution building in general is based on the internationally recognised concept of Integrated Water Resources Management (IWRM) based on a River Basin (IRBM) approach.

Despite IRBM policy, water, and especially irrigation, is currently regarded as a technical and engineering domain that is reserved to (international) specialists, government institutions and the private (local) sector, excluding NGOs de facto. In light of the experience of the Kunduz River Basin Project (KRBP), the likely development over the coming years is that specific activities required for IWRM/IRBM implementation may provide NGOs with the opportunity to play an important role once again in this sector. These activities include community mobilisation and capacity building, extension work, social water management and research. (Rivière, 2005)

- ‘Participative approach’ under question

Most of the stakeholders as well as donors, the European Commission, the World Bank and the Afghan government actively promote community participation.
Viewpoints on community participation in water management

The various Ministries are in the process of reform. The Ministry of Energy and Water (formerly the Ministry of Irrigation, Water resources and Environment) is drawing up strategic plans. With regards to the water sector, the main objective is the “improvement of quality of life” by laying down certain conditions. Here we shall focus solely on the issue of participation. The MEW wants to implement “an integrated approach to water resource management through the establishment and development of River Basin Authority”. Moreover, they intend to “promote and encourage traditional organisation and water users associations”. This reform should be established at the institution level. “For this purpose, MEW envisages functioning at three levels: (i) at constitutional level in charge of national planning; (ii) at organizational level, the River Basin Authority will be in charge of regulating water use, (iii) and finally at operational level, watershed management will have to fulfil specific needs and demands” (MIWRE, 2004)

Generally, governments, donors and the development bank support the devolution of water management, and governments often promote this approach for budget reasons. In various countries the World Bank is promoting participatory irrigation management in order “to improve management, accountancy, agronomic and economic productivity of irrigation systems” which involves the devolution of irrigation systems management to water users via associations.

The EC is financing several programmes related to “Integrated Water Resource Management” in order to “foster greater food security through the promotion of enhanced participation and social ownership in the rehabilitation and development of improved water management structures”... “The challenges attached to greater, and socially more equitable, participation is fundamental for the development of any of these resources.” (Groupe URD, AKDN, 2005)42. The objectives include “To empower water users to participate in the implementation of more equitable, efficient and sustainable use and management of local water resources”. More generally, the objective is “to strengthen the capacity of national, provincial and local institutions to identify, establish and employ appropriate technologies, participatory methods and inclusive mechanisms to ensure water usage, distribution and management are equitable and efficient.” (Groupe URD, AKDN, 2005)

These statements raise the question of clarifying each stakeholder’s responsibilities. The Afghan government wants to involve watershed management authorities although it is not clear yet exactly what their responsibilities will be. As a result, we do not know if the communities will have to manage their irrigation system alone or if they can expect external financial support. In view of the current situation and the resources available at local government, it remains to be seen whether the government will be able to accomplish such a task. Moreover, the World Bank for example is promoting the devolution of irrigation system management. Where should the limits be set between community and external stakeholder responsibilities? With regards to the Shaman plain flood control project, Solidarités has stated that they undertake tasks that the communities are unable to fulfil. Whatever modality is chosen, we can safely say that the implementation of such a project would be difficult without external aid. In other words, Solidarités has a legitimate role to play in this project but the question remains of maintenance and investment in the long term. The ‘participative approach’ highlights the issue of division of responsibilities.

Another objective of the involvement of “users and communities in the irrigation services is to improve the access to information, decrease the cost of surveillance, drive a common feeling of shared property and improve transparency and reliability of decisions” according to the FAO and WB. This observation is applicable to the majority of central government agencies.

42 The EC is financing this consortium for the implementation of the Participatory Management of Irrigation System (in support of the Kunduz River Basin Project).
responsible for irrigation systems management in other countries that are now in chronic deficit. They are finding themselves in a vicious circle whereby the low rate of water fee collection increases their fiscal deficit. This results in a degradation of the quality of the water service, which means they cannot increase the water fee payment, etc. (Ruff, 2001). In this respect, the Afghan context is different: the government implements large-scale irrigation schemes with the support of external agencies and wants to promote devolution. In the case of Afghanistan, particularly, the Yakawlang district, central government has not been involved in this type of implementation and ‘traditional’ infrastructure was built by the communities themselves. Can we consider that the donor-NGO system will generate the same problems mentioned above for central government? In the case of the Shaman plain, it is worthwhile taking into account that this is the first time this type of project is being implemented in this region and Solidarités’ project will not necessarily require substantial maintenance costs. The current donor-NGO system can be seen as external aid. This system aims at involving the communities but paradoxically the problem of opportunism arises as communities try to take advantage of the aid offered.

Unfortunately, project implementation modalities have failed to promote ownership for the project amongst the communities. While Solidarités is aiming to ensure that it makes the best investment, communities still view this external support as direct aid because short-term emergency programmes were previously carried out this way. Solidarités promotes community participation by consulting them via ‘community mobilisation’ meetings in order to understand their needs, points of view and to keep them informed. During the meeting that was held in August 2005, community representatives formally gave their agreement to the project. However, it remains unclear to what extent the representatives and communities fully comprehend the potential negative impacts or the amount of work involved in building water intakes and primary canals, and also opening drainage ditches. In the long term, communities may also be responsible for maintenance work. Solidarités is now faced with the problem that they have received the full agreement of communities without knowing if they are truly ready and willing to be involved in the project. Over time, communities have become accustomed to receiving external aid as direct aid and this perception may persist.

Finally, it is worth underlining the question of the representativeness of councils and shuras. When general meetings or community mobilisation meetings are organised, an official representative is chosen. We have seen that local power figures may differ from one village to another. In some villages, the head of the NSP council is chosen to be representative; in others, the former head of the village fulfils this role. Solidarités regularly brings together the different representatives but it is unclear to what extent they really represent and inform the communities. In some villages, the democratic process is highly effective but in others, powerful headmen from the former hierarchic system are the main discussion partners, and this case, there are few control mechanisms for verifying whether information is transferred or not. Even though Solidarités has informed all the representatives of the villages concerned, there are still farmers who have not heard about the project. This raises the question of how to ensure that the communities are fully involved in the project if they are not aware or involved in the decision-making process? This problem is related to internal organisation and it is not Solidarités’ task to improve local democratic processes. However, it is a problem that Solidarités has to deal with and take into account. For example, the village of Naytak has four different shuras. One of these shura is responsible for implementing a water intake rehabilitation project but the others are opposed to this initiative because they are concerned about a possible lack of water in the future. This raises questions about the representativeness of shuras and the relationship between different shuras when they share a common interest.

In conclusion, adopting a participative approach implies overcoming difficulties linked to community organisation and the functioning of external aid.
• Interpreting the problem of flooding at the watershed scale
The flooding issue could also be analysed differently given that it appears to be recent problem. Indeed, flooding increases the risk of erosion and sedimentation in the rivers. **If the whole watershed is taken into account, it may have been relevant to reduce erosion and sedimentation in the river before tackling the problem of flooding.** "This type of project should be considered within an overall development (master) plan, including water resources management for the relevant watershed" (Rivière, 2005). The availability of natural vegetation has diminished drastically as a result of people gathering firewood for heating purposes. Population growth has indeed contributed to the increase in erosion and flooding problems but cannot be interpreted as the main factor. Natural erosion is another important factor and a detailed assessment should be carried out in order to assess to what extent erosion is due to human activities. The management of natural vegetation cover is indeed a challenge but it would require much more funds to implement such a programme. The Band e Amir river with its large watershed accounts for 75% of flooding in Shaman plain. The ‘Yakawlang district rural development support’ does not have the necessary resources to finance such a lengthy and costly project. Even though natural resource management is of great importance, it needs to respond partially to the problems of Shaman villagers.

### 6.4 Recommendations

#### 6.4.1 Technical issues

• Measurement plan to conserve and to implement

*What tools or new surveys should be included?* Measurement procedures have already been drawn up but they will need to be monitored, and it may be useful to devise new complementary procedures. There are two main questions that need to be clarified: how is groundwater circulating and what is the capacity of the plain to retain water? This information should enable us to predict to what extent water flow will increase or decrease, whether flooding downstream is likely to increase and what the new flood patterns would be? In other words, this would allow us to establish which areas are likely to be dry after the first phase and after the second phase. To do so, the **more studies need to be carried out on the geographical distribution of the soil.** Additionally, **other wells should be dug in order to assess the water table levels at different points in the plain.** The water flow has already been measured at various points along the Band e Amir river but we now need to know the difference in water flow between upstream and downstream points. It will be necessary to know when the plain reaches its maximum retention capacity. Water flow upstream (Larasi) needs to be checked on a weekly basis.

Secondly, it is also important to have more information on the rate at which the sedimentation process is taking place. The gauge (water level indicator) is already being used to measure water flow on a regular basis. **It may be useful to use the same rulers to assess the sedimentation process by measuring the variation in gravel levels in the rivers.**

The application of more thorough procedures should help resolve outstanding technical and hydrological issues. Consequently, this information should ensure a more precise and thorough environmental assessment.

“Following the first recommendations of the NEPA regarding “Shaman flood control project”, an Environment Impact Assessment (EIA) has to be realized in 2006 in order to better evaluate and anticipate consequences and impact of the first phase works towards the environment. In this regard, an external consultant will be recruited and a field survey is expected to take place in May and June 2006” (Solidarités).
• How to optimise impacts?
Until we have a better understanding of groundwater circulation, there are several possible scenarios. In the first phase alone, scenario 1 is that the main rivers are dug until the upstream areas; scenario 2 involves digging the main rivers and opening drainage ditches. What will the second phase of the project involve? How will the new irrigation and drainage networks be drawn up? These new networks may optimise the impacts but this work can only be planned after the first phase is completed and after more thorough analysis is carried out. “In 2007 and 2008, besides continuous monitoring of the water and land conditions in Shaman plain, (including a second series of satellite pictures and land use analysis), additional improvements to the drainage system will be implemented according to the remaining budget, the new hydraulic situation, and populations needs.” (Solidarités 2005)

Given the pressure on land availability, we have seen that the production system must make the most of the available workforce. Livestock raising is one of the main coping strategies. Even if livestock raising is not an integral part of the project implemented in Yakawlang, the project must ensure that it provides support for this activity, given the amount of land dedicated to animal husbandry in this region. Moreover, fodder production also occupies an important position in the crop system given its value and its use for animals. It may also be a priority to reinforce training efforts on fodder production. Carrying out an evaluation on the local production system may identify areas where Solidarités could provide technical support for agricultural development integrated in a socio-economical development plan.

• Measures to limit negative impacts
The potential negatives impacts that have been highlighted include an increase in flooding downstream and erosion of the riverbanks. If these negative impacts do occur, it will be important to fund a Cash for Work programme to construct breakwater (as described in section 4.5.3) downstream of the canyon. Local communities are accustomed to implementing this type of work and have acquired traditional skills in this field. However this will require financial support if these negative impacts are indeed exacerbated as a direct consequence of the project.

If the EIA is carried out, it may be decided that some zones will not be redeveloped. In this case, the second phase (opening of ditches and digging of rivers) may still go ahead taking this into account. The preservation of zones which have a specific biodiversity should be an objective, and this in turn implies establishing priorities.

• What are the priorities for the future?
Having studied the technical issues that are related to drainage, it may be necessary to determine which areas will benefit from this work. If some areas need to be preserved for ecological reasons, it may be possible to prioritise others. We have seen that some villages are more affected by flooding, for example villages situated inside the plain, and these areas may be prioritised for redevelopment. Indeed, the project focuses on the downstream areas which are more cultivated than other zones but it may be necessary to look at the central more flooded area. In order to determine these priorities, selection criteria need to be established: vulnerability of the population, density and capacity to organise themselves.

6.4.2 Reference framework for stakeholders
Each stakeholder is involved in the project to different degrees and with different responsibilities. That raises a new stake for the project: more dialogue will be needed in order to bring together and represent all the different interests and incentives within the same reference framework. To do so, strong arguments need to be put forward by all players in order to promote general interest. This should enable the project to mobilise stakeholders and support collective action.
While implementing the Shaman plain flood control project, Solidarités will need to ensure that national and local stakeholders are fully involved. This process is not yet fully operational. Firstly, Solidarités will have to work in full cooperation with the institutions concerned with the project, including: Ministry of Energy and Water (environmental and water management issues), Ministry of Agriculture and Animal Husbandry (follow up and support for agricultural intensification) and finally the Ministry of Mines and Industry (implementation of works). The MEW has Irrigation Departments in all provinces yet “weaknesses within MEW departments and insufficient staff is having a negative impact on cooperation efforts and is slowing down the implementation process” (Rivière, 2005) but Solidarités will have to deal with and promote this so-called “capacity building”. To do so, Solidarités plans to “Recruit one expatriate who will be solely responsible for the “Rehabilitation of Agricultural Infrastructures component”. Solidarités and the NEPA will draw up a Memorandum of Understanding in early 2006.”

Even if the legal framework has been defined, legal procedures are still unclear and the division of responsibilities has not been fully determined. The challenge will be here to reconcile the objectives of the institutions, their resources and Solidarités’ own objectives.

In terms of community participation, the first task will be to have a better understanding of the needs and incentives of farmers and to involve representatives and farmers groups in technical design and prioritisation of work. One of the challenges will be to clarify responsibilities. By improving our understanding of the incentives of different groups of farmers, this should facilitate the planning of the second phase of work.

We have already stressed the difficulties of implementing a ‘participative approach’ but, concretely, Solidarités should continue to organise meetings and bear in mind the different viewpoints and perceptions of the communities.
CONCLUSION

The example of the Shaman plain flood control project emphasises the link between the recent establishment of new institutions in Afghanistan and the emergence of new issues. Today, the Afghan government naturally demands greater consultation and is tightening its control on NGO activities. Nevertheless, many procedures remain unclear and there are few links between local and national government bodies, as well as within the various departments.

Moreover, the various stakeholders have different interests. On the one hand, the government is looking to build its influence in the redevelopment of Afghanistan which is in line with traditional capacity building efforts. To do so, long-term aspects including environmental issues are being raised. On the other hand, as a result of population growth, communities need to increase their capacity in terms of food production and growth in the economy in order to respond to increasing needs, and for this they need the support of NGOs. In this case, who is responsible for ensuring that the interests of the communities prevail? The challenge is to improve local standards of living in a sustainable manner. The EC, Solidarités and the communities concerned are looking to implement projects with short-term impacts. Taking into account the long-term outlook and environmental issues, stakeholders need to have a better understanding of impacts and rank the different priorities and needs according to importance in order to reach a compromise.

Our recommendations give rise to another issue as the ideals of democracy and equality come face to face with the reality of another society. Participative methods and the promotion of democratic processes implicitly aim to change the structure and organisation of communities and, to a certain extent, impose a new model. However, if the notions of participation and democracy are not inherent to this society, this raises the question of how to define the scope of the main stakeholders’ responsibilities in terms of the social and political evolution of rural Afghan society.
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ANNEXES

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Source: www.aims.org
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Source: http://www.iriacenter.org/inworld.nsf/
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Source: Solidarités
Annexe 4: Calendar of events in Afghanistan

550 AD
- Persians reassert control over all of what is now Afghanistan.
- Revolts by various Afghan tribes.

652 AD
- Arabs introduce Islam

962-1030
- Islamic era established with the Ghaznavid Dynasty (962-1140)
- Afghanistan becomes the centre of Islamic power and civilization.

1030-
- Mahmud Ghazni dies.
- Conflicts between various Ghaznavid rulers arise and as a result the empire starts to crumble.

1140-
- Ghorid leaders from central Afghanistan capture and burn Ghazni, then move on to conquer India.

1219-1221 --
- Invasion of Afghanistan by Genghis Khan
- Destruction of irrigation systems by Genghis Khan, which turned fertile soil into permanent deserts.

1273
- Marco Polo crossed Afghan Turkistan

1332-1370
- Descendants of earlier Ghorid rulers reassert control over Afghanistan.

1370-1404
- The rule of Timur-i-Lang (Tamerlane)

1451-
- An Afghan named Buhlul invades Delhi, and seizes the throne. He finds the Lodi dynasty.

1504-1519
- Babur, founder of the Moghul dynasty takes control of Kabul

1520-1579
- Bayazid Roshan (Afghan intellectual) revolts against the power of the Moghul government. Roshan was killed in a battle with the Moghuls in 1579--but his struggle for independence continued.

1613-1689
- Khushhal Khan Khattak (Afghan warrior-poet) initiates a national uprising against the foreign Moghul government.

1708
- Mir Wais (forerunner of Afghan independence) makes Kandahar independent of Safavid Persia that had ruled it since 1622.

1715-
- Mir Wais dies peacefully, and lies in a mausoleum outside of Kandahar.

1725-
- (April 25)--Mir Mahmud is mysteriously killed after going mad.
- Afghans start to lose control of Persia.

1736--
- Nadir Shah (head of Persia) occupies southwest Afghanistan, and southeast Persia.

1738--
- Nadir Shah takes Kandahar.

1747--
- Nadir Shah is assassinated, and the Afghans rise once again. Afghans, under the leadership of Ahmad Shah Abdali retake Kandahar, and establish modern Afghanistan.

1747--1773
- Rule of Ahmad Shah Abdali (Durrani).
- Ahmad Shah consolidates and enlarges Afghanistan. He defeats the Moghuls in the west of the Indus, and he takes Herat away from the Persians. Ahmad Shah Durrani’s empire extended from Central Asia to Delhi, from Kashmir to the Arabian sea. It became the greatest Muslim empire in the second half of the 18th century.
- (1750) Khurasan----> Afghanistan.

1773-1793
- Rule of Timur Shah
- Capital of Afghanistan transferred from Kandahar to Kabul because of tribal opposition.
- Constant internal revolts

1793-1801
- Rule of Zaman Shah
- Constant internal revolts
- (1795) Persians invade Khurasan (province)

1801-1803
- Rule of Mahmood
Constant internal revolts

1803-1809
- Rule of Shah Shujah
- (1805) Persian attack on Herat fails.
- Internal fighting

1809-1818
- Mahmood returns to the throne.
- War with Persia--indecisive victory
- Internal fighting

1819-1826
- Sons of Timur Shah struggle for the throne--Civil War--anarchy--
- Afghans lose Sind permanently

1826-
- Dost Mohammad Khan takes Kabul, and establishes control.

1832-1833
- Persia moves into Khurasan (province), and threatens Herat. Afghans defend Herat successfully.

1834-
- (May)--Afghans lose Peshawar to the Sikhs; later they crushed the Sikhs under the leadership of Akbar Khan who defeated the Sikhs near Jamrud, and killed the great Sikh general Hari Singh. However, they failed to retake Peshawar due to disunity and bad judgment on the part of Dost Mohammad Khan.

1836-
- Dost Mohammad Khan is proclaimed as Amir al-mu' min in (commander of the faithful). He was well on the road toward reunifying the whole of Afghanistan when the British, in collaboration with an ex-king (Shah Shuja), invade Afghanistan.

1839-1842
- First Anglo-Afghan War
- After some resistance, Amir Dost Mohammad Khan surrenders to the British and is deported to India.
- Shah Shuja is installed as a "puppet king" by the British. (1839-1842)
- April 1842--Shah Shuja killed by Afghans.
- Afghans passionately continue their struggle against the British.
- Akbar Khan--Afghan hero--victorious against the British.
- In January 1842, out of 16,500 soldiers (and 12,000 dependents) only one survivor, of mixed British-Indian garrison, reaches the fort in Jalalabad, on a stumbling pony.

1843
- After the annihilation of British troops, Afghanistan once again becomes independent, and the exiled Amir, Dost Mohammad Khan comes back and occupies the royal throne (1843-1863).

1845-
- Afghan hero, Akbar Khan dies

1855
- Dost Mohammad Khan signs a peace treaty with India.

1859-
- British take Baluchistan, and Afghanistan becomes completely landlocked.

1863-1866
- Sher Ali, Dost Mohammad Khan's son, succeeds to the throne.
- (1865)--Russia takes Bukhara, Tashkent, and Samarkand.

1866-1867
- Mohammad Afzal occupies Kabul and proclaims himself Amir.
- October, 1867--Mohammad Afzal dies.

1867-1868--
- Mohammad Azam succeeds to the throne
- 1868--Mohammad Azam flees to Persia
- Sher Ali reasserts control (1868-1879).

1873
- Russia established a fixed boundary between Afghanistan and its new territories.
- Russia promises to respect Afghanistan's territorial integrity.

1878
- Start of second Anglo-Afghan War
- The British invade and the Afghans quickly put up a strong resistance.

1879
- Sher Ali dies in Mazar-i-Shariff, and Amir Muhammad Yaqub Khan takes over until October 1879.
- Amir Muhammad Yaqub Khan gives up the following Afghan territories to the British: Kurram, Khyber, Michni, Pishin, and Sibi. Afghans lose these territories permanently.

1880
- Battle of Maiwand
• July 1880, Afghan woman named Malalai carries the Afghan flag forward after the soldiers carrying the flag were killed by the British. She becomes a heroine for her show of courage and valour.

**Abdur Rahman takes throne of Afghanistan as Amir.**

• The British, shortly after the accession of the new Amir, withdraw from Afghanistan, although they retain the right to handle Afghanistan’s foreign relations.
• Abdur Rahman establishes fixed borders and he loses a lot of Afghan land.
• Nuristan converted to Islam.

1885-

• The Panjdeh Incident
• Russian forces seize the Panjdeh Oasis, a piece of Afghan territory north of the Oxus River. Afghans tried to retake it, but was finally forced to allow the Russians to keep Panjdeh - Russians promised to honor Afghan territorial integrity in the future.

1893

• The Durand line fixes borders of Afghanistan with British India, splitting Afghan tribal areas, leaving half of these Afghans in what is now Pakistan.

1895

• Afghanistan’s northern border is fixed and guaranteed by Russia

1901-

• Abdur Rahman dies, his son Habibullah succeeds him.
• Slows steps toward modernization

1907-

• Russia and Great Britain sign the convention of St. Petersburg, in which Afghanistan is declared outside Russia’s sphere of influence.

1918-

• Mahmud Tarzi (Afghan Intellectual) introduces modern Journalism into Afghanistan with the creation of several newspapers.

1919-

• **Habibullah is assassinated, and succeeded by his son Amanullah (The reform King)**
• The first museum in Afghanistan is instituted at Baghe Bala.

1921-

• Third Anglo-Afghan war
• Once again, the British are defeated, and Afghanistan gains full control of her foreign affairs
• Amanullah Khan initiates a series of ambitious efforts at social and political modernization.

1923-

• Amanullah Khan changes his title from Amir to Padshah (King).

1929-

• Amanullah Khan is overthrown by Habibullah Kalakani.
• After the fall of Amanullah Khan, Mahmud Tarzi seeks asylum in Turkey.
• The Rise and Fall of Habibullah Kalakani, popularly known as "Bache Saqao"
• Nadir Khan takes the throne; his tribal army loots government buildings and houses of wealthy citizens because the treasury was empty.
• Habibullah Kalakani, along with his supporters, and a few supporters of Amanullah Khan are killed by Nadir Khan. Now Nadir Khan establishes full control.

1930-

• (May) Pro-Amanullah Khan uprising put down by Nadir Khan.
• **Nadir Khan abolishes reforms set forth by Amanullah Khan to modernize Afghanistan.**

1933-

• **Nadir Khan assassinated by a college student, and his son, Zahir, inherits the throne. He rules until 1973.**
• Zahir Shah’s uncles serve as prime ministers and advisors until 1953.
• Mahmud Tarzi dies in Turkey at the age of 68 with a heart full of sorrow and despair toward his country.

1934-

• The United States of America formally recognizes Afghanistan

1938-

• Da Afghanistan Bank (State Bank of Afghanistan) is incorporated.

1939-

• Minor pro-Amanullah Khan uprising (January 15)

1940-

• Zahir Shah proclaims Afghanistan as neutral during WW2

1947-

• Britain withdraws from India. Pakistan is carved out of Indian and Afghan lands.

1949-
• Afghanistan's Parliament denounces the Durand Treaty and refuses to recognize the Durand line as a legal boundary between Pakistan and Afghanistan.
• Pashtuns in Pashtunistan (Occupied Afghan Land) proclaim an independent Pashtunistan, but their proclamation goes unacknowledged by the world community.

1953--
• Prince Mohammad Daoud becomes Prime Minister.

1954--
• The U.S. rejects Afghanistan's request to buy military equipment to modernize the army.

1955--
• Daoud turns to the Soviet Union (Russia) for military aid.
• The Pashtunistan (occupied Afghan land) issue flares up.

1956--
• Kruschev and Bulgaria agree to help Afghanistan.
• Close ties between Afghanistan and USSR.

1959--
• The Purdah is made optional, women begin to enrol in the University which has become co-educational.
• Women begin to enter the workforce, and the government.

1961--
• Pakistan and Afghanistan come close to war over Pashtunistan.

1963-1964--
• Zahir Shah demands Daoud's resignation. Dr. Mohammad Yusof becomes Prime Minister.

1965--
• The Afghan Communist Party was secretly formed in January. Babrak Karmal is one of the founders.
• In September, first nationwide elections under the new constitution.
• Karmal was elected to the Parliament, later instigates riots.
• Zahir and Yussof form second government.

1969--
• Second nationwide elections.
• Babrak and Hafizullah Amin are elected.

1972--
• Mohammad Moussa becomes Prime Minister.

1973--
• July 17th: Zahir Shah is on vacation in Europe, when his government is overthrown in a military coup headed by Daoud Khan and PDPA (Afghan Communist Party).
• **Daoud Khan abolishes the monarchy, declares himself President—Republic of Afghanistan is established.**

1974--
• UNESCO names Herat as one of the first cities to be designated as a part of the world's cultural heritage.

1975–1977--
• Daoud Khan presents a new constitution. Women's rights confirmed.
• Daoud starts to oust suspected opponents from his government.

1978--
• Bloody Communist coup: Daoud is killed, Taraki is named President, and Karmal becomes his deputy Prime Minister. Tensions rise.
• Mass arrests, tortures, and arrests take place.
• Afghan flag is changed.
• Taraki signs treaty of friendship with the Soviet Union.
• June—Afghan guerrilla (Mujahideen) movement is born.

1979--
• Mass killings
• US ambassador killed
• Taraki is killed and Hafizullah Amin takes the Presidency.
• Amin is executed, and he is replaced with Babrak Karmal.
• Soviet Union (Russia) invade in December.

1980--
• Dr. Najibullah is brought back from USSR to run the secret police.

1984--
• UN sends investigators to Afghanistan to examine reported human rights violations.

1986--
• Babrak Karmal is replaced by Dr. Najibullah.

1987--
• Najibullah proposes ceasefire, but the Mujahideen refuse to deal with a "puppet government".
• Mujahideen make great gains, defeat of Soviets eminent.

1988–1989--
• Peace accords signed in Geneva.
• Soviet Union defeated by Afghanistan, total withdrawal by the Soviets occurred on Feb. 15, 1989.
• Experts agree that at least 40,000-50,000 Soviets lost their lives in action, besides the wounded, suicides, and murders.
• Mujahideen continue to fight against Najibullah's regime.
• May–Afghan guerrillas elect Sibbhatullah Mojadidi as head of their government-in-exile.

1992--
• April 15--The Mujahideen take Kabul and liberate Afghanistan, Najibullah is protected by UN.
• The Mujahideen form an Islamic State--Islamic Jihad Council--elections.
• Iranian and Pakistani interference increases--more fighting--
• Professor Burhannudin Rabbani is elected President.

1994--
• The Taliban militia are born, and advance rapidly against the Rabbani government.
• Dostum and Hekmatyar continued to clash against Rabbani's government, and as a result Kabul is reduced to rubble.

1995--
• Massive gains by the Taliban.
• Increased Pakistani and Iranian interference.

1996--
• June--Gulbuddin Hekmatyar, head of Hezbi-Islami, having been eliminated as a military power, signs a peace pact with Rabbani, and returns to Kabul to rule as prime minister.
• September 27--Taliban militia force President Rabbani and his government out of Kabul. After the capture of Kabul, the Taliban execute Najibullah.
• Alliance between Government, Hezbi Wahdat, and Dostum
• Oppression of women by the Taliban--women must be fully veiled, no longer allowed to work, go out alone or even wear white socks. Men are forced to grow beards. Buzkashi, the Afghan national sport is outlawed.
• Tensions rise as Afghan government accuse Pakistan of aiding the Taliban.
• Massive human rights violations by the Taliban.

1997--
• Mass graves of Taliban soldiers containing between 1,500 and 2,000 bodies are found. The men were believed to have been captured in May by general Abdul Malik during the Taliban's brief takeover of Mazar-i-Sharif.

1998--
• February--Earthquake strikes in northeastern Afghanistan, killing over 4,000 people, destroying villages and leaving thousands of people homeless.
• August--Taliban finally capture Mazar-i-Sharif, and massacre thousands of innocent civilians afterwards, mostly Hazaras.
• August 20th--United States launches cruise missiles hitting Afghanistan's Khost region. US states its intent was to destroy so called terrorist bases/training facilities used by Osama bin Laden and his followers. Some Afghan civilians are also killed.
• September--Tensions rise between Iran and the Taliban. Iranians are angry about the killing of their diplomats and a journalist by the Taliban when they captured Mazar-i-Sharif. Soon they deploy 70,000 troops to carry out military exercises near the Afghan border. In the end, no fighting occurs between the Taliban and the Iranian army.

1999--
• February--Earthquake hits eastern Afghanistan, affecting over 30,000 people, and killing at least 60 to 70 people.
• September--The ex-king of Afghanistan, Mohammad Zahir Shah, calls for a grand assembly, or Loya Jirga to discuss ways of bringing peace to the country. The United Front soon welcomes the idea, but the Taliban ridicule Mohammad Zahir Shah's attempts at establishing peace.
• October-- UN Security Council Resolution 1267 is adopted; sanctions against the Taliban on grounds that they offered sanctuary to Osama bin Ladin.

2000--
• May--Taliban torture and kill civilians in the Robatak Pass (on the border between Baghlan and Samangan provinces).
• September--Taloqan finally falls to the Taliban.
• December-- UN Security Council Resolution 1333 is adopted; additional sanctions against the Taliban for their continuing support of terrorism and cultivation of narcotics, etc.

2001--
• January--Taliban torture and kill numerous civilians (Hazaras) in Yakaulang.
• March--Despite pleas and requests from various international diplomats, Islamic scholars, the Taliban destroy ancient historical statues in the Kabul Museum, historical sites in Ghazni, and blow up the giant Bamiyan Buddhas from the 5th century. World expresses outrage and disgust against the Taliban action.
• April--Ahmad Shah Masood visits Europe to gather support against the Taliban.
• April--UN accuses Pakistan of not allowing adequate supply of food and medicines to displaced Afghans, at the Jalozai camp, near Peshawar.
• April--Mullah Rabbani, the Taliban's second-in-command dies of liver cancer.
• May--Taliban order religious minorities to wear tags identifying themselves as non-Muslims.
- **September 9**– Ahmad Shah Masood is killed by assassins posing as journalists. Two days later (September 11th), suicide attacks on the U.S. kill more than 3,000 people and destroy the two towers of the World Trade Center and part of the Pentagon.

- **October**– Abdul Haq is killed by the Taliban. The United States and UK working with the forces of the United Front (UNIFSA) launch air strikes against the Taliban. (The Americans hold Osama bin Laden directly responsible for the attacks on the World Trade Center, and the Taliban were targeted for protecting him.)

- **November**– Taliban lose control of Mazar-i Sharif.

- **December 5**– Bonn Agreement. Afghan political groups come together in Bonn, Germany and form an interim government. Hamid Karzai is chosen as Chairman.

2002–

- **April**– Former King Mohammad Zahir returns to Afghanistan (April) -- does not claim throne.

- **War continues against Al Qaeda and the Taliban.**

- **June**– Loya Jirga elects Hamid Karzai as President of a Transitional Government. Karzai picks members of his administration to serve until elections are held in 2004

- **July**– Haji Abdul Qadir (brother of Abdul Haq) is killed. US air raid in Uruzgan province kills approximately 48 civilians, many of them members of a wedding party.

2003–

- **War against Al Qaeda and the Taliban continue -- further weakened.**

- **August**– NATO takes control of security in Kabul.

2004–

- **January**– Afghanistan adopts a new constitution. The country is now a republic with 3 branches of government (Executive, Legislative, and Judiciary).

- 2004 October/November - Presidential elections are finally held after being delayed twice. Hamid Karzai is declared the winner, with 55.4% of the votes. He is sworn in December. Karzai's strongest challenger, Yunis Qanuni, came in second with 16.3% of the votes. The elections were not without controversy; allegations of fraud and ballot stuffing were brought up by many of the presidential candidates including Yunis Qanuni. Many felt that Hamid Karzai had an unfair advantage over the other candidates as he had access to financial and logistical resources that many of the other candidates did not have. A panel of international experts was setup to investigate the matter. The panel did find evidence of voting irregularities, however, they said that it was not enough to affect the outcome of the elections.

2005–

- **Harsh winter leaves hundreds of people dead.**

- **Major advances in the disarmament process announced.**

- **March**– Dostum appointed as the Chief of Staff to the Commander of the Armed Forces. Yunis Qanuni announces new political alliance (March 31st).

- **April**– Karzai welcomes the formation of Qanuni's political alliance.

*Source: Afghan-web data: http://www.afghan-web.com/history/*
Annexe 5: Topographical map of Shaman plain

Source: Gecosat for Solidarités (June-July 2005)
Annexe 6: Spot image of Shaman plain taken in June 2005 (interpretation done by Gecosat for Solidarités) (scale: 1 square: 1km$^2$)
## Annexe 7: Characteristics of villages using Shaman lands

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<td>106</td>
<td>384</td>
<td>144</td>
<td>160</td>
<td>500</td>
<td>100</td>
<td>25</td>
<td>150</td>
</tr>
<tr>
<td>Marouf</td>
<td>Marouf, Shaman and Marouf</td>
<td>101</td>
<td>144</td>
<td>144</td>
<td>200</td>
<td>150</td>
<td>30</td>
<td>12</td>
<td>70</td>
</tr>
<tr>
<td>Dahe Sork</td>
<td>Naw Ahad, Sum, Tainaqula, Balay Esar, Qala Bala, Toki Kilak</td>
<td>300</td>
<td>288</td>
<td>384</td>
<td>300</td>
<td>6000</td>
<td>100</td>
<td>50</td>
<td>400</td>
</tr>
</tbody>
</table>

**Total** | **2706** | **2287** | **5999** | **5087** | **17212** | **3318** | **322** | **3327**

*Source: Solidarités*
Annexe 8: Comparison of the production of Shaman lands with irrigated valleys

<table>
<thead>
<tr>
<th></th>
<th>yield (kg/jerib)</th>
<th>unit price (afgha/kg)</th>
<th>production (Produit brut)</th>
</tr>
</thead>
<tbody>
<tr>
<td>average winter wheat</td>
<td>900</td>
<td>10</td>
<td>9000</td>
</tr>
<tr>
<td>barley</td>
<td>700</td>
<td>10</td>
<td>7000</td>
</tr>
<tr>
<td>wheat min shaman</td>
<td>175</td>
<td>10</td>
<td>1750</td>
</tr>
<tr>
<td>wheat max shaman</td>
<td>700</td>
<td>10</td>
<td>7000</td>
</tr>
<tr>
<td>pasture min shaman</td>
<td>350</td>
<td>200 af/load</td>
<td>1000</td>
</tr>
<tr>
<td>pasture max shaman</td>
<td>2100</td>
<td>100 af/load</td>
<td>3000</td>
</tr>
</tbody>
</table>
Annexe 9: Reproduction scheme, example of a flock of 21 heads of Deh Sulkh

14 reproductives females  7 males

7 replacements ewe lambs

14 yearlings: 7 females + 7 males

Selling of 7 draft ewes

Source: David Lety for Groupe URD
# ACRONYMS

**AIMS**  
Afghanistan Information Management Service  

**AKDN**  
Agha Khan Development Network  

**ALNAP**  
Active Learning Network for Accountability and Performance in Humanitarian Action  

**AREU**  
Afghanistan Research and Evaluation Unit  

**CARO**  
Center for Afghan Rehabilitation  

**CNEARC**  
Centre National d’Etudes Agronomiques des Régions Chaudes  

**EC**  
European Commission  

**EIA**  
Environmental Impact Assessment  

**GERES**  
Groupe Energies Renouvelables et Environnement  

**IRBM**  
Integrated River Basin Management  

**IWRM**  
Integrated Water Resources Management  

**FAO**  
United Nations Food and Agriculture Organisation  

**KRBP**  
Kunduz River Basin Project  

**GIS**  
Geographic Information System  

**GPS**  
Global Positioning System  

**LRRD**  
Linking Relief Rehabilitation and Development  

**MRRD**  
Ministry of Rehabilitation and Rural Development  

**MEW**  
Ministry of Energy and Water  

**MAAH**  
Ministry of Agriculture and Animal Husbandry  

**MIWRE**  
Ministry of Irrigation Water (ex MEW)  

**NSP**  
National Solidarity Programme  

**NGO**  
Non Governmental Organisation  

**NEPA**  
National Environmental Protection Agency  

**PMIS**  
Participatory management of Irrigation System  

**UNHCR**  
United Nations High Commissioner for Refugees  

**UN-HABITAT**  
United Nations Habitat  

**UNEP**  
United Nations for Environment Programme  

**Groupe URD**  
Groupe Urgence Réhabilitation Développement  

**WW**  
Winter Wheat  

**WB**  
World Bank  

**WFP**  
World Food Programme
GLOSSARY

Abi: irrigated field
Aimok: tent
Arbâb: representative of a village
Awanda: inlet
Aylak: Plateau used for transhumance
Buzkachi: national game of Afghanistan
Bokuli: broad bean
Daftar xana, xana e dafter: area unit
Daqa: breakwater
Dava: conflict
Dekhan: sharecropper
Doluga: representative under Arbâb
Dolxaq, qalan: traditional chief of a village
Ijara: land rent
Jim, bandi: small dyke
Jerib: area unit #0.2 ha
Erokash: outlet
Ghor: thistle
Hashar: collective work
Kirmi jigger: parasite of small ruminant
Khan: landlord
Kiok aujar: poa
Kolanj: pickaxe
Kroust: dry cheese
Kulaj: unit for dry manure
Lalmi: rain fed field
Mir: big landlord
Mirâb: responsible for overseeing water sharing and canal maintenance
Namayenda, Raîs: elected representative of village
Pawoka: tax
Puta: bush
Rish e Safed: white beard (village council)
Sharik: sharing for means of production or investment
shura: village council
Sar i band: water intake
Tayefa: lineage
Zabur: drainage