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United Nations Office on Drugs and Crime

Islamic Republic of Afghanistan
Ministry of Counter Narcotics

Afghanistan
Opium Survey 2013

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ABBREVIATIONS

AGE	Anti-Government elements
ANP	Afghan National Police
CNPA	Counter Narcotics Police of Afghanistan
GLE	Governor-led eradication
ICMP	Illicit Crop Monitoring Programme (UNODC)
ISAF	International Security Assistance Force
MCN	Ministry of Counter-Narcotics
UNODC	United Nations Office on Drugs and Crime

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PREFACE

Opium poppy cultivation in Afghanistan reached a sobering record high in 2013. According to the 2013 Afghanistan Opium Survey, cultivation amounted to some 209,000 hectares, outstripping the earlier record in 2007 of 193,000 hectares, and representing a 36 per cent increase over 2012.

Moreover, two provinces that had previously been declared poppy-free, Faryab and Balkh in northern Afghanistan, lost this status. All in all, opium production in 2013 went up to some 5,500 tonnes, a 49 per cent increase over 2012.

The hazard this situation poses to health, stability and development, and not only in Afghanistan, is well documented and has been internationally recognized frequently.

At the same time, Afghanistan's counter narcotic institutions, also with the support of UNODC, have taken a significant step forward in terms of capacity and effectiveness. The Ministry of Counter Narcotics has moved quickly to advance policy and guidelines, as per its mandate. The Counter Narcotics Police of Afghanistan is still far from achieving the seizure rate witnessed in other producing countries, but police have nevertheless tripled their effectiveness over recent years to capturing well over 10 per cent of domestic production.

The number of arrests, prosecutions and convictions of powerful figures remains a concern, but progress has also been witnessed with two high profile cases this year. Finally, available services in country to deal with a growing addiction problem have expanded from 30 to 90. These are tangible and hopeful signs of improvement.

In order to be successful and sustainable, counter-narcotics efforts must finally break out of their insular, silo approach. If the drug problem is not taken more seriously by aid, development and security actors, the virus of opium will further reduce the resistance of its host, already suffering from dangerously low immune levels due to fragmentation, conflict, patronage, corruption and impunity.

What is needed is an integrated, comprehensive response to the drug problem, embedded in a long-term security, development and institution-building agenda.

As we approach 2014 and the withdrawal of international forces from the country, Afghanistan, working with its many friends and allies in a spirit of shared responsibility, must make some very serious choices about the future it desires, and act accordingly. Reigning in the illicit economy, criminality and corruption is essential.

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Key Findings

- The total area under opium poppy cultivation in Afghanistan in 2013 was estimated at 209,000 hectares, a 36% increase from the previous year.
- The vast majority (89%) of opium cultivation took place in nine provinces in Afghanistan's Southern and Western regions, which include the country's most insecure provinces. In mirroring the polarization in the security situation between the lawless south and the relatively stable north of the country, this confirms the link between security and opium cultivation observed in previous years.
- Hilmand remained Afghanistan's major opium-cultivating province, followed by Kandahar, Farah, Nimroz, Nangarhar, Uruzgan, Badghis, Badakhshan, Day Kundi, Zabul, Laghman, Kunar, Hirat, Kapisa, Balkh, Kabul, Ghor, Faryab and Baghlan.
- Opium cultivation increased in most of the main poppy-cultivating provinces, including in Hilmand itself (34%), in 2013. However, the fact that the extent of opium cultivation outside the former Hilmand "Food Zone" was far greater than inside it, is testimony to the validity of the alternative livelihood programme, which came to an end in 2012.
- Total eradication of opium poppy decreased by 24% to 7,348 hectares in 2013.
- Even though the area eradicated was the equivalent of less than 3.5% of the total area under opium cultivation, the human cost of the eradication campaign was far higher in 2013 than in the preceding year, with a total of 143 fatalities and 93 injured.
- Average opium yield amounted to 26.3 kilograms per hectare in 2013, which was 11% more than in 2012 (23.7 kilograms per hectare).
- Potential opium production was estimated at 5,500 tons in 2013, an increase of 49% from its 2012 level (3,700 tons).
- Accounting for 60% of national production, the Southern region continued to produce the vast majority of opium in Afghanistan in 2013. The Western region was the country's second most important opium-producing region, with 22% of national production.
- At US$ 0.95 billion, or the equivalent of roughly 4% of the country's estimated GDP, the farm-gate value of opium production in 2013 rose by 31%.
- The *gross* export value of opium and heroin/morphine exports in 2013 was US$ 3 billion (US$ 2 billion in 2012). The *net* export value of Afghan opiate exports in 2013 was US$ 2.9 billion. Far smaller, the gross value of the domestic market for the drugs was estimated to be US$ 0.12 billion.
- A comparison of these gross and net values with the 2013 GDP of Afghanistan (US$ 21.04 billion) shows the magnitude of the Afghan opium economy. In 2013, net opium exports were worth some 14% of GDP, while the farm-gate value of the opium needed to produce those exports alone was equivalent to 4% of GDP. The net value of the domestic market for opiates is small by comparison, but still worth approximately 1% of GDP.
- On average, poppy-growing households in Afghanistan continue to have a higher cash income than non-poppy-growing households.
- Between 2012 and 2013, per-hectare gross income from opium cultivation decreased by 2% to US$ 4,500. Farmers reported average expenditure corresponding to 21% of gross income, leading to a net income of US$ 3,600 per hectare.
- In 2013, opium prices remained high but decreased slightly in all regions of Afghanistan, though in the Eastern, Western and Southern regions, in particular, they showed signs of

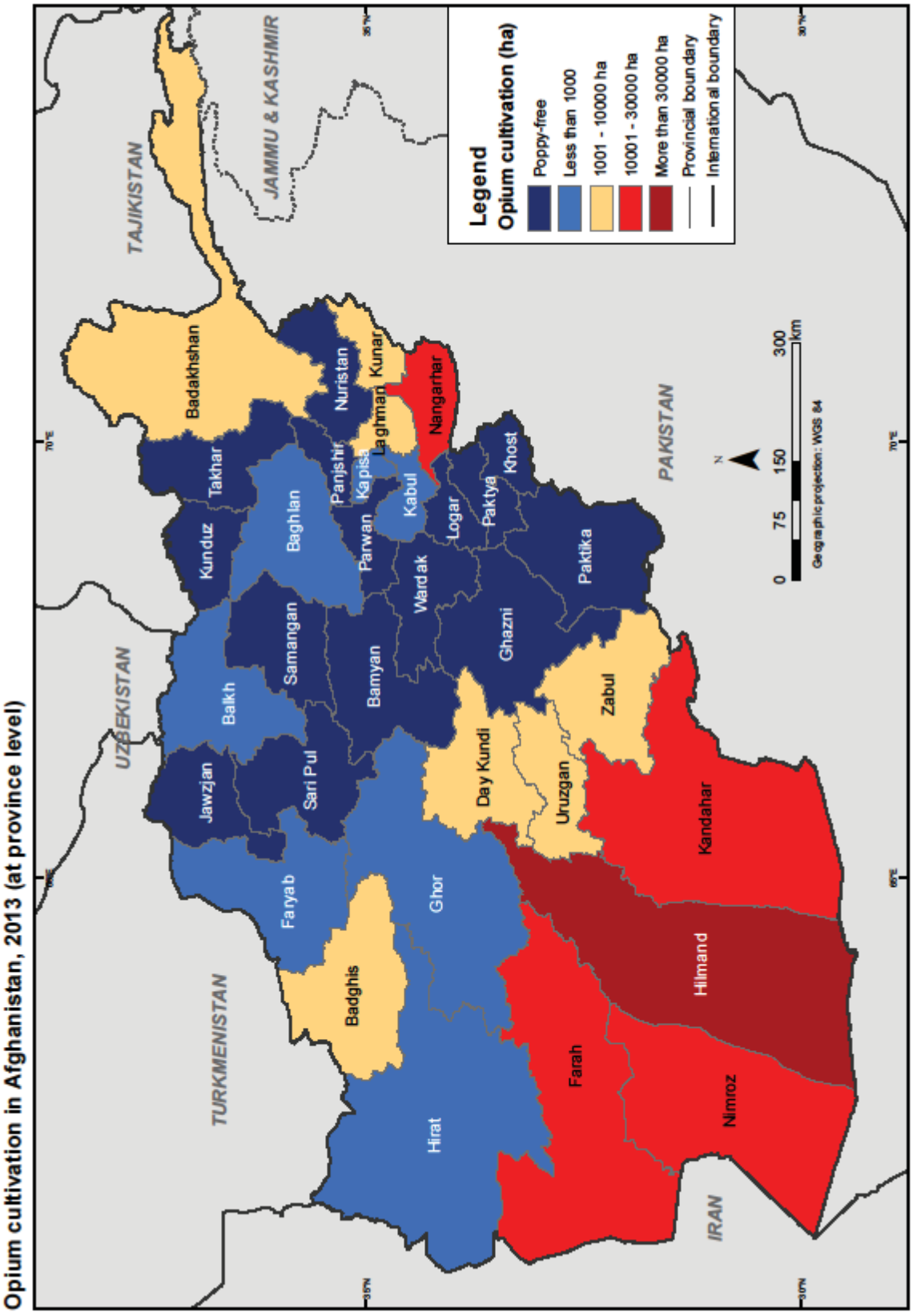
stabilization at a high level. There is therefore still a clear incentive for Afghan famers to continue cultivating opium.

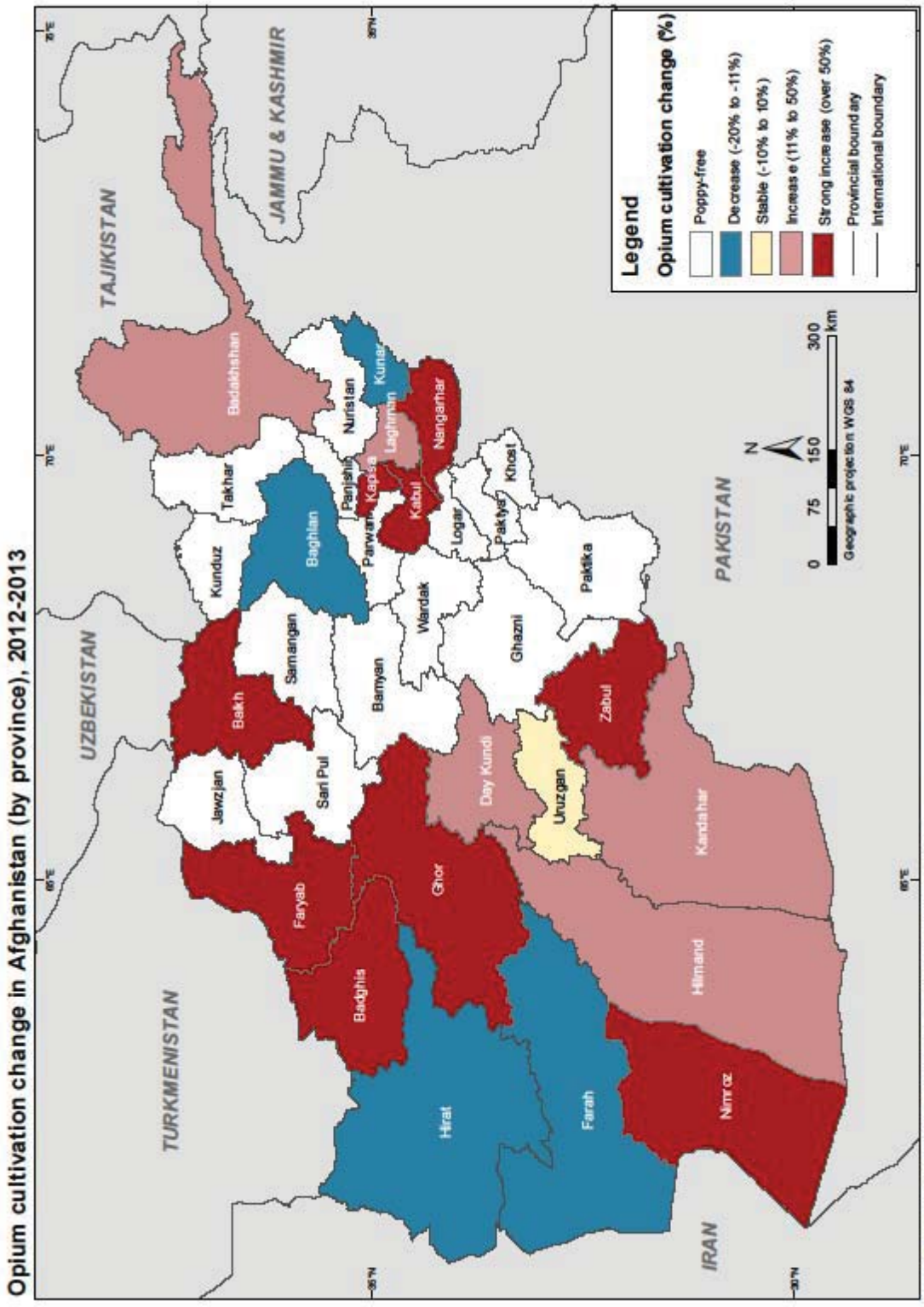
- In contrast to previous years, the survey did not find any statistically significant difference between the distance to markets of poppy-growing villages and non-poppy-growing villages in the main poppy-cultivating regions. This could be the result of increasingly widespread poppy cultivation.
- In the Eastern region, however, poppy-growing villages were significantly further away from markets than were non-poppy-growing villages in 2013, making it more difficult for farmers in poppy-growing villages to market licit cash crops, thus increasing the appeal of opium, which can be sold easily at the farm gate.
- The link between opium cultivation and a low level of development was confirmed in 2013 by the fact that over 88% of non-poppy-growing villages had a boys' school and almost three quarters a girls' school, whereas these proportions dropped to 63% (boys' school) and 20% (girls' school) in poppy-growing villages. Notwithstanding the possible negative long-term effects of their children having comparably less access to education, the absence of schools for girls in four fifths of poppy-growing villages is particularly worrying.
- Although less so than in the previous year, cannabis cultivation was still related to poppy cultivation in 2013, with 38% of poppy-growing villages reporting cannabis cultivation, whereas only 5% of non-poppy-growing villages reported it.

