

Afghan Opium

*A critical assessment of the size of opium
cultivation and the incentives of farmers*

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Forord

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Ane Ofstad Presterud

Oslo, 2010

Summary

Afghanistan is one of the world's poorest countries, found just above Niger in the bottom of the United Nations' Human Development Index of 2009. The country has been left shattered after decades of conflict, drained for resources and with most of their infrastructure destroyed. After the withdrawal of Soviet troops in 1988, Afghanistan was no longer the centre attention for the actors of the cold war. The suffering of Afghan people during the following years of civil war was mostly ignored by the rest of the world. This came to a sudden end when Al Qaida took the blame for the attacks on the World Trade Centre and the Pentagon in USA on September 11th 2001. As Al Qaida was supported by the Islamic organization Taliban and so found sanctuary in Afghanistan, the country was once again in the world's spotlight.

From being a small scale producer of opium, the Afghan drug industry has grown dramatically during the last three decades. According to United Nations Office on Drugs and Crime (UNODC) the Afghan production now accounts for 79 % of all illicit opium in the world. The money from the industry helps finance conflicting groups in the country, such as the Taliban. The vast amounts of valuables tied to the industry further fuels conflicts as the stakes get higher. At the same time opium poppy is a crop highly adaptable to difficult conditions and has been the safe crop for farmers living in insecure areas.

UNODC is the leading organization on research and illicit crop monitoring in Afghanistan. They have been following the development in the Afghan opium industry and have issued yearly reports on the situation since 1994. According to the organization the opium poppy cultivation in Afghanistan covered 104 000 hectares of arable land in 2005. This was enough to produce 4 100 metric tonnes of raw opium, or 87 % of the world's illicit opium.

The security situation in the country and the fact that most governmental institutions have been non-functioning for decades is however making the availability of statistical material limited. To my knowledge no other sources than UNODC have attempted to measure the Afghan opium production in 2005 and all research on the area hinges on the data provided by this organization.

The first goal of this thesis was to summarize the theoretical expositions on the growth of the industry and to provide another estimate of the cultivation of opium poppy in 2005, based on micro data from the National Risk and Vulnerability Assessment (NRVA) from 2005. The

thesis also looks closer at provincial differences, the total number of people involved in the industry and reported opium eradication episodes.

When comparing the results from the NRVA data to the reports of UNODC it is evident that the patterns of the Afghan opium industry are very different in the two expositions. The size of opium poppy cultivation in 2005 is smaller by NRVA estimation than what is claimed by UNODC, but more striking is the difference in number of households involved in the opium production. While UNODC estimates that about 309 000 families was cultivating opium poppy in Afghanistan in 2005, the same number was no more than 90 000 by the NRVA data. At the same time, on average each of these households cultivates larger amounts of poppy than what UNODC claims.

The second part of the thesis is dedicated to the investigation of poppy farmers' characteristics and their incentives for choice of crop. Theory on the subject is mainly written by one man, David Mansfield. Mansfield is seen as the leading researcher on livelihoods of Afghan poppy farmers and is widely used as an expert source by both the UN and the World Bank. In his research the poppy farmers' limited access to alternative livelihoods has a central part in explaining their choice of opium poppy cultivation. The thesis makes an overview of the theoretical work on the subject and compares the theory to findings in data from the NRVA survey.

From the information available in the NRVA data it is evident that the average poppy farmer is not poorer than the rest of the population. On the contrary these families seem to have higher income, lower debt and in general better access to assets than the average rural household. The data contradict David Mansfield's theories on most points. The choice of the farmers regarding opium poppy cultivation seems more linked to the security situation than to their lack of resources.

The end of the thesis also includes an investigation of other actors in the Afghan opium business, a part of the industry that has been subject to limited prior research.

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1 Introduction

Afghanistan is one of the world's poorest countries, found just above Niger in the bottom of the United Nations' Human Development Index of 2009 (UNDP, 2009). The country has been left shattered after decades of conflict, drained for resources and with most of their infrastructure destroyed. After the withdrawal of Soviet troops in 1988, Afghanistan was no longer the centre attention for the actors of the cold war. The suffering of Afghan people during the following years of civil war was mostly ignored by the rest of the world. This came to a sudden end when Al Qaida took the blame for the attacks on the World Trade Centre and the Pentagon in USA on September 11th 2001. As Al Qaida was supported by the Islamic organization Taliban and so found sanctuary in Afghanistan, the country was once again in the world's spotlight.

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The security situation in the country and the fact that most governmental institutions have been non-functioning for decades is however making the availability of statistical material limited. To my knowledge no other sources than UNODC have attempted to measure the Afghan opium production in 2005 and all research on the area hinges on the data provided by this organization.

The first goal of this thesis is to summarize the theoretical expositions on the growth of the industry and to provide another estimate of the cultivation of opium poppy in 2005, based on micro data from the National Risk and Vulnerability Assessment from 2005. I will also look closer at provincial differences, the total number of people involved in the industry and reported opium eradication episodes. All estimations are compared to UNODC's data.

The second part of the thesis is dedicated to the investigation of poppy farmers' characteristics and their incentives for choice of crop. Theory on the subject is mainly written by one man, David Mansfield. Mansfield is seen as the leading researcher on livelihoods of Afghan poppy farmers and is widely used as an expert source by both the UN and the World Bank. In his research the poppy farmers' limited access to alternative livelihoods has a central part in explaining their choice of opium poppy cultivation. I will make an overview of the theoretical work on the subject before this theory is compared to findings in data from the NRVA survey. The thesis also includes an investigation of other actors in the Afghan opium business, a part of the industry that has been subject to limited prior research.

2 Background

2.1 Opium cultivation

Opium is a narcotic substance generated from *Papaver somniferum*, or the opium poppy plant. Opium poppy is one of the oldest medical plants used by humans and its properties have been known for nearly 8000 years (Husain, 1983). The name opium was first given by the ancient Greeks, but the cultivation of opium is thought to have started even earlier, in Mesopotamia, an area around the Tigris-Euphrates river system. In modern times the golden triangle; Thailand, Burma, Laos and Vietnam, was for long the largest producer of illicit opium, but in just a few decades Afghanistan has completely taken over that role, and the country is now producing about 80 % of all opium in the world, according to United Nations Office on Drugs and Crime (UNODC, 2009)

The opium poppy is an annual crop with a growth cycle of about 120 days. It can be planted either during the spring or the autumn, depending on the climate. In Afghanistan the planting season in the autumn stretches from September to December, and in the spring from February to March, varying by province. Best growing conditions are found in areas with a climate of low humidity and limited rainfall, although drought may destroy the crops. Still, opium poppy is relatively easily grown. The plant is resistant to limited irrigation, it can grow at high altitudes and it does not require any expensive fertilizers (Booth, 1996).

When the poppy is fully grown and the leaves of the plant start falling off, the farmer waits 10 to 20 days before he starts harvesting the opium latex. When the flower petals used to be the plant is now left with a capsule, and this is where the opium is harvested from. The operation of collecting the opium from the plant is an extremely labor intensive task. The capsule is cut by a knife consisting of multiple sharp pointed blades, and the opium latex seeps out. In the legal, commercial opium industry this work is usually done by machines, but in a country like Afghanistan the work of lancing the opium capsules is done by the farmer and his family or his employees.

The farmer usually lances only part of his poppy field during a day. The next morning the opium is collected by scraping the latex from the capsules using a small scoop. This work goes on until all the plants have been cut and the latex collected several times. For each time the plants are cut, the capsules give out smaller and smaller amounts of opium. To keep the

opium from sticking to the scoop, the farmer wets the scoop by dipping it in water or simply licking it. This leaves a number of cultivators addicted to the opium they are producing (Booth, 1996). After collecting the latex, it is gathered into small containers where it is dried for a few days to decrease the level of water in the opium mass. The opium gum is later packed together in cakes that can be sold directly or stored, covered up by leaves or plastic. Raw opium with high purity has the ability that it can be preserved for a long time without loss of quality.

2.2 Wars and invasions

Researchers have found traces of what might be the world's earliest farming communities on Afghan land, but the modern state of Afghanistan is thought to have been founded by the Persian warrior Ahmad Khan Abdali in 1747 (Rasanayagam, 2007). By his many victories on the battlefield he managed to build a fortune that later made it possible for him to reward his loyal followers and gain the respect and obedience of the Afghan chiefs that might otherwise not have accepted him as their leader. Ahmad Khan Abdali, later known as Ahmad Sha Durani, is thus the builder of what is considered the beginning of the political state of Afghanistan. His position was later inherited by his son, Timur, who had the advantage of his father's prestige creating relatively stable political conditions in the Afghan empire. During Timur's years in power he had 23 sons by his legal wives alone, all with equal claim to the throne. This created an environment of rivalry and after the death of Timur Sha the struggle for the right to the throne disintegrated the Durani Empire. By this time it was evident that Afghanistan was a country without nationalism, build up by a collection of peoples and their tribes.

In the 19th century the British and the Russian Empire where both expanding their territories in the Middle East and their struggle over power in the area was has later been termed The Great Game (Fromkin, 1980). This European imperialism came to influence Afghanistan a great deal. During the 19th century and the beginning of the 20th century the rivalry between the two powerful empires resulted in three wars on Afghan soil, called the Anglo-Afghan wars (Väyrynen, 1980). Although no central government could control the country and its many different tribes without foreign support, the Afghan people are known to be resistant to predominance, and the country retained most of their sovereignty during the wars.

Due to its strategic location and its natural resources Afghanistan has been both wooed and invaded by multiple imperialistic powers throughout history. In 1979, Afghanistan was invaded by the Soviet army. The Soviet invasion lasted for ten years, but their troops met surprisingly hard resistance. Their withdrawal from the country in 1989 was a serious hit to the Kremlin reputation. During the invasion the mujahedeen, Afghan freedom fighters, fighting the Soviet army by guerrilla warfare was supported with arms and supply by the U.S. The two superpowers fought their war indirectly through the war in Afghanistan, leaving the country shattered. After the defeat and withdrawal of the Soviet Army from Afghanistan, the country remained unstable and a civil war followed. This war had several actors fighting for territory by the support of foreign nations. The different tribal chiefs and warlords all had their own agenda and most of them had no problems shifting sides and allies in the conflicts to reach their goal. It was during this period that the Islamic movement of Taliban first entered the scene and later developed to be one of the main actors in the new political landscape of Afghanistan.

2.3 The Taliban

Through the war-filled years of the 1990s, the Sunni Islamic organization of Taliban grew, from being a student movement to a military and political organization fighting for the power in Afghanistan (Rashid, 2001). The Taliban, mainly consisting of Pashtun men growing up in Pakistani refugee camps and in Islamic madrassas, was greeted welcome by the war-weary Afghan population. The people were willing to accept the strict Islamic regulations in change for Taliban's promises of peace and the rebuilding of the country without corruption. During the war the Taliban was heavily supported by Pakistan, especially by their intelligence service ISI. Although it has never been confirmed by the U.S. government, it is widely recognized that the U.S. also supported Taliban during the 90s.

Afghanistan's strategic placement in the region is probably the reason why so many foreign actors took interest in the civil war of the country. The possibilities of a pipeline for natural gas through Afghanistan may seem to have made the U.S. government close their eyes to Taliban's violations to human rights. In the late 1990s the Taliban were in control of a large part of the country but still only gained diplomatic recognition by a handful of countries. Their housing of Arab jihad warriors such as Osama Bin Laden soured their relationship with the U.S. after attacks on American embassies in east Africa in 1998. The American president

Bill Clinton also struggled to justify their silence towards Taliban's violation of human rights for the American public.

As the world headed into a new millennium the situation took a new turn for the Taliban. In 2001 Al Qaida took full responsibility for the attacks on American soil on September 11th, and by hiding the world's most wanted man, the Taliban and Afghanistan again had the full attention of the world. The events of September 11th led to yet another foreign invasion in Afghanistan, an invasion that still keeps NATO troops, and so Norwegian soldiers, in the country.

2.4 Ethnic diversity

Afghanistan is a country with several ethnic groups. The largest group is the Pashtuns, accounting for nearly half of the country's population. The Pashtuns speak Pashto and has traditionally been the dominant ethnic group of the country. The second largest group is the Tadjiks. The Tadjiks speak Dari and have close ties to the country of Tajikistan. Within the Afghan borders one will also find Hazaras, Uzbeks, Nuristani, Baluchi and Turksmen among others.¹ The diversity of peoples, cultures and languages has at times made Afghanistan more a collection of tribes than a country, and the attempt to govern the nation from Kabul has been proven difficult. Still, the fact that Afghanistan has never been colonized is something that binds the country together in national pride. The defeat by superpowers such as the Soviet Union in controlling the country has given the Afghans a strong belief in the ability to resist any invasion and this might explain how the Taliban could support Al Qaida and the attack on World Trade Center in 2001. They had absolute faith in their religion but also in Afghanistan's ability to resist an invasion yet again. So far, they have not been proven wrong.

¹ <http://www.afghanistans.com/Information/People/EthnicityLanguages.htm>

3 Explanations for the rise in the Afghan opium industry

The reason for the last decades' exponential growth in the Afghan opium industry can hardly be explained by simple market mechanisms alone. This chapter puts forward an overview of the different theoretical expositions that have been promoted as the explanations for the rise of opium poppy cultivation in Afghanistan. The different expositions are highly dependent, but to get a better understanding of the different mechanisms I will treat them separately where this is possible.

3.1 The favorable environment for poppy cultivation in Afghanistan

Opium poppy has been grown by Afghan farmers throughout history, but never to the extent that is seen the last 30 years. In explaining the development of the opium industry of Afghanistan one should not fail to mention the favorable environment for the crop in this area. One hectare of land dedicated to opium poppy yields 2-3 times more raw opium in Afghanistan than in Myanmar, the only other nation competing with Afghanistan on the world's illegal opium market (Martin, 2006).

The crop is well adapted to the cold winters of Afghanistan and is resistant to drought. After harvest it can be stored for longer periods of time and easily transported over longer distances. The central placement of the country in region, and the lack of control of its borders make access to the world markets easy. Cultivation of poppy is not particularly land or capital intensive but on the other hand it is a highly labor intensive activity. This makes it an ideal crop for the mountainous, arid country with limited arable land and non-functioning infrastructure but a large population of unskilled workers and low wages.

3.2 The vacuum in the international opium market after the 1990s

Despite clearly favourable conditions, Afghanistan was for a long period of time a small producer of opium compared to the countries of the Golden Triangle; Vietnam, Myanmar, Thailand and Laos. The opium yields of Afghanistan are more than four times those in most

other countries in Asia, but still the heroin on the streets of Europe and North America mostly originated from the Golden Triangle up until recently (Martin, 2006). From producing one third of the world's opium as late as in 1998, the production of the Golden Triangle has decreased to about 5 %. Despite the cut-backs, Myanmar is still the second largest opium producer in the world, but the reductions in the Golden Triangle the last decades created opportunities for the growth of new markets further west (UNODC, 2008).

During the 1980's opium production grew in both Afghanistan and its neighbouring country Pakistan. By the beginning of the 1990 Pakistan had become a major producer of illicit opium and the industry had roots deep into the Pakistani government. This development was highly unpopular with the international community. By strong Western pressure and international aid for anti-drugs campaigns the Pakistani government managed to cut the poppy cultivation of the country close to zero during the following ten years (Goodhand, 2005). The cut-backs of the Asian drugs industry was seen as a great achievement, but as the opium production of Pakistan and the Golden Triangle shrunk it created a vacuum on the opium supply market. The prices increased and the market for illicit opium was wide open for new agents. As the Pakistani opium industry crossed the border to the north-west to escape the government's crack-down on drugs, Afghanistan, already in chaos from years of conflicts and war, slowly evolved into the next major opium producer of the world.

The world's demand for illegal opiates is not showing any signs of decline, and while the world follows the Afghan struggle against the vast opium industry of the country, chances are that if one manages to control the industry in Afghanistan, it will find new, unstable societies to grow in.

3.3 Weak law enforcement, high levels of corruption and the lack of a functioning state

This brings me to the next topic; the unstable situation of the country and the lack of a functioning state. After decades of conflict, both civil wars and foreign occupations, the Afghan state is weak and so is the country's law enforcement. During years of battle over power different parts in the conflicts have encouraged Afghan farmers to grow opium poppy in order to finance the warfare (Rashid, 2001). In the years after 2001 the new central government, elected after the overthrow of Taliban, has had limited influence in large parts of

the country. During this period the Taliban has gained power and their supply of arms is mainly financed both through indirect involvement in the drug industry, such as taxation, but also direct involvement through trading and smuggling.

The severe security problems in parts of the country make law enforcement, such as interdiction following an opium ban, difficult to pursue. According to Mansfield (2006) the opium ban issued by the government is not seen as credible by a large part of the population. At the same time opium offers access to credit in conflict filled and insecure areas where commercial financial markets are non-existing. It is a safe crop in areas where irrigation systems are destroyed by actions of war, and it is a cash commodity both easily stored and traded in an unstable environment with limited infrastructure, where the future is uncertain. Mansfield claims that Afghan farmers chose to grow opium because it is “a low risk crop in a high risk environment”.

The lack of a functioning state, the struggle over power and the prevalence of lawlessness in Afghanistan seem crucial to the development of the drug industry in the country. The evolvment of a shadow economy in the wake of the previous decades of conflicts with deep roots into the Afghan society makes the fight against the illegal industry a difficult task. The opium industry generates far more income to the Afghan people than the aid economy, and these resources further stimulate the economy through increased activities and demand (Goodhand, 2005). All though the revenue from the drug industry to a great extent falls in the hands of war lords and insurgents, the fact that it contributes to about half of the country's GDP makes the impact of the industry on the Afghan economy enormous (MacDonald, 2007). The considerable size of this shadow economy makes it hard to separate the legal from the illegal, and the impact of the drug industry is not all negative. But as opium production generates livelihoods to the rural population and stimulates the economy in otherwise peripheral areas, it also generates a series of economic problems such as inflation, signs of Dutch disease and displacement of legal economic activities (Felbab-Brown, 2007). While the growth of the Afghan opium industry is partly a consequence of a non-functioning state and high levels of corruption, the growing industry further contributes to increasing corruption and destabilization of the nation.

3.4 Insecurity and conflict level, a two-way causality

As previously stated the Afghan drugs industry generates vast amounts of resources to warlords and insurgents. These drugs-for-arms strategies fuels conflicts as the money from the industry helps armed groups to improve their war supply and to pay off their armies. At the same time the profitable opium industry increases the struggle over power between different groups as there is more money involved and the stakes get higher. Control over areas with high levels of poppy cultivation, smuggling routes and boarder crossings get increasingly important as the production of the valuable resource grows.

These effects of the illicit opium industry are well known and subjects of discussions among decision makers in and outside of Afghanistan. What is less debated is the reverse causality; how conflicts have fueled the opium industry. This theory on the previous decades' growth in the Afghan opium industry is investigated by Lind, Moene and Willumsen (2009). Their hypothesis is that violent conflicts simultaneously weakens law and order, and destroys infrastructure such as agricultural irrigation systems and roads and that this will lead to increased poppy cultivation. In the insecure environment subsequent to armed conflicts the farmers will choose the low risk livelihood alternative, in this case poppy cultivation. The previously mentioned qualities of opium, the fact that it is relatively drought resistant compared to other crops and its properties as a durable good, easily stored and transported after harvest, are strong incentives for poppy cultivation for the Afghan farmer living in a conflict filled area.

As previously stated, the alteration of local governance due to armed conflicts is also named as a reason for an increase in the opium production in the paper. Lind, Moene and Willumsen's (2009) article claims that violence and political instability weakens law enforcement, making it possible to ignore the law. Prolonged conflict weakens institutions, not only by destroying infrastructure but also by the loss of human resources. The role of the authorities is taken over by warlords and armed groups, all profiting from increased opium production. They can offer protection for the poppy farmers, making the expected punishment from doing something illegal go down. At the same time, in an environment of conflict such as this, the main goal will be to stay alive and the moral costs and the social stigma of illicit activities goes down.

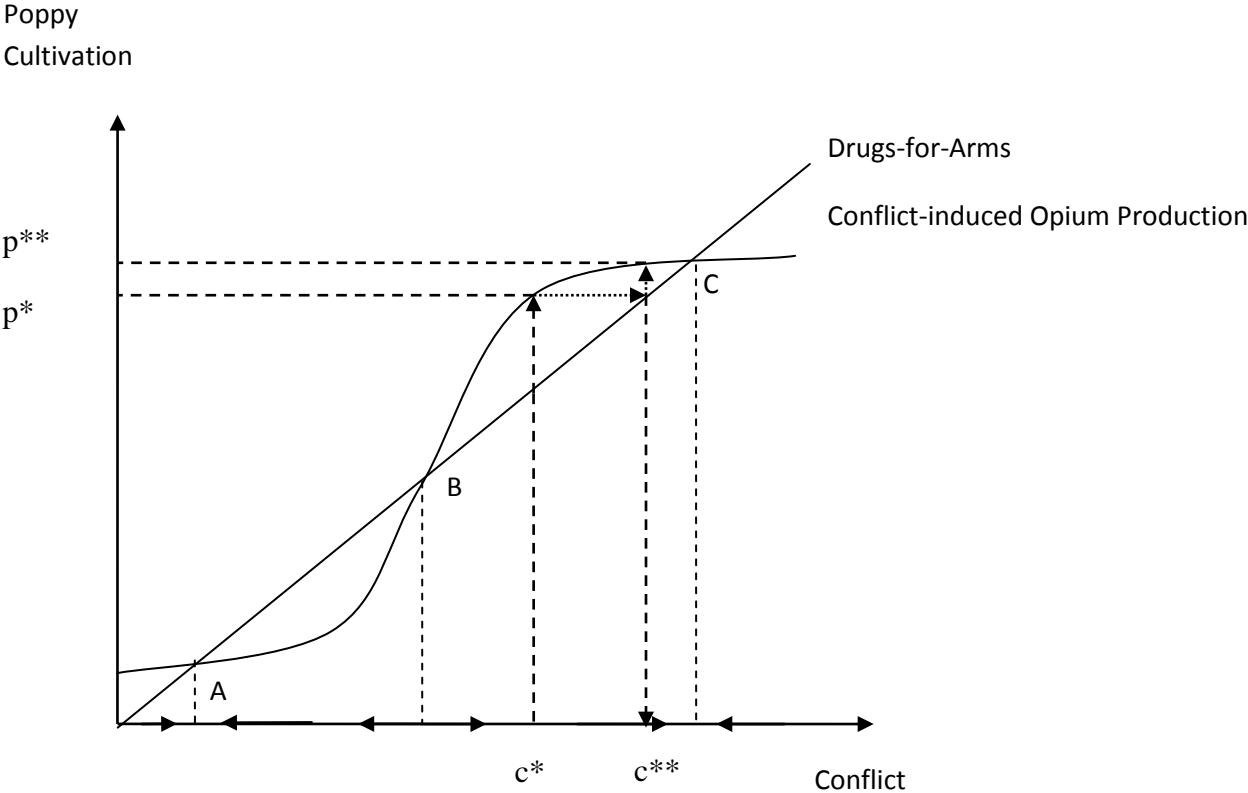
The researchers claim that as the favorable environment for opium in Afghanistan has always been present, the recent rise in the opium industry must be attributed to the latest decades of

conflict in the country. They investigate their hypothesis by using Western hostile casualties as a proxy of conflict. They find that there is a strong correlation between conflict level and opium production. Conflict prior to planting season has a clear impact on poppy cultivation, while conflict right after the planting season does not show the same effect. This strengthens the idea of conflict-induced opium production. To find the effect of bad institutions on conflict-induced opium production, the researchers use distance to the capital, Kabul, as a proxy of weak law enforcement. They find that the effect on opium production from hostile casualties is greater further away from Kabul, implying that the effect of conflict on opium production is lower when law enforcement is good. This confirms the assumption of institutional failure as an important factor for conflict-induced opium production.

The paper concludes that conflicts are one of the main reasons for the rise in the Afghan opium production in later years. When conflicts spur opium production and a growing drugs industry at the same time fuels conflicts, a society like the Afghan can easily get trapped in a vicious circle.

The mechanisms discussed by Lind, Moene and Willumsen (2009) may be illustrated by a two-way causality of conflict and opium production the following way:

Figure 1



A – Low equilibrium

B – Tipping point/Unstable equilibrium

C – High equilibrium

This figure illustrates how the two-way linkage between opium production and conflict might explain how some provinces in Afghanistan get trapped in a bad situation, with high levels of poppy cultivation and high conflict levels while other provinces remain more stable and peaceful without significant opium production.

The drugs-for-arms mechanism shows how the illicit opium industry finances insurgents and rebellions, fueling further conflict. The curve illustrates the fixed relationship between opium and conflict in this modeled economy; how much conflict each level of poppy cultivation will lead to. The curve would shift upwards if a weapons embargo made it more difficult for the actors in the conflict to get access to war supply, or other similar shocks occurred.

The theory of conflict-induced opium production is the reverse mechanism, showing how conflict further stimulates to higher poppy cultivation. High conflict levels destroy infrastructure and weaken institutions, making opium poppy a more attractive choice of crop. The Conflict-induced Opium Production-curve in figure 1 is the farmers' response curve. The farmers in this economy observe the level of conflict in the economy before choosing how much poppy to cultivate. If the farmers know that the conflict level in the economy lies at point c^* , the insecurity and unstable environment will leave them to switch from cultivating legal crops to more poppy because it is the safest crop in this situation. They will choose to cultivate poppy up to the point p^* . But these high levels of opium production further fuel the instability, resulting in a new, higher level of conflict; c^{**} . This new level again leads the farmers to cultivate even more poppy next season; p^{**} . These mechanisms will continue until the economy has reached the stable equilibrium C, where both conflict level and levels of poppy cultivation are high. If an economy, i.e. an Afghan province, starts of in a point to the left of the tipping point B, reverse mechanisms will lead the province to end up in the stable, low equilibrium A, with low levels of both opium production and conflict.

A negative shock like a drought could shift the response curve of the farmers upwards. Poppy cultivation will now be higher than prior to the shock for all levels of conflict. If the effect of the shock is large enough, the curve could shift up to a point where there is only one equilibrium, with high levels of both conflict and poppy cultivation.

3.5 Opium and heroin prices

While the opium production in Afghanistan grew in the beginning of the new millennium, the prices of opium fell. From a record high farm-gate price of 301 US\$/kg in 2001, the prices were down to 102 US\$/kg in 2005. These prices are not accurate, but rather estimates, based on collected price data in selected provinces by UNODC (2005). The illicit nature of opium makes the analysis of prices difficult. According to Byrd and Jonlez (2006), more factors than just demand and supply mechanisms must be considered when interpreting the opium price trends. Opium's qualities as a storable good but also the fact that it is an illicit drug that is traded at the illegal market will influence its price.

The demand for opiates in traditional markets such as the U.S. have been relatively stable but there are signs of an increase in demand from countries in close proximity to Afghanistan and from countries along the opium/heroin smuggling lines. While the markets surrounding Afghanistan mostly demand the raw, unprocessed opium, the European and North American users want processed opiates in the form of heroin. In 2004/2005 the number of opiate users was estimated to 15,9 million people around the world, but the nature of the drug makes demand close to inelastic to price changes and at least in the short run prices are set from the supply side (UNODC, 2006b). While the prices of processed opiates to the consumers have stayed relatively stable, the purity of the drugs on the streets varies. This could be seen as an adjustment strategy to the fluctuating supply.

Just as the consumers around the world, the cultivators seem to have limited negotiation power in terms of prices. They usually act as price takers making them vulnerable to shocks in the market. The enormous surplus between the farm-gate price and the price paid by the consumer at the final destination is divided between many links in the opium value chain. The small traders, the wholesalers, the refiners, corrupt officials, insurgents and warlords and the cross-border smugglers all add a margin to the price before the drug leaves Afghanistan.

According to Byrd and Jonglez (2006) there are also large differences in prices across different parts of Afghanistan, reflecting the diversity of the market. Proximity to market centers and the borders drives the prices up, but so does the law enforcement and eradication efforts. It is a paradox that stronger law enforcement and a larger commitment to eradication programs in some provinces will decrease the cultivation of opium and so increase the opium prices, making cultivation of the illicit crop more attractive in other provinces. But the widespread corruption and insecure conditions in the country has also contributed to a higher

price, as the farmers often are required to pay off both criminals and corrupt officials to keep their crop safe. Higher prices send a signal to the cultivators to increase their opium production, making it profitable to dedicate more of their land to poppy and to invest in otherwise too expensive farm-improvements. At the same time a higher opium price can increase the value of loans for the salaam indebted families, forcing them to grow larger amounts of opium.

The farm-gate prices are highly important for the supply of opium in Afghanistan. The staggering prices in the first years of the new millennium are at least partial responsible for the growth in the industry in the following years, but there are several coexisting factors that influence the farmers' cropping decisions. I will get back to this in chapter 6.

4 Critical assessment of UN estimates

4.1 The UNODC organization and their estimation methods

The United Nations Office on Drugs and Crime (UNODC) calls itself “the UN’s center for the fight against “uncivil society”” (UNODC, 2008b). Their focus is on the prevention of human trafficking, organized crime, drugs and terrorism. Illicit crop monitoring has been one of the organization’s most prestigious projects and Afghanistan is on top of their agenda (UNODC, 2008c). The information from the crop monitoring is used by both the Afghan government and other governments to evaluate projects and financial aid.

The difficulties in gathering reliable information on the subject of opium are acknowledged by UNODC, but they still claim they have good overview of the industry in Afghanistan. Their assessment of the opium industry in Afghanistan in 2005 is based on satellite imagery in addition to field visits. According to the organization the remote sensing approach by use of satellite imagery enhanced security and at the same time offered objective estimates of the opium poppy cultivation (UNODC, 2005).

Satellite images were collected from the 15 largest opium producing provinces, images covering 16 % of arable land. Randomly selected cells from the collected data were later used to estimate the extent of poppy cultivation. Both pre- and post-harvest images was collected and later compared to distinguish poppy cultivation from cultivation of other crops. The remote sensing was followed by ground surveys in some locations to gather additional information. In the remaining provinces that were not analyzed through satellite imagery, opium poppy cultivation was estimated solely from ground surveys. According to UNODC (2005) only 16 % of the poppy cultivation in 2005 was estimated through ground surveys alone.

4.2 UNODC estimates

UNODC estimated the poppy cultivation to cover 2,3 % of agricultural land, or 104 000 hectares in 2005. This was a decline from the previous years and was celebrated as a great achievement for the new anti-drugs politics implemented after 2001. The celebration later silenced when the monitoring of the 2006-season showed massive increases in production.

The poppy cultivation of 2005 was thought to generate 4100 mt of opium. According to UNODC (2005) the production could have been even lower if it hadn't been for the favorable weather conditions and the low rates of plant disease that year, making the average opium yield increase from 32 kg/ha to an impressive 39 kg/ha. Afghanistan was still considered the absolute number one country in opium production.

4.2.1 Provinces

Only 5 provinces was registered by UNODC with no or insignificant levels of poppy cultivation in 2005. The southern region was still by far the largest producer, despite of an increase in the production in the north. According to UNODC the five top provinces on opium production in was Helmand, Kandahar, Balkh, Farah and Badakhshan. These provinces together contributed to almost 2/3 of the opium produced in Afghanistan. Helmand alone was contributing to 25 % of the country's total production.

Table 1: Opium poppy cultivation in 2005 according to UNODC, by province (hectares)

Province	Poppy cultivation in 2005 (ha)
Badakhshan	7 370
Badghis	2 967
Baghlan	2 563
Balkh	10 837
Bamyan	126
Farah	10 240
Faryab	2 665
Ghazni	-
Ghor	2 689
Helmand	26 500
Herat	1 924
Jawzjan	1 748
Kabul	-
Kandahar	12 989
Kapisa	115
Khost	-

Kunar	1 059
Kunduz	275
Laghman	274
Logar	-
Nangarhar	1 093
Nimroz	1 690
Nuristan	1 554
Paktika	-
Paktya	-
Parwan	-
Samangan	3 874
Sari Pul	3 227
Takhar	1 364
Uruzgan	4 605
Wardak	106
Zabul	2 053
Total	103 907

Source: UNODC, 2005

4.2.2 Poppy cultivating farmers

According to the UNODC (2005) 309 000 families were involved in poppy cultivation, or about 2 million people. This means that the organization multiplies the poppy cultivating families by the average family size and counts all people living in a poppy cultivating

household as involved in the opium industry. This results is 8,7 % of the Afghan population, a huge amount. Their report does not provide any estimate on the number of families or people earning income from doing itinerant work on poppy fields.

The Afghan crop monitoring report of UNODC in 2005 does not include separate numbers of poppy farmers by province, but according to their reports the largest number of farmers cultivating the illicit crop is found in the northern region. The southern region, with highest amount of land dedicated to poppy, has a smaller amount of poppy farmers.

Table 2: Opium poppy cultivating households in 2005 according to UNODC, by region

Region	Total number of poppy farming households, 2005	Average size of poppy field per poppy cultivating household (ha)
Central	-	-
Eastern	22 169	0,18
North-Eastern	37 241	0,23
Northern	101 266	0,28
Southern	89 468	0,52
Western	58 869	0,28
Total	309 013	0,34

Source: UNODC, 2005

The average land size per household in the rural population was according to UNODC (2005) about 2,75 hectares and the land dedicated to poppy cultivation by each poppy cultivating family was 0,34 hectares.

4.2.3 Traders

Neither UNODC's annual opium survey for 2005 or the UNODC and World Bank report Afghanistan's Drug Industry (Byrd, 2006) from the following year provide an estimate of the number of people working in the Afghan opium industry without being a poppy farmer.

4.2.4 Eradication

UNODC was not directly involved in any eradication campaigns and their annual opium surveys did not monitor such activities in the period that is being analyzed. However, they were asked by the Afghan government to support the verification of eradication activities and the numbers provided in the annual opium report are a result of this (UNODC, 2005).

According to the report about 5 100 hectares of poppy was eradicated in the growing season

ahead of the 2005 opium harvest. This should account for about 5 % of the UNODC-estimated poppy cultivation. Out of this, 4 007 hectares of eradications was performed by governor-led campaigns and was verified by the UNODC. Eradication was both executed by the provincial governors and by central authorities. Most eradication was registered in the province of Nangarhar (1860 hectares) and Helmand (1046 hectares). According to UNODC (2005) the Afghan authorities reported a much higher share of poppy eradication than what the organization was able to verify.

Table 3: Eradication in Afghanistan in 2005 according to UNODC, by province (hectares)

Province	Poppy eradication 2005, UNODC (ha)
Badakhshan	144
Badghis	-
Baghlan	63
Balkh	840
Bamyan	-
Farah	86
Faryab	-
Ghazni	-
Ghor	-
Helmand	1046
Herat	156
Jawzjan	-
Kabul	-
Kandahar	48
Kapisa	20

Khost	-
Kunar	126
Kunduz	-
Laghman	360
Logar	-
Nangarhar	1860
Nimroz	-
Nuristan	-
Paktika	-
Paktya	-
Parwan	-
Samangan	16
Sari Pul	112
Takhar	100
Uruzgan	126
Wardak	-
Zabul	-
Total	5 103

Source: UNODC, 2005

4.2.5 Poppy cultivation in 2005 compared to 2004 and farmers' incentives to stop opium production

As mentioned above, the UNODC-estimated opium poppy cultivation fell from 2004 to 2005. The number of farmers allegedly leaving opium production was 47 000. The largest cut-backs on land dedicated to poppy cultivation were done in Nangarhar, Badakhshan and Uruzgan. According to UNODC, the farmers' main reason for cutting down on or stopping poppy cultivation was the fear of eradication. Other reasons were the fear of imprisonment and the fact that it is forbidden by their religion. Only about 10 % claims to have cut down or stopped production of opium due to lower prices and demand. This should imply that the farmers

choose to stop, or to reduce their poppy cultivation even though they know that it will lead to a worsened situation for them, because the consequences of continuing the production could be worse.

5 The National Risk and Vulnerability Assessment (NRVA)

I have been given access to data from The National Risk and Vulnerability Assessment (NRVA), first conducted in 2003 by the Central Statistics Office of Afghanistan in cooperation with the World Food Program and with the support of the Ministry of Rural Rehabilitation and Development (MRRD-CSO, 2009). The survey covers a broad base of development themes such as household's vulnerability to shocks, food security and women's rights. The data analyzed in this thesis is from the NRVA survey of 2005. At the time it was the largest household survey ever conducted in Afghanistan, covering 30 822 respondents and was implemented with the support from the European Union (MRRD-CSO, 2007). The NRVA survey provides nationwide data on livelihood conditions, not especially targeting poppy cultivation or the opium industry. This makes the survey suitable for the evaluation of the national opium industry and for comparison to the data provided by the UNODC.

The lack of credible statistics is a challenge in the war-driven country. To my knowledge there has been no alternative assessment of the size of the Afghan opium industry to the work of UNODC. The NRVA survey provides a unique opportunity to investigate the industry by using micro data as opposed to the UNODC's data mainly collected from satellite imagery.

The respondents in the survey have been informed by the interviewers that the survey will be used for government planning and that it may or may not result in special projects or programs in the respondents' community.² The possibility of new development programs and increased community aid in the aftermath of the survey could increase the respondents' incentives to lie, but the information given to them in connection with the survey should minimize this. The illicit nature of opium could also lead respondents to lie about their involvement in activities connected to the opium industry. But according to Byrd and Buddenberg (2006) there has been a tradition of openness and honesty around the Afghan opium industry, stemming from previous times when opium was considered legal. Assuming

² National Risk and Vulnerability Survey – Household questionnaire – Final 2005, Appendix

that the respondents were thoroughly informed about the purpose of the survey, their answers should be considered trustworthy.

5.1 The Afghan opium industry in 2005

The NRVA survey contains several questions on the households' access to and distribution of agricultural land. They are asked how much land they have available, how they manage this land and what crops they grow this season. After calculating the given amount of agricultural land of the respondents, I have scaled it by a household weight provided in the survey to get an estimate of the total amount of agricultural land in Afghanistan. The sizes were given in jeribs, a traditional measurement unit in Asia and the Middle East and has been divided by 5 to be converted into hectares. This yielded a total of about 4 220 000 hectares of cultivated land in Afghanistan, which is somewhat smaller than what the UNODC operates with, but still seems plausible.

5.1.1 Poppy cultivation

The survey does not ask directly how large amount of the respondent's land that is dedicated to different types of crop. The households are asked whether they have access to garden plots, irrigated land and rain fed land, what size this land has and how they manage it (own, rent in, rent out etc.). In addition to this they are asked to rate their first, second and third most important crop in each of the three categories of land. This type of questioning implies that we do not know the exact amount of land a poppy cultivating farmer dedicates to growing poppy. To estimate the size of the Afghan opium production in 2005 some assumptions on the distribution of land had to be made. Four different estimates are presented, named A, B, C and D. All results by province can be found in table 4 below, compared to the estimate of UNODC.

The estimates

The first estimation of the 2005 opium production by use of the NRVA data was done two years ago in a preliminary paper by Lind, Moene and Willumsen (2008). As the researchers expected UNODC's estimates to be high, they created an algorithm that would give high estimates.

(A) NRVA-estimate: Exaggerated splitting

- If opium poppy was the respondent's most important crop, all land was used for poppy cultivation, irrespective of rest of the crop listings.
- If opium poppy was the second most important crop, 1/2 of available land was used for poppy cultivation, irrespective of rest of the crop listings.
- If opium poppy was the third most important crop, 1/3 of available land was used for poppy cultivation, irrespective of rest of the crop listings.

This estimation gave a total of 158 516 hectares of poppy cultivation in 2005. This estimate clearly exaggerates the size of production, even outperforming the UNODC estimates by large numbers.

I have made three estimates, B, C and D, that I find more plausible based on somewhat different assumptions. This has resulted in one rather high, one low and one mean estimate. In the three following estimates, ten observations have been excluded due to misspecifications in the data set. After scaling up these observations to national levels, the exclusion led to 1445 hectares of land being skipped, or 222 hectares of poppy fields by estimate D. This is a rather small amount compared to the total and the dropping of these observations is not important for the final results.

(B) NRVA-estimate: Equal splitting

This estimate is calculated by splitting the agricultural land of the respondents into equally large parts of each crop, irrespective of the crop rating.

- If the respondent only lists one crop, all of his land is cultivated with this crop.
- If the respondent only lists two crops, he splits his land in half between the two.
- If the respondent lists three crops, he spends one third of his land on each of the three crops.

The estimate gives a total of 590 hectares of poppy in the survey, or 105 491 hectares of poppy nationwide after scaling it up with the household weight provided in the data set. The estimate has a standard error of 0,000150. This is close to the UNODC estimate of 104 000 hectares, but the equal splitting between crops is a strong assumption and the way I see it the estimate is plausible but not very likely.

(C) NRVA-estimate: Unequal splitting

My second estimate is calculated by splitting the respondents' land into different parts where the first most important crop gets a much higher share of land than the second and so on.

- If the respondent only lists one crop, all of his land is cultivated with this crop.
- If the respondent lists two crops, he cultivates his first most important crop on 75 % of his land and his second most important crop on the remaining 25 %.
- If the respondent lists three crops, he cultivates his most important crop on 60 % of his land, his second most important crop on 30 % of his land and the remaining 10 % on his third most important crop.

The estimate yields poppy cultivation of 459 hectares in the data set, or 77 510 hectares in total. The standard error is 0,000116. This is a much lower estimate on the Afghan opium production of 2005 than what the UNODC claims. The difference in the crop shares might be too large, but the estimate is absolutely plausible in my eyes.

(D) NRVA-estimate: Discretionary splitting

In my third estimate, I have calculated that the respondents split their land in different shares according to the crop listing but the shares are more equal than in the previous estimation. By making an estimate where the crop shares are somewhere in between estimate B and C, I try to catch how the average poppy farmer splits his land and so get the best estimate of poppy size from the data. This way I have created an estimate that I find most likely.

- If the respondent only lists one crop, all of his land is cultivated with this crop.
- If the respondent lists two crops, he cultivates his first most important crop on 60 % of his land and his second most important crop on 40 % of his land.
- If the respondent lists three crops, he cultivates his first most important crop on 50 % of his land, his second most important crop on 33,33 % of his land and his third most important crop on 16,67 of his land.

This gives a total of 487 hectares of poppy in the survey and 84 007 hectares of poppy in the country as a whole. The standard error is 0,000114. This estimate is low compared to the estimates of UNODC. Still, assuming that the algorithm of crop sharing is fairly correct, covering how the average farmer splits his land between different crops, and the fact that the NRVA survey includes a large number of households and covers all parts of the country,

estimate D should give a good picture of the opium situation in Afghanistan in 2005. This is of course dependent on the previously stated assumption that the respondents do not have an incentive to lie. The estimated 84 0007 hectares of poppy means that 1,99 % of all agricultural land in Afghanistan is cultivated with the illicit crop. Estimate D is the estimate used for the further analysis.

5.1.2 Provinces

According to my estimations from the NRVA survey, only 13 of the 32 provinces in Afghanistan had registered poppy cultivation in 2005. The top-5 poppy producing provinces are Helmand, Balkh, Kandahar, Faryab and Takhar, but both Farah and Badakhshan are close behind. Helmand was by far the largest producer, contributing to a massive 63 % of the total quantum. No more than 45 of the about 400 districts of Afghanistan was cultivating opium poppy according to my data.

Table 4: Opium poppy cultivation in 2005, UNODC vs. NRVA-estimates A, B, C and D, by province (hectares)

Province	Poppy cultivation (ha), UNODC	Poppy cultivation (ha), NRVA (A)	Poppy cultivation (ha), NRVA (B)	Poppy cultivation (ha), NRVA (C)	Poppy cultivation (ha), NRVA (D)
Badakhshan	7 370	2 261	1 468	1 613	1 521
Badghis	2 967	-	-	-	-
Baghlan	2 563	93	93	28	47
Balkh	10 837	36 238	20 212	19 158	18 765
Bamyan	126	-	-	-	-
Farah	10 240	2 116	1 716	1 436	1 605
Faryab	2665	2 990	2 058	2 060	2 061
Ghazni	-	-	-	-	-
Ghor	2 689	529	529	328	449
Helmand	26 500	103 514	73 396	46 189	53 156
Herat	1 924	113	113	55	87
Jawzjan	1 748	-	-	-	-
Kabul	-	-	-	-	-
Kandahar	12 989	2 990	2 102	2 037	2 063
Kapisa	115	-	-	-	-
Khost	-	-	-	-	-
Kunar	1 059	-	-	-	-
Kunduz	275	-	-	-	-
Laghman	274	-	-	-	-
Logar	-	-	-	-	-
Nangarhar	1 093	2 262	946	1 494	1 230
Nimroz	1 690	-	-	-	-
Nuristan	1 554	-	-	-	-

Paktika	-	-	-	-	-
Paktya	-	-	-	-	-
Parwan	-	-	-	-	-
Samangan	3 874	217	205	205	205
Sari Pul	3 227	-	-	-	-
Takhar	1 364	3 234	1 175	1 931	1 662
Uruzgan	4 605	1 959	1 478	977	1 156
Wardak	106	-	-	-	-
Zabul	2 053	-	-	-	-
Total	103 907	158 516	105 491	77 510	84 007

Source: UNODC, 2005

The biggest difference in absolute terms between my estimates and the UNODC-estimates are found in Helmand and Kandahar. Kandahar is registered as the second largest producer of illicit opium in the Afghan Opium Survey 2005 (UNODC, 2005), with a staggering poppy cultivation of 12 989 hectares. However, according to estimate D the cultivation was no larger than 2 064 hectares. Helmand on the other hand is registered with a production substantially higher by the NRVA data than by UNODC-estimation. A possible explanation to the huge difference in this particular case could lie in the weighting of the NRVA data. According to the ground survey the population in Helmand is 1, 87 million people, while the Central Statistics Office of Afghanistan operates with a population of 780 000 in the same province.³ As the poppy cultivation is weighted by the number of households in my estimates, some of the diversity could be explained by the differences in population counts. Other provinces do not show population size irregularities to the same extent, but it does seem to be great uncertainty around the issue of both national and provincial population in the country.

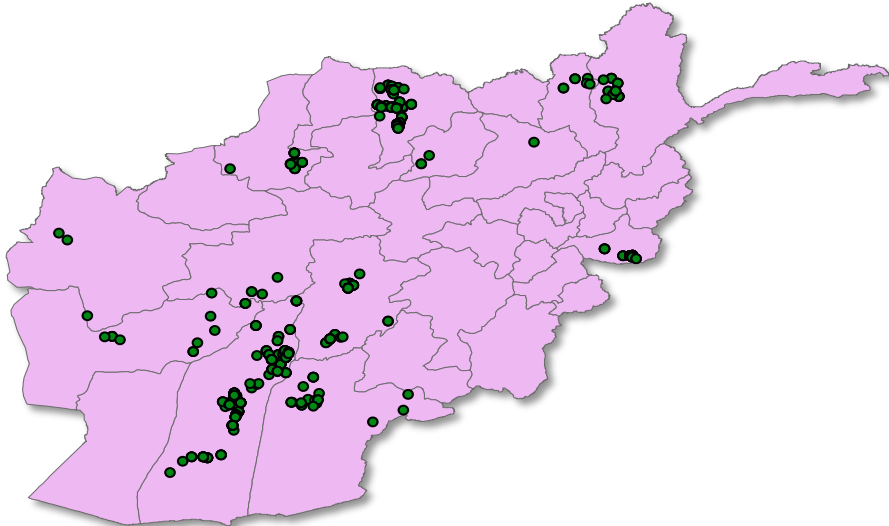
According to the Central Statistics Office in Afghanistan the country's population was 22,1 million people in 2005. In the NRVA survey the population is 28,9 million. Assuming that the Central Statistics Office is correct, my estimates of the poppy cultivation should be about 24 % lower. That would give an opium poppy cultivation of 64 131 hectares in 2005, using estimate D. Other sources operates with different population numbers, making it difficult to draw any conclusions on the subject, but for the following I will go on assuming that the population weight in the NRVA dataset is correct.

³ <http://www.cso.gov.af/demography/population.html>

5.1.3 Opium poppy farmers

527 respondents put opium as one of their three most important crops in the NRVA survey. Map 1 shows the poppy farmers’ location in Afghanistan. When scaled up, this amounts to 89 257 households in Afghanistan. Note that this number is not based on any assumptions but rather the number of households that have responded confirmative to the question of poppy cultivation in the NRVA survey. The 89 257 households amounts to 678 550 people when multiplied by average family size in the sample. According to UNODC the numbers should be substantially higher; 309 000 households or about 2 million people.

Map 1: Poppy farmers in NRVA survey



Source: Afghanistan Information Management Services (AIMS)
<http://www.aims.org.af/ssroots.aspx?seckey=295>

The top-5 provinces in number of poppy farmers are Helmand, Balkh, Uruzgan, Nangarhar and Kandahar. The top district is Kajaki, situated in Helmand, with an estimated 9 936 poppy farmers.

Table 5: Opium poppy cultivating households in 2005 from NRVA-survey, by province

Province	Total number of poppy farming households, 2005	Average size of poppy field per poppy cultivating household (ha)
Badakhshan	2 688	0,57
Badghis	-	-
Baghlan	127	0,37
Balkh	14 971	1,25
Bamyan	-	-
Farah	1 419	1,13
Faryab	2 730	0,75
Ghazni	-	-
Ghor	882	0,51
Helmand	49 248	1,08
Herat	388	0,22
Jawzjan	-	-
Kabul	-	-
Kandahar	2 948	0,70
Kapisa	-	-
Khost	-	-
Kunar	-	-
Kunduz	-	-
Laghman	-	-
Logar	-	-
Nangarhar	5 418	0,23
Nimroz	-	-
Nuristan	-	-
Paktika	-	-
Paktya	-	-
Parwan	-	-
Samangan	342	0,60
Sari Pul	-	-
Takhar	902	1,84
Uruzgan	7 194	0,16
Wardak	-	-
Zabul	-	-
Total	89 257	0,94

The Afghan Opium Survey 2005 (UNODC, 2005) does not provide detailed information on opium farmers by province, but they do have regional numbers. Table 6 shows a comparison of UNODC's number of poppy farmers in Afghanistan with the poppy farmers of the NRVA survey by region. It does also give an overview of the mean poppy field size per farmer.

Table 6: Opium poppy cultivation in 2005, UNODC-estimate compared to NRVA-estimate D, by region

Region	Total number of poppy farming households UNODC	Total number of poppy farming households NRVA	Poppy cultivation (ha), UNODC	Poppy cultivation (ha), NRVA	Average size of poppy field per poppy cultivating household (ha) UNODC	Average size of poppy field per poppy cultivating household (ha) NRVA
Central	-	-	106	-	-	-
Eastern	22 169	5 418	4 095	1 230	0,17	0,23
North-Eastern	37 241	3 590	8 734	3 183	0,25	0,89
Northern	101 266	18 170	28 282	21 078	0,27	1,16
Southern	89 468	59 390	46 147	56 375	0,33	0,95
Western	58 869	2 689	16 543	2 141	0,32	0,80
Total	309 013	89 257	103 907	84 007	0,34	0,94

Source: UNODC, 2005

5.1.4 The actors of the industry

The NRVA survey includes questions about income earnings. The respondents are asked to state what kind of activities that generate income for the household and how many people that are involved in these activities. Among the alternatives are production/sales of opium and opium wage. I have interpreted this first category to involve the people that produce and sell opium and the second category to involve the people that do itinerant work on other farmers' poppy fields. By using the variable describing how many people in each household that is involved in the income generating activity, I can get a better estimate on the actual number of individuals involved in the opium industry.

Opium wage earners

369 respondents report to have opium wage as an income source. 577 individuals within these households are involved in this activity. This is estimated to 89 848 individuals in total in Afghanistan. The top provinces are similar to the top poppy farmer-provinces. Still, only 7 520 of the 89 848 individuals come from poppy cultivating households.

Opium income earners

671 respondents report to have income from production or sales of opium. I have further divided them into following groups:

- The farmers: households that cultivate opium on their land and earns income from it: 69 113 households, 197 102 individuals within these households.
- The traders: households that have income from production/sales of opium but no poppy cultivation: 43 747 households, 91 248 individuals.
- Poppy farmers with no opium income: farmers that cultivate opium, but does not report any income from this activity. This is estimated to 18 800 households in Afghanistan. To get the number of individuals involved in poppy cultivation in this category, I have multiplied the number of respondents by the average of individuals involved in opium production in “the cultivators”-category; 2,83. This gives a total number of 53 204 individuals in this category. I will get back to the characteristics of these farmers in chapter 6.

All together, the number of people involved in the Afghan opium industry is 430 811. This estimate is much lower than the UNODC estimate of 2 million people. Some of the explanation for the difference may lie in the fact that the UNODC has multiplied the number of opium cultivating households by the average family size to get their number. But, at the same time, they have not included families living of income from other sides of the opium industry, like the traders and the itinerant workers.

When looking at households with income from the opium industry instead of just poppy cultivation, the number of “opium-free” provinces is down to just one; Nimroz. All other provinces in Afghanistan have families living of income from the opium industry, either through cultivation, selling or itinerant work on other poppy cultivating farms.

5.1.5 Traders

The fact that the Afghan opium business is an illegal industry makes it difficult to monitor. Being Afghanistan’s number one export good implies that a large number of people must be making money in the industry without being a poppy cultivator. These opium refiners, traders, transporters, cross-border smugglers and salaam-dealers are not registered in any statistics and this makes it difficult to estimate the true impact of the opium industry on the Afghan economy. Without being able to separate the different categories of non-cultivators mentioned

above, I have still tried to make a rough estimation of the total number of them. This was done by summing the number of respondents that do not cultivate poppy but still earn an income from production or sales of opium. I've called them opium traders, but note that they could just as well belong to one of the other categories of non-cultivators, such as refiners or smugglers. As mentioned above the total number of households in this category is 43 747. The characteristics of this group will be further examined in chapter 6.

Table 7: Traders (households that have income from opium production or sales, but do not cultivate poppy) in 2005, by province

Province	Opium traders (households)
Badakhshan	1 280
Badghis	777
Baghlan	4 448
Balkh	2 492
Bamyan	-
Farah	1032
Faryab	650
Ghazni	250
Ghor	126
Helmand	24 840
Herat	130
Jawzjan	181
Kabul	798
Kandahar	693
Kapisa	127
Khost	127
Kunar	252
Kunduz	384
Laghman	-
Logar	-
Nangarhar	1 290
Nimroz	-
Nuristan	60
Paktika	555
Paktya	123
Parwan	228
Samangan	342
Sari Pul	600
Takhar	324
Uruzgan	993
Wardak	645
Zabul	-
Total	43 747

It is registered opium traders in 28 of the 34 provinces in the survey. It is about 10 times as many traders in Helmand as in Balkh, at the same time as the poppy cultivation is almost 3 times higher in Helmand than in Balkh. While the province of Baghlan is the smallest producer of the entire poppy cultivating provinces it still has the second largest number of opium traders. Helmand's location in close proximity to both Pakistan and Iran is important for the opium industry in the province. Besides being the largest producer it is also an important transit-route for opium coming from other provinces on its way to the international market (Pain, 2006). The reasons for the large numbers of traders in Baghlan are less clear. UNODC's Afghanistan Opium Survey, 2005 (UNODC, 2005) reports a number of production facilities in the province in 2005, but no more than in Badakhshan and Nangarhar, provinces that also have border crossings for opium smugglers. The reason for the large number of so-

called traders could be that smuggling routes for opium from other provinces passes through Baghlan on its way to the international borders. It could also be that there are more heroin refineries in the province than what was verified by UNODC.

5.1.6 Eradication

The NRVA survey includes one question on the experience of eradication. When asking about the respondents' experience of negative shocks in the previous twelve months, the questionnaire includes the experience of opium eradication. As having some or all of the season's harvest destroyed by eradication hardly can be seen as anything but a negative shock, a confirmative response of the households on this question should be a good proxy for the number of eradication episodes.

2086 respondents claim to have been experiencing eradication in the previous twelve months. This is a total of 298 566 families when scaling up to national levels. By assuming that a farmer experiencing eradication will have his entire poppy field destroyed, I should be able to estimate the total number of eradicated hectares by multiplying the number of eradication episodes by the average poppy field size among the poppy farmers. Using estimate D for the average poppy field size, I find that 280 652 hectares of poppy fields was eradicated. When looking at reported eradications by province and multiplying by the average poppy field size in the region of each province, the estimate gets a lot smaller, about 193 000 hectares. Both these numbers are high and do not seem very likely. According to UNODC no more than 5100 hectares of poppy fields was eradicated in 2005 (UNODC, 2005). The high levels in the NRVA survey could be a result of the farmers' efforts to get some sort of compensation for lost income from the authorities. 105 of the poppy farmers reported the experience of a negative shock due to eradication in the previous year, but still cultivated opium poppy in the 2005 season.

When multiplying the number of respondents reporting poppy eradication by the average size of poppy field per farmer in each region, Nangarhar and Helmand are the two top provinces in terms of eradication. A UNODC and NRVA comparison of eradications by province is found in table 8 below.

Table 8: Eradication of opium poppy fields in 2005, UNODC vs. NRVA estimate D, by province (hectares)

Province	Poppy fields eradicated (ha), UNODC	Poppy fields eradicated (ha), NRVA (D)
Badakhshan	144	5 142
Badghis	-	13 308
Baghlan	63	1 738
Balkh	840	13 970
Bamyan	-	158
Farah	86	233
Faryab	-	3 677
Ghazni	-	8 491
Ghor	-	5 485
Helmand	1046	59 486
Herat	156	429
Jawzjan	-	6 227
Kabul	-	-
Kandahar	48	89
Kapisa	20	1 139
Khost	-	-
Kunar	126	2 434
Kunduz	-	1 275
Laghman	360	1 047
Logar	-	-
Nangarhar	1 860	15 473
Nimroz	-	-
Nuristan	-	1 780
Paktika	-	31 951
Paktya	-	-
Parwan	-	-
Samangan	16	205
Sari Pul	112	8 481
Takhar	100	8 666
Uruzgan	126	854
Wardak	-	-
Zabul	-	336
Total	5 103	192 074

Sources: UNODC, 2005

5.1.7 Farmers that have stopped cultivating poppy from 2004 to 2005

The question of shocks in the survey also includes the option of a negative shock due to stopping poppy cultivation from the 2004-season to the 2005-season. 814 households respond

confirmative to this. This is estimated to 109 321 households, and does not include the farmers that have stopped cultivating poppy without being negatively affected by it. The number seems very high, and could be a result of the same mechanisms as in the case of eradication. By reporting being negatively affected from stopping poppy cultivation the farmers might hope for some kind of compensation or help from government aid projects such as alternative livelihood programs.

By multiplying the number of households that have stopped cultivating poppy by the average size of Afghan poppy fields in 2005, the reduction in poppy cultivation stemming from these farmers should amount to 102 891 hectares. According to UNODC the reduction was 27 000 hectares. UNODC claims that Nangarhar is the province with the largest reduction in poppy cultivation from 2004 to 2005, an impressive 96 %. Nangarhar was also the province with the largest amount of respondents in the NRVA survey reporting to have stopped cultivating opium; 36 777 households in total.

6 Farmers' incentives for poppy cultivation

Although opium poppy is a crop generating higher income yields for the farmer than many of the alternatives, most Afghan farmer choose not to cultivate it. The choice of the farmers to cultivate or not to cultivate opium poppy seems highly dependent on local factors, and the explanations for this diversity are many. This chapter is intended to give a theoretical overview of the different factors affecting the farmers' cropping decisions.

6.1 Theoretical considerations

6.1.1 Center vs. periphery, farmer's access to alternative livelihoods

Through several years of research on the Afghan drug industry, David Mansfield has become one of the people most referred to on the subject. He has published multiple papers on opium poppy cultivation, farmers' incentives and alternative livelihoods. On the field of the Afghan opium industry Mansfield is seen as the leading expert and he is heavily used by both UNODC and the World Bank. In his work, Mansfield stresses his view that the Afghan opium farmers should not be seen as a homogenous group and that authorities must take local factors into account when deciding upon their drug enforcement strategies.

One of Mansfield's explanations why some farmers choose to grow opium while others don't is the idea of a divide between the center and the periphery. In his research this reasoning is used to explain the rise of opium poppy cultivation in some areas while other areas have experienced a decrease (Mansfield, 2006). The idea is that farmers in inaccessible areas, the periphery, will have difficulties creating alternative livelihoods to opium production, as their access to functioning labor and commodity markets are limited. The lack of non-farm income possibilities means that the households must choose the crop that can occupy either a large part or all of the family and yield a high income per worker. The labor intensive nature of poppy cultivation makes this a favorable crop when the household size is large but the possibilities are limited.

According to Mansfield (2006b) the incentives to grow opium poppy over other crops will increase the further the farmer live from the provincial center, not only due to the lack of income opportunities but also because of worsening infrastructure, making it hard to get

agricultural products such as fresh fruit and vegetables to the market in time. In this environment, opium poppy would be the preferred crop as opium can be stored for longer periods of time, is easily transported to the market place and at times even collected at the farm by opium traders.

A third argument in the center versus periphery theory is the lack of strong law enforcement in inaccessible areas. In remote villages far from central authorities an opium ban and the threat of eradication will seem less credible and opium cultivation is more easily hidden away.

Even though these arguments have an important role in his research, Mansfield acknowledges that it does not apply to the southern provinces of Helmand and Kandahar, provinces that have been known to produce the largest amounts of opium in the country. According to Mansfield this is mainly because of the lack of strong provincial centers in this area.

6.1.2 The allocation of land and land tenure patterns

Land tenure arrangements are diverse in rural Afghanistan, where a large number of households live in extreme poverty. UNODC estimates that as many as one quarter of the population are landless, and the most common land tenure agreements for these farmers are sharecropping and tenancy (Mansfield, 2006b). Even for the farmers that do own land, it is often not enough to meet the family's basic needs. For these resource- and land-poor households it is crucial to gain access to land to ensure some sort of food security. According to Mansfield these tenure arrangements are favoring opium poppy cultivation and we should expect to find a strong relationship between opium production and sharecropping/land leasing (Mansfield, 2001). One should also expect the typical land leasing/sharecropping poppy cultivator to be found at relatively small landholdings.

In sharecropping agreements the cultivator's share of returns is typically small, and the favorable arrangement would usually be land tenancy, but for the very poorest farmers the lack of resources needed for the agricultural inputs forces them to engage in unfavorable sharecropping agreements. The labor intensive nature of poppy cultivation has made sharecropping attractive for both the landowners and the sharecroppers. The typical poor farmer has no other inputs to offer than cheap labor. The wealthier land owners would want to maximize the profit from his land, and by sharecropping it out to poppy cultivating farmers he can gain high yields on relatively small landholdings and at the same time use his own labor elsewhere. Because the landowner usually provides the land, the seeds and the physical infrastructure needed to cultivate poppy, the sharecropping farmer's share of the returns is

small, even though labor is by far the most important input in opium production. This ensures a disproportionately high share of income for the landowner relative to his inputs. Still, the arrangement is often the only way for the poorer farmers to gain access to land and they will usually have to agree to the crop decisions of the landowner. The sharecropping agreement also ensures risk sharing for the landowners in an unstable environment. In the case of crop failure or exposure to poppy eradication campaigns, the heaviest burden will fall on the already poor and indebted sharecropping farmers.

In land leasing arrangements it has been common practice to calculate rent on the basis of potential wheat production. According to Mansfield (2006b) this is changing in areas with high concentration of poppy cultivation. Landowners are increasingly requiring rent based on potential opium production instead of potential wheat production. The high yield of income from opium poppy cultivation relative to other crops means that land-leasing farmers have limited options when choosing what to cultivate.

6.1.3 Farmers' debt and the salaam system

Through years of conflict, the Afghan economy has suffered and the prevalence of formal financial institutions such as banks is limited. At the same time, Islam forbids good Muslims to earn interest on money lending, and this has made alternative credit systems evolve. The salaam system is an informal system that gives the farmers access to credit from a money lender in change for a share of his opium harvest at a later stage (UNODC, 1999). The price the farmers receive from the creditors is often not more than half of what he would get by selling his opium after harvest, but this arrangement is often their only possibility of obtaining credit as the formal economy is non-functioning. The salaam system gives the farmers access to income during the winter months and does also give them the possibility to make larger investments on their farm, such as the building of irrigation systems. But it will also imply that the farmers are obliged to cultivate opium poppy and that a season with crop failure or eradication will force the farmer to grow even larger amounts of poppy next season.

According to Mansfield (2004) this is exactly what happened in the beginning of this millennium. An increased use of eradication in the government's fight against the opium industry led already indebted farmers even deeper into poverty. The widespread corruption in the country apparently leads the eradication campaign to hit the most vulnerable, as they are not able to pay their way out of the eradication. These farmers are resource-poor, often landless, and they grow opium to pay of their salaam debts. According to Mansfield this was

one of the causes that led the opium poppy cultivation of Afghanistan to grow during falling opium prices in 2003/2004. He found that all of his respondents that were targeted by the eradication campaign during the last season were still growing opium and that their average amount of land dedicated to poppy cultivation had increased.

In his master thesis, Fredrik Willumsen (2006) analyzed the effect of debt on the Afghan farmer's incentives to grow opium. He found a positive correlation between the level of debt and poppy cultivation, but when controlling for factors such as social class and price incentives the correlation was less clear. Willumsen claims that farmers have two different incentives to produce opium; in most cases it will be the Afghan farmer's best choice of crop, in sense that it is the profit maximizing crop, but opium is forbidden by both their religion and their government so there will be a moral cost involved when choosing to cultivate it. Secondly, it is for many the only way to obtain credit in order to survive the winter or to invest in the infrastructure of their farm.

According to Willumsen the opium farmers can be divided into two groups, the "opportunists" that grow opium poppy to yield the highest possible income and the "moralists" that grow opium poppy out of necessity. The two groups will have different cropping patterns. The "moralists" will have high moral costs from producing opium and so they will not cultivate poppy until their debt reaches a tipping point after which they will be forced to dedicate all of their land to opium in order to handle their debts. The "opportunists" on the other hand, cultivates opium to maximize profit, and for these farmers the optimal strategy is to diversify the cropping, producing both opium and other crops.

6.1.4 High farm-gate prices of opium

Many factors will influence an Afghan farmer when deciding what to cultivate, and one of the greatest incentives for choosing opium poppy is its high farm-gate prices. In fact, the high sales prices are named as the farmer's number one reason for cultivating opium in 2006, according to UNODC (2006).

In 2003 the potential income yield from one hectare of land was about 27 times higher when cultivating opium poppy than when cultivating wheat. By the increased production and the decrease of farm-gate prices in the following years the potential returns from opium relative to wheat had declined to about 8,5 by 2006 (UNODC, 2006). In spite of the overwhelming profitability of opium over wheat, most Afghan farmers choose not to cultivate poppy. The labor intensive poppy cultivation will be highly dependent on low wages in order to be

profitable. In a relatively small household with low labor force living in an area with low population density, the access to cheap or free labor is limited and opium production will be less attractive.

Food security is also a determining factor in the farmer's crop decisions. Especially in areas distant to functioning markets farmers may choose wheat over opium poppy in order to secure the household's access to food during the winter. When the prices of wheat increase, the production of opium tends to decrease (Mansfield, 2005). An increased price of wheat will hardly raise the revenue of the crop enough to compete with the poppy in profitability, but farmers will still swap poppy cultivation for cultivation of wheat in order to secure the family's access to food.

The farm-gate prices of opium have seasonal variations. The prices are at its lowest right after harvest, when the Afghan market is flooded with fresh opium. The drug's ability to remain its quality when stored, actually gaining value as it dries, favors the resource-rich farmers. The relatively wealthy farmers will be able to save the opium harvested and sell it at a later point in time when the supply is low and the prices are high. In the same way, the salaam creditors will be paid opium from the indebted farmers after harvest and probably save it to a time when the prices have increased. This investment-like quality of the drug increases the gap between the poorest opium farmers and the resourceful, rich opium farmers. The opium poppy may for some be the profit maximizing crop, earning the farmers a much higher income than any other crop, while it for others is merely a way of surviving.

6.2 Analysis of the NRVA data

In light of the exposition in above, this part of chapter 6 looks at the data on the poppy farmers from the NRVA survey. This is meant to give an overview of the characteristics of the poppy farmers and their incentives for producing opium, and compare it to what theory predicts. Table 9 in the end of chapter 6 provides a full summary of these characteristics in comparison to the average rural respondent in the survey and to other actors of the industry. Table 9 also gives an overview of the average poppy farmer's access to resources according to UNODC.

6.2.1 Center versus periphery, farmers' wealth and access to alternative livelihood

The data from the NRVA survey provides GPS-coordinates on every household that have been surveyed. By using these coordinates in addition to GPS-coordinates of all 32 province capitals of Afghanistan, I was able to calculate the distance from each respondent to a provincial center. I have assumed that crossing a provincial border is cost-free so that the numbers are based on the distance to the nearest provincial capital, not the province capital that the respondent actually belongs to. This should give a more accurate estimation. All measures are in linear distance, as it has proven difficult to calculate actual travel distance in a country with limited infrastructure.

The mean distance to a provincial center among the poppy farmers is 51,1 kilometer. The mean distance to a provincial center for all respondents in the poppy cultivating provinces is 44,4 kilometers. When excluding the urban and the kuchi population the mean distance among the respondents in poppy cultivating provinces is 47,7 kilometers. This shows that there might be something to Mansfield's (2006) theory, but the difference between the poppy farmers and the rest of the population is not very large, especially when comparing only to the rural population.

According to Mansfield the theory does not apply to the poppy farmers of Helmand and Kandahar. To account for this, I have also calculated the distance after excluding the two provinces. This gave a mean distance of 42 kilometers among the poppy farmers and 44,2 kilometers on average among the rest of the respondents. The fact that the distance is lower among the poppy farmers than among the rest of the respondents clearly breaks with Mansfield's theory. However, when excluding both the poppy farmers of Helmand and Kandahar, the dataset is severely reduced. We are left with 277 respondents, and this might be a too small sample to draw any valid conclusion from.

Of course there might be other centers of trade than province capitals, centers that lie closer to some of the respondents, but Afghanistan is still mainly a rural country with dispersed settlements and I believe that a province capital is the best proxy for functioning markets.

Theory also predicts that an Afghan farmer is more likely to grow opium poppy in areas where the security is bad and law enforcement low. To check for this I created a dummy variable for the experience of either insecurity and violence or theft during the last twelve months. Of course the level of law enforcement could be manifested in several other ways than this, but with the limited information we have available this could still give us some

insight. I found that while 13 % of the poppy farmers had experienced insecurity or theft, only 6% of the rural respondents had done so. These numbers supports the theory of insecurity and opium being interlinked. However, it is not possible to tell which way the causality goes. Do the farmers grow opium poppy because it is the safe crop in an unsafe environment or is the prevalence of the opium industry itself contributing to destabilization of an area? According to Lind, Moene and Willumsen (2009) there is a two-way causality.

The theories of poppy production in more peripheral areas due to distance to functioning marked was being contradicted by the NRVA data. Mansfield's second argument in the theory is the weak law enforcement in more peripheral areas due to the distance to leading authorities and functioning institutions. This is also refuted by the data from NRVA. While the mean distance to a province capital among all respondents in poppy producing provinces is 44 kilometers, the mean distance among those that have experienced either theft or insecurity was 41 kilometers. When excluding Kandahar and Helmand, provinces that according to Mansfield have are missing strong provincial centre so that the theory does not apply, the mean distance in the poppy producing provinces is still 44 kilometers but the distance among those that have experienced theft and insecurity was down to 33 kilometers.

To get a better impression of the environment that the poppy farmers live in, I've generated a dummy variable for the experience of a shock that affected the respondents negatively during the last twelve months, including the previous analyzed shock variables of theft and insecurity. The different shocks included in the dummy can be found in the NRVA questionnaire in Appendix.⁴ What I found was that the share of families that have experienced a negative shock in the previous 12 months are higher (45 %) among the hole sample than among the opium farmers (35 %). When only looking at the rural population, the share that had experienced a negative shock was 51 %. Despite the fact that the poppy farmers was more exposed to insecurity and theft than the rest of the survey population, a smaller share of them had actually experienced any negative shocks in the last twelve months. This could be interpreted in different ways. It could be that the poppy farmers live in areas where the occurrence of these kinds of shocks is rarer, but I find this rather unlikely. The majority of the

⁴National Risk and Vulnerability Survey – Household questionnaire – Final 2005, Section 13: Household Shocks and Coping Strategies, question 13.1, Appendix

poppy farmers are resident in areas known to be unstable. The other, more likely, explanation is that the relative wealth of the poppy farmers compared to the rest of the population has provided them with better coping abilities to shocks.

Because the theory of distances had no support in the NRVA data, I decided to take the analysis one step further. According to Mansfield one of the reasons why the distance to province capitals matter is that access to functioning markets gives opportunities for other income sources. Mansfield (2006b) divides the income sources into three different categories:

- On-farm: income from farming activities when working on their farm.
- Off-farm: income from farming activities when working on other farms.
- Non-farm: income from activities other than farming.

The first two categories might not be good descriptions of the respondents' access to functioning markets, as this is farming activities equal to poppy cultivation. Still, Mansfield claims that the possibility for income from other sources than the opium industry lowers the incentives for cultivation of the illicit crop.

In the NRVA survey the farmers are asked to name their 6 most important income sources. I have divided the alternatives into categories according to Mansfield's classification.

- On-farm: production and sales of field crops (other than opium), production and sales of cash crops (other than opium), production and sales of orchard products, production and sales of livestock and products, sales of prepared foods
- Off-farm: agricultural wage labor (not from opium production), shepherding, mills
- Non-farm: wage labor, skilled labor, salary/government job, small business, petty trade, cross-border trade, firewood, charcoal sales, handicrafts, carpet weaving, mining, military service, taxi/transport, remittances for seasonal migrants, remittances from family members living away from home permanently, pension, other government benefits, rental income, sale of food aid

I found that 57 % of the opium farmers had on-farm income from other sources than opium, while in the total sample the number was 21 % and in the rural population it was 22 %. This result is not in accordance with the theory of resource-poor, indebted poppy farmers with limited choices and livelihood options. Apparently the poppy farmers uses their farm for a set of other income generating activities than poppy cultivation, making them less vulnerable than predicted by Mansfield.

Only 3 % of the poppy farmers had off-farm income, while 12 % of the total sample had income from this category. When excluding the urban and the kuchi population the share was 14 %. The difference is striking but might not be very surprising. The labor intensity of poppy cultivation implies that most of the household members would be occupied with the opium production, unable to leave the farm and engage in other income generating activities off-farm.

The most interesting result might be the respondents' availability of non-farm income. 21 % of the opium farmers have non-farm income, while in the sample total the number is 63 %. Because the possibilities of getting a job within this category probably are greater in cities, the non-farm income of the poppy farmers should be compared to the non-farm income of the rural population. In the rural population the share was 60 %. When checking the share of respondents with non-farm income living further away from a provincial capital than the average poppy farmer, 51 kilometer, the share was still about 60 %. It might be the case that the households that choose to cultivate opium poppy have limited access to other income sources than farming activities because of their residency in the periphery. When choosing among the on-farm income possibilities, opium production will be attractive because of its high profitability.

All together, 72 % of the poppy farmers had some sort of on-farm, off-farm or non-farm income from other sources than opium, while 84 % of the total sample had the same access.

This is in accordance with the theories of limited alternative livelihood options for the poppy farmers by David Mansfield. However, it could just as well be the consequence of the high income yields from opium,

6.2.2 The allocation of land and land tenure patterns

Theory predicts that a large part of the poppy farmers should have limited access to land, be poor and caught in unfavorable land tenancy agreements. Are these patterns also found in the NRVA data?

Among the 30 822 households in the NRVA survey of 2005, about 16 % is borrowing land for agriculture, either through sharecropping or renting. In the rural population the share is almost 21 %. This estimate is close to UNODC's (2005) estimate of about a quarter of the total population being landless. 100 of the 527 poppy farmers are either renting or sharecropping some or all of their land. This is 19 %. Out of these, only 23 are sharecropping.

Because of the way the questions are asked we do not know if the farmers actually cultivate poppy on this rented or sharecropped land. We do know that after scaling up the number of sharecroppers to national levels, the opium producing sharecroppers' landholdings were 5 634 hectares, but how much of it is used for poppy cultivation is unknown. Still, this amount of land is only 6,7 % of the total poppy cultivation in Afghanistan in 2005, a rather small number.

On the other end of the scale we have the land owners. 90 of the 527 opium farmers have land that they sharecrop out or rent out. This is 17% of the opium farmers. In the data set the same number is about 4 % in the total population and 5 % in the rural population.

The NRVA data again contradicts the theories of Mansfield. According to his research one should expect to find a large share of landless farmers among the opium poppy cultivators. Most of these should be sharecroppers. Poor families should according to Mansfield be forced into unfavorable tenancy agreements to get access to agricultural land. The landowners on the other hand should require that the renting household cultivate poppy as this yields the highest income for them (Mansfield, 2001). However, this does not seem to be the case in the NRVA data. Especially the high numbers of land lenders among the poppy farmers in comparison to the rest of the population in the survey is very interesting. Could it be that the poppy farmers in the survey are a more resource-rich group than Mansfield predicts? To investigate this further I have analyzed the land holdings of the rural population.

The average land size that the rural households have available for agriculture is 1,29 hectares, and the mean land size per household member is 0,14 hectares. UNODC (2005) claims that the average Afghan farmer had landholdings of 2,75 hectares in 2005, a substantially higher number than what the NRVA data indicates.

The differences in the NRVA data and the UNODC estimates are less striking when it comes to the poppy farmers. According to UNODC the average landholding among poppy farmers grew in the first years of the new millennium, and they estimated that the average land size among them was about the same as among the rest of the population; 2,75 hectares. From the NRVA data the average land size among the poppy farmers is 3,35 hectares. Out of this, an estimated 0,924 hectares were used for poppy cultivation. All though the opium producing households in general were larger than the non-opium households, the average land size for each household member in opium producing households was 0,41 hectares, much higher than

in the rest of the population. The idea of poppy farmers as a poor peasant with limited access to agricultural land seems inconsistent with the data available to me.

6.2.3 Farmers' debt and the salaam system

The NRVA survey includes questions regarding the respondent's access to credit and their debt. Unfortunately there is no direct question about debt to salaam creditors. The survey does however ask about the household's total value of loan. It turns out that 139 of the 527 farmers are indebted. This is 26 % of all the poppy farmers. Compared to the average population this is a small proportion. A total of 40 % of all respondents in the survey have unpaid loans and 44 % of the rural population is indebted. The indebted poppy farmers' average loan, 49 912 Afs, was also smaller than the average loan among other households with debt; 64 500 Afs. The indebted poppy farmers in the survey cultivate 54 hectares of the 487 poppy hectares in the data sample, about 11 %. Not surprisingly these farmers have smaller amounts of agricultural land available, 1,65 hectares per household. What is less expected is the relatively small share of their fields they dedicate to poppy cultivation, about 24 %.

The respondents are also asked about the source of their largest loan. Salaam is not mentioned, but opium trader is one alternative. Yet, only 6 poppy farmers put opium trader as the source of their largest loan. Another alternative in the questionnaire is money lender (hawala), an alternative that might also be interpreted as a salaam creditor, but none of the poppy farmers choose this alternative. The absolute largest source of loans was family/friends within Afghanistan.

As mentioned above, the average share of poppy cultivation relative to other crops among the indebted farmers was about 24 %. This is somewhat unexpected. According to theory the poppy farmers with loans should dedicate a larger part of their land to poppy in order to pay off their debt. To investigate this I analyzed the farmers that reported opium poppy as their only crop in the 2005 season. All though I have no way of knowing whether they cultivated poppy in previous seasons, I will still refer to them as monocroppers.

There are only 23 monocroppers among the poppy farmers in the survey. The small sample makes it difficult to draw any valid conclusions, but the findings are still worth mentioning. The monocroppers have on average access to 1,3 hectares of agricultural land. This is similar to the rural population but far less than the poppy farmers. 12 of the monocroppers are indebted, which is a higher amount than the rest of the population. Still, the high levels of debt are not found. The monocroppers' average unpaid loan was 53 167 Afs, higher than the

debt of the poppy farmers but lower than the average debt in the survey. The expected poverty, landlessness and debt of the poppy cultivating monocroppers cannot be verified by the NRVA survey.

According to Mansfield, the typical poppy farmer is indebted and has limited access to resources. They grow opium poppy out of necessity. The data from the NRVA survey has already contradicted this in the case of landholdings and debt. What about their general wealth?

There are no variables in the dataset describing the respondents' general level of wealth. This is not surprising. Being one of the poorest countries in the world with a severe lack of functioning financial institutions such as banks, the population's wealth might be easier measured in terms of access to assets. To analyze the farmers' situation from the information in the data set, I have created two groups of assets:

- Luxury assets: TV, VCR, mobile phone, generator, refrigerator
- Work assets: motorcycle, car, truck

Again, my results contradict Mansfield's. The survey confirms the poverty of the Afghan population. A little less than a quarter of the respondents had access to what I have labeled luxury assets, assets that are viewed as necessities by us in the developed world. A more surprising result is the fact that among the poppy farmers 26 % had some sort of luxury assets. This is a much higher proportion than the rural population where only 12 % had these types of goods. When it comes to work assets the results are even more striking. Among the poppy farmers a total of 47 % had access to these kinds of assets, while no more than 15 % of the total rural population said the same thing. A similar pattern is found by the UNODC (2005). They explain the high levels of work assets among the poppy farmers by the fact that they tend to be younger than the non-poppy farmers and that motorcycles are important status objects among the younger generations. To check for this I excluded motorcycles from the work assets-category, and found that the level of poppy farmers with access to work assets came down to 15 %. But at the same time, the number of work assets-owners in the total population was reduced to 5 %.

To further analyze the wealth level of the poppy farmers, I have included information on respondents' access to livestock from the NRVA survey. This showed that 87 % of the poppy farmers owned some sort of livestock. This was much higher than among the total rural

population of the sample, where the share was 62 %. However, Mansfield (2006b) claims that what separates the resource-rich from the resource-poor on this subject is their ownership of higher valued animals, such as oxen and dairy cows. The poorer farmers typically have limited access to livestock, with an exception of poultry. By excluding poultry from the livestock-variable, I should be able to get a better proxy for wealth.

It turns out that by excluding poultry the share of poppy-farmers with livestock is down to 14 %. Among the total rural population in the sample, the share is 22 %. At the same time, 73 % of the poppy farmers own poultry while only 43 % of the rural population does. There seems to be some truth to the story of the poppy farmers' limited values in terms of livestock.

Haj is the annual pilgrimage to Mecca that all Muslims should attend to once in their life, as long as they can afford it. Haj is a measure of wealth, but could also be a measure of moral or conscience. The data set shows that among the poppy farmers, 17 % had attended Haj since last harvest. Among all respondents in the dataset the share was 4 %. This is probably a result of the farmer's relative wealth compared to the rest of the population, but some of it might also be interpreted as the poppy farmers' feelings of guilt for producing a substance that is both illegal and anti-Islamic. To check for this, I measured the correlation of Haj to the size of land available to the farmers. The correlation between Haj and land size was 0,0552 in the total sample, while the correlation between Haj and land size among the poppy farmers was 0,1766. If we use the size of land as a measure of wealth, the positive correlation of land size on Haj could be seen as the effect of increasing wealth on the respondents' ability to do the pilgrimage. The extra effect among the poppy farmers could be a result of higher income yield per hectare of land from poppy cultivation than from other crops.

The correlation between annual income from the most important income source and Haj was 0,1859, but among the poppy farmers the same correlation was 0,2189. The difference between the two groups is no longer very large, but the extra effect among the poppy farmers might be interpreted as the farmers' moral payment for doing something that is against their religion. The correlation of Haj and yearly income is even larger among the opium traders, 0,2442, supporting the idea that there is something extra that makes people involved in the opium industry attend the pilgrimage, other than high income.

6.2.4 Opium prices, income and family size

Unfortunately I do not have any possibilities of calculating the farm-gate price of opium from the data set available. Neither do I have any information on wage-levels in different areas and

industries. The lack of statistical material in Afghanistan makes it impossible to obtain this from other sources as well. However, I do have information on the respondents' yearly income from their main source of income. I do also have numbers on the average family size, information that might confirm the theory of poppy farmers' larger households.

According to theory, the labor intensive nature of poppy cultivation gives larger households incentives to choose the crop, as they have better access to cost-free labor within the family. In this area the data from the NRVA survey is in line with theory. The mean household size in the dataset is 7,37, and for the rural population it is 7,47. For the farmers growing opium the mean family size is 9,17. This supports the theory of bigger families dependent on opium because of the large revenue and the labor-intensive nature of the opium cultivation process. But the larger households could also partly be a result of the poppy farmers' higher income. Mean earnings are higher among the larger families in the sample, and it is difficult to tell what influences what.

The average yearly income in the survey is 67 389 Afs, or about 1 360 USD.⁵ Looking only at the rural population the yearly income was 62 146 Afs. The income of the poppy farmers was more than twice as large, 125 963 Afs. When looking only at those poppy farmers with opium as their most important income, 253 respondents, the number increased further, to 138 928 Afs. The income is almost the double among the poppy farmers than in the rest of the population, and more than twice as large when looking at the farmers with opium as their main income. The result is very interesting, as it confirms the lucrative nature of poppy cultivation and questions the poverty-label on the poppy farmers. However, the reported income could be gross income, so that a large part of the poppy farmers' income later was used to pay wages to workers helping out with the harvest. Because the survey only asks about the respondent's most important income, it could also be that many of them have a high income from other activities not reported, and that this could have altered the conclusion.

⁵ <http://www.centralbank.gov.af/pdf/Average%20rate%20from%202001-%202007.pdf>

6.3 The poppy farmers with no opium income

There are 116 families in the sample that cultivates opium but claim to have no income or wage from opium production or sales. 116 out of 527 poppy farmers is a large part, making it hard to just blame errors in the survey. Scaled up to national levels these families account for 18 800 Afghan families. I tried to look at their characteristics to get a better view of what kind of farmers these 116 really were.

My first idea was that these households were heavily indebted, owing money to salaam-creditors. As the farmers in this situation would have to pay the creditor in opium right after harvest, they might not consider poppy cultivation as an income generating activity. But it turns out that only 39 of them have unpaid loans. However, the average loan among these households were 120 582, a substantial debt compared to other indebted in the dataset. For these families my assumption could be correct.

To get a better idea of the respondents wealth level, I analyzed the allocation of the agricultural land they had available and their land tenancy agreements. 24 of the respondents did not own enough land to provide for the family and were renting or sharecropping land from others. The average land size in the group was 3,81 hectares, significantly larger than for the average farmer in Afghanistan. The mean income among them is 98 818, lower than the poppy farmers' income but higher than the income of an average Afghan family. There are no signs of them being poorer than most households in the survey.

Could it be that they produce poppy for their own usage? In that case, I would assume that they cultivate smaller amounts of poppy than the rest of the poppy farmers. It turns out that their opium production is about equal in size to that of the rest of the poppy farmers. On their land they cultivate 0,92 hectares of poppy, or 24 %.

Another explanation for the lack of income from the poppy cultivation could be that the farmers have experienced their poppy fields being destroyed by eradication campaigns. In that case they would not generate income from opium this year. However, only 26 farmers report being exposed to eradication during the previous twelve months. This is no larger amount than in among the rest of the poppy farmers. Actually, the experience of any kind of negative shocks is only slightly larger among this group than among the rest of the poppy cultivators; 37 % report such incidents. None of them lost their house or land in the previous year.

The non-income poppy farmers remain a mystery. Only 5 of the 116 families have not reported any income sources at all. These farmers can be explained by the errors in the data set or misunderstandings during the interviews. But the remaining 111 households are difficult to interpret. As their most important income source most of them, 41 %, report crop production for home consumption. Of other income sources among them, production and sales of orchard products and production and sales of field crops are most common. I find no clear explanation for their lack of income from opium, and the missing information could just be due to a mistake in the survey. If the respondents were to be skipped from the sample, the estimated total opium production of 2005 would be down to 66 129 hectares.

6.4 The traders

There are 268 respondents in the sample from the NRVA survey that have income from production and sales of opium, but do not cultivate poppy themselves. I have called these families traders, but they could also be refiners, transporters, cross-border smugglers or salaam-creditors. They are involved in the Afghan opium industry but they are not poppy farmers. These respondents account for 43 747 households after scaling up to national levels. This is 1,1 % of the total population in Afghanistan.⁶ By looking at their characteristic I'll try to get a better impression on what kind of families they are.

Most of the traders are rural, 230 respondents. Only 18 are urban and 20 are kuchi. The average land size among the rural traders is 2,04 hectares and the mean size of land on each individual is 0,239. This means that the traders have access to arable land, still they do not cultivate poppy. They have smaller landholdings than the poppy farmers but larger than the rest of the population. 17 % of them are either sharecropping or renting land, while 8 % are land owners, renting or sharecropping out land to others. 24 % of them are indebted and their average debt is 48 345 Afs. The values indicate that the traders are less wealthy than the poppy farmers but more than the rest of the population. This is somewhat unexpected, as the typical picture that is drawn of the opium industry is one where the poppy farmers are on the

⁶ Total population measured from the NRVA data; 28,9 million people.

bottom of the social ladder, being exploited by the other actors in the industry. Of course the uncertainty of the traders' actual role in the industry complicates the analysis.

Another measure of wealth is their availability to assets. 20 % of the traders have access to luxury goods, and 37 % have access to work assets. This implies that the traders as a group are equally well off as the rest of the population in terms of luxury goods, but their access to work assets are much higher. This is probably a result of my definition of work assets, where all items are transportation equipment, and the nature of trading as a profession. 32 % of the rural traders have livestock other than poultry. This is more than both the poppy farmers and the rest of the rural population. This could also be a result of the traders keeping livestock as means of transportation to a larger degree than the rest of the population because of their work.

The income-patterns of the traders are similar to the poppy farmers', but smaller. 40 % of the traders have on-farm income, 3 % have off-farm income and 10 % have non-farm income. All in all, 56 % of them had access to other income than opium income.

The average family size of the opium traders was 8 individuals. This is larger than the survey average but smaller than the poppy farmers. Only 4 % of the traders have experienced a negative shock due to insecurity and theft in the last 12 months, about the same as the rest of the population. 106 of them have been negatively affected by any of the shocks listed in the survey in the previous 12 months. This is 39,5 %, about the same as in the poppy farmer sample, but smaller than in the rest of the population.

6.5 Farmers' dependency on poppy cultivation, land-rich versus land-poor

According to Willumsen (2006) the poppy farmers can be divided into two subsets, the poor and indebted farmers dependent on the opium industry to get access to credit and land, and the resource-rich farmers that cultivates poppy because it is the profit maximizing choice of crop. David Mansfield (2006b) promotes similar arguments in his contribution to the UNODC and World Bank report Afghanistan's Drug Industry, where he claims that a household's dependency of opium poppy will depend on a number of different factors. To analyze this by use of the NRVA data, I have created three groups of opium poppy farmers, the land-rich, the land-poor and the middle group. To really emphasize the difference between the land-rich and the land-poor, I have chosen the farmers with really large landholdings, more than 6 hectares,

and the farmers with the absolutely smallest landholdings, less than 0,5 hectares. The middle group consists of the remaining 402 farmers, with landholdings more similar to the average. I'll start by analyzing the middle group so that the characteristics of the two more deviant groups can be compared to this.

6.5.1 Middle group

(402 farmers)

Poppy farmers with landholdings larger than 0,5 hectares but smaller than 6 hectares.

The middle group consists of the average poppy farmers in the sample. Their mean land size is 2,54 hectares, and on this land they cultivate on the average 0,77 hectares of poppy. This means that about one third of their land is used for poppy cultivation. 24 % of them have unpaid loans, and among these the average debt was 60 640 Afs. 25 % have got luxury assets, and almost half, 49 %, have work assets. 13 % of the farmers have livestock other than poultry. 75 % had some sort of income from other sources than opium. 60 % had on-farm income, 3 % had off-farm income and 19 % had non-farm income.

The mean household size among this group was 9,43 and they live on the average 51 kilometers from a provincial capital. 15 % have experienced insecurity, violence or theft and 22 % have experienced their crop being destroyed by an eradication campaign during the previous twelve months.

6.5.2 Land-poor

(66 farmers)

Poppy farmers with landholdings smaller than 0,5 hectares.

These households have limited access to arable land; the mean land size in the sample is only 0,33 hectares. Out of this they cultivate 0,164 hectares of opium poppy, or 49 % of their total land. This is supporting the predictions of Willumsen (2006), where the poorer and indebted families goes from no poppy cultivation to cultivating a larger part of their land with poppy once they reach a threshold level of debt. Still, the share of poppy cultivation in this group is smaller than expected, they are far from monocroppers.

At the same time, they are not all indebted. Out of the 66 farmers, 38 have unpaid loans. This is 58 %, a substantially higher share than among both the poppy farmers and the rest of the population. Still, their average unpaid loan was not very high, 23 700 Afs. When looking at

all households in the dataset with landholdings smaller than 0,5 hectares, the share of indebted respondents was lower, 39 %, but their average debt was higher; 67 700 Afs. Only 8 % of the land-poor had access to luxury assets, and 6 % had access to work assets. Still, these results are hardly very surprising. These farmers are by definition among the poorer of the sample, a group that is more dependent on loans to get through difficult periods. Their poverty and so their lack of collateral could be the reason why their average debt is not higher. Even so, the poor poppy farmers do not seem worse of than other poor households in the population.

24 % of them had livestock other than poultry. 27 % had on-farm income from other sources than opium, 5 % had off-farm income and 18 % had non-farm income. All together 45 % of the land-poor farmers were involved in income generating activities other than opium wage labor or production and sales of opium. Even among the poorest of the poppy farmers the access to alternative livelihood is present.

The average family size is 7,68 people, supporting the idea that larger families comes with higher wealth, and that it is not necessarily correlated with poppy cultivation because of labor requirements. They live 52 kilometers from a provincial capital, further away than the average poppy farmer, and 14 % have experienced insecurity and violence in the previous twelve months. Eradication has been experienced by almost 20 % of them, about the same as the rest of the poppy farmers.

6.5.3 Land-rich

(59 farmers)

Poppy farmers with landholdings larger than 6 hectares.

The farmers in this category have large landholdings; the mean size of land available to them is 12,33 hectares. Out of this they cultivate on the average 2,82 hectares of opium poppy, or almost 23 % of their land. This is a smaller amount than in the total sample of poppy farmers, where the average was 28 %.

The mean family size is 9,05, about the same as among the rest of the poppy farmers, but substantially larger than among the land-poor. Not surprisingly this group also shows other signs of wealth. Only two of the respondents have debts (3 %), 47 % have access to luxury assets and 80 % had access to work assets. 81 % of the households have access to either on-farm, off-farm or non-farm income. However, only one family, or about 2 %, reported any off-farm income. This is a low share, but could be explained by the fact that these households

are wealthy, so there is no need for the family members to do itinerant work. 39 % had some sort of non-farm income, 64 %, had on-farm income. All in all, the land-rich farmers have more alternative income sources than the average poppy farmer. Still, only 8 % of them own livestock other than poultry.

The poppy farmers with large landholdings have an average of 52 kilometers to nearest provincial capital. This is a larger distance than in the total sample of the poppy producing provinces. Yet, there is not much sign of weak law enforcement among them, only one household has experienced insecurity or theft in the previous twelve months. It seems that the occurrence of insecurity is more linked to poverty than periphery.

According to Martin and Symansky (2006), the eradication campaigns in Afghanistan have had limited effect due to widespread corruption. David Mansfield (2004) claims by similar arguments that the eradication campaigns only target the poorest farmers, as they are not able to pay their way out of the eradication. In the data from the NRVA survey, only 3 % of the 59 poppy farmers with large landholdings had experienced eradication of their poppy in the previous twelve months. Among both the land-poor and the rest of the poppy cultivators the number was 20 %. Although we have limited data on the land-wealthy farmers, the survey seems to confirm the expected negative correlation between wealth and eradication. However, the relatively low numbers among the poor farmers compared to the total sample of poppy farmers imply that the farmers have to be substantially wealthier than the average to save their crops from eradication.

Table 9: Characteristics of the actors in the Afghan opium industry in 2005

Characteristics	Average rural respondent (NRVA)	Average poppy farmer (NRVA)	Land-poor poppy farmers (NRVA)	Land-rich poppy farmers (NRVA)	Middle group of poppy farmers (NRVA)	No-income generating poppy farmers (NRVA)	Traders (NRVA)	Average poppy farmer (UNODC)
Land available	1,29 ha	3,35 ha	0,33 ha	12,33 ha	2,54 ha	3,81 ha	2,36 ha ⁷	2,75 ha
Av. size of poppy field	-	0,92 ha	0,16 ha	2,83 ha	0,77 ha	0,92 ha	-	0,34 ha
Poppy field in % of land	-	28 %	49 %	23 %	30 %	24 %	-	12 %
Land owners	5 %	17 %	2%	42 %	16 %	17 %	8 %	-
Land renters	21 %	19 %	3 %	7 %	24 %	21 %	17 %	-
Av. yearly income (Afs)	62 146	125 963	64 977	193 667	126 963	95 722	91 685	99 190 ⁸
Has non-opium income	84 %	72 %	45 %	81 %	75 %	85 %	56 %	-
Has on-farm income	22 %	57 %	27 %	64 %	60 %	41 %	40 %	-
Has off-farm income	14 %	3 %	5 %	2 %	3 %	8 %	3 %	-
Has non-farm income	60 %	21 %	18 %	39 %	19 %	54 %	10 %	-
Indebted	44 %	26 %	58 %	3 %	24 %	34 %	24 %	36 %
Av. loan of indebted(Afs)	63 025	49 912	23 747	16 000	60 640	120 582	48 345	35 973 ⁹
Owners of luxury assets	12 %	26 %	8 %	47 %	25 %	17 %	20 %	-
Owners of work assets	15 %	47 %	6 %	80 %	49 %	37 %	37 %	-
Owners of livestock	22 %	14 %	24 %	8 %	13 %	16 %	32 %	-
Av. distance to center	48 km ¹⁰	51 km	52 km	52 km	51 km	51 km	-	-
Experienced insecurity	6 %	13 %	14 %	2 %	15 %	15 %	4 %	-
Experienced neg. shock	51 %	35 %	56 %	7 %	37 %	37 %	40 %	-
Experienced eradication	-	20 %	20 %	3 %	22 %	22 %	-	5 % ¹¹
Average household size	7,47	9,17	7,68	9,05	9,43	7,57	8	6,47

Sources: UNODC, 2005

⁷ Rural traders only.

⁸ USD converted into Afs by average exchange rate in April 2005:
<http://www.centralbank.gov.af/pdf/Average%20rate%20from%202001-%202007.pdf>.

⁹ USD converted into Afs by average exchange rate in April 2005. The average debt is calculated among all poppy farmers, not just the indebted.

¹⁰ The average distance to a provincial capital for the respondents living in poppy cultivating provinces.

¹¹ Hectares of eradicated poppy fields/Hectares of poppy cultivation.

7 Conclusion

The Afghan drug industry is not just a national or regional problem. The issues linked to opium and heroin misuse and the problems following the grey economy of the industry is very much a global concern. The fact that one country contributes to such a large share of the illicit opium in the world is subject to great interest. Still, UNODC has been the only source of information to important aspects of the industry. Both national and international anti-drug campaigns and alternative livelihood programs in Afghanistan base their work on the material provided by this organization, making the accuracy of their estimates crucial.

The goal of this thesis was to estimate the opium industry of Afghanistan in 2005 based on alternative data from the National Risk and Vulnerability Assessment (NRVA). This work indicated a smaller poppy cultivation than what is claimed by the UNODC. But the most striking difference was found when looking at the number of individuals involved in opium production. As the UNODC claims that 309 000 households cultivate opium poppy, I find the same number to be just below 90 000. When summing all the different actors of the industry based on the information they have given in the NRVA survey, the number of individuals involved was no more than 430 811. This is in stark contrast to the 2 million people involved in cultivation only, according to UNODC. The relatively small differences in total production compared to the differences in measures of poppy farmers imply that production per household should be substantially higher than the organization assumes. Could it be that the high numbers of the UNODC are a result of their expectation of the poppy cultivating households as poor farmers with limited landholdings?

When working with the data it became evident that the poppy farmers in the NRVA survey were no poorer than the average Afghan farmer. On the contrary the poppy farmers seemed to be in the upper part of the scale in terms of access to land and other resources. Their yearly income was higher and their average debt level was lower. The results of the research go against most of the theories of David Mansfield, the leading expert on this field. While Mansfield stresses the poppy farmers' lack of alternative livelihood as explanation for their choice of crop, I find that the most likely reason is their insecure environment. The impression of the poppy farmers on the bottom of the opium value chain, being exploited by the other actors of the industry is also contradicted by my data.

The reasons for the controversy in my results compared to those of UNODC and Mansfield is unclear. UNODC is dependent on financial funding from donors, and gaining the attention of the international community could be a reason for the organization to report high numbers. The fact that Mansfield is widely used by UNODC as an expert source means that the organization shares his views of the poppy farmers being on the bottom of the social ladder. This victimization of the farmers is not a good foundation for the fight against illicit opium the way I see it. Security and a stable environment seem to be the key to a sustained decrease in the Afghan opium production.

References

Booth, Martin (1996), *Opium. A History*, London: Simon&Schuster, 1996.

Byrd, William A. and Doris Buddenberg (2006), “Introduction And Overview,” in William A. Byrd and Doris Buddenberg, eds., *Afghanistan’s Drug Industry: Structure, Functioning, Dynamics, and Implications for Counter-Narcotics Policy*, The World Bank and UNODC, 2006, chapter 1.

Byrd, William A. and Oliver Jonglez (2006), “Prices and Market Interactions In The Opium Economy,” in William A. Byrd and Doris Buddenberg, eds., *Afghanistan’s Drug Industry: Structure, Functioning, Dynamics, and Implications for Counter-Narcotics Policy*, The World Bank and UNODC, 2006, chapter 5.

Felbab-Brown, Vanda (2007), “Opium Licensing in Afghanistan: Its Desirability and Feasibility,” *Foreign Policy at BROOKINGS*, August 2007, Policy Paper, Number 1.

Fromkin, David (1980), “The Great Game in Asia,” *Foreign Affairs*, 1980, 58 (4), 936-951.

Goodhand, Jonathan (2005), “Frontiers and Wars: the Opium Economy in Afghanistan,” *Journal of Agrarian Change*, April 2005, 5 (2), 191-216.

Husain, Akhtar and J. R. Sharma (1983), *Medicinal & Aromatic Plants Series-1, The Opium Poppy*, Lucknow (India): Central Institute of Medicinal & Aromatic Plants, 1983.

Lind, Jo Thori, Karl Moene and Fredrik Willumsen (2009), “Opium for the masses? Conflict-induced narcotics production in Afghanistan,” University of Oslo, Department of Economics July 2009.

- **(2008)**, “Opium for the masses? Afghanistan as a drug state,” Preliminary paper. University of Oslo, Department of Economics March 2008.

Macdonald, David (2007), *Drugs in Afghanistan, Opium, Outlaws and Scorpion Tales*, London: Pluto Press, 2007.

Mansfield, David (2006), “Exploring the ‘Shades of Grey’: An Assessment of the Factors Influencing Decisions to Cultivate Opium Poppy 2005/06,” Technical Report, Afghan Drugs Inter Departmental Unit of the UK Government February 2006.

- **(2006b)**, “Responding To The Challenge Of Diversity In Opium Poppy Cultivation,” in William A. Byrd and Dorris Buddenberg, eds., *Afghanistan’s Drug Industry: Structure, Functioning, Dynamics, and Implications for Counter-Narcotics Policy*, The World Bank and UNODC, 2006, chapter 3.

- **(2001)**, “The Economic Superiority of Illicit Drug Production: Myth and Reality. Opium Poppy Cultivation in Afghanistan,” August 2001. Paper prepared for the International Conference on Alternative Development in drug control and cooperation, Feldafing, September 7-12, 2002.

- **(2004)**, “What is Driving Opium Poppy Cultivation? Decision Making Amongst Opium Poppy Cultivators in Afghanistan in the 2003/04 Growing Season,” in “Second Technical Conference on Drug Control Research” UNODC/ONDCP July 2004.

- **(2005)**, “What is Driving Opium Poppy Cultivation? The Pressures to Reduce Opium Poppy Cultivation in Afghanistan in the 2004/05 Growing Season,” Technical Report, Afghan Drugs Inter Departmental Unit of the UK government March 2005.

Martin, Edouard and Steven Symansky (2006), “Macroeconomic Impact of the Drug Economy and Counter-Narcotics Efforts,” in William A. Byrd and Dorris Buddenberg, eds., *Afghanistan’s Drug Industry: Structure, Functioning, Dynamics, and Implications for Counter-Narcotics Policy*, The World Bank and UNODC, 2006, chapter 2.

MRRD-CSO (2009), “The National Risk and Vulnerability Assessment 2007/8, A profile of Afghanistan,” Kabul 2009.

- **(2007)**, “The National Risk and Vulnerability Assessment 2005,” Kabul 2007.

Pain, Adam (2006), “Opium Trading Systems In Helmand And Ghor Provinces,” in William A. Byrd and Doris Buddenberg, eds., *Afghanistan’s Drug Industry: Structure, Functioning, Dynamics, and Implications for Counter-Narcotics Policy*, The World Bank and UNODC, 2006, chapter 4.

Rasanayagam, Angelo (2007), *Afghanistan: A Modern History, Monarchy, Despotism or Democracy? The Problems of Governance in the Muslim Tradition*, New York: I.B.Tauris & Co Ltd, 2007.

Rashid, Ahmed (2001), *Taliban, The Story of the Afghan Warlords*, London: Pan Books, 2001.

UNDP (2009), “Summary Human Development Report 2009, Overcoming barriers: human mobility and development,” United Nations Development Programme, New York 2009.

UNODC (2003) “Afghanistan Opium Survey 2003,” United Nations Office on Drugs and Crime, Vienna October 2003.

- **(2005)**, “Afghanistan Opium Survey 2005,” United Nations Office on Drugs and Crime, Vienna November 2005.

- **(2006)**, “Afghanistan Opium Survey 2006,” United Nations Office on Drugs and Crime, Vienna October 2006.

- **(2009)**, “Afghanistan Opium Survey 2009,” United Nations Office on Drugs and Crime, Vienna October 2009.

- **(2008)**, “Opium Poppy Cultivation in South East Asia, Lao PDR, Myanmar, Thailand,” United Nations Office on Drugs and Crime, Vienna December 2008.

- **(2008c)**, “Thematic Evaluation of the Technical Assistance Provided to Afghanistan by the United Nations Office on Drugs and Crime, Volume 1, Consolidated Evaluation Report,” United Nations Office on Drugs and Crime, New York 2008.

- **(1999)**, “The Role of Opium as a Source of Informal Credit,” *Strategic Study Series*, 1999, 3.

- **(2008b)**, “UNODC Strategy 2008-2011, Towards security and justice for all: making the world safer from crime, drugs and terrorism,” United Nations, New York 2008.

- **(2006b)**, “World Drug Report 2006, Volume 1. Analysis,” United Nations Office on Drugs and Crime, Vienna 2006.

Väyrynen, Raimo (1980), “Afghanistan,” *Journal of Peace Research*, 1980, 17 (2), 93-102.

Willumsen, Fredrik (2006), “Debt and poppy cultivation – Driving Factors behind Afghan opium production,” Master’s thesis, University of Oslo November 2006.

Appendix

CSO/MRRD/WFP – National Risk & Vulnerability Survey – Household Questionnaire – Final 2005

Interviewer code		Household geo-code (prefill)	
Urban Block # (prefill)		Cluster code (prefill)	
Household code (1-12) (prefill)		Kuchi code (0-1) (prefill)	
Date of interview		Province name (prefill)	
District name (prefil)		Name of village/urban nahia (pre-fill)	
Name of sub-village/gozar/mosque		Name of head of household (manual entry)	
Name of respondent if not head of household.		Name of Interviewer	
Relationship of respondent to head of household <i>(Code from Q1.4)</i>			

SECTION 1: Household register & Education

1. Marital status of HH head *(select one)*

- 1. Married
- 2. Divorced/separated
- 3. Widow/widower
- 4. Never married

1.2 Is the head of the household disabled?

- 0. No
- 1. Yes

1.3 How many members of your household have been demobilized in the last 3 years or are currently being demobilized through the DDR programme? *(If none, put 0)*

1 2 3 4 5 6 7 8 9 0

0 0 0 0 0 0 0 0 0 0

1. Male household head		14. Female head household		1.7 What is highest grade level attained in school for those household members more than 5 yrs old. (i.e. currently enrolled in or grade when left school)	1.8 School/college location where highest education level was attained?	1.9 For children 6-13 years old only, are they currently enrolled & regularly attending school?	1.10 For children 6-13 years old only, have they been absent from school for more than 1 week in past month?	1.11 For children 6-13 years old only, do you plan be attend school again?	1.12 What are the main reasons of temporary non-enrolment or lack of attendance? Please rank in order of importance up to 2 reasons.		
2. Husband		15. 1 st Wife							0 No school – ► 1.12	0. No → Next member	0. No
3. Son		16. 2 nd Wife		1 Primary	1. Rural Afghanistan	0. No → 1.11	1. Yes	1. Yes	0 School too far away /no school to enrol in		
4. Son-in-law		17. 3 rd Wife		2 Secondary	2. Urban Afghanistan				1 Works at home or nearby		
5. Brother		18. Mother		3 High school	3. Pakistan				2 Didn't like school / wasn't learning anything		
6. Brother-in-law		19. Grandmother		4 University college	4. Iran				3 Went as far in school as they need to learn useful skills / education not a priority		
7. Father		20. Daughter		5 Post-graduate	5. Other country				4 Poor health / disability		
8. Grandfather		21. Daughter-in-law							5 Not allowed to enrol by family		
9. Grandson		22. Sister-in-law							6 Not allowed to enrol by school		
10. Uncle		23. Aunt							7 Security concerns / unsafe inappropriate journey to school		
11. Nephew		24. Granddaughter							8 Marriage during school age		
12. Other male relative		25. Niece							9 Cost of schooling		
13. Unrelated male		26. Other female relative									
13. Unrelated male		27. Unrelated female									
1.4 Relationship of all household members to head of household. <i>Put head of household as #1</i>		1.5 Age of household member		1.6 Can the household member read?							
	0-99 dots	0-99 dots	0. No 1. Yes								
1	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots	
2	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots	
3	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots	
4	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots	
5	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots	
6	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots	
7	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots	
8	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots	

9	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots
10	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots
11	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots
12	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots
13	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots
14	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots
15	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots
16	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots
17	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots
18	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots
19	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots
20	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots
21	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots
22	0-99 dots	0-99 dots	0	0 0 0 0 0 0	0 0 0 0 0	0	0	0	1-9 dots	1-9 dots

Can you read a simple message and do a simple calculation?

1.13 Read (Flash card)	1.14 Calculation
<input type="radio"/>	<input type="radio"/>

SECTION 2: Housing

2.1 What best describes your current dwelling?

- 1 Single family house
- 2 Part or shared house
- 3 Separate apartment
- 4 Part of or shared apartment
- 5 Tent

- 6 Temporary shelter/shack
- 7 Other

2.2 How did you acquire this dwelling?

- 1 Inherited
- 2 Purchased
- 3 Occupied mortgaged dwelling
- 4 Tenant (→ 2.7)
- 5 Caretaker (→ 2.7)
- 6 Relative or friend owner (→ 2.7)
- 7 Squatter (→ 2.7)
- 8 Other (→ 2.7)

2.3 Do you have a deed (evidence of ownership document) registered or recorded anywhere for this house?

- 0 No
- 1 Yes, in court/mazkan
- 2 Yes, in local official records
- 3 Yes, elsewhere
- 4 I don't know

2.4 Have you ever had a dispute over the ownership of this dwelling and associated land?

- 0 No (→ 2.7)
- 1 Yes, with municipality
- 2 Yes, with some other Government department
- 3 Yes, with a private developer
- 4 Yes, with private person claiming to be the owner
- 5 Yes, with a neighbour

2.5 How was the dispute solved?

- 0 Remains unresolved
- 1 Solved without any external help
- 2 Solved with help of neighbourhood representatives or village authority (wakil-i-goza)
- 3 Solved with help of court
- 4 Other

2.6 Was the dispute or decision about the resolution recorded anywhere?

- 0 No
- 1 Yes, in court/mazkan
- 2 Yes, in the local official records
- 3 Yes, elsewhere
- 4 I don't know

2.7 Do you pay rent to live in this dwelling?

- 0 No, do not have to pay (-> 2.9)
- 1 Yes - In cash

2.8 How much money **per month** does your household pay to live in this dwelling?

|_|_|_|_| Afs per month

2.9 Do you have an outstanding debt as a result of purchasing this dwelling, construction/repairs on this dwelling, advance rental payments, or mortgage?

- 0 No
- 1 Yes

2.10 How many years has your household been living in this dwelling?

Years:

1 2 3 4 5 6 7 8 9 0

0 0 0 0 0 0 0 0 0 0

0 0 0 0 0 0 0 0 0 0

Months:

1 2 3 4 5 6 7 8 9 0

0 0 0 0 0 0 0 0 0 0

0 0 0 0 0 0 0 0 0 0

(If greater than 3yrs -> 2.13)

2.11 How many times have you moved houses with your dependants in last 3 years?

1 2 3 4 5 6 7 8 9 0

0 0 0 0 0 0 0 0 0 0

0 0 0 0 0 0 0 0 0 0

2.12 How many of these moves in the last 3 years have been because of forced eviction? (Not able to pay increased rent, disputed tenure, occupation by others).

1 2 3 4 5 6 7 8 9 0

0 0 0 0 0 0 0 0 0 0

2.13 SURVEYOR EVALUATION Code general physical condition of **this** dwelling:

- 1 All windows doors & non-leaking roof condition
- 2 Leaking roof, open windows, doors or walls.
- 3 Traditional tent

- 4 Relief tent
- 5 Temporary structure (good)
- 6 Temporary structure (bad)
- 7 Incomplete structure
- 8 Poor

2.14 SURVEYOR EVALUATION Access to **this** household is through?

- 1 Footpath
- 2 Unpaved road
- 3 Paved road

2.15 Do you have another dwelling that you own or occupy at other times of the year?

- 0 No (-> 3.1)
- 1 Yes

2.16 Is the 2nd dwelling located in the:

- 1 Urban Afghan area in same province
- 2 Urban Afghan area in other province
- 3 Rural Afghan area in same province
- 4 Rural Afghan area in other province

2.17 How did you acquire this 2nd dwelling?

- 1 Inherited
- 2 Purchased
- 3 Occupied mortgaged dwelling
- 4 Tenant (-> 2.19)
- 5 Caretaker (-> 2.19)
- 6 Relative/friend of owner (-> 2.19)
- 7 Squatter (-> 2.19)
- 8 Other (-> 2.19)

2.18 Do you have a deed (evidence of ownership document) registered or recorded anywhere for this 2nd dwelling?

- 0 No
- 1 Yes, in court/mazkan
- 2 Yes, in Village
- 3 Yes, elsewhere
- 4 Don't know

2.19 Do you pay rent to live in this 2nd dwelling?

- 0. No, do not have to pay (→ 2.21)
- 1. Yes – In cash

2.20 How much money **per month** does your household pay to live in this 2nd dwelling?

|_|_|_|_|_| Afs per month

2.21 Do you have an outstanding debt as a result of purchasing this 2nd dwelling, construction/repairs on this dwelling, or advance rental payments?

- 0. No
- 1. Yes

2.22 Do you rent this 2nd dwelling to others when not occupying it?

- 0. No
- 1. Yes

2.23 For which months do you live in the 2nd dwelling?

J	F	M	A	M	J	J	A	S	O	N	D	All
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

SECTION 3: Household Facilities

3.1 If your household has electricity, at any time of the year, where does it come from?

- 0. No access (→ 3.3)
- 1. Public supply
- 2. Government generator
- 3. Personal generator (engine)
- 4. Personal generator (micro-hydro)
- 5. Community generator (engine)
- 6. Community generator (micro-hydro)
- 7. Solar

3.2 On average, how many **hours** per day is electricity supplied to your household?

Summer |_|_| hrs per day

Winter |_|_| hrs per day

3.3 What is your main source of **lighting**?

	0. No lighting → 3.4	5. Battery
	1. Lamp oil	6. Gas
	2. Candles	7. Fire wood
	3. Electricity	8. Other
	4. Generator	
Summer	_ _ _ _ _ _ _ _	
Winter	_ _ _ _ _ _ _ _	

3.4 What is your main source of **cooking fuel**?

1. Animal dung	3. Crop residues or sawdust	6. Kerosene or oil
2. Ping or bushes	4. Firewood	7. Gas
	5. Charcoal	8. Electricity
		9. Other
Summer	_ _ _ _ _ _ _ _	
Winter	_ _ _ _ _ _ _ _	

How much per month do you pay for:	3.5 Electricity Afs per month	3.6 Non-electricity lighting Afs per month	3.7 Cooking fuel Afs per month
Summer	_ _	_ _	_ _

Winter	_ _	_ _	_ _
--------	-----	-----	-----

3.8 What is the main source of **heating** for this house in winter?

- 1. No heating in house (→ 4.1)
- 2. Electric heater
- 3. Gas heater
- 4. Kerosene heater
- 5. Firewood
- 6. Stoves burning straw, ping or manure
- 7. Charcoal
- 8. Other

3.9 Which months do you use heating in a year?

J	F	M	A	M	J	J	A	S	O	N	D
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3.10 How much do you pay for heating per month during winter? (*If not purchased – write 0*)

|_|_|_|_|_| Afs per month

SECTION 4: Drinking Water

4.1 What is the **current** main source of **drinking water** for your household?

- 1. Shallow open wells – Public
- 2. Shallow open wells – in compound
- 3. Hand pump – Public
- 4. Hand pump – in compound
- 5. Bored wells – hand-pump
- 6. Bored wells - motorized
- 7. Spring – unprotected
- 8. Spring – protected
- 9. Pipe scheme-gravity
- 10. Pipe scheme-motorised
- 11. Piped – municipal

- 12. Arhad
- 13. Kariz
- 14. River Lake Canal
- 15. Kanda
- 16. Nawar Dand Dam
- 17. Pool Howz
- 18. Drainage
- 19. Bowser/ Water tanker
- 20. Other

4.2 For which months does your household use this current main drinking water source?

J	F	M	A	M	J	J	A	S	O	N	D	All
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4.3 Do you pay for water from this **current** main source?

4.4

- 0. No
- 1. Yes

4.4 How much do you pay for water **per month** from main source? |__|__|__| **Afs per month**

4.5 Is there a time in the year when your household uses an alternate water source?

- 0. No, main source is used solely all year (→ 4.10)
- 1. Yes, used in conjunction with main source
- 2. Yes, used when main source is not usable.

4.6 What is the main alternate water source?

- 21. Shallow open wells – Public
- 22. Shallow open wells – in compound

- 23. Hand pump – Public
- 24. Hand pump – in compound
- 25. Bored wells – hand-pump
- 26. Bored wells - motorized
- 27. Spring – unprotected
- 28. Spring – protected
- 29. Pipe scheme-gravity
- 30. Pipe scheme-motorised
- 31. Piped – municipal
- 32. Arhad
- 33. Kariz
- 34. River Lake Canal
- 35. Kanda
- 36. Nawar Dand Dam
- 37. Pool Howz
- 38. Drainage
- 39. Bowser/ Water tanker
- 40. Other

4.7 For which months does your household use this **alternate** water source?

J	F	M	A	M	J	J	A	S	O	N	D
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4.8 Does your household pay for this alternate water?

- 0. No (→ 4.10)
- 1. Yes

4.9 How much do you pay for water **per month** from this **alternate** source?

|__|__|__| **Afs per month**

4.10 How long does it take to go to the water source, collect water, and return?

	Main source	Alternate source
1. No time – in community	<input type="radio"/>	<input type="radio"/>
2. Near community – 1 hour or less.	<input type="radio"/>	<input type="radio"/>
3. < ¼ day (1-3hrs)	<input type="radio"/>	<input type="radio"/>
4. ¼ to ½ day (3-6hrs)	<input type="radio"/>	<input type="radio"/>
5. >½ day (6-12hrs)	<input type="radio"/>	<input type="radio"/>
6. > 1 day	<input type="radio"/>	<input type="radio"/>

4.11 What kind of toilet facility does your household use?

0. None / open field / bush (→ 5.1)	<input type="radio"/>
1. Dearan / Sahrahi (Area in compound-but not pit)	<input type="radio"/>
2. Open pit	<input type="radio"/>
3. Traditional covered latrine	<input type="radio"/>
4. Improved latrine	<input type="radio"/>
5. Flush latrine	<input type="radio"/>
6. Other	<input type="radio"/>

4.12 Is the toilet facility located within the compound of your household?

0. No	<input type="radio"/>
1. Yes	<input type="radio"/>

SECTION 5: Assets & Credit

5.1 Does your household own any of the following items? (**In working condition - where appropriate**)

- 1. Watch / clock
- 2. Carpets (Khalin)
- 3. Gilim / Satrangi / Namad/ Fash
- 4. Radio / tape
- 5. Refrigerator

- 6. TV 0
- 7. VCR / DVD 0
- 8. Sewing machine 0
- 9. Rug weaving loom 0
- 10. Carpentry/ masonry tools 0
- 11. Generator 0
- 12. Thuraya 0
- 13. Hand cart (Karachi) 0
- 14. Bicycle 0
- 15. Motorcycle 0
- 16. Tractor 0
- 17. Combine or thresher 0
- 18. Plough 0
- 19. Cereal grinder mill 0
- 20. Car 0
- 21. Truck 0

How many of the following does your household have?

- 22. Computers – working 0 0 0 0
- 23. Internet users in this household 0 0 0 0
- 24. Telephone land lines 0 0 0 0
- 25. Mobiles phones 0 0 0 0

5.2 During the **last year**, did your household?

- 1. Sell a house 0
- 2. Buy a house 0
- 3. Construct a new house 0
- 4. Sell irrigated land 0
- 5. Buy irrigated land 0
- 6. Sell rainfed land 0
- 7. Buy rainfed land 0
- 8. Rent-in more land 0
- 9. Rent-out more land 0
- 10. Sharecrop-out more land 0
- 11. Sharecrop-in more land 0
- 12. Mortgage-out land 0
- 13. Gain more land through mortgage-in 0
- 14. Gain new water rights to existing land 0
- 15. Gained access to land by using vacant land 0
- 16. Lose land because of flooding 0
- 17. Lost land because returnee took land back 0
- 18. Lost land because of default on mortgage 0
- 19. Lose land by the force 0
- 20. Improve your property 0

5.3 If your household had to borrow money, who is the first source you would borrow from?

- 0. Would not be able to access any credit 0 0
- 1. Family / friends in Afghanistan 0 0
- 2. Family / friends outside Afghanistan 0 0
- 3. Shopkeeper /traders 0 0
- 4. Local land owner 0 0
- 5. Money lender (Hawala) 0 0
- 6. Micro-finance Institution (MIFS/NGO) 0 0
- 7. Bank 0 0
- 8. Opium trader 0 0
- 9. Mortgaging land/house 0 0
- 10. Other 0 0

5.4 Have you or any household member taken a loan in the **last year**?

- 0. No (→ 5.14) 0
- 1. Yes 0

5.5 What was the main use of the largest loan taken in the last year?

- 1. Agricultural inputs 0 0
- 2. Opium cultivation 0 0

- 3. Construction other than house 0 0
- 4. Business investment 0 0
- 5. Land purchase 0 0
- 6. House purchase or construction 0 0
- 7. Home improvement 0 0
- 8. Food purchases 0 0
- 9. Health emergency 0 0
- 10. Bride price / Wedding 0 0
- 11. Funeral 0 0
- 12. Other 0 0

5.6 What was the source of the largest loan?

- 1. Family / friends in Afghanistan 0 0
- 2. Family / friends outside Afghanistan 0 0
- 3. Shopkeeper /traders 0 0
- 4. Local land owner 0 0
- 5. Money lender (Hawala) 0 0
- 6. Micro-finance Institution (MIFS/NGO) 0 0
- 7. Bank 0 0
- 8. Opium trader 0 0
- 9. Mortgaging land/house 0 0
- 10. Other 0 0

5.7 Was the loan taken in cash or kind?

- 1. Cash 0
- 2. In-kind 0

5.8 Will the loan be repayed in cash or kind?

- 1. Cash 0
- 2. In-kind 0

5.9 What is the amount of the main loan in Afs equivalent?

|_|_|_|_|_|_|_| Afs

5.10 What is the length of period for repayments (months). |_|_|_| months

(If no set time period, record 999)

5.11 How much of the loan do you expect to be able to repay this year?

- 0. No repayment possible
- 1. Less than ½ repayment possible
- 2. More than ½ repayment possible
- 3. Fully within the repayment period

5.12 How much of the loan have you already repaid? |__|__|__|__|__|__|__| **Afs**

5.13 How **often** in the last year was credit used to borrow money to purchase food?

- 0. Never
- 1. Sometimes
- 2. Rarely
- 3. Always

5.14 Have you ever failed to repay any previous loans on time?

- 0. No
- 1. Yes
- 2. Not applicable – no previous loans

5.15 What is the value of the total debt value for this household?

|__|__|__|__|__|__|__| **Afs**

SECTION 6: Livestock

6.0 Do any members of your household own any livestock, including poultry?

- 0. No (→ 7.0)
- 1. Yes

(Calculate number of livestock below to include males, females & offspring)

6.1 - How many cattle does your household **own**?

|__|__|__| **Cattle**

6.2 - How many oxen/yaks does your household **own**?

|__|__|__| **Oxen/Yaks**

6.3 - How many horses does your household **own**?

|__|__|__| **Horses**

6.4 - How many donkeys does your household **own**?

|__|__|__| **Donkeys**

6.5 - How many camels does your household **own**?

|__|__|__| **Camels**

6.6 - How many goats does your household **own**?

|__|__|__|__|__| **Goats**

6.7 - How many sheep does your household **own**?

|__|__|__|__|__| **Sheep**

6.8 - How many poultry does your household **own**?

|__|__|__| **Poultry**

SECTION 7: Agriculture & Land Tenure

7.0 Do you or any of your household members own or manage agricultural land or a garden plot?

- 0. No (→ 8.1)
- 1. Yes, own & manage
- 2. Yes, only own
- 3. Yes, only manage (→ 7.5)

7.1 Have you ever had a dispute over the ownership of this land?

- 0. No (→ 7.4)
- 1. Yes, with municipality
- 2. Yes, with some other Government department
- 3. Yes, with a private developer
- 4. Yes, with a private person claiming to be
- 5. Yes, with a neighbour

7.2 How was the dispute solved?

- 0. Remains unresolved
- 1. Without any external help
- 2. With help of neighbourhood representatives or

- village authority (wakil goza)
 3. With help of court 0
 4. Other 0

7.3 Was the dispute or decision about the resolution recorded anywhere?

0. No 0
 1. Yes, in court 0
 2. Yes, in the local official records 0
 3. Yes, elsewhere 0

7.4 Do you have access to a **garden plot**?

0. No (→ **7.10**) 0
 1. Yes 0

7.5 How did you or members of your household acquire all or most of this garden plot?

1. Rent 0
 2. Share cropped-in 0
 3. Purchased 0
 4. Inherited 0
 5. Other 0

7.6 Does your household benefit from any produce grown in the garden plot?

- 0 No (→ **7.10**) 0
 1 Yes 0

7.7 What is the size of this **garden plot**?

|__| |__| . |__| **Jeribs**

7.8 What are the main crops (*including tree crops*) produced in this garden plot, up to 3 in order of importance? (*Use Crop codes*)

7.8i |__| |__| **7.8ii** |__| |__| **7.8iii** |__| |__|

7.9 What is the main source of water for this **garden plot**?

1. Rainfed 0 0
 2. Irrigated – river / canals / dam 0 0
 3. Irrigated – deep well pump 0 0
 4. Spring fed 0 0
 5. Kariz fed 0 0
 6. Nawara 0 0
 7. Drainage 0 0
 8. Absialab / melting snow (flood water) 0 0
 9. Arad 0 0
 10. Other 0 0

7.10 Do you access any **irrigated land**, other than the garden plot, including cultivated and fallow land?

0. No (→ **7.16**) 0
 1. Yes 0

7.11 How do you manage this **irrigated land**?

1. Owned but not - cultivated/fallow		
2. Owned & cultivate by self		
3. Owned & employ labourers		
4. Share-crop out		
5. Share-crop in		
6. Rent out		
7. Rent in		
8. Mortgaged-out		
9. Mortgaged-in		
10. Owned & used by others for free	No of Jeribs	
1	0 0	0 0 0
2	0 0	0 0 0

Crop codes	Crop codes	
1. Wheat	11. Rapeseeds	
2. Maize	12. Sugar cane/bet	
3. Barley	13. Zira	
4. Rice	14. Vegetables	
5. Potatoes	15. Cotton	
6. Beans	16. Fruit / nut trees	
7. Flax	17. Grapes	
8. Kgungit	18. Melon/Water Melon	
9. Alfalafa/ clover/ other fodder	19. Opium	
10. Millet	20. Other	
	21. No crops	
3	0 0	0 0 0

7.12 Does your household benefit from any produce grown on this irrigated land?

- 0 No (→ **7.16**) 0
 1 Yes 0

7.13 What are the main crops (*including tree crops*) produced in this **irrigated land**, up to 3 in order of importance? (*Use Crop codes*)

7.13i |__| |__| **7.13ii** |__| |__| **7.13iii** |__| |__|

7.14 How much of this irrigated land is cropped twice a year?

|__| |__| |__| . |__| **Jeribs**

7.15 What is the main source of water for this **irrigated land**?

1. Irrigated – river / canals / dam 0
 2. Irrigated –deep well pump 0
 3. Spring fed 0
 4. Kariz fed 0

- 5. Nawara
- 6. Drainage
- 7. Absialab / melting snow (flood water)
- 8. Arad
- 9. Other

7.16 Do you access any **rainfed land**, including cultivated and fallow land?

- 0. No (→ **7.20**)
- 1. Yes

7.17 How do you manage this **rainfed land**?

		No of Jeribs	Seed/seer
1. Owned but not - cultivated/fallow			
2. Owned & cultivate by self			
3. Owned & employ labourers			
4. Share-crop out			
5. Share-crop in			
6. Rent out			
7. Rent in			
8. Mortgaged-out			
9. Mortgaged-in			
10. Owned & used by others for free			
1	1-10	1-999	1-99
2	1-10	1-999	1-99
3	1-10	1999	1-99

7.18 Does your household benefit from any produce grown on this rainfed land?

- 0 No (→ **7.20**)
- 1 Yes

7.19 What are the main crops (*including tree crops*) produced in this **rainfed land**, up to 3 in order of importance? (*Use Crop codes*)

7.19i | ___ | ___ | **7.19ii** | ___ | ___ | **7.19iii** | ___ | ___ |

7.20 For your **crop** farming activities, what is the main source of traction?

- 1. Manual cultivation

- 2. Animal
- 3. Mechanical / tractor

7.21 Did this household grow winter wheat in this 1383/1384 season?

- 0. No (→ **7.23**)
- 1. Yes

7.22 How much wheat seed did you get for the last 1383/1384 planting from the following sources?

Seed source	Local unit
1. Purchased improved seeds	1-999
2. Own stock	1-999
3. Government	1-999
4. NGOs / INGO's	1-999

7.23 Is the household planning to grow rice in 1384?

- 0. No (→ **7.25**)
- 1. Yes

7.24 How much rice seed did you get for the last planting from the following sources?

Seed source	Local unit
1. Purchased improved seeds	1-999
2. Own stock	1-999
3. Government	1-999
4. NGOs / INGO's	1-999

7.25 Do you use fertilizers?

- 0. No (→ **7.29**)
- 1. Yes

7.26 Which type of fertilizers do you use (*fill in those that are used – for **chemical urea and DAP**, indicate the Kg's used in this growing season*)

Fertilizer	Used	Kg used
1. Human	0	
2. Animal	0	
3. Urea	0	1-9999
4. DAP	0	1-9999

7.27 Where do you use fertilizers? (*Circle one*)

- 1. Field crops only
- 2. Garden plot only
- 3. Both field & garden

7.28 What is the main source of fertilizer?

- 1. Own stock/production
- 2. Purchase
- 3. Government distribution
- 4. Purchase and own stock
- 5. NGOs / INGO's
- 6. Credit

7.29 Do you use pesticides/herbicides?

- No (→ **7.31**)
- 1. Yes – field crops only
- 2. Yes – garden plot only
- 3. Yes – both field & garden

7.30 For your **crop** farming, what is the main source of pesticides/herbicides?

- 1. Purchase
- 2. Government distribution
- 3. NGOs / INGO's
- 4. Credit

7.31 In the **last year**, did you sell any wheat that you produced?

- 0. No produced wheat last year (→ **7.35**)
- 1. Produced wheat, but did not sell. (→ **7.35**)
- 2. Yes, produced wheat and sold some

7.32 In which months did you sell this wheat?

J	F	M	A	M	J	J	A	S	O	N	D	All
0	0	0	0	0	0	0	0	0	0	0	0	0

7.33 Who did you primarily sell the wheat to?

1. Buyer from the village/city
2. Buyer from outside village/city
3. Consumers in same village/city
4. Consumers from outside village/city
5. Traders/retailers in local food market
6. Millers in village/city
7. Millers from outside village/city
8. Other

7.34 Did you have a choice to whom you sold the wheat to?

0. No
1. Yes

7.35 In the **year before last (1382)**, did you sell wheat that you produced?

0. No wheat produced that year (**→ 8.1**)
1. Produced wheat, but did not sell. (**→ 8.1**)
2. Yes produced wheat and sold some

7.36 In which months did you sell this wheat?

J	F	M	A	M	J	J	A	S	O	N	D	Al
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7.37 Who did you primarily sell the wheat to?

1. Buyer from the village/city
2. Buyer from outside village/city
3. Consumers in same village/city
4. Consumers from outside village/city
5. Traders/retailers in local food market
6. Millers in village/city
7. Millers from outside village/city
8. Other

7.38 Did you have choice to whom you sold the wheat to?

0. No
1. Yes

SECTION 8: Migration Remittances & Social Networks

8.1, 2, 3 Where did wage earning household members spend most of their time in **last year**, the main reasons why?

If no wage earning members living away from this household (→8.8) Skip rule before table, so some households skipped before answering this table.

	8.1 # people	8.2 Are the household members working away from home:	8.3 Reason living away from home in last year?
This location	1-9		1 To earn more income 2 To find more work 3 To get better education 4 to get better health services 5 To get married 6 Lack of security in this area 7 Joined military 8 Visiting family & friends 9 Other
Rural Afghanistan	1-9	<input type="radio"/> <input type="radio"/>	1-9
Urban Afghanistan	1-9	<input type="radio"/> <input type="radio"/>	1-9
Pakistan	1-9	<input type="radio"/> <input type="radio"/>	1-9
Iran	1-9	<input type="radio"/> <input type="radio"/>	1-9
Arabian Peninsula	1-9	<input type="radio"/> <input type="radio"/>	1-9
Europe	1-9	<input type="radio"/> <input type="radio"/>	1-9
Other	1-9	<input type="radio"/> <input type="radio"/>	1-9

8.4 What is the frequency these wage earners who seasonally migrate away from this household, sent back money?

0. No money sent ever
1. Once a year
2. 2 → 4 times in a year
3. 4 times or more in a year

8.5 What is the frequency these family members permanently living and working away from this household, sent back money?

0. No money sent ever
1. Once a year
2. 2 → 4 times in a year
3. 4 times or more in a year

8.6 How much did this household receive from remittances in the last year?

|_|_|_|_|_|_|_|_|_| Afs

8.7 Which months of the year are seasonal wage earners typically working away from the household?

J	F	M	A	M	J	J	A	S	O	N	D
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8.8 Do you have other extended family members living in your village or city neighborhood?

0. No
1. Yes

8.9 & 8.10 Do either relatives, friends or neighbors help this household in any of the following ways, or does your household help others?

Type of assistance	8.9 Help to household		8.10 Help from household	
	Relatives	Friends neighbors	Relatives	Friends neighbors
1. General support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Finding a job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Help to pay education and medical expenses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Help with rent and housing costs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Help in paying for agricultural inputs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Help paying off debts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Lending money or in kind goods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Contribute to wedding or engagement expenses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Help with looking after children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Provide labour to assist household	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Sharing income generating equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8.11 How often does your household receive or give cash or in-kind support?

	Give	Receive
0. Not at all	<input type="radio"/>	<input type="radio"/>
1. Only at festivals	<input type="radio"/>	<input type="radio"/>
2. All year round	<input type="radio"/>	<input type="radio"/>

8.12 Has any household member been on the Haj since the last harvest?

0. No
1. Yes

8.13 Is anyone in your family a member of the following decision making bodies in your community?

1. Male CDC
2. Female CDC
3. Male Shura
4. Female Shura

8.14 What are the most important sources of information (such as for commodity prices, jobs, government information, news, health)? (*Max 3*)

1. Relatives, friends and neighbours
2. Community bulletin board
3. Local market
4. Mullahs
5. Local newspaper
6. National newspaper
7. Groups or associations
8. Business or work associates
9. Political associates
10. Community leaders
11. An agent of the government
12. NGO's
13. Internet
14. Radio
15. Television

- 1st
- 2nd
- 3rd

SECTION 9: Sources of Income

Income activity codes						Participant codes
1. Crop production for home consumption	6. Prod & sales of orchard products	15. Salary/Government job				1 Men only
2. Livestock product production for home consumption	7. Prod & sales of livestock & products	16. Small business				2 Women only
3. Prod & sales of field crops	8. Sales of prepared foods	17. Petty trade				3 Children only
4. Prod & sales of cash crops (Non Opium)	9. Agricultural wage labour (Non Opium)	18. Cross border trade				4 Adults only
5. Prod & sales of Opium	10. Opium wage labour	19. Firewood /charcoal sales				5 Women & children
	11. Shepherding	20. Handicrafts				6 Men & children
	12. Mills	21. Carpet weaving				7 Everybody
	13. Other wage labour	22. Mining				
	14. Skilled labour	23. Military service				
		24. Taxi/transport				
		25. Remittances for seasonal migrants				
		26. Remittances from family members living permanently away from home.				
		27. Pension				
		28. Other Govt. benefits				
		29. Rental income				
		30. Sale of food aid				
		31. Begging/borrowing				
		32. Other				

Income source in order of importance.	9.1 What are your household's income generating activities in order of importance? (use income activity codes)	9.2 Who participates in this activity? (use participant code)	9.3 How many people are involved in the activity?	9.4 How many days a year do your household members totally spend on this activity?	9.5 Using proportional piling, please estimate the percentage of relative contribution to total income of each activity.	9.6 In which months do you <i>receive</i> this income?
1 st most important income	1-99	1-7	1-99	1-999	1-999	J F M A M J J A S O N D All O O O O O O O O O O O O O
2 nd most important income	1-99	1-7	1-99	1-999	1-999	J F M A M J J A S O N D All O O O O O O O O O O O O O
3 rd most important income	1-99	1-7	1-99	1-999	1-999	J F M A M J J A S O N D All O O O O O O O O O O O O O
4 th most important income	1-99	1-7	1-99	1-999	1-999	J F M A M J J A S O N D All O O O O O O O O O O O O O
5 th most important income	1-99	1-7	1-99	1-999	1-999	J F M A M J J A S O N D All O O O O O O O O O O O O O
6 th most important income	1-99	1-7	1-99	1-999	1-999	J F M A M J J A S O N D All O O O O O O O O O O O O O

9.7 For the main source of income (the highest number in 9.5) please record with daily wage rate, monthly and/or annual payment(s)?

Daily wage	Monthly income	Annual income
1-999	1-99999	1-999999

SECTION 10: Household Expenditures

What has the household spent (**in Afs**) in the last month on the following?

Expenditure activities – in past MONTH	Total expenditure (in Afs)	
10.1 Bread/nan	1-9999	
10.2 Wheat grain or wheat flour	1-9999	
10.3 Potatoes, rice, maize, barley	1-9999	
10.4 Vegetable oil, animal fat	1-9999	
10.5 Meat, poultry, fish	1-9999	
10.6 Eggs, yoghurt, milk, cheese	1-9999	
10.7 Beans, lentils, chickpeas	1-9999	
10.8 Sugar	1-9999	
10.9 Fruits	1-9999	
10.10 Vegetables	1-9999	
10.11 Food & drinks consumed outside the home	1-9999	
10.12 Tobacco	1-9999	
10.13 Transportation, fuel (<i>vehicle non-business</i>)	1-9999	
10.14 Soaps / Detergents / HH items	1-9999	
10.15 Taxes – formal and informal	1-9999	
10.16 Other/miscellaneous	1-9999	
Expenditure activities – in past 12 MONTHS	Total expenditure (in Afs)	
	Number of months these expenditures existed	Typical monthly expenditure
10.17 Payment for medical services/doctor fees	1-99	1-9999

10.18 Medical items and drug costs	1-99	1-9999
10.19 Education/school fees	1-99	1-9999
10.20 Fines or debt repayments	1-99	1-9999
10.21 Celebrations/funerals/social events	1-99	1-9999
10.22 House construction/repairs	1-99	1-9999
10.23 Clothing/shoes	1-99	1-9999

SECTION 11: Cash-for-Work

11.0 Has any member of your household participated in any cash-for-work programmes or income generating programme/projects since the harvest of 1383

0. No (→ **11.10**) 0
 1. Yes 0

If yes, from which programme(s)?

	Since 2004 harvest - not last 90 days		Since last 90 days	
	11.1 Who participated?	11.2 Who selected these people?	11.3 Who participated?	11.4 Who selected these people?
Programme/project type	1 Men only 2 Women only 3 Children only 4 Adults only 5 Women & children 6 Men & children 7 Everybody	1 Volunteered 2 Project manager outside community. 3 Male Shura. 4 Female Shura 5 Male CDC 6 Female CDC	1 Men only 2 Women only 3 Children only 4 Adults only 5 Women & children 6 Men & children 7 Everybody	1 Volunteered 2 Project manager outside community. 3 Male Shura 4 Female Shura 5 Male CDC 6 Female CDC
1. NEEP	0	0	0	0
2. NSP	0	0	0	0
3. Other cash-for-work project	0	0	0	0
4. Income generating projects	0	0	0	0

11.5 How many labour days did your household members work on cash-for-work projects since end of last harvest? |__|__|__| **days**

11.6 What was the daily labour rate for this work? |__|__|__| Afs per day

11.7 Was the cash payment on-time?

- 0. No
- 1. Yes

11.8 How did the cash-for-work/income generating programme(s) benefit your household in the last year?

- 0. No benefit
- 1. Bought more food
- 2. Paid for education
- 3. Paid medical expenses
- 4. Paid house rent
- 5. Paid off debts
- 6. Invested in productive assets
- 7. Improved literacy/education
- 8. Income generating skills acquired
- 9. Other

11.9 How did the infrastructure created with the cash-for-work programmes in the last year benefit your household? [Prompt] (Select up to three)

- 0. No benefit
- 1. Improved access to health facilities
- 2. Improved access to education
- 3. Improved access to markets
- 4. Improved access to electricity
- 5. Improved access to employment opportunities
- 6. Improved access to safe drinking water
- 7. Improved access to irrigation water
- 8. Increased agricultural/horticultural production
- 9. Other environmental improvements
- 10. Other

- 1st
- 2nd
- 3rd

11.10 If none of your household members participated in any cash-for-work programme since good harvest of 2004 was this because:

- 0. No programme in area.
- 1. Didn't know that there was a programme in the areas

- 2. No able-bodied person from this household able to participate in food-for-work project
- 3. Household members did not want to participate.
- 4. Household members were not selected by Male shura
- 5. Household members were not selected by Female shura
- 6. Household members were not selected by Male CDC
- 7. Household members were not selected by Female CDC
- 8. Household members were not selected by project manager from outside of the village.

SECTION 12: Food Aid & Iodised salt

12.0 Has any member of your household participated in any food-for-work / food aid programmes since the harvest of 1383?

- 0. No (→ 12.11)
- 1. Yes

If yes, from which programme(s)?

	Since 2004 harvest - not in last 90 days		Since last 90 days	
	12.1 Who participated?	12.2 Who selected these people?	12.3 Who participated?	12.4 Who selected these people?
Programme/project type	1 Men only 2 Women only 3 Children only 4 Adults only 5 Women & children 6 Men & children 7 Everybody	1 Volunteered 2 Project manager outside community. 3 Male Shura. 4 Female Shura 5 Male CDC 6 Female CDC	1 Men only 2 Women only 3 Children only 4 Adults only 5 Women & children 6 Men & children 7 Everybody	1 Volunteered 2 Project manager outside community. 3 Male Shura. 4 Female Shura 5 Male CDC 6 Female CDC
1. Relief food distribution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. School Feeding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Institutional Feeding (TB, hospital)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Food for- Work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Food for Training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Food for income generation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12.5 If yes, how did food-based programmes benefit your household? (*Select up to three*)

- 0. No benefit
- 1. Increased the quantity of food consumed in the household
- 2. Increased the quality of food consumed in the household
- 3. Reduced food expenditures
- 4. Cash from food sales for non-food items
- 5. Cash from food sales paid off debts
- 6. Cash from food sales invested in productive assets
- 7. Improved literacy/education
- 8. Income generating skills acquired
- 9. Improved school attendance
- 10. Other

1st	<input type="radio"/>	<input type="radio"/>
2nd	<input type="radio"/>	<input type="radio"/>
3 rd	<input type="radio"/>	<input type="radio"/>

12.6 How did the infrastructure created with the food based programmes in the last year benefit your household? [**Prompt**] (*Select up to three*)

- 0. No benefit
- 1. Improved access to health facilities
- 2. Improved access to education
- 3. Improved access to markets
- 4. Improved access to electricity
- 5. Improved access to employment opportunities
- 6. Improved access to safe drinking water
- 7. Improved access to irrigation water
- 8. Increased agricultural/horticultural production
- 9. Other environmental improvements
- 10. Other

1st	<input type="radio"/>	<input type="radio"/>
2nd	<input type="radio"/>	<input type="radio"/>
3 rd	<input type="radio"/>	<input type="radio"/>

12.7 Has any member of your household participated in the any the following programme *in last 30 days* (*Select up to three*)

- 0. No food aid programme in last 30 days (→ **12.12**)
- 1. Relief food distribution
- 2. School Feeding

- 3. Institutional Feeding
- 4. Food for Work
- 5. Food for Training
- 6. Food for income generation

12.8 How many kilograms of each of the following commodities has your household received in the **last 30 days**?

- 12.8i** Wheat flour / bread |||kg
- 12.8ii** Vegetable oil ||.||kg
- 12.8iii** Pulses / beans ||.||kg
- 12.8iv** Sugar ||.||kg
- 12.8v** Salt ||.||kg

12.9 Did you sell or trade any of the food aid received in the **last 30 days**?

- 0. No (→ **12.12**)
- 1. Yes

12.10 If yes, how much of each?

- 12.10i** Wheat flour / bread |||kg
- 12.10ii** Vegetable oil ||.||kg
- 12.10iii** Pulses / beans ||.||kg
- 12.10iv** Sugar ||.||kg
- 12.10v** Salt ||.||kg

12.11 If none of your household members have participated in any food aid programme since **last harvest** this was because:

- 0. Don't know of programme
- 1. No programme in area.
- 2. No able-bodied person from this household able to participate in food-for-work project
- 3. Household members did not want to participate.
- 4. Household members were not selected by Male shura
- 5. Household members were not selected by Female shura
- 6. Household members were not selected by Male CDC
- 7. Household members were not selected by Female CDC

8. Household members were not selected by project manager from outside of the village. o

12.12 Have you ever heard of iodized salt?"

- 0. No (→ 13.1) o
- 1. Yes o

12.13 Where had you heard about iodized salt? (*Select up to three*)

(Do not read responses)

- 1. Radio
- 2. Television
- 3. Newspaper
- 4. Health worker (doctor, nurse, etc.)
- 5. School
- 6. Relative (mother, father, aunt, etc)
- 7. Neighbour
- 8. Mullah
- 9. Teacher
- 10. Posters/billboards

- 11. Information leaflets
- 12. Salt trader
- 13. Other

- 1st o o
- 2nd o o
- 3rd o o

12.14 Why is iodized salt important? (**Do not read responses**)

- 0. Don't know o
 - 1. It is tastier than plain salt o
 - 2. It is cleaner o
 - 3. It prevents goiter o
 - 4. It prevents cretinism o
 - 5. It makes you smarter o
 - 6. It prevents mental retardation o
 - 7. It prevents stillbirth o
 - 8. It prevents abortion o
 - 9. It prevents pregnancy o
-

SECTION 13: Household Shocks & Coping Strategies

In the last 12 months has the household been negatively affected by any of the following? Rank the top 3 in order of importance.

Shock	13.1 Affected	13.2 Rank
0. NO SHOCKS EXPERIENCED (go to 13.6)	0	
1. Reduced drinking water quantity	0	0 0 0
2. Reduced drinking water quality	0	0 0 0
3. Reduced agricultural water quality and or quantity	0	0 0 0
4. Unusually high level of crop pests & diseases	0	0 0 0
5. Opium eradication	0	0 0 0
6. Grew opium last season but not this season	0	0 0 0
7. Unusually high level livestock diseases	0	0 0 0
8. Insecurity / violence	0	0 0 0
9. Reduced availability of grazing areas	0	0 0 0
10. Reduced availability of kuchi migration routes	0	0 0 0
11. Earthquakes	0	0 0 0
12. Landslides/avalanches	0	0 0 0
13. Flooding	0	0 0 0
14. Late damaging frosts	0	0 0 0
15. Heavy rains preventing work	0	0 0 0
16. Severe winter conditions	0	0 0 0

13.3 Did any of these 3 most important shocks reduce household food consumption at all?	1st	2nd	3rd
	0	0	0

13.4 What did the household do to cope this shock?

Fill in corresponding value for the **most** important activity(ies) used to compensate or resolve this decrease or loss of income and/or assets for each of the main problems listed in 13.2

	1 st	2 nd	3 rd
1. Reduced quality of diet	0	0	0
2. Reduced quantity of diet	0	0	0
3. Decreased expenditures	0	0	0
4. Increased collection and sale of natural resources	0	0	0
5. Spent savings or investments	0	0	0
6. Loans from family/friends	0	0	0
7. Loans from employer/moneylenders/traders/NGO	0	0	0
8. Purchased food on credit from traders	0	0	0
9. Received help from others in the community	0	0	0
10. Sold appliances, furniture, jewellery, doors, windows, roof beams etc.	0	0	0
11. Sold income generating equipment	0	0	0
12. Rented out land	0	0	0
13. Mortgaged house or land	0	0	0
14. Sold female reproductive livestock	0	0	0
15. Sold house or land	0	0	0
16. Worked for food only	0	0	0
17. Worked on relief programmes from Government/NGOs/International Organisations	0	0	0
18. Out migrated to look for work	0	0	0
19. Joined military	0	0	0
20. Increased child labour	0	0	0
21. Sons sent to work as indentured labour	0	0	0
22. Sold child brides <13 years old	0	0	0
23. Begging	0	0	0
24. Other	0	0	0
25. Could not do anything to compensate	0	0	0
26. Did not need to do anything to compensate	0	0	0
13.5 Has the household recovered from the shocks in 13.2?			
0. Not recovered at all	0	0	0
1. Partially recovered	0	0	0
2. Completely recovered	0	0	0

17. Hailstorms	0	0 0 0	
18. Unusually high level of human disease	0	0 0 0	
19. Large influx of returnees	0	0 0 0	
20. Unusually high increases in food prices.	0	0 0 0	
21. Unusual decrease in farm gate prices	0	0 0 0	
22. Loss of employment by a household member	0	0 0 0	
23. Reduced salary of a household member	0	0 0 0	
24. Bankruptcy of family business	0	0 0 0	
25. Serious illness accident for working household member	0	0 0 0	
26. Death of a working household member	0	0 0 0	
27. Death of other household member	0	0 0 0	
28. Theft and/or violence	0	0 0 0	
29. Involuntary loss of house/land	0	0 0 0	
30. Involuntary loss of livestock	0	0 0 0	

13.6 How do you compare the overall economic situation of the household with 1 year ago?

- 1. Much worse
- 2. Slightly worse
- 3. Same
- 4. Slightly better
- 5. Much better

13.7 How often in the last year did you have problems satisfying the food needs of the household?

- 0. Never
- 1. Rarely (1 to 3 times)
- 2. Sometimes (3 to 6 times)
- 3. Often (a few times every month)
- 4. Mostly (this happens a lot)

SECTION 14: HIV / AIDS

14.1 – Have you ever heard of HIV or AIDS?

- 0. No (→ **End of male questionnaire**) ○
- 1. Yes ○

14.2 – Is there anything a person can do to avoid getting HIV/AIDS?

- 0. No (→ **End of male questionnaire**) ○
- 1. Yes ○

14.3 What can a person do to prevent HIV/AIDS? (Select up to three)

(Do not read responses)

- 1. Abstain from sex
- 2. Use a condom

- 3. Limit to one partner, faithful to one partner
- 4. Avoid sex with prostitutes
- 5. Avoid sex with person with many partners
- 6. Avoid sex with persons who inject drugs intravenously
- 7. Avoid blood transfusions
- 8. Avoid injections
- 9. Avoid sharing razors, blades and needles

- | | | | | | | | | | |
|-----|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1st | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2nd | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3rd | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

End of male questionnaire. Please thank your respondents for their time, and say that this will be used for government planning, but may or may not result in programmes or projects for your community.

SECTION 15: Food Consumption – Women’s Questionnaire

0.1 Date of interview		0.2 Interviewer team code	
0.3 Household geo-code		0.4 Province Name	
0.5 District Name		0.6 Village / City Name	
0.7 Sub-village/ Nahia name		0.8 Urban Block #	
0.9 Cluster code		0.10 Household Number	
0.11 Head of Household Name		0.12 Name of Respondent if not male head of household	
0.13 Relationship to head of household (Code from 1.4)		0.14 Small Village/Gozar/Mosque Name	
0.13 Kuchi Code		0.15 Name of Interviewer	

15.1 - How many household members were resident and ate at least dinner regularly in the household during the last 7 days |__|__| **people**

15.2 How many meals were eaten by guests from the household cooking pot in the last 7 days |__|__| person-meals.

(Put 0 if no guests eating in the house in last 7 days)

15.3 How many times have meals been eaten outside of the home (**not from household food**) by resident household members in the last 7 days |__|__| person-meals

(Put 0 if no meals eaten outside of the home in last 7 days)

I would like to ask you about all the different foods that your household members and any guests have eaten in the **last week (7 days)**. Could you please tell me how many days in the past week your household has eaten the following foods, and from what source and how much?

For each food source consumed in the last 7 days, indicate where each is primarily coming from:

- | | |
|----------------------------|----------------------------|
| 1 Purchase | 4 Borrowed/taken on credit |
| 2 Own production | 5 Received as gift |
| 3 Bartered/Payment in kind | 6 Food aid |

To **check** to see that this household is declaring sufficient food consumption to supply the basic energy needs of 2100 kcal, use the table below to check that the quantities of cereals and oil being consumed are sufficient to meet basic energy requirements and there is no over estimating of food consumption.

Remember households with lots of young children will require fewer calories, and those with lots of young men will require more calories.

Persons in household	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Kg cereal 7 day 60%	2.5	5.0	7.6	10.1	12.6	15.1	17.6	20.2	22.7	25.2	27.7	30.2	32.8	35.3	37.8	40.3	42.8	45.4	47.9	50.4	52.9	55.4
Kg cereal 7 day 75%	3.2	6.3	9.5	12.6	15.8	18.9	22.1	25.2	28.4	31.5	34.7	37.8	41.0	44.1	47.3	50.4	53.6	56.7	59.9	63.0	66.2	69.3
Kg oil 7 day 10%	0.2	0.3	0.5	0.7	0.8	1.0	1.1	1.3	1.5	1.6	1.8	2.0	2.1	2.3	2.5	2.6	2.8	2.9	3.1	3.3	3.4	3.6
Kg oil 7 day 13%	0.2	0.4	0.6	0.8	1.1	1.3	1.5	1.7	1.9	2.1	2.3	2.5	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.5	4.7

Food item	15.4 # days eaten in past 7	15.5 1°Food source	15.6 Amount used in last 7 days
Wheat flour	1-7	1-6	1-99.9
Rice	1-7	1-6	1-99.9
Barley	1-7	1-6	1-99.9
Maize	1-7	1-6	1-99.9
Beans	1-7	1-6	1-99.9
Mung	1-7	1-6	1-99.9
Chick peas	1-7	1-6	1-99.9
Lentils	1-7	1-6	1-99.9
Vegetable oil	1-7	1-6	1-99.9
Ghee	1-7	1-6	1-99.9
Milk	1-7	1-6	1-99.9
Dogh	1-7	1-6	1-99.9
Yogurt	1-7	1-6	1-99.9
Sugar	1-7	1-6	1-99.9
Brown sugar	1-7	1-6	1-99.9
Honey	1-7	1-6	1-99.9
Dried Tomato	1-7	1-6	1-99.9

Dried vegetable	1-7	1-6	1-99.9
Raisins	1-7	1-6	1-99.9
Fresh mulberries	1-7	1-6	1-99.9
Dried mulberries	1-7	1-6	1-99.9
Walnuts	1-7	1-6	1-99.9
Pistachio	1-7	1-6	1-99.9
Almonds	1-7	1-6	1-99.9
Butter	1-7	1-6	1-99.9
Food item	15.4 # days eaten in past 7	15.5 1°Food source	15.6 Amount used last 7 days
Pasta/ Macaroni	1-7	1-6	1-99.9
Beef	1-7	1-6	1-99.9
Fish	1-7	1-6	1-99.9
Lamb	1-7	1-6	1-99.9
Goat	1-7	1-6	1-99.9
Dried meat	1-7	1-6	1-99.9
Liver	1-7	1-6	1-99.9
Chicken	1-7	1-6	1-99.9
Animal fat	1-7	1-6	1-99.9

Krut	1-7	1-6	1-99.9
Cheese	1-7	1-6	1-99.9
Potato	1-7	1-6	1-99.9
Sweet potato	1-7	1-6	1-99.9
Onion	1-7	1-6	1-99.9
Tomato	1-7	1-6	1-99.9
Okra	1-7	1-6	1-99.9
Spinach	1-7	1-6	1-99.9
Cauliflower	1-7	1-6	1-99.9
Eggplant	1-7	1-6	1-99.9
Carrots	1-7	1-6	1-99.9
Pumpkin/squash	1-7	1-6	1-99.9
Cucumber	1-7	1-6	1-99.9
Food item	15.4 # days eaten in past 7	15.5 1°Food source	15.6 Amount used in last day
Radish	1-7	1-6	1-99.9
Turnip	1-7	1-6	1-99.9
Cabbage	1-7	1-6	1-99.9
Leek	1-7	1-6	1-99.9

Broccoli	1-7	1-6	1-99.9
Hot pepper	1-7	1-6	1-99.9
Wild leaves	1-7	1-6	1-99.9
Coriander	1-7	1-6	1-99.9
Mint	1-7	1-6	1-99.9
Apple	1-7	1-6	1-99.9
Grapes	1-7	1-6	1-99.9
Melon/ Water melon	1-7	1-6	1-99.9
Peach	1-7	1-6	1-99.9
Fresh apricot	1-7	1-6	1-99.9
Dried Apricots	1-7	1-6	1-99.9
Orange/citrus	1-7	1-6	1-99.9
Pomegranate	1-7	1-6	1-99.9
Plum	1-7	1-6	1-99.9
Pear	1-7	1-6	1-99.9
Banana	1-7	1-6	1-99.9
Food item	15.4 # days eaten in past 7	15.5 1°Food source	15.6 Number in last 7 days
Purchased Nan	1-7	1-6	1-99.9
Egg #	1-7	1-6	1-99.9

15.7 Are there times of the year when your household food consumption is different from the level of food consumption that you have just given us information on? (If none leave blank)

	Before summer harvest	After summer harvest	Early winter	Late winter	Spring
--	-----------------------------	----------------------------	-----------------	----------------	--------

		before winter			
Better than now	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Worse than now	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15.8 Have you ever heard of iodized salt?"

0. No (→ 15.11)
1. Yes

15.9 Where had you heard about iodized salt? (*Do not read responses*) (Select up to three)

1. Radio
2. Television
3. Newspaper
4. Health worker (doctor, nurse, etc.)
5. School
6. Relative (mother, father, aunt, etc)
7. Neighbour
8. Mullah
9. Teacher
10. Posters/billboards
11. Information leaflets
12. Salt trader
13. Other

1st	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2nd	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3rd	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15.10 Why is iodized salt important? (*Do not read responses*)

0. Don't know
1. It is tastier than plain salt
2. It is cleaner
3. It prevents goitre
4. It prevents cretinism
5. It makes you smarter
6. It prevents mental retardation
7. It prevents stillbirth
8. It prevents abortion
9. It prevents pregnancy

15.11 Could I see the original salt bag or package?

0. Did not see original salt package
1. Saw original salt package- labeled iodized with government seal

2. Saw original salt package- labeled iodized without government seal
3. Saw original salt package not labeled iodized
4. Ground Salt, not labeled
5. Family uses rock salt

15.12 We would like to check whether the salt used in your household is iodized. May I see a small sample of the salt used for cooking?

(*Conduct salt test with the kit provided to you*)

0. No color change
1. Color change (blue)
2. No salt in home
3. Salt not tested

15.13 Since last harvest, did your household purchase wheat grain or flour for eating?

0. No (→ 15.17)
1. Yes

15.14 Of all wheat consumed since last harvest, what percent was purchased? |__|__|__| %

	15.15 Which of following wheat types did you purchase to eat in the last year?	15.16 Why did you buy this type?
		<ol style="list-style-type: none"> 1. Cheaper 2. Tastier 3. Only available 4. Convenience 5. More nutritious 6. Other
Local wheat grain	<input type="radio"/>	1-6
Local wheat flour	<input type="radio"/>	1-6
Imported wheat flour	<input type="radio"/>	1-6
Mixed imported & local wheat flour	<input type="radio"/>	1-6
Other	<input type="radio"/>	1-6

15.17 - How do you compare the overall economic situation of the household with 1 year ago?

- 1. Much worse
- 2. Slightly worse
- 3. Same
- 4. Slightly better
- 5. Much better

15.18 How often in the last year did you have problems satisfying the food needs of the household?

- 1. Never
- 2. Rarely (1 to 3 times)
- 3. Sometimes (3 to 6 times)
- 4. Often (a few times every month)

5. Mostly (this happens a lot)

15.19 If you are involved in income generating activities, can you as women decide how to spend that income?

- 0. No
- 1. Yes – female headed household
- 2. Yes - without consultation with husbands/fathers
- 3. Yes – with consultation with husbands/fathers
- 4. Not sure / Don't know

15.20 Would women from this household be able to participate in any literacy or vocational training classes if they were offered?

- 0. No
- 1. Yes (**→ 16.1**)
- 2. Don't know

15.21 If no or don't know, what would be the main reason?

- 0. Women do not need these skills
- 1. Women would not be interested in such classes
- 2. Household duties take up all of their time
- 3. Husbands / fathers would not allow them
- 4. Don't know

SECTION 16: Maternal Child Health For every married women up to 49 years age in household		Woman 1	Woman 2	Woman 3
	Woman's name			
	Now I would like to ask about all the births you have had during your life.			
16.1	At what age you were you married?	__ __ Years	__ __ Years	__ __ Years
16.2	Have you ever given a birth that has shown any sign of life?	0 No (→ 16.11) 1 Yes	0 No (→ 16.11) 1 Yes	0 No (→ 16.11) 1 Yes
16.3	If Yes to 16.1 , how many years ago did you have your first birth?	__ __ Years	__ __ Years	__ __ Years
16.4	Do you have any sons to whom you have given birth and are living with you? If yes, how many?	__ Son(s) (if none write '0')	__ Son(s) (if none write '0')	__ Son(s) (if none write '0')
16.5	Do you have any daughters to whom you have given birth and are living with you? If yes, how many?	__ Daughter(s) (if none write '0')	__ Daughter(s) (if none write '0')	__ Daughter(s) (if none write '0')
16.6	Do any sons not living with you now? If yes, how many?	__ Son(s)	__ Son(s)	__ Son(s)
16.7	Do any daughters not living with you now? If yes, how many?	__ Daughter(s)	__ Daughter(s)	__ Daughter(s)
16.8	Have you ever given birth to a boy or girl who was born alive, but died later?	0 No (→ 16.10) 1 Yes	0 No (→ 16.10) 1 Yes	0 No (→ 16.10) 1 Yes
16.9	How many boys and girls died?	__ Boys died __ Girls died	__ Boys died __ Girls died	__ Boys died __ Girls died
16.10	Just to make sure I am right, you have had 'Number' births in your lifetime? (Write total number of live births in whole life. Sum of 16.4, 16.5, 16.6, 16.7 and 16.9 except current pregnancy, if any)	__ __ total births	__ __ total births	__ __ total births
16.11	Are you pregnant?	0 No (→ 16.14) 1 Yes 9 Don't know (→ 16.14)	0 No (→ 16.14) 1 Yes 9 Don't know (→ 16.14)	0 No (→ 16.14) 1 Yes 9 Don't know (→ 16.14)

SECTION 16: Maternal Child Health For every married women up to 49 years age in household		Woman 1	Woman 2	Woman 3
16.12	Do you suffer from night-blindness (<i>Local Name</i>), do you have difficulty seeing at dusk when others can?	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know
16.13	Did you receive iron-folate tablets? (<i>Surveyor to show tablets</i>)	0. No 1. Yes	0. No 1. Yes	0. No 1. Yes
16.14	Did you ever hear of any method of delaying or avoiding pregnancy?	0 No (→ 16.17) 1 Yes	0 No (→ 16.17) 1 Yes	0 No (→ 16.17) 1 Yes
16.15	If yes, are you currently using it?	0 No (→ 16.17) 1 Yes	0 No (→ 16.17) 1 Yes	0 No (→ 16.17) 1 Yes
16.16	If yes, which method are you using currently?	1 Pill 2 Condom 3 Injection 4 Sterilization 5 Traditional	1 Pill 2 Condom 3 Injection 4 Sterilization 5 Traditional	1 Pill 2 Condom 3 Injection 4 Sterilization 5 Traditional
16.17	Did you have any delivery during last two years?	0 No (→ 16.23) 1 Yes	0 No (→ 16.23) 1 Yes	0 No (→ 16.23) 1 Yes
16.18	What was the place of your delivery? <i>HC=Health Centre, Pri/NGO HC=Private/NGO/Other Health Centre HD/N/R=Home Delivery, Neighbour, Relative</i>	1 Govt. Hosp./HC 2 Private/NGOHC 3 HD/N/R	1 Govt. Hosp./HC 2 Private/NGOHC 3 HD/N/R	1 Govt. Hosp./HC 2 Private/NGOHC 3 HD/N/R
16.19	Who assisted with the delivery of your last child? (<i>TBA=Traditional Birth Attendant</i>)	1 Doctor/Nurse/Midwife 2 TBA 3 Relative /friend/other	1 Doctor/Nurse/Midwife 2 TBA 3 Relative /friend/other	1 Doctor/Nurse/Midwife 2 TBA 3 Relative /friend/other
16.20	How many doses of TT injection have you taken in the arm to prevent your newborn being affected from tetanus? (<i>If none write 0</i>)	__ Doses	__ Doses	__ Doses
16.21	Did you see anyone for taking advice during this pregnancy (i.e. antenatal care other than TT)? If yes, whom did you see? (<i>TBA=Traditional Birth Attendant</i>)	0 None 1 Doctor/Nurse/Midwife 2 TBA 3 Relative /friend/other	0 None 1 Doctor/Nurse/Midwife 2 TBA 3 Relative /friend/other	0 None 1 Doctor/Nurse/Midwife 2 TBA 3 Relative /friend/other

SECTION 16: Maternal Child Health For every married women up to 49 years age in household		Woman 1	Woman 2	Woman 3
16.22	After the birth of your last child, did you receive a Vitamin A capsule during Nefuz/Chell period? (<i>Surveyor to show the capsule</i>)	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know
16.23	Sometimes children have severe illnesses and should be taken immediately to a health facility. What types of symptoms would cause you to take your child to a health facility right away? (<i>Do not read responses</i>)	0 Cough/running nose 1 Fever 2 Difficult/Fast Breath 3 Convulsion 4 Unable to drink/suck 5 Watery/Bloody diarrhoea 6 Other 9 Don't Know/none	0 Cough/running nose 1 Fever 2 Difficult/Fast Breath 3 Convulsion 4 Unable to drink/suck 5 Watery/Bloody diarrhoea 6 Other 9 Don't Know/none	0 Cough/running nose 1 Fever 2 Difficult/Fast Breath 3 Convulsion 4 Unable to drink/suck 5 Watery/Bloody diarrhoea 6 Other 9 Don't Know/none

SECTION 17: Children 0-59 months

	CHILD NUMBER	1	2	3	4	5	6	7	8
	Child's Name								
17.1	Sex of ' <i>Name</i> '.	1 Boy 2 Girl	1 Boy 2 Girl	1 Boy 2 Girl	1 Boy 2 Girl	1 Boy 2 Girl	1 Boy 2 Girl	1 Boy 2 Girl	1 Boy 2 Girl
17.2	Age of ' <i>Name</i> ' (Record in months).	_ _ Months	_ _ Months	_ _ Months	_ _ Months	_ _ Months	_ _ Months	_ _ Months	_ _ Months
17.3	Did ' <i>Name</i> ' have immunization card? If yes, could you show it to me?	1 Yes, Seen 2 Yes, not seen 3 Don't have	1 Yes, Seen 2 Yes, not seen 3 Don't have	1 Yes, Seen 2 Yes, not seen 3 Don't have	1 Yes, Seen 2 Yes, not seen 3 Don't have	1 Yes, Seen 2 Yes, not seen 3 Don't have	1 Yes, Seen 2 Yes, not seen 3 Don't have	1 Yes, Seen 2 Yes, not seen 3 Don't have	1 Yes, Seen 2 Yes, not seen 3 Don't have
17.4	Has ' <i>Name</i> ' ever been given BCG vaccination against tuberculosis – i.e. an injection in left or right shoulder that caused a scar? (Check for scar mark)	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know
17.5	Has ' <i>Name</i> ' ever been given any 'vaccination drops in the mouth' to protect him/her from getting polio?	0 No (→ 17.7) 1 Yes 9 Don't know (→ 17.7)	0 No (→ 17.7) 1 Yes 9 Don't know (→ 17.7)	0 No (→ 17.7) 1 Yes 9 Don't know (→ 17.7)	0 No (→ 17.7) 1 Yes 9 Don't know (→ 17.7)	0 No (→ 17.7) 1 Yes 9 Don't know (→ 17.7)	0 No (→ 17.7) 1 Yes 9 Don't know (→ 17.7)	0 No (→ 17.7) 1 Yes 9 Don't know (→ 17.7)	0 No (→ 17.7) 1 Yes 9 Don't know (→ 17.7)

	CHILD NUMBER	1	2	3	4	5	6	7	8
17.6	How many times ' Name ' has been given these drops?	_ _ Times	_ _ Times	_ _ Times	_ _ Times	_ _ Times	_ _ Times	_ _ Times	_ _ Times
17.7	Has ' Name ' ever been given 'vaccination injections' – i.e. an injection in the mid-outer surface of thigh – to prevent him/her from getting DPT (tetanus, whooping cough, diphtheria)?	0 No (→ 17.9) 1 Yes 9 Don't know (→ 17.9)	0 No (→ 17.9) 1 Yes 9 Don't know (→ 17.9)	0 No (→ 17.9) 1 Yes 9 Don't know (→ 17.9)	0 No (→ 17.9) 1 Yes 9 Don't know (→ 17.9)	0 No (→ 17.9) 1 Yes 9 Don't know (→ 17.9)	0 No (→ 17.9) 1 Yes 9 Don't know (→ 17.9)	0 No (→ 17.9) 1 Yes 9 Don't know (→ 17.9)	0 No (→ 17.9) 1 Yes 9 Don't know (→ 17.9)
17.8	How many times ' Name ' has been given DPT vaccine?	_ _ Times	_ _ Times	_ _ Times	_ _ Times	_ _ Times	_ _ Times	_ _ Times	_ _ Times
17.9	Has ' Name ' ever been given 'vaccination injections' – i.e. a shot in the lateral (outer) part of upper right arm at the age of 9 months or older – to prevent him/her from getting measles within last one year?	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know
17.10	Has ' Name ' received Vitamin-A capsule within last six months? (Show red / green vit-A capsule)	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know
17.11	Did ' Name ' have cough and/or fever in last 2 weeks?	0 No (→ 17.14) 1 Yes	0 No (→ 17.14) 1 Yes	0 No (→ 17.14) 1 Yes	0 No (→ 17.14) 1 Yes	0 No (→ 17.14) 1 Yes	0 No (→ 17.14) 1 Yes	0 No (→ 17.14) 1 Yes	0 No (→ 17.14) 1 Yes
17.12	When ' Name ' suffered from cough and/or fever, did s/he breathe faster than usual with short, quick breathing or have breathing difficulty?	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know
17.13	Did you seek advice or treatment for this episode of cough/fever of ' Name '? If yes, from where did you seek care? (Do not prompt) 1 Hosp = Hospital 2 HC = health centre/MCH clinic/Mobile outreach clinic 3 Dispensary = dispensary/pharmacy/drug seller 4 CHW = community health worker 5 PP/TH = Private practitioner/traditional healer 6 Rel/other = Relative/other 7 None/DK	1 Hospital 2 HC 3 Dispensary 4 CHW 5 PP/TH 6 Rel/other 7 None/DK	1 Hospital 2 HC 3 Dispensary 4 CHW 5 PP/TH 6 Rel/other 7 None/DK	1 Hospital 2 HC 3 Dispensary 4 CHW 5 PP/TH 6 Rel/other 7 None/DK	1 Hospital 2 HC 3 Dispensary 4 CHW 5 PP/TH 6 Rel/other 7 None/DK	1 Hospital 2 HC 3 Dispensary 4 CHW 5 PP/TH 6 Rel/other 7 None/DK	1 Hospital 2 HC 3 Dispensary 4 CHW 5 PP/TH 6 Rel/other 7 None/DK	1 Hospital 2 HC 3 Dispensary 4 CHW 5 PP/TH 6 Rel/other 7 None/DK	1 Hospital 2 HC 3 Dispensary 4 CHW 5 PP/TH 6 Rel/other 7 None/DK
Following questions to be asked for 0-23 months old children									
17.14	Is ' Name ' still being breastfed?	0 No 1 Yes	0 No 1 Yes	0 No 1 Yes	0 No 1 Yes	0 No 1 Yes	0 No 1 Yes	0 No 1 Yes	0 No 1 Yes

	CHILD NUMBER	1	2	3	4	5	6	7	8
17.15	How soon after ' <i>Name</i> ' was born did you start to breastfeed him/her?	1 Within 6 hrs 2 6-23 hours 3 24-48 hours 4 48+ hours 9 Don't know	1 Within 6 hrs 2 6-23 hours 3 24-48 hours 4 48+ hours 9 Don't know	1 Within 6 hrs 2 6-23 hours 3 24-48 hours 4 48+ hours 9 Don't know	1 Within 6 hrs 2 6-23 hours 3 24-48 hours 4 48+ hours 9 Don't know	1 Within 6 hrs 2 6-23 hours 3 24-48 hours 4 48+ hours 9 Don't know	1 Within 6 hrs 2 6-23 hours 3 24-48 hours 4 48+ hours 9 Don't know	1 Within 6 hrs 2 6-23 hours 3 24-48 hours 4 48+ hours 9 Don't know	1 Within 6 hrs 2 6-23 hours 3 24-48 hours 4 48+ hours 9 Don't know
17.16	Did you expel some of the breast milk before giving it to ' <i>Name</i> ' for the first time?	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know	0 No 1 Yes 9 Don't know
17.17	At what age did you start giving ' <i>Name</i> ' to drink something other than breast milk? Never = 99	_ _ Months	_ _ Months	_ _ Months	_ _ Months	_ _ Months	_ _ Months	_ _ Months	_ _ Months
17.18	Since this time yesterday till now, did ' <i>Name</i> ' receive any of the following items? (Prompt each item) <i>Medicine = Vitamin/Medicine/ORS</i>	1 Medicine 2 Solid food 3 Liquid food 4 Breast milk	1 Medicine 2 Solid food 3 Liquid food 4 Breast milk	1 Medicine 2 Solid food 3 Liquid food 4 Breast milk	1 Medicine 2 Solid food 3 Liquid food 4 Breast milk	1 Medicine 2 Solid food 3 Liquid food 4 Breast milk	1 Medicine 2 Solid food 3 Liquid food 4 Breast milk	1 Medicine 2 Solid food 3 Liquid food 4 Breast milk	1 Medicine 2 Solid food 3 Liquid food 4 Breast milk

SECTION 18: HIV / AIDS & Literacy test

18.1 – Have you ever heard of HIV/AIDS?

- 0. No (→ **18.3**)
- 1. Yes

18.2 – Is there anything a person can do to avoid getting HIV/AIDS?

- 0. No
- 1. Yes

18.3 What can a person do to prevent HIV/AIDS?

(Do not read responses)

- 1. Abstain from sex
- 2. Use a condom
- 3. Limit to one partner, faithful to one partner
- 4. Avoid sex with prostitutes
- 5. Avoid sex with person with many partners
- 6. Avoid sex with persons who inject drugs intravenously
- 7. Avoid blood transfusions
- 8. Avoid injections
- 9. Avoid sharing razors, blades and needles

Can you (the women respondent) read a simple message and do a simple calculation?

18.4 Read	18.5 Calculation
<input type="radio"/>	<input type="radio"/>

End of female questionnaire. Please thank your respondents for their time, and say that this will be used for government planning, but may or may not result in programmes or projects for your community.