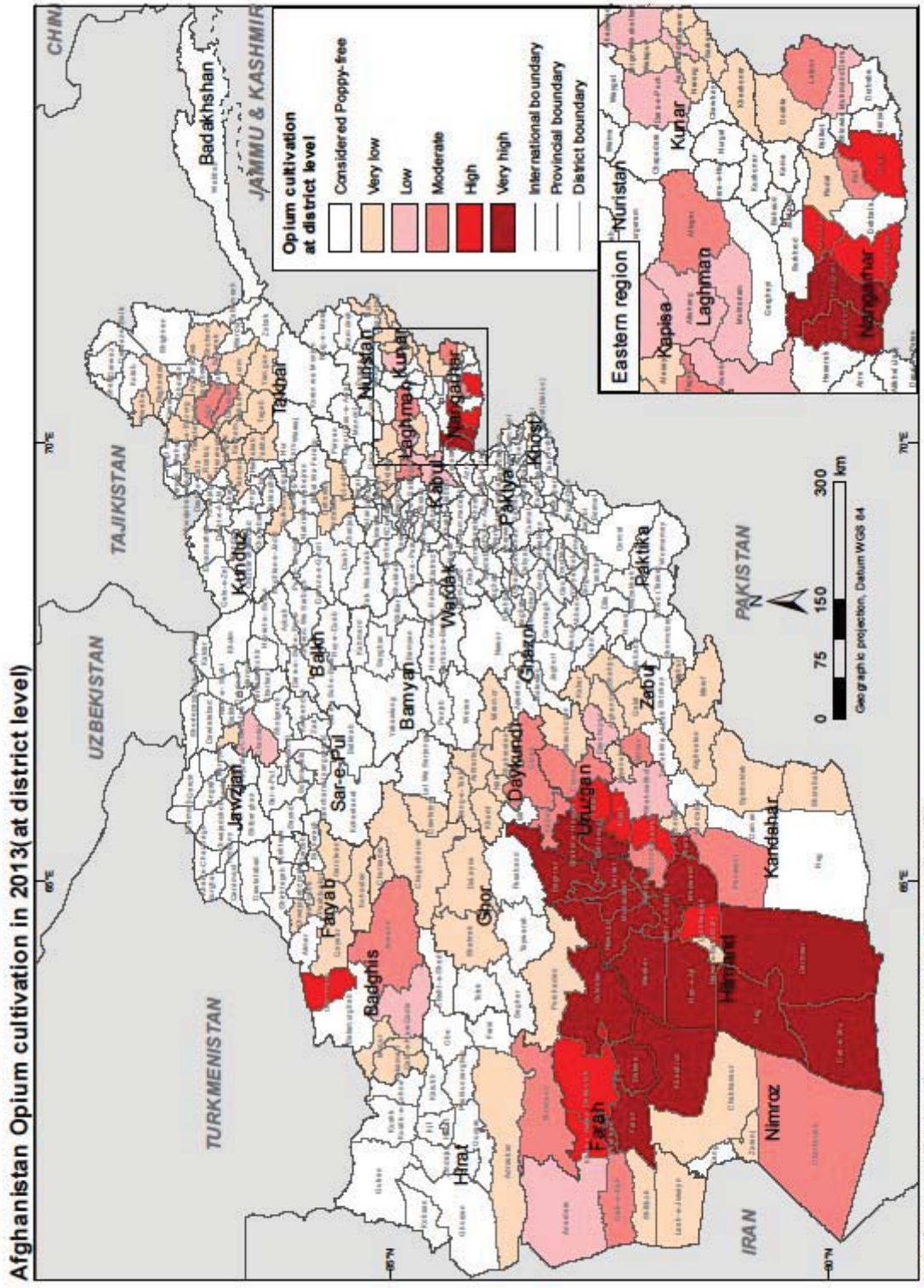
Fact Sheet Afghanistan Opium Survey 2013[1]

	2012	Change from 2012	2013
Net opium poppy cultivation (after eradication)	154,000 hectares (125,000 - 189,000)	36%	209,000 hectares (173,000 - 238,000)
Number of poppy-free provinces[2]	17	-2	15
Number of provinces affected by poppy cultivation[3]	17	2	19
Eradication	9,672 hectares	-24%	7,348 hectares
Average opium yield (weighted by cultivation)[4]	23.7 kg/ hectare	11%	26.3 kg/ hectare
Potential production of opium[5]	3,700 tons (2,800-4,200 tons)	49%	5,500 tons (4,500-6,500 tons)
Average farm-gate price (weighted by production) of fresh opium at harvest time	US$ 163/kg	-12%	US$ 143/kg
Average farm-gate price (weighted by production) of dry opium at harvest time	US$ 196/kg	-12%	US$ 172/kg
Current GDP[6]	US$ 18.95 billion	11%	US$ 21.04 billion
Total farm-gate value of opium production	US$ 0.7 billion	32%	US$ 0.95 billion
In % of GDP	4%	0%	4%
Potential gross value of opiates	US$ 2.0 billion (US$ 2.3-2.9 billion)	55%	US$ 3.1 billion (US$ 2.0-3.9 billion)
In % of GDP	11%		15%
Potential net value of opiates	US$ 1.9 billion (US$ 1.3-2.7 billion)	57%	2.99 billion (2.0-3.7 billion)
In % of GDP	10%		14%
Farmers' gross income[7] from opium per hectare	US$ 4,600	-6%	US$ 4,500
Farmers' net income from opium per hectare	US$ 3,300	-6%	US$ 3,600
Ratio of farmers' gross (net) income from wheat to opium	1:4 (1:3)		1:4 (1:6)

[1] Numbers in brackets indicate the upper and lower bounds of the estimation range.
[2] Poppy-free provinces are those estimated to have less than 100 hectares of opium cultivation.
[3] Provinces estimated to have more than 100 hectares of opium cultivation.
[4] There have been reports from the Eastern, Western and Southern regions that a significant area was affected by disease and/or adverse weather conditions, which reduced the opium yield. The yield survey captured this impact at least partially.
[5] Refers to oven-dry opium.
[6] Relation to nominal GDP of the respective year. Source: Government of Afghanistan, Central Statistical Office.
[7] Income figures are indicative only as they do not include all expenditure and income components associated with opium cultivation.


Opium cultivation in Afghanistan, 2013 (at province level)
Legend
Opium cultivation (ha)
Poppy-free
Less than 1000
1001 - 10000 ha
10001 - 30000 ha
More than 30000 ha
Provincial boundary
International boundary
TAJIKISTAN
JAMMU & KASHMIR
PAKISTAN
UZBEKISTAN
TURKMENISTAN
IRAN
Badakhshan
Takhar
Kunduz
Baghlan
Jawzjan
Balkh
Samangan
Sari Pul
Faryab
Badghis
Ghor
Hirat
Farah
Nimroz
Hilmand
Kandahar
Uruzgan
Day Kundi
Zabul
Bamyan
Ghazni
Wardak
Paktika
Parwan
Kapisa
Panjshir
Kabul
Logar
Paktya
Khost
Nangarhar
Laghman
Nuristan
Kunar
0
75
150
300
km
Geographic projection: WGS 84
Source: Government of Afghanistan - National monitoring system implemented by MCN/UNODC
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.


Opium cultivation change in Afghanistan (by province), 2012-2013
Legend
Opium cultivation change (%)
Poppy-free
Decrease (-20% to -11%)
Stable (-10% to 10%)
Increase (11% to 50%)
Strong increase (over 50%)
Provincial boundary
International boundary
TAJIKISTAN
JAMMU & KASHMIR
UZBEKISTAN
TURKMENISTAN
PAKISTAN
IRAN
Badakhshan
Takhar
Kunduz
Baghlan
Nuristan
Kunar
Laghman
Nangarhar
Panjshir
Kapisa
Parwan
Kabul
Logar
Paktya
Khost
Paktika
Wardak
Ghazni
Bamyan
Samangan
Balkh
Jawzjan
Sari Pul
Faryab
Badghis
Ghor
Day Kundi
Uruzgan
Zabul
Kandahar
Helmand
Nimroz
Farah
Herat
N
0
75
150
300
Km
Geographic projection: WGS 84
Source: Government of Afghanistan - National monitoring system implemented by UNODC
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.


Afghanistan Opium cultivation in 2013(at district level)
Opium cultivation at district level
Considered Poppy-free
Very low
Low
Moderate
High
Very high
International boundary
Provincial boundary
District boundary
Eastern region
Badakhshan
Takhar
Kunduz
Baghlan
Nuristan
Kunar
Laghman
Kabul
Nangarhar
Kapisa
Parkya
Khost
Paktika
Wardak
Ghazni
Bamyan
Zabul
Jawzjan
Sar-e Pul
Faryab
Daykundi
Urozgan
Ghor
Badghis
Kandahar
Helmand
Farah
Nimroz
Hirat
CHINA
TAJIKISTAN
UZBEKISTAN
TURKMENISTAN
IRAN
PAKISTAN
JAMMU & KASHMIR
0 75 150 300 km
Geographic projection, Datum WGS 84
Source: Government of Afghanistan - National monitoring system implemented by UNODC
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

1 Introduction

The *Afghanistan Opium Survey* is implemented annually by the Ministry of Counter Narcotics (MCN) of Afghanistan in collaboration with the United Nations Office on Drugs and Crime (UNODC). The survey team collects and analyses information on the location and extent of opium cultivation, potential opium production and the socio-economic situation in rural areas. Since 2005, MCN and UNODC have also been involved in the verification of opium eradication conducted by provincial governors and poppy eradication forces. The results provide a detailed picture of the outcome of the current year's opium season and, together with data from previous years, enable the identification of medium- and long-term trends in the evolution of the illicit drug problem. This information is essential for planning, implementing and monitoring the impact of measures required for tackling a problem that has serious implications for Afghanistan and the international community.

The opium survey is implemented within the technical framework of the UNODC Illicit Crop Monitoring Programme (ICMP). The objective of ICMP is to assist the international community in monitoring the extent and evolution of illicit crops within the context of the Plan of Action adopted by the United Nations (the 53rd session of the Commission on Narcotic Drugs in March 2009). Under ICMP, monitoring activities currently supported by UNODC also exist in other countries affected by illicit crop cultivation, namely Myanmar and the Lao People's Democratic Republic, in Asia, the Plurinational State of Bolivia, Colombia, Ecuador, Mexico and Peru, in Latin America, and Nigeria, in Africa.

The *Afghanistan Opium Survey 2013* was implemented under project AFG/F98, "Monitoring of Opium Production in Afghanistan", with financial contributions from the Governments of Germany, Norway, the United Kingdom of Great Britain and Northern Ireland, and the United States of America.

2 Opium Cultivation

2.1 National and regional opium cultivation trends

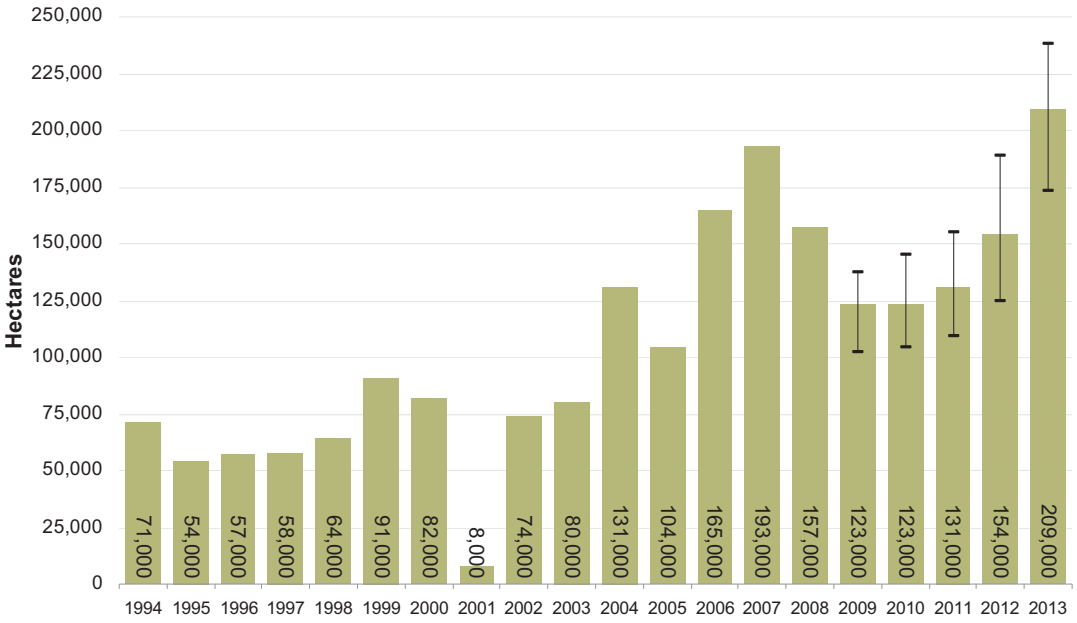
The total area under opium poppy cultivation in Afghanistan was estimated to be 209,000 hectares (173,000-238,000) in 2013, which represents an area more than a third larger (36%) than in 2012. The continuing high level of opium prices in 2012 was one of the principal factors behind this increase, but it may also have been driven by speculation due to the withdrawal of international troops and the forthcoming elections in 2014, which led farmers to try to hedge against the country's uncertain political future.

In 2013, 89% of total opium cultivation in Afghanistan took place in the Southern and Western regions of the country: 68% was concentrated in Day Kundi, Hilmand, Kandahar, Uruzgan and Zabul provinces in the Southern region; 22% was concentrated in Badghis, Farah, Hirat and Nimroz provinces in the Western region. These are the most insecure provinces, with a security risk classified as "high" or "extreme" by the United Nations Department of Safety and Security (UNDSS), and they are mostly inaccessible to the United Nations and NGOs. Day Kundi is the only province in the South where security is generally good, with the exception of two districts, Gizab and Kejran.

Anti-Government elements (AGE) and drug traders are very active in the Western region, where Badghis, Farah and Nimroz provinces are known to contain organized criminal networks. While AGE strongholds are located in the Southern provinces, the link between lack of security and opium cultivation was also evident in Nangarhar province in the Eastern region, where cultivation was concentrated in districts (Achin, Chaprahar, Lalpoor, Sherzad and Khogyani) classified as having a "high" or "extreme" security risk. In Kabul province in the Central region, cultivation was concentrated in the Uzbeen valley of Surobi district, which is also classified as having a "high" or "extreme" security risk. In Kapisa province, opium cultivation is concentrated in Tagab district, where security is also very poor.

Hilmand remained the country's major opium-cultivating province (100,693 hectares), followed by Kandahar (28,335 hectares), Farah (24,492 hectares), Nimroz (16,252 hectares), Nangarhar (15,719 hectares), Uruzgan (9,880 hectares), Badghis (3,596 hectares), Badakhshan (2,374 hectares), Day Kundi (1,536 hectares), Zabul (1,335 hectares), Laghman (1,236 hectares), Kunar (1,127 hectares), Hirat (952 hectares), Kapisa (583 hectares), Kabul (298 hectares) and Ghor (264 hectares).

Figure 1: Opium cultivation in Afghanistan, 1994-2013 (Hectares)



Sources: UNODC and UNODC/MCN opium surveys 1994-2013. The high-low lines represent the upper and lower bounds of the 95% confidence interval.

All regions experienced an increase in poppy cultivation levels, with the largest being in the Eastern region (234%; mainly driven by increases in Nangarhar), followed by the Northern (218%), Central (148%), Western (30%), Southern (27%) and North-eastern regions (23%). However, the vast majority (89%) of total opium cultivation took place in nine provinces in Afghanistan's Southern and Western regions, which include the country's most insecure provinces, where insurgency and organized criminal networks dominate. This mirrors the sharper polarization in the security situation between the lawless south and the relatively stable north of the country.

The total area under opium cultivation in the Southern region in 2013 (141,779 hectares) was larger than total national opium cultivation in 2009, in 2010 and in 2011. A total of 3,606 hectares of opium cultivation were eradicated in the Southern region, but that was negligible considering the total area under opium cultivation in the region.

Opium cultivation increased in most of the main opium poppy-growing provinces, including Nangarhar, Hilmand, Kandahar, Nimroz, Badghis and Badakhshan, whereas it slightly decreased in Uruzgan.

Table 1: Regional distribution of opium cultivation, 2012-2013 (Hectares)

Region	2012 (ha)	2013 (ha)	Change 2012-2013 (%)	2012 (ha) as % of total	2013 (ha) as % of total
Southern	111,507	141,779	+27%	72%	68%
Western	35,109	45,557	+30%	23%	22%
Eastern	5,596	18,665	+234%	4%	9%
North-eastern	1,927	2,374	+23%	1%	1%
Central	120	298	148%	0.1%	0.1%
Northern	223	710	218%	0.1%	0.3%
Rounded total	**154,000**	**209,000**	**+36%**	**100%**	**100%**

In the **Eastern region**, cultivation increased in Nangarhar, Kapisa and Laghman provinces by 399%, 101% and 41%, respectively, but decreased in Kunar province by 12%. Nangarhar province saw its opium cultivation increase five-fold to 15,719,[8] almost the high level of cultivation it experienced before becoming poppy-free in 2007. Only 157 hectares of opium poppy cultivation were eradicated in Nangarhar province in 2013.

In the **North-Eastern region**, Badakhshan saw a 23% increase in opium poppy cultivation, from 1,927 hectares in 2012 to 2,374 hectares in 2013, which happened despite the eradication of 2,798 hectares of opium poppy in 2013.

In the **Northern region**, Balkh and Faryab provinces lost their poppy-free status, but the level of cultivation remained very low. Opium cultivation in Baghlan province decreased by 20% to 141 hectares in 2013, compared to 177 hectares in 2012.

In the **Southern region**, opium cultivation increased in 2013 in all provinces with the exception of Uruzgan, where cultivation decreased by 6%. Cultivation increased by 215%, 34%, 45% and 16% in Zabul, Hilmand, Daykundi[9] and Kandahar provinces, respectively. With an increase of 34%, Hilmand remained the country's principal opium-cultivating province in 2013, accounting for 48% of total opium cultivation. The "Food Zone" alternative livelihood project came to an end in 2012, but while opium cultivation in the former Food Zone increased by 50% in 2013 (from 24,241 hectares in 2012 to 36,244 hectares), representing roughly a fifth of the Food Zone's total agricultural area, the extent of poppy cultivation outside the Food Zone was far greater.

In the **Western region**, due to administrative boundary changes, the 2013 estimates for Farah and Nimroz were calculated considering Dilaram district, the main opium cultivating district in Farah, as being part of Kash Rod district in Nimroz province. Therefore, the estimates for Farah and Nimroz in 2012 and 2013 are not directly comparable. In 2013, the area under opium cultivation in Farah province was 24,492 hectares, with a total of 262 hectares of opium poppy cultivation being eradicated in 2013.

Nimroz province remained the second largest opium-cultivating province in the Western region in 2013, with 16,252 hectares under cultivation. A significant increase of 327% in comparison to its 2012 level, this was mainly due to the aforementioned boundary changes. The quantity of opium eradicated (120 hectares) in Nimroz province was negligible by comparison to total opium cultivation in 2013.

The number of poppy-free provinces in Afghanisitan decreased from 17 in 2012 to 15 in 2013, as Balkh and Faryab provinces in the Northern region lost their poppy-free status. Out of the 17 poppy-free provinces in 2012, 15 continued to be poppy-free in 2013.

Table 2: Number of provinces, by opium cultivation trends, 2006-2013

Opium cultivation trend	Number of provinces							
	2006	2007	2008	2009	2010	2011	2012	2013
Increase	14	8	1	6	7	13	14	14
Decrease	2	11	11	7	7	4	2	5
Stable	12	2	4	1	0	0	1	0
Poppy-free	6	13	18	20	20	17	17	15

[8] As a reaction to increasingly widespread poppy cultivation, a sampling approach was introduced in Nangarhar province. The area under observation was thus much larger than in previous years, when a target approach was employed. See Methodology section.

[9] In 2013, Gizab district of Day Kundi province was under the temporary administrative authority of the Governor of Uruzgan province who carried out 22 hectares of eradication in that district. For eradication reporting, these 22 hectares were included in the 352 hectares of eradication reported for Uruzgan. For calculating the net poppy cultivation, however, the official provincial boundaries were used, i.e. with Gizab being part of Day Kundi province.

Table 3: Main opium-cultivating provinces in Afghanistan, 2007-2013 (Hectares)

Province	2007	2008	2009	2010	2011	2012	2013	Change 2012-2013	2013 (ha) as % of total
Hilmand	102,770	103,590	69,833	65,045	63,307	75,176	100,693	+34%	48%
Kandahar	16,615	14,623	19,811	25,835	27,213	24,341	28,335	+16%	14%
Farah**	14,865	15,010	12,405	14,552	17,499	27,733	24,492	-+12%	12%
Uruzgan*	9,204	9,939	9,224	7,337	10,620	10,508	9,880	-+6%	5%
Nangarhar	18,739	Poppy free	294	719	2,700	3,151	15,719	+399%	8%
Badakhshan	3,642	200	557	1,100	1,705	1,927	2,374	+23%	1%
Badghis	4,219	587	5,411	2,958	1,990	2,363	3,596	+52%	2%
Day Kundi*	3,346	2,273	3,002	1,547	1,003	1,058	1,536	+45%	1%
Nimroz**	6,507	6,203	428	2,039	2,493	3,808	16,252	+327%	8%
Rest of the country	13,074	4,828	2,131	1,383	2,535	4,417	6,585	+49%	3%
Rounded Total	**193,000**	**157,000**	**123,000**	**123,000**	**131,000**	**154,000**	**209,000**	**36%**	**100%**

** In 2013, Gizab district of Day Kundi province was under the temporary administrative authority of the Governor of Uruzgan province, who carried out 22 hectares of eradication in that district. For eradication reporting, those 22 hectares were included in the 352 hectares of eradication reported for Uruzgan. For calculating the net poppy cultivation, however, the official provincial boundaries were used, i.e. with Gizab being part of Day Kundi province.*

*** Estimates for Farah and Nimroz in 2012 and 2013 are not comparable due to administrative boundary changes. For 2013, the Dilaram area, previously a district of Farah province, was reintegrated into Nimroz province. This reversed a boundary change that happened in 2009, when the Dilaram area, which had previously been part of Nimroz, was moved into Farah province.*

Table 4: Opium cultivation (2007-2013) and eradication (2012-2013) in Afghanistan
(Hectares)

PROVINCE	Cultivation 2009 (ha)	Cultivation 2010 (ha)	Cultivation 2011 (ha)	Cultivation 2012 (ha)	Cultivation 2013 (ha)	Change 2012-2013 (%)	Estimation method 2013	Eradication in 2012 (ha)	Eradication in 2013 (ha)
Ghazni	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	V	0	0
Kabul	132	152	220	120	298	148%	T	103	0
Khost	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	V	0	0
Logar	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	V	0	0
Paktika	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	V	0	0
Paktya	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	V	0	0
Panjshir	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	V	0	0
Parwan	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	V	0	0
Wardak	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	V	0	0
Central Region	**132**	**152**	**220**	**120**	**298**	**148%**		**103**	**0**
Kapisa	Poppy-free	Poppy-free	181	290	583	+101%	T	54	11
Kunar	164	154	578	1,279	1,127	-12%	S	70	108
Laghman	135	234	624	877	1,236	+41%	T	76	20
Nangarhar	294	719	2,700	3,151	15,719	+399%	S	784	157
Nuristan	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	0%	V	0	0
Eastern Region	**593**	**1,107**	**4,082**	**5,596**	**18,665**	**234%**		**985**	**296**
Badakhshan	557	1,100	1,705	1,927	2,374	+23%	S	1,784	2,798
Kunduz	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	0%	T	0	0
Takhar	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	0%	T	0	60
North-eastern Region	**557**	**1,100**	**1,705**	**1,927**	**2,374**	**23%**		**1,784**	**2,858**
Baghlan	Poppy-free	Poppy-free	161	177	141	-20%	T	252	34
Balkh	Poppy-free	Poppy-free	Poppy-free	Poppy-free	410	NA	T	0	80
Bamyan	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	0%	V	0	0
Faryab	Poppy-free	Poppy-free	145	Poppy-free	158	NA	T	50	7
Jawzjan	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	0%	T	0	0
Samangan	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	0%	V	0	0
Sari Pul	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	0%	V	0	0
Northern Region	**Poppy-free**	**Poppy-free**	**305**	**177**	**710**	**301%**		**302**	**121**
Day Kundi*	3,002	1,547	1,003	1,058	1,536	+45%	S	236	9
Hilmand	69,833	65,045	63,307	75,176	100,693	+34%	S	3,637	2,162
Kandahar	19,811	25,835	27,213	24,341	28,335	16%	S	922	1,083
Uruzgan*	9,224	7,337	10,620	10,508	9,880	-6%	S	485	352
Zabul	1,144	483	262	424	1,335	+215%	S	88	0
Southern Region	**103,014**	**100,247**	**102,405**	**111,507**	**141,779**	**27%**		**5,368**	**3,606**
Badghis	5,411	2,958	1,990	2,363	3,596	+52%	S	53	3
Farah**	12,405	14,552	17,499	27,733	24,492	-12%	S	316	262
Ghor	Poppy-free	Poppy-free	Poppy-free	125	264	111%	T	11	6
Hirat	556	360	366	1,080	952	-12%	T	600	77
Nimroz**	428	2,039	2,493	3,808	16,252	+327%	S	148	120
Western Region	**18,800**	**19,909**	**22,348**	**35,109**	**45,557**	**30%**		**1,130**	**468**
Total (rounded)	**123,000**	**123,000**	**131,000**	**154,000**	**209,000**	**36%**		**9,672**	**7,348**

Area estimation method: S=remote sensing sample survey, T=remote sensing target survey, V=village sample survey and field observation. Cf. Methodology chapter for detailed description of methods used. A province is defined as poppy-free when it is estimated to have less than 100 hectares of opium cultivation.

** In 2013, Gizab district of Day Kundi province was under the temporary administrative authority of the Governor of Uruzgan province who carried out 22 hectares of eradication in that district. For eradication reporting, these 22 hectares were included in the 352 hectares of eradication reported for Uruzgan. For calculating the net poppy cultivation, however, the official provincial boundaries were used, i.e. with Gizab being part of Day Kundi province.*

*** Estimates for Farah and Nimroz in 2012 and 2013 are not comparable due to administrative boundary changes. For 2013, the Dilaram area, previously a district of Farah province, was reintegrated into Nimroz province. This reversed a boundary change that happened in 2009, when the Dilaram area, which had been part of Nimroz before, was moved into Farah province.*

2.2 Regional Breakdown

2.2.1 Central region

(Ghazni, Kabul, Khost, Logar, Paktika, Paktya, Panjshir, Parwan, Wardak)

Opium cultivation in the Central region increased by 148% in 2013, with the total area cultivated increasing to 298 hectares from 120 hectares in 2012. Opium cultivation was limited to the Uzbeen valley of Surobi district in Kabul province, where security is extremely poor. There was no eradication in Kabul province in 2013. With the exception of Kabul, all provinces in the Central region have been poppy-free since 2008 and remained so in 2013.

Table 5: Opium cultivation and eradication in the Central region, 2010-2013 (Hectares)

PROVINCE	Cultivation 2010 (ha)	Cultivation 2011 (ha)	Cultivation 2012 (ha)	Cultivation 2013 (ha)	Change 2012-2013 (%)	Eradication in 2012 (ha)	Eradication in 2013 (ha)
Kabul	152	220	120	298	148%	103	0
Khost	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	0	0
Logar	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	0	0
Paktya	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	0	0
Panjshir	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	0	0
Parwan	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	0	0
Wardak	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	0	0
Ghazni	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	0	0
Paktika	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	0	0
Central Region	**152**	**220**	**120**	**298**	**148%**	**103**	**0**

2.2.2 Eastern region

(Kapisa, Kunar, Laghman, Nangarhar, Nuristan)

At 234%, the Eastern region again experienced a significant increase in 2013. A total of 18,665 hectares of opium were cultivated in the Eastern region in 2013, whereas only 296 hectares were eradicated.

Table 6: Opium cultivation and eradication in the Eastern region, 2010-2013 (Hectares)

PROVINCE	Cultivation 2010 (ha)	Cultivation 2011 (ha)	Cultivation 2012 (ha)	Cultivation 2013 (ha)	Change 2011-2012 (%)	Eradication in 2012 (ha)	Eradication in 2013 (ha)
Kapisa	Poppy-free	181	290	583	+101%	54	11
Kunar	154	578	1,279	1,127	-12%	70	108
Laghman	234	624	877	1,236	+41%	76	20
Nangarhar	719	2,700	3,151	15,719	+399%	784	157
Nuristan	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	0	0
Eastern Region	**1,107**	**4,082**	**5,596**	**18,665**	**+234%**	**985**	**296**

2.2.2.1 Nangarhar

Traditionally an important poppy-growing province, Nangarhar experienced a five-fold increase in opium cultivation (15,719 hectares) in 2013, which was almost back to its 2007 level (18,739 hectares). In 2013, opium cultivation increased significantly in Khogyani, Sherzad, Achin, Pachir Wagam Chaparhar, Kot and Lalpoor districts, where security was very poor.

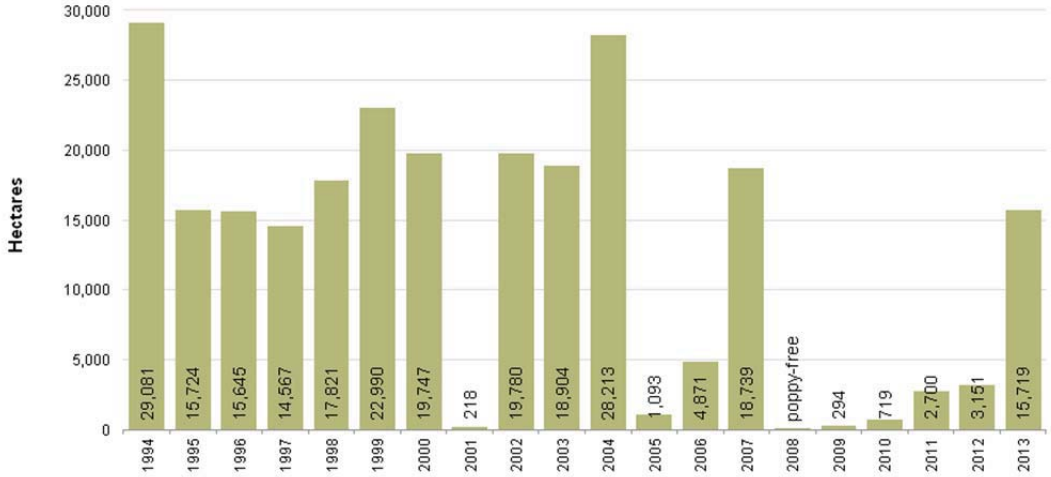
With 29,081 hectares of land under poppy cultivation, opium cultivation in Nangarhar reached a peak in 1994, when monitoring started, but has since been erratic. In 2004, cultivation was at 28,213 hectares, the following year it dropped dramatically to 1,093 hectares and was confined to

remote parts of the province. In 2006, it increased to 4,872 hectares. In 2009, despite 226 hectares being eradicated, 294 hectares of opium poppy were detected in Nangarhar. Security continued to deteriorate and opium cultivation increased by 145%, from 294 hectares in 2009 to 719 hectares in 2010 and 2,700 hectares in 2011 (an increase of 276%). In 2012, there was a 17% increase in opium cultivation in Nangarhar (to 3,151 hectares from 2,700 hectares in 2011) and a five-fold increase in 2013.

As a reaction to increasingly widespread poppy cultivation, a sampling approach was introduced in Nangarhar province in 2013. The area under observation was thus much larger than in previous years when a target approach was employed (see Methodology section).

Due to strong resistance by Anti-Government elements (AGE), a total of only 157 hectares of opium cultivation were eradicated by Governor-led eradication in the province in 2013.

Figure 2: Opium cultivation in Nangarhar province, 1994-2013 (Hectares)



2.2.2.2 Kunar, Kapisa, Laghman and Nuristan

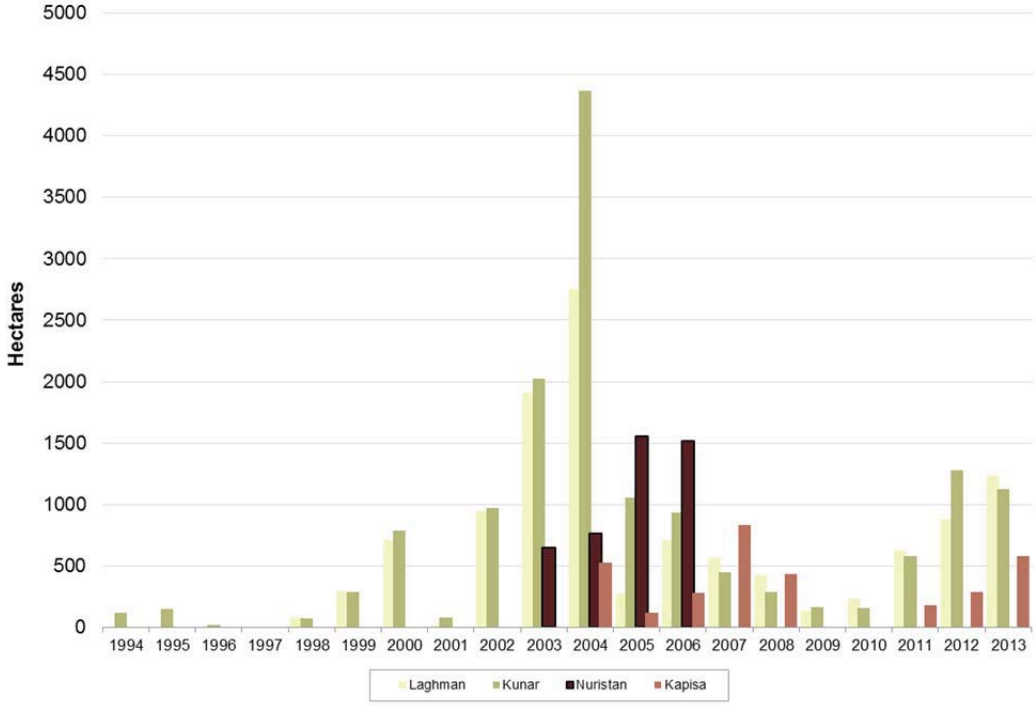
Containing only limited amounts of cultivation (154 hectares and 234 hectares, respectively), Laghman and Kunar provinces in the Eastern region were close to gaining poppy-free status in 2010. However, the two provinces saw a significant increase in cultivation (166% and 275%, or 624 hectares and 578 hectares, respectively) in 2011, when they lost their poppy-free status.

In Laghman province, opium cultivation rose by 41%, from 877 hectares to 1,236 hectares in 2013. At the district level, significant increases took place in comparison to the previous year in Mehterlam, (72%), Alingar (66%) and Alisheng (41%). Cultivation rose to 119 hectares, 503 hectares and 335 hectares in Mehterlam, Alingar and Alishing districts in 2013, from 69 hectares, 303 hectares and 335 hectares, respectively, in 2012.

In 2012, Kunar saw an increase of 121% to 1,279 hectares, from 578 hectares in 2011. However, opium cultivation decreased by 12% in 2013, when the main opium cultivation districts in Kunar province were Asada bad, Dara-i-Pech and Shigal Wa Sheltan.

In 2011, Kapisa lost the poppy-free status it had regained in 2009 and 2010 due to its 181 hectares of land under poppy cultivation. In 2012, that figure rose by 60% to 290 hectares. In 2013, the province saw a further increase of 101% (583 hectares), the main opium-growing district being Tagab, which, with very poor security, saw a 132% increase in opium cultivation from 2012. In 2013, Nuristan maintained the poppy-free status it achieved in 2007.

Figure 3: Opium cultivation in Laghman, Kunar, Nuristan and Kapisa provinces, 1994-2013 (Hectares)



2.2.3 North-eastern region

(Badakhshan, Kunduz and Takhar)

Opium cultivation in the North-eastern region reached 2,374 hectares in 2013, an increase of 23% from 2012. However, the increase in opium cultivation only occurred in Badakhshan province as the two other provinces in the region, Kunduz and Takhar, were poppy-free.

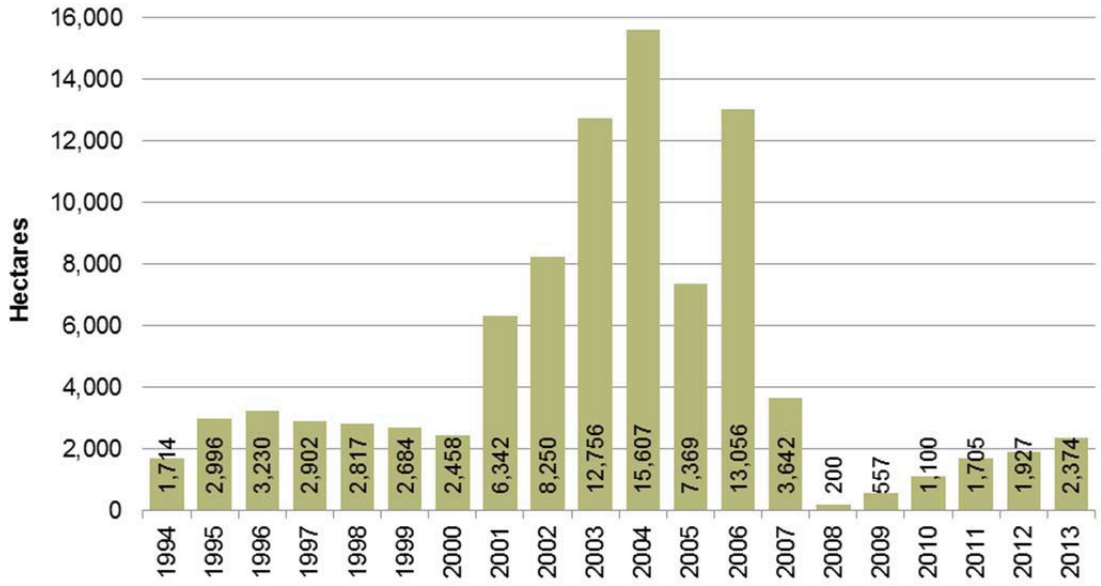
Table 7: Opium cultivation and eradication in the North-eastern region, 2010-2013 (Hectares)

PROVINCE	Cultivation 2010 (ha)	Cultivation 2011 (ha)	Cultivation 2012 (ha)	Cultivation 2013 (ha)	Change 2012-2013 (%)	Eradication in 2012 (ha)	Eradication in 2013 (ha)
Badakhshan	1,100	1,705	1,927	2,374	+23%	1,784	2,798
Kunduz	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	0	0
Takhar	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	0	60
North-eastern region	**1,100**	**1,705**	**1,927**	**2,374**	**+23%**	**1,784**	**2,858**

2.2.3.1 Badakhshan

Opium cultivation in Badakhshan province was 3,642 hectares in 2007, 200 hectares in 2008, 557 hectares in 2009, 1,100 hectares in 2010 and 1705 hectares in 2011. It increased by 23% to 2,374 hectares in 2013 from 1,927 hectares in 2012, and was mostly confined to rain-fed areas cultivated in spring, mainly in Argo district where opium cultivation remained stable, and Baharak where there was an increase of 651% (from 43 hectares in 2012 to 322 hectares in 2013). A total of 2,798 hectares of opium cultivation were eradicated and verified by MCN/UNODC in Badakhshan province in 2013.

Figure 4: Opium cultivation in Badakhshan province, 1994-2013 (Hectares)



2.2.3.2 Kunduz and Takhar

Poppy-free since 2007 and well known for growing a wide range of licit crops, from fruit and vegetables to cotton, Kunduz remained poppy-free in 2013. An insignificant amount of cultivation has been observed in this province in recent years, and it remained under 100 hectares in 2013, the threshold for obtaining poppy-free status.

Also poppy-free since 2008, Takhar province maintained its poppy-free status in 2013. In 2005, 2006 and 2007, opium cultivation in Takhar was 1,364 hectares, 2,178 hectares and 1,211 hectares, respectively. A total of 60 hectares were eradicated in 2013, maintaining its poppy-free status.

2.2.4 Northern region

(Baghlan, Balkh, Bamyan, Faryab, Jawzjan, Samangan, Sari Pul)

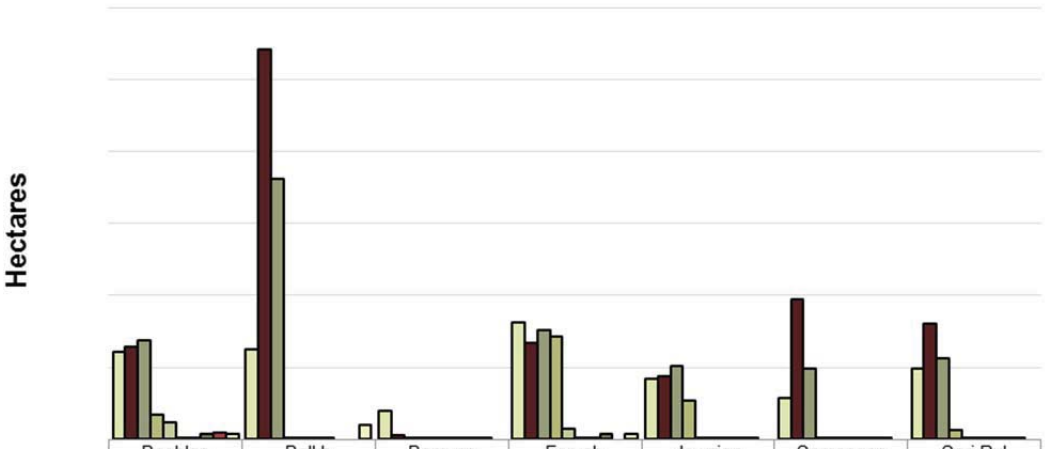
All the provinces in the Northern region were poppy-free in 2009 and 2010, but the situation changed in 2011. Two provinces, Baghlan and Faryab, resumed opium cultivation (161 hectares and 145 hectares, respectively) in 2011, with poor security and the high price of opium in 2010 probably being the main factors encouraging farmers to recommence opium cultivation. In 2012, the situation changed again, with Faryab regaining its poppy-free status of 2009 and 2010 because eradication was undertaken, while Baghlan remained the only poppy-growing province in the region. In 2013, Balkh and Faryab provinces lost their poppy-free status, and opium cultivation mainly took place in the Chimtal district of Balkh province and Gurziwan, Qaysar and Kohestan districts of Faryab province.

Most of the provinces in the Northern region sustained moderate levels of opium cultivation in the past, with the exception of Balkh, which emerged as a major opium-cultivating province in 2005 and 2006 (10,837 hectares and 7,232 hectares, respectively), whereas cultivation in the other Northern provinces ranged from 2,000 to 3,000 hectares. The decline in opium cultivation in the Northern region began as a result of strict law enforcement and counter-narcotics initiatives, and by 2008 poppy cultivation was already negligible. In 2007, three provinces (Balkh, Bamyan and Samangan) became poppy-free, with Balkh remaining so until 2012, while Sari Pul province also became poppy free in 2008.

Table 8: Opium cultivation and eradication in the North-eastern region, 2010-2013 (Hectares)

PROVINCE	Cultivation 2010 (ha)	Cultivation 2011 (ha)	Cultivation 2012 (ha)	Cultivation 2013 (ha)	Change 2012-2013 (%)	Eradication in 2012 (ha)	Eradication in 2013 (ha)
Baghlan	Poppy-free	161	177	141	-20%	252	34
Balkh	Poppy-free	Poppy-free	Poppy-free	410	NA	0	80
Bamyan	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	0	0
Faryab	Poppy-free	145	Poppy-free	158	NA	50	7
Jawzjan	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	0	0
Samangan	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	0	0
Sari Pul	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	0	0
Northern Region	**Poppy-free**	**305**	**177**	**710**	**301%**	**302**	**121**

Figure 5: Opium cultivation in the Northern region, 2004-2013 (Hectares)



	Baghlan	Balkh	Bamyan	Faryab	Jawzjan	Samangan	Sari Pul
2004	2,444	2,495	803	3,249	1,673	1,151	1,974
2005	2,563	10,837	126	2,665	1,748	3,874	3,227
2006	2,742	7,232	17	3,040	2,024	1,960	2,252
2007	671	poppy-free	poppy-free	2,866	1,085	poppy-free	260
2008	475	poppy-free	poppy-free	291	poppy-free	poppy-free	poppy-free
2009	poppy-free	poppy-free	poppy-free	poppy-free	poppy-free	poppy-free	poppy-free
2010	poppy-free	poppy-free	poppy-free	poppy-free	poppy-free	poppy-free	poppy-free
2011	161	poppy-free	poppy-free	145	poppy-free	poppy-free	poppy-free
2012	177	poppy-free	poppy-free	poppy-free	poppy-free	poppy-free	poppy-free
2013	141	410	poppy-free	158	poppy-free	poppy-free	poppy-free

2.2.4.1 Baghlan

Baghlan became poppy-free for the first time in 2009 and remained poppy-free in 2010 (in 2008 there were 475 hectares of cultivation concentrated in Andarab district only). In 2011, with 161 hectares of land under opium cultivation, Baghlan lost its poppy-free status, as it did in 2012 with 177 hectares of opium cultivation, representing an increase of 10% in comparison to 2011 despite 252 hectares of eradication.

In 2013, the province could not regain poppy-free status despite a 20% decrease in opium cultivation. The main opium-cultivating districts were Pul-i-Hisar and Deh Salah, where opium cultivation decreased by 30% in Pul-i-Hisar district and increased by 13% in Deh Salah district. Poor security and the high price of opium may have been the main factors for the province's return to opium cultivation.

2.2.4.2 Balkh

Opium cultivation in Balkh province was introduced in 1996 (1,065 hectares), but Balkh did not become a major producer of opium until 2004. A high level of cultivation (10,837 hectares) was recorded in 2005 and again in 2006 (7,232 hectares). Balkh province was poppy-free from 2007 to 2012 but, with 410 hectares cultivated in chimtal district, the province lost its poppy-free status in 2013.

2.2.4.3 Faryab

Faryab province lost the poppy-free status it obtained in 2009, 2010 and 2012 due to its 158 hectares of opium cultivation in 2013, which mainly took place in Kohistan, Qaysar and Gurziwan.

2.2.4.4 Bamyan, Jawzjan, Samangan and Sari Pul

Samangan and Bamyan have been poppy-free since 2007 and remained so in 2013. Sari Pul has also been poppy-free since 2008 and maintained its poppy-free status in 2013. Prior to that, opium cultivation in Bamyan was negligible, whereas from 2004 to 2006 it ranged between 1,000 and 4,000 hectares in Samangan province. Jawzjan province has been poppy-free since 2008 and maintained its poppy-free status in 2013.

2.2.5 Southern region

(Day Kundi, Hilmand, Kandahar, Uruzgan, Zabul)

Opium cultivation in the Southern region increased by 27%. A total of 141,779 hectares of opium poppy were cultivated in the Southern region in 2013, which accounted for 68% of total opium cultivation in Afghanistan.

Table 9: Opium cultivation and eradication in the Southern region, 2010-2013 (Hectares)

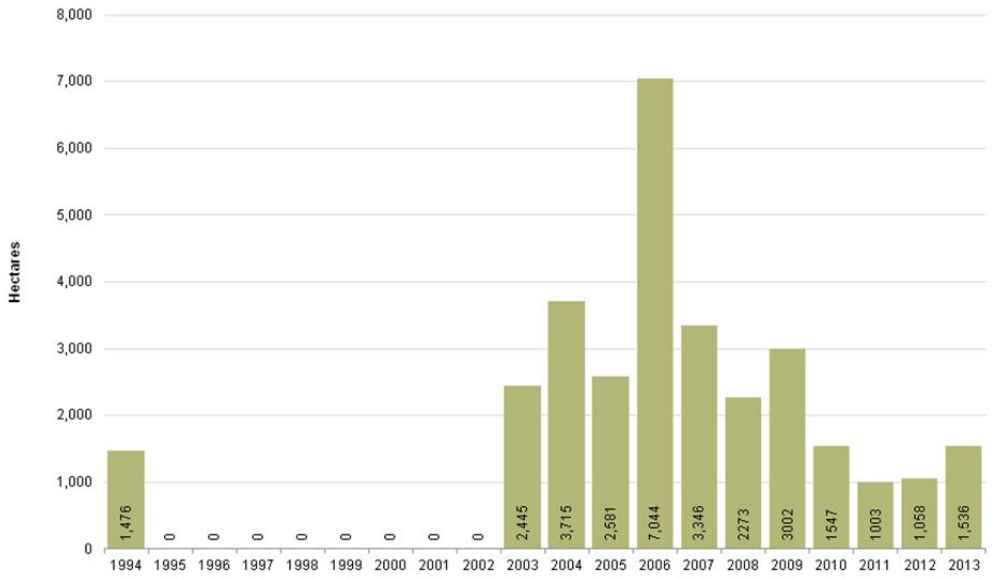
PROVINCE	Cultivation 2010 (ha)	Cultivation 2011 (ha)	Cultivation 2012 (ha)	Cultivation 2013 (ha)	Change 2012-2013 (%)	Eradication in 2012 (ha)	Eradication in 2013 (ha)
Day Kundi*	1,547	1,003	1,058	1,536	+45%	236	9
Hilmand	65,045	63,307	75,176	100,693	+34%	3,637	2,162
Kandahar	25,835	27,213	24,341	28,335	+16%	922	1,083
Uruzgan*	7,337	10,620	10,508	9,880	-6%	485	352
Zabul	483	262	424	1,335	+215%	88	0
Southern Region	**100,247**	**102,405**	**111,507**	**141,779**	**+27%**	**5,368**	**3,606**

** In 2013, Gizab district of Day Kundi province was under the temporary administrative authority of the Governor of Uruzgan province who carried out 22 hectares of eradication in that district. For eradication reporting, those 22 hectares were included in the 352 hectares of eradication reported for Uruzgan. For calculating the net poppy cultivation, however, the official provincial boundaries were used, i.e. with Gizab being part of Day Kundi province.*

2.2.5.1 Day Kundi

Opium cultivation saw a significant increase of 45% in Day Kundi province in 2013, to reach 1,536 hectares, whereas it stood at 1,058 hectares in 2012 and 1,003 hectares in 2011. The main opium-cultivating districts in Day Kundi were Gizab and Kejran, where security was poor and opium cultivation increased by 6% and 143%, respectively, in 2013.

Figure 6: **Opium cultivation in Day Kundi province, 1994-2013**



2.2.5.2 Hilmand

With 100,693 hectares in 2013 (48% of total cultivation in Afghanistan), an increase of 34% from 2012 (75,176 hectares), Hilmand remains Afghanistan's single largest opium-cultivating province. Between 2002 and 2008, opium cultivation in Hilmand province more than tripled. It was estimated at 65,045 hectares and 63,307 hectares in 2010 and 2011, respectively, accounting for 49% of the country's total opium cultivation in the latter. It accounted for 48% in 2011, 53% in 2010, 57% in 2009, 66% in 2008, 53% in 2007, 42% in 2006, 25% in 2005, 23% in 2004 and 19% in 2003.

Although the "Food Zone" alternative livelihood programme in Hilmand province came to an end in 2012, as it is important to continue to evaluate the long-term effects of this counter narcotics strategy, a separate estimate for opium cultivation in the Food Zone was also calculated in 2013. Opium cultivation in the area of the former "Food Zone" increased by 50% in 2013 (from 24,241 hectares in 2012 to 36,244 hectares), representing roughly a fifth of the Food Zone's total agricultural area, but the extent of poppy cultivation was far greater outside the Food Zone. More than a third of available land outside the Food Zone was under poppy cultivation, showing that despite the increase following the end of the programme, opium cultivation was still relatively smaller inside the Food Zone than outside it.

Table 10: Poppy cultivation inside and outside the former Hilmand food zone, 2012-2013

	2012 poppy cultivation	2013 poppy cultivation	change 2012-2013 (%)	2013 % of agricultural land with poppy
Inside the food zone	24,241	36,244	50%	19%
Outside the food zone	50,935	64,449	27%	35%
Total province	**75,176**	**100,693**	**34%**	**27%**

The food zone estimates refers to an area in 10 districts of Hilmand (the "food zone" as of 2011, where farmers were provided with fertilizers, certified wheat seeds and high-value horticulture seeds in the poppy planting seasons for the 2009-2012 harvests. See Afghanistan Opium Survey 2009 and Methodology section.

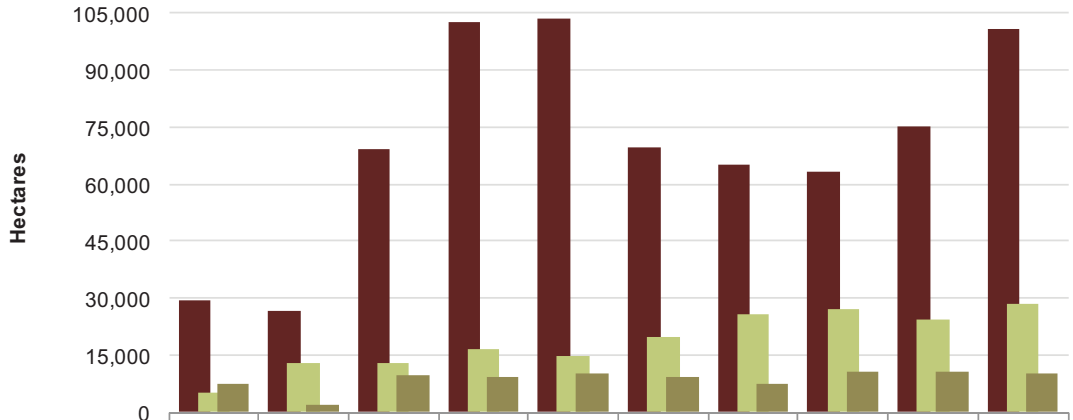
At the district level, opium cultivation levels in 2013 were highest in Nad Ali, Naher-i-Saraj, Nawzad, Kajaki, Musa Qala, Regi-i-Khan Nishin, Washer, Garmser, Dishu and Baghran districts. Significant increases in comparison to 2012 (263%, 160%, 118%, 98%, 90% and 46%, respectively) occurred in opium cultivation in Garmser, Dishu, Regi-i-Khan-Nishin, Washer, Nad-Ali and Musa-Qala districts (see district overview in the Annex).

A total of 2,162 hectares of Governor-led opium poppy eradication were verified by MCN/UNODC in 2013, which corresponds to only 2% of estimated opium cultivation.

2.2.5.3 Kandahar

In Kandahar province, opium cultivation increased by 16%, from 24,341 hectares in 2012 to 28,335 hectares in 2013. Kandahar had seen a decrease in 2008 when opium cultivation dropped by 12% to 14,623 hectares from 16,615 hectares in 2007, but thereafter opium cultivation showed an increasing trend up to 2011. The increase in opium cultivation began after 2004 when only 4,959 hectares were cultivated and since then the area under opium poppy has increased more than five fold. The main opium cultivation districts were Maiwand and Zhire, with opium cultivation rising in the former by 29%, from 12,690 hectares in 2012 to 16,382 hectares in 2013.

Figure 7: Opium cultivation in Hilmand, Kandahar and Uruzgan provinces, 2004-2013
(Hectares)



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Hilmand	29,353	26,500	69,323	102,770	103,590	69,833	65,045	63,307	75,176	100,693
Kandahar	4,959	12,989	12,619	16,615	14,623	19,811	25,835	27,213	24,341	28,335
Uruzgan	7,365	2,024	9,703	9,204	9,939	9,224	7,337	10,620	10,508	9,880

2.2.5.4 Uruzgan

Opium cultivation in Uruzgan province decreased by 6% in 2013 to 9,880 hectares, with the province accounting for 5% of total Afghan opium cultivation.

Dihrawud, Shahidi Hassas and Tirin Kot (provincial centre) were the main opium poppy-cultivating districts in Uruzgan province, but opium cultivation increased in khas Uruzgan, Chorah and Shahidi Hasas districts by 227%, 75% and 7%, respectively. In contrast, decreases of 24% and 9% took place in Dihrawud and Tirin Kot (provincial centre) in 2013. Between 2009 and 2010, there was a significant decrease in opium cultivation in Dihrawud district, from 2,038 hectares in 2009 to 145 hectares in 2010. Opium cultivation in other districts was negligible.

2.2.5.5 Zabul

Opium cultivation in Zabul increased significantly (215%) in 2013, to 1,335 hectares from 424 hectares in 2012. Opium cultivation decreased in Zabul province between 2008 and 2011, and prior to 2007 it ranged between 2,000 and 3,000 hectares. The province's main opium-cultivating district is Mizan.

2.2.6 Western region

(Badghis, Farah, Ghor, Hirat, Nimroz)

In the Western region, opium cultivation increased by 30% in 2013 to 45,557 hectares from 35,109 hectares in 2012. This increase took place in three provinces, namely Badghis, Ghor and Nimroz, with Nimroz seeing the strongest increase (327%). Only 468 hectares of opium poppy eradication took place in the region in 2013.

Estimates for Farah and Nimroz in 2012 and 2013 are not comparable due to administrative boundary changes. For 2013, the Dilaram area, previously a district of Farah province, was reintegrated into Nimroz province. This reversed a boundary change that happened in 2009 when the Dilaram area, which had previously been part of Nimroz, was moved into Farah province.

The Western region consistently shows very high levels of opium cultivation. Insecurity continues to be a major problem as it compromises the rule of law and limits counter-narcotics interventions.

Table 11: Opium cultivation and eradication in the Western region, 2010-2013 (Hectares)

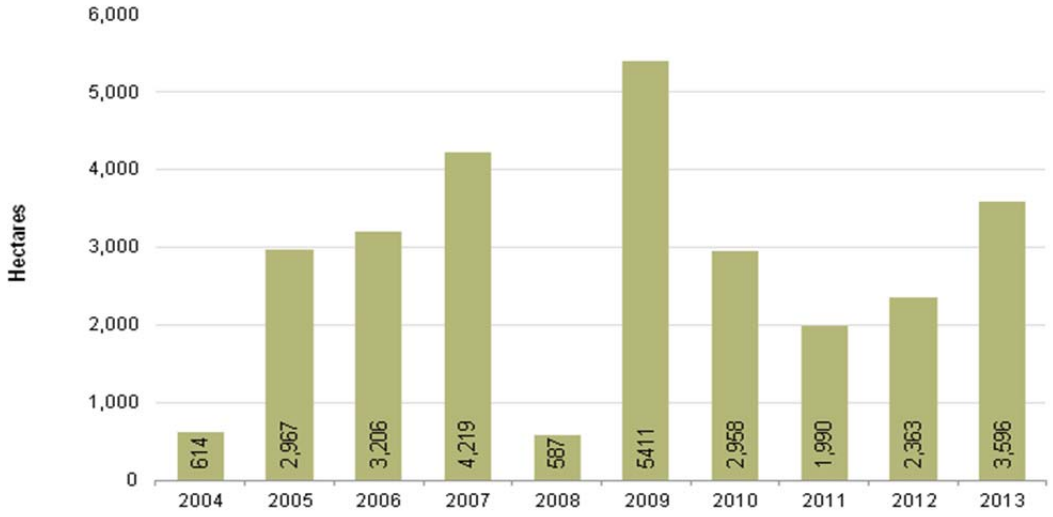
PROVINCE	Cultivation 2010 (ha)	Cultivation 2011 (ha)	Cultivation 2012 (ha)	Cultivation 2013 (ha)	Change 2012-2013 (%)	Eradication in 2012 (ha)	Eradication in 2013 (ha)
Badghis	2,958	1,990	2,363	3,596	+52%	53	3
Farah*	14,552	17,499	27,733	24,492	-12%	316	262
Ghor	Poppy-free	Poppy-free	125	264	+111%	11	6
Hirat	360	366	1,080	952	-12%	600	77
Nimroz*	2,039	2,493	3,808	16,252	+327%	148	120
Western Region	**19,909**	**22,348**	**35,109**	**45,557**	**+30%**	**1,130**	**468**

** Estimates for Farah and Nimroz in 2012 and 2013 are not comparable due to administrative boundary changes. For 2013, the Dilaram area, previously a district of Farah province, was reintegrated into Nimroz province. This reversed a boundary change that happened in 2009 when the Dilaram area, which had previously been part of Nimroz, was moved into Farah province.*

2.2.6.1 Badghis

Opium poppy cultivation in Badghis jumped to 3,596 hectares in 2013 from 2,363 hectares in 2012, an increase of 52%. Its main opium-growing districts were Ghormach and Jawand. This is noteworthy given that the opium cultivation level in Badghis province rose steadily between 2004 and 2010. In 2008, cultivation was expected to be high but the total failure of rain-fed crops resulted in a drop in opium cultivation. In 2009, good rainfall resulted in extensive cultivation in the province's rain-fed areas, enabling farmers to grow more poppy, which contributed to a large increase in opium cultivation (from 587 hectares in 2008 to 5,411 hectares in 2009), with most cultivation taking place in difficult areas to access.

Figure 8: Opium cultivation in Badghis province, 2004-2013 (Hectares)

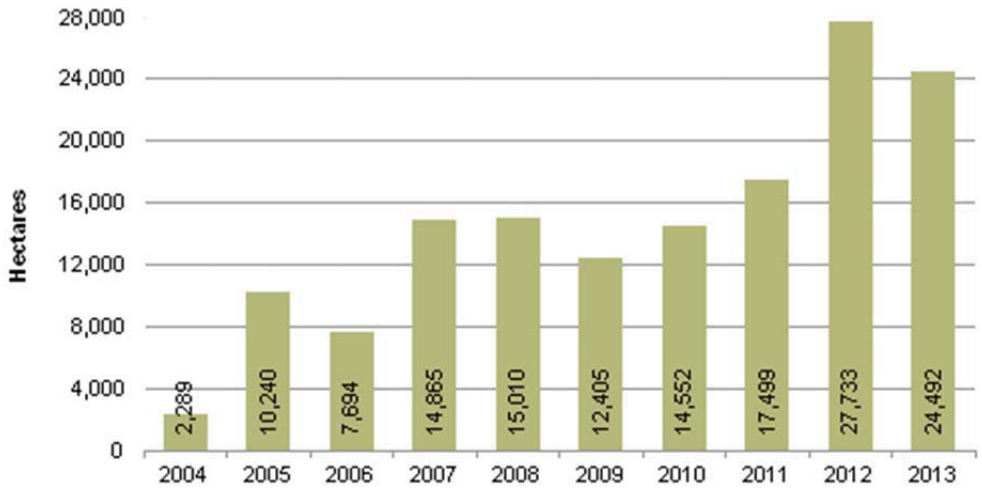


2.2.6.2 Farah

In 2013, opium cultivation in Farah province was 24,492 hectares. Farah saw an increasing trend in opium cultivation from 2009 to 2012. Cultivation increased by 17% in 2010 (from 12,405 hectares in 2009 to 14,552 hectares in 2010), by 20% in 2011(from 14,552 hectares in 2010 to 17,499 hectares in 2011) and by 58% in 2012 (from 27,733 hectares to 17,499 hectares in 2011). Due to administrative boundary changes, the 2013 estimates are not comparable to those of 2012.

The main opium-cultivating districts in Farah, where security is very poor, were, Bakwah, Bala Buluk, Gulistan, Khak-i-Safed Farah (provincial centre), Pusht-Rod and Shib Koh. Large increases in opium cultivation occurred in Farah (provincial centre) 3,562%, Pusht-Rod 429% and Bakwah (61%). Decreases of 89%, 48% and 43% were also observed in Pur-Chaman, Bala-Buluk and Khaki-Safed districts, respectively, in 2013.

Figure 9: Opium cultivation in Farah province, 1994-2013 (Hectares)



2.2.6.3 Hirat and Ghor

The level of opium poppy cultivation in Hirat province increased substantially from 366 hectares in 2011 and 360 hectares in 2010 to 1,080 hectares in 2012, whereas it decreased by 12% (952 hectares) in 2013. The only district in Hirat province where opium cultivation took place was Shindand, where security is very poor. In comparison to 2004 and 2007, however, opium cultivation in 2012 was significantly lower in Hirat province.

In 2012, Ghor lost its 2011 poppy-free status and poppy cultivation in 2013 increased there by a further 111%, from 125 hectares to 264 hectares. Only 6 hectares of eradication took place in Ghor province in 2013, which was not enough for the province to gain poppy-free status.

2.2.6.4 Nimroz

In 2013, the level of opium poppy cultivation in Nimroz province rose to 16,252 hectares. The main poppy cultivating district is Khash-Rod. Estimates in Nimroz in 2012 and 2013 are not comparable due to administrative boundary changes. For 2013, the Dilaram area, previously a district of Farah province, was reintegrated into Nimroz province. This reversed a boundary change that happened in 2009 when the Dilaram area, which had previously been part of Nimroz, was moved into Farah province.

3 Eradication

3.1 Poppy eradication decreased by 24% in 2013

A total of 7,348 hectares of verified poppy eradication was carried out by the provincial Governors in 2013, representing a decrease of 24% from 2012 when 9,672 hectares of Governor-led eradication (GLE) was verified by MCN/UNODC.

In 2013, MCN/UNODC field surveyors verified the eradication of 20,374 fields in 814 villages in 18 provinces, whereas in 2012 MCN/UNODC verifiers visited 1,027 villages (25,486 poppy fields) in 18 provinces where eradication had been carried out by Governor-led eradication teams.

Quality control using high-resolution satellite images was carried out to authenticate the figures reported by surveyors in the field, particularly in Badakhshan, Baghlan, Farah, Hilmand, Hirat, Kandahar, Kapisa, Laghman, Nangarhar, Nimroz, Faryab, Uruzgan and Balkh provinces.

Major observations on eradication campaigns in 2012 and 2013 are given below (see tables also):

- In comparison to 2012, Governor-led poppy eradication campaigns in 2013 were less active in all regions except Badakhshan in the North-eastern region.
- Total Governor-led poppy eradication carried out in 2013 was 7,348 hectares, in the same 18 provinces as in 2012 when 9,672 hectares were eradicated.
- The Governor-led poppy eradication campaign commenced in February 2013 in Hilmand province, while eradication activities in 2012 began in March in most of the regions. Eradication started and finished quite early in 2013, particularly in Hilmand and Kandahar, due to warm weather conditions which gave the Governors limited time to implement eradication. The best time to carry out the eradication of opium is when the poppy is at the cabbage stage, as poppy plants can be clearly recognized.
- The largest amount of poppy eradication was verified in Badakhshan province (2,798 hectares), an increase of 57% on eradication carried out in the same province in 2012.
- The security situation continued to be unfavourable for Governor-led eradication campaigns in all provinces where eradication was carried out in 2013. Farmers and AGE resisted poppy eradication operations in different ways since Governor-led eradication began. For example, in the form of direct attacks on eradication teams, land mines, flooding poppy fields, and demonstrations.

- The number of security incidents (farmers and AGE resistance) during the eradication campaign was far greater in 2013 than in 2012. Some 143 lives were lost (28 police, 7 Afghan Local Police, 9 National Army, 1 driver and 98 others) and 89 personnel were injured (66 police, 1 Afghan Local Police, 12 National Army, 2 drivers and 8 others). In comparison to 2012, there was an increase of 40% in the number of personnel killed (102 killed in 2012) and a decrease of 30% in the number of personnel injured (127 injured in 2012) during the eradication campaign.

- Among other eradication methods, GLE teams mainly used tractors and manual eradication (sticks, blades, hands and uprooting) in 2013, with 49% of GLE being carried out by tractor/ATV and 51% by manual methods.

Table 12: Governor-led eradication, by province, 2013 (Hectares)

Province	Eradication verified (ha)	No. of eradicated fields reported	No. of villages eradication reported
Badakhshan	2,798	11,092	338
Badghis	3	22	2
Baghlan	34	291	8
Balkh	80	35	9
Day Kundi*	9	71	3
Farah	262	255	10
Faryab	7	24	7
Ghor	6	43	17
Hilmand	2162	3,599	149
Hirat	77	559	15
Kandahar	1083	1,375	121
Kapisa	11	130	3
Kunar	108	221	14
Laghman	20	192	4
Nangarhar	157	1,090	48
Nimroz	120	89	15
Takhar	60	183	10
Uruzgan*	352	1,103	41
Grand Total	**7,348**	**20,374**	**814**

** In 2013, Gizab district of Day Kundi province was under the temporary administrative authority of the Governor of Uruzgan province. For eradication reporting, the 22 hectares eradicated in Gizab were included in the 352 hectares of eradication reported for Uruzgan.*

Table 13: Governor-led eradication, 2012-2013 (Hectares and percentage change)

Province	Eradication verification (ha) 2012	Eradication verification (ha) 2013	% Change
Badakhshan	1,784	2,798	57%
Badghis	53	3	-94%
Baghlan	252	34	-87%
Balkh	0	80	100%
Day Kundi *	236	9	-96%
Farah	316	262	-17%
Faryab	50	7	-86%
Ghor	11	6	-51%
Hilmand	3,637	2,162	-41%
Hirat	600	77	-87%
Kabul	103	0	-100%
Kandahar	922	1,083	17%
Kapisa	54	11	-80%
Kunar	70	108	53%
Laghman	76	20	-74%
Nangarhar	784	157	-80%
Nimroz	148	120	-19%
Takhar	0	60	100%
Uruzgan*	485	352	-27%
Zabul	88	0	-100%
Grand total	**9,672**	**7,348**	**-24%**

**In 2013, Gizab district of Day Kundi province was under the temporary administrative authority of the Governor of Uruzgan province. For eradication reporting, the 22 hectares eradicated in Gizab were included in the 352 hectares of eradication reported for Uruzgan.*

Figure 10: Percentage of total opium poppy eradication, by province, 2012-2013

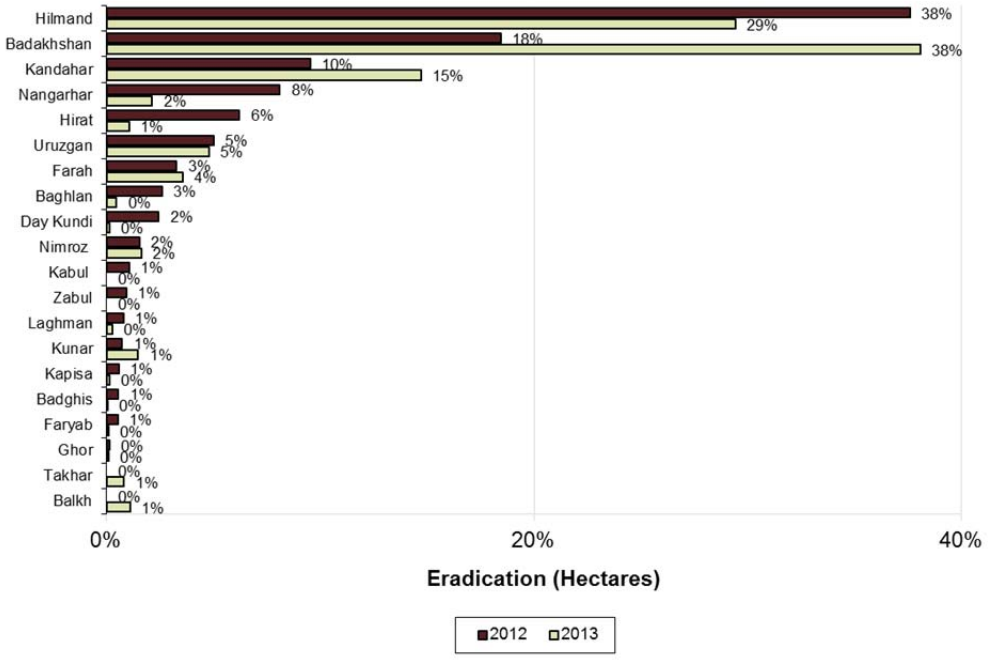


Table 14: Poppy eradication and cultivation in Afghanistan, 2005-2013 (Hectares)

Year	2007	2008	2009	2010	2011	2012	2013
Number of provinces where eradication carried out	26	17	12	11	18	18	18
Governor-led eradication (GLE), (ha)	15,898	4,306	2,687	2,316	3,810	9,672	7,348
Poppy Eradication Force (PEF), (ha) *	3,149	1,174	2,663	0	0	0	0
Total Eradication (hectares)	**19,047**	**5,480**	**5,351**	**2,316**	**3,810**	**9,672**	**7,348**
Cultivation (ha) **	193,000	157,253	119,141	123,000	131,000	154,000	209,000
% Poppy in insecure provinces of South and West	80%	98%	99%	95%	95%	95%	89%
Poppy-free provinces	13	18	20	20	17	17	15

** The "Poppy Eradication Force" (PEF), a centrally-directed eradication force, ceased operations in 2009.*
*** Net opium cultivation after eradication.*

Table 15: Eradication area in targeted[10] provinces inside/outside target area (Hectares)

Province	Eradication inside target area (ha)	Eradication outside target area (ha)	% of Eradication inside target area	Total eradication verified (ha)
Farah	210	52	80%	262
Hilmand	1,338	824	62%	2,162
Uruzgan*	280	72	80%	352
Total	**1,828**	**948**	**66%**	**2,776**

** In 2013, Gizab district of Day Kundi province was under the temporary administrative authority of the Governor of Uruzgan province. For eradication reporting, the 22 hectares eradicated in Gizab were included in the 352 hectares of eradication reported for Uruzgan.*

10 In certain provinces (in particular those with high cultivation levels), target areas for eradication are agreed upon in the "Eradication Working Group". In these areas alternative livelihoods exist as defined in the Afghanistan "National Drug Control Strategy". For further information see MCN: *Afghanistan Drug Report 2012*.

Figure 11: Area of opium poppy eradication, by different methods, 2012- 2013 (Percentage of total)

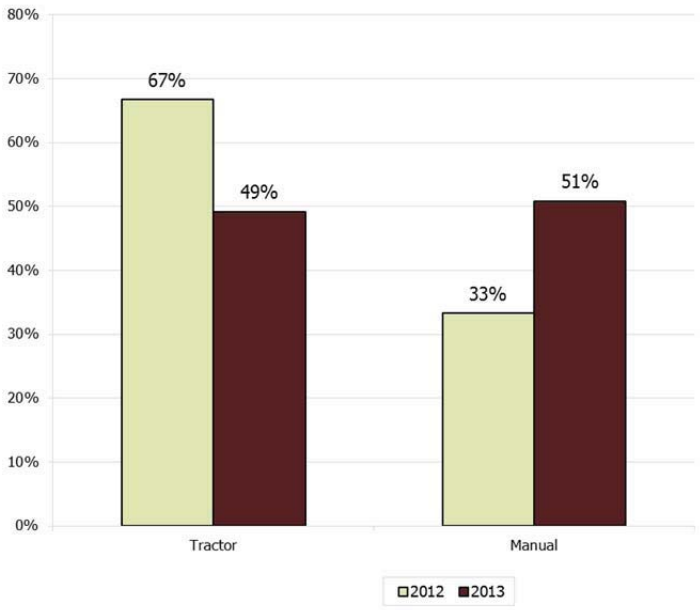


Figure 12: Area of opium poppy eradication, per month, 2012-2013 (Percentage of total)

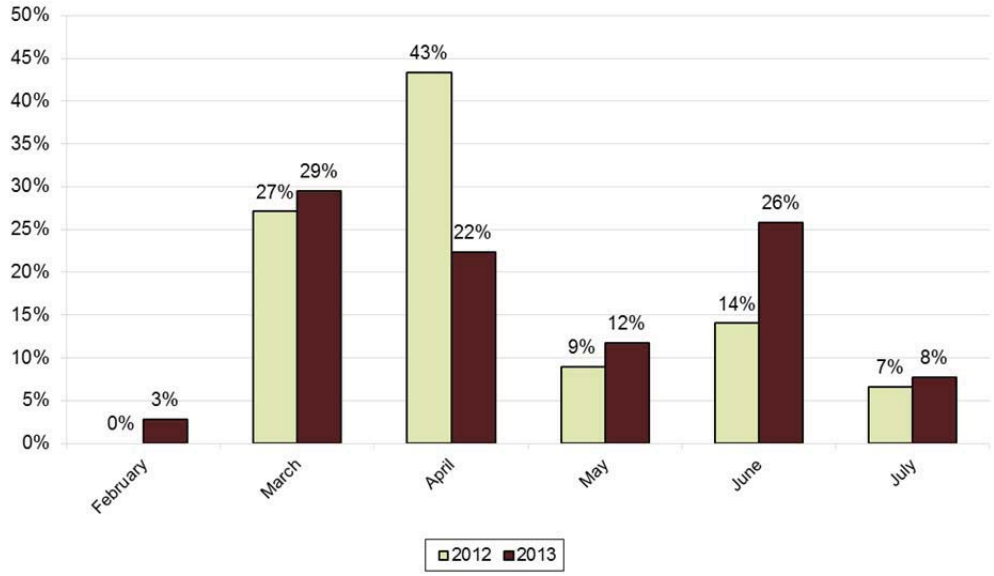


Table 16: Start and end dates of Governor-led eradication (GLE), 2013

Region	Province	Eradication start date	Eradication end date	Eradication (ha)
Central	Kapisa	24-Apr-13	4-May-13	11
East	Kunar	13-Apr-13	30-May-13	108
	Laghman	31-Mar-13	25-May-13	20
	Nangarhar	31-Mar-13	27-May-13	157
Northern	Balkh	NA	NA	80
	Baghlan	6-Jun-13	24-Jun-13	34
	Faryab	15-May-13	25-May-13	7
North-eastern	Takhar	22-May-13	6-Jun-13	60
	Badakhshan	13-May-13	10-Aug-13	2,798
South	Day Kundi	2-May-13	6-May-13	9
	Hilmand	23-Feb-13	12-Apr-13	2,162
	Kandahar	5-Mar-13	4-May-13	1,083
	Uruzgan	4-Apr-13	29-Apr-13	352
	Zabul*	30-Apr-13	1-May-13	0
West	Badghis	24-Apr-13	26-Apr-13	3
	Farah	6-Mar-13	3-Apr-13	262
	Hirat	3-Apr-13	21-Apr-13	77
	Nimroz	19-Mar-13	6-Apr-13	120
	Ghor	14-May-13	28-May-13	6

** For Zabul province, 8 hectares eradicated after the first lancing were reported and therefore not taken into account.*

Table 17: Summary of security incidents during opium poppy eradication, 2013

Province	Number of security incidents	Number of people dead	Number of people injured	Eradication (ha)
Badakhshan	1	0	1	2,798
Badghis	2	3	5	3
Balkh	0	0	0	80
Baghlan	1	0	1	34
Day Kundi	0	0	0	9
Farah	7	43	20	262
Faryab	0	0	0	7
Ghor	0	0	0	6
Hilmand	19	82	42	2,162
Hirat	2	2	3	77
Takhar	0	0	0	60
Kandahar	5	5	13	1,083
Kapisa	2	0	3	11
Kunar	2	4	1	108
Laghman	2	4	1	20
Nangarhar	1	0	1	157
Nimroz	0	0	0	120
Uruzgan	2	0	2	352
Zabul	0	0	0	0
Total:	**46**	**143**	**93**	**7,348**

Resistance to Governor-led eradication

3.2 Quality control of reported eradication with satellite images

As in previous years, in 2013, MCN/UNODC procured high-resolution satellite images based on the field coordinates recorded by verifiers in eradicated poppy fields to validate the authenticity of reports and generate more accurate area figures by on-screen digitization of the eradicated fields.

The Governor-led eradication of opium poppy in Badakhshan, Balkh, Baghlan, Farah, Hilmand, Hirat, Kandahar, Kapisa, Laghman, Nangarhar, Uruzgan and Nimroz provinces was checked with satellite images. Satellite images were supported with heli-pictures collected during over-flights in the provinces of Baghlan, Nangarhar and Laghman.

Satellite images of eradicated fields were interpreted and compared with the figures available on the ground and, in general, a good match was observed between them. The verification of the quality of eradication with satellite images as well as field pictures indicated that the quality of eradication in Hilmand, Hirat and Farah provinces was very good. Badakhshan province was an exception, as 925 of eradication was over-reported and its final eradication figure was corrected to 2,798 hectares.

In Kandahar province, over-reporting to the extent of 351 hectares was also observed, which led to a corrected eradication figure of 1,083 hectares.

All 487 hectares of GLE reported by verifiers in Farah province were checked with satellite images and over-reporting to the extent of 225 hectares was detected. The final eradication figure in Farah province was corrected to 262 hectares.

A total of 2,115 hectares of eradication reported by verifiers in Hilmand province was checked with satellite images and under-reporting to the extent of 47 hectares was confirmed. The final eradication figure in Hilmand province was corrected to 2,162 hectares. The quality of eradication seen on both satellite images and heli-pictures was generally very good and effective in most places in Hilmand province.

Out of 447 hectares of GLE reported by verifiers in Nangarhar province, 345 hectares of eradicated poppy fields were checked with satellite images and over-reporting to the extent of 290 hectares was confirmed. The final eradication figure in Nangarhar province was corrected to 157 hectares.

In Nimroz, 325 hectares of eradication reported by verifiers were checked with satellite images and over-reporting to the extent of 205 hectares was confirmed. The final eradication figure in Nimroz province was corrected to 120 hectares.

In Hirat province, all 77 hectares of eradication reported by verifiers were checked with satellite imageries and no over-reporting was confirmed, leading the final eradication figure to remain at 77 hectares.

4 Potential opium yield and production

4.1 Potential opium yield and production increased in 2013[11]

In 2013, estimated potential opium production in Afghanistan amounted to 5,500 tons (4,500-6,500 tons), an increase of 49% in comparison to its 2012 level (3,700 tons), whereas average opium yield amounted to 26.3 kilograms per hectare in 2013, which was some 11% more than in 2012 (23.7 kilograms per hectare).

The increase in production was mainly the result of an increase in opium cultivation. As in the previous year, adverse weather conditions in parts of the Western and Southern regions affected poppy plants, thereby reducing the yield in comparison to the relatively unaffected 2011 season (44.5 kilograms per hectare). In the Southern region, for example, the yield survey showed a reduction of more than 50% compared to 2011, though even greater reductions may have occurred in some parts of those regions. The yield survey has thus captured the effects of the adverse weather conditions at least partially.

In 2013, a total of 142 poppy fields were surveyed for the purpose of estimating opium yield. As in 2012, the yield survey was limited to low-risk areas where the security situation allowed access and enough time to carry out all measurements. This together with close supervision of field work ensured a very high degree of compliance with the yield survey protocol.[12] All yield data obtained in 2013, except for the data collected in Badakhshan, met the strict quality criteria introduced in 2011.

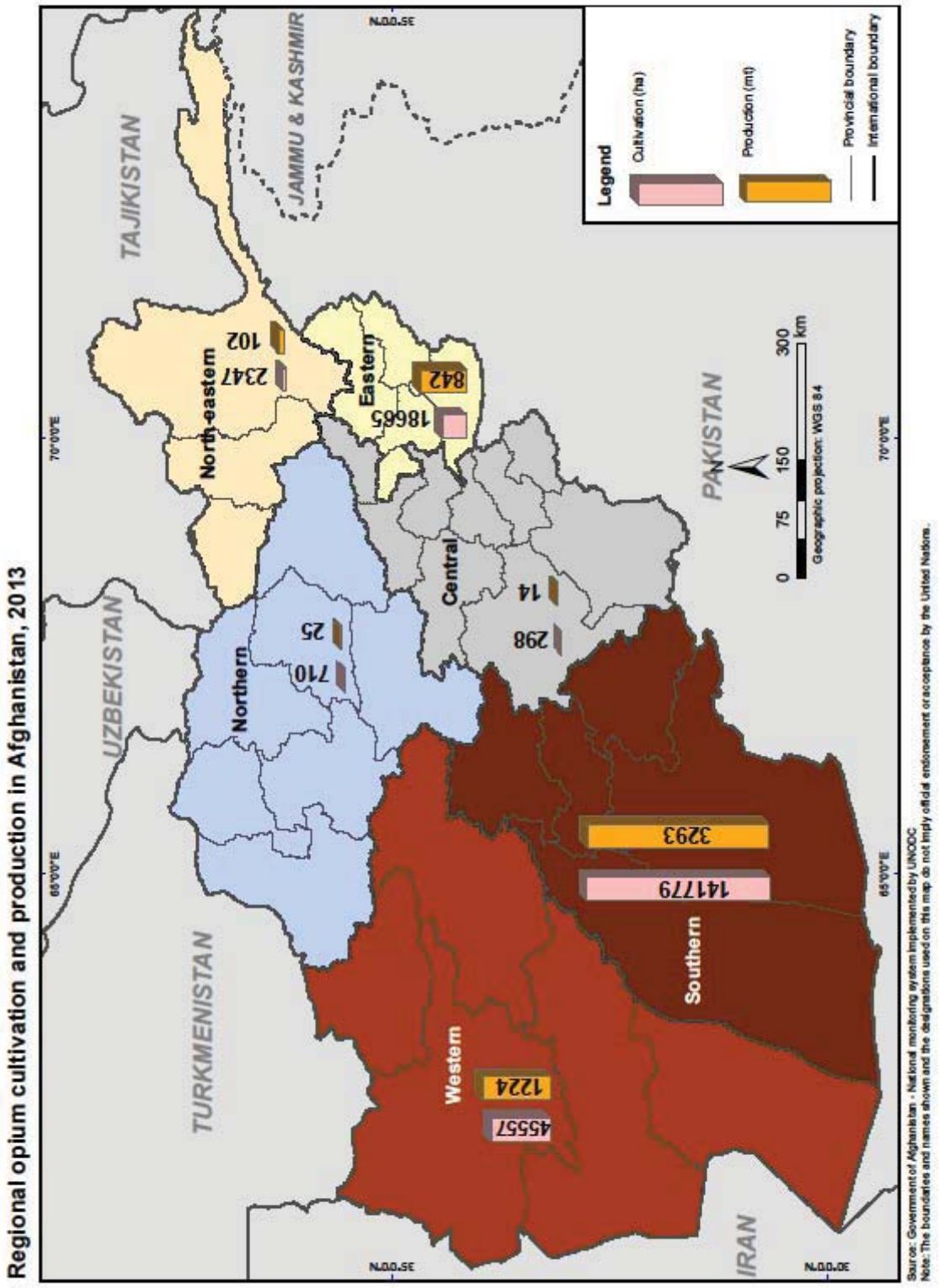
Table 18: Opium yield by region, 2012-2013[13] (Kilograms per hectare)

REGION	2012 average yield (kg/ha)	2013 average yield (kg/ha)	% Change
Central	33.9	48.5	43%
Eastern	38.6	45.1	17%
North-eastern	44.5	42.8*	-4%
Northern	39.4	34.7	-12%
Southern	22.6	23.2	3%
Western	23.5	26.9	14%
Weighted national average	**23.7**	**26.3**	**11%**

**In 2013, no high-quality data was available for the North-eastern region. The simple average of yields of Central, Eastern and Northern regions was taken as a proxy.*

Despite the reduced yield, the Southern region continued to produce the vast majority of opium in Afghanistan in 2013, representing 60% of national production. The Western region was the country's second most important opium-producing region (22%). The rest of the country contributed 18% of total opium production.

[11] "Potential production" is a hypothetical concept and not an estimate of the actual opium or morphine/heroin production. For more information, see UNODC *World Drug Report 2011*, p. 265.
[12] Published in UNODC *Guidelines for yield assessment of opium gum and coca leaf from brief field visits*, UN New York, 2001, ST/NAR/33.
[13] Yield estimates in this report are based on a concept of potential yield, i.e., the amount opium farmers can potentially extract from poppy capsules. Depending on local conditions and practices, this may differ from the amount actually harvested.



Source: Government of Afghanistan - National monitoring system implemented by UNODC
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Table 19: Opium production in Afghanistan 2009-2013, by province (Tons)

Province	Production 2009 (mt)	Production 2010 (mt)	Production 2011 (mt)	Production 2012 (mt)	Production 2013 (mt)	Change 2012-2013 (mt)	Change 2012-2013 (%)
Kabul	7	8	9	4	14	+10	261%
Khost	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Logar	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Paktya	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Panjshir	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Parwan	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Wardak	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Ghazni	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Paktika	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Central Region	**7**	**8**	**9**	**4**	**14**	**+10**	**261%**
Kapisa	Poppy-free	Poppy-free	7	11	26	+15	135%
Kunar	6	8	23	49	51	+1	3%
Laghman	5	12	25	34	56	+22	65%
Nangarhar	11	37	110	122	709	+588	483%
Nuristan	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Eastern Region	**21**	**56**	**166**	**216**	**842**	**+626**	**+290%**
Badakhshan	19	56	39	86	102	+16	+18%
Kunduz	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Takhar	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
North-eastern Region	**19**	**56**	**39**	**86**	**102**	**+16**	**+18%**
Baghlan	Poppy-free	Poppy-free	7	7	5	-2	-30%
Balkh	Poppy-free	Poppy-free	Poppy-free	Poppy-free	14	+14	NA
Bamyan	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Faryab	Poppy-free	Poppy-free	6	Poppy-free	6	+6	NA
Jawzjan	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Samangan	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Sari Pul	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Northern Region	**Poppy-free**	**Poppy-free**	**12**	**7**	**25**	**+18**	**254%**
Day Kundi*	176	46	48	24	36	+12	49%
Hilmand	4,085	1,933	3,044	1,699	2,339	+640	38%
Kandahar	1,159	768	1,308	550	658	+108	20%
Uruzgan*	540	218	511	237	229	-8	-3%
Zabul	67	14	13	10	31	+21	224%
Southern Region	**6,026**	**2,979**	**4,924**	**2,520**	**3,293**	**+774**	**31%**
Badghis	238	71	61	55	97	+41	74%
Farah**	545	349	536	651	658	+7	1%
Ghor	Poppy-free	Poppy-free	Poppy-free	3	7	+4	141%
Hirat	24	9	11	25	26	0	1%
Nimroz**	19	49	76	89	437	+347	388%
Western Region	**825**	**478**	**685**	**824**	**1,224**	**+400**	**48%**
Total	**6,900**	**3,600**	**5,800**	**3,700**	**5,500**	**1,800**	**49%**

Provinces are defined as poppy-free when they are estimated to contain less than 100 hectares of opium cultivation.

** In 2013, Gizab district of Day Kundi province was under the temporary administrative authority of the Governor of Uruzgan province who carried out 22 hectares of eradication in that district. For eradication reporting, those 22 hectares were included in the 352 hectares of eradication reported for Uruzgan. For calculating the net poppy cultivation, however, the official provincial boundaries were used, i.e. with Gizab being part of Day Kundi province.*

*** Estimates for Farah and Nimroz in 2012 and 2013 are not comparable due to administrative boundary changes. For 2013, the Dilaram area, previously a district of Farah province, was reintegrated into Nimroz province. This reversed a boundary change that happened in 2009, when the Dilaram area, which had previously been part of Nimroz, was moved into Farah province.*

Table 20: Potential opium production by region, 2012-2013 (Tons)

Region	Production 2012	Production 2013	Change 2012-2013 (%)
Central	4	14	261%
Eastern	216	842	290%
North-eastern*	86	102	17%
Northern	7	25	252%
Southern	2,520	3,293	31%
Western	824	1,224	48%
Total (rounded)	**3,700**	**5,500**	**49%**

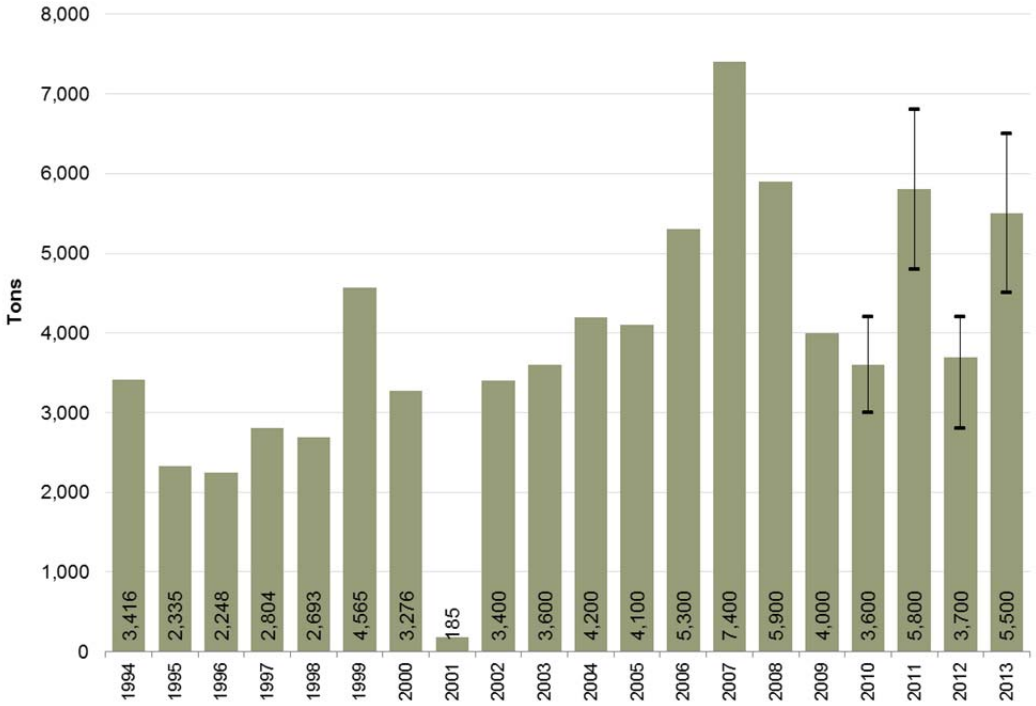
**In 2013, no high-quality data was available for the North-eastern region. The simple average of yields of Central, Eastern and Northern regions was taken as a proxy.*

Table 21: Potential opium production by region, with ranges, 2013 (Tons)

REGION	Best estimate	Lower bound	Upper bound
Central	14	12	17
Eastern	842	428	1,175
North-eastern*	102	74	126
Northern	25	20	29
Southern	3,293	2,514	4,079
Western	1,224	811	1,645
National	5,499	4,525	6,452
National (rounded)	**5,500**	**4,500**	**6,500**

**In 2013, no high-quality data was available for the North-eastern region. The simple average of yields of Central, Eastern and Northern regions was taken as a proxy.*

Figure 13: Potential opium production in Afghanistan, 1997-2013 (Tons)



Sources: UNODC and UNODC/MCN opium surveys, 1994-2013. The high-low lines represent the upper and lower bounds of the confidence interval of the estimates. Figures refer to oven-dry opium. Production figures for 2006 to 2009 have been revised, see UNODC/MCN Afghanistan opium survey 2012.

Based on information from 2010-2012 on the distribution of morphine and heroin seizures in Afghanistan and neighbouring countries, and assuming a 7:1 conversion ratio from opium to morphine/heroin, it can be estimated that out of every 100 kilograms of opium, 53 kilograms are converted into heroin and 47 kilograms are left unprocessed. For more details on the possible distribution of the 2013 potential opium production see the Methodology section.

The analysis of the morphine content of opium in Afghanistan's main growing region since 2010[14] indicates that the morphine content of opium may have decreased. A 7:1 ratio may therefore underestimate the amount of opium necessary to produce 1 kg of morphine or heroin. A review of this conversion ratio is currently being conducted.

The following table shows potential heroin/morphine production if 54% of opium is converted to morphine/heroin and if all potential opium production is to be converted to heroin. Due to the uncertainties around the 7:1 conversion factor from opium to morphine/heroin, the factor refers to morphine/heroin of unknown purity.

Table 22: Potential morphine/heroin production (of unknown purity) from Afghanistan opium, 2013

	If 54% of potential opium production converted (tons)	If total potential opium production converted (tons)
Morphine/heroin (of unknown purity)	421 (350-490)	786 (650-920)
Unprocessed opium	2,600 (2,100-3,000)	-

A 7:1 conversion ratio from opium to morphine/heroin is assumed. Ranges only refer to ranges of production, not to uncertainties in the conversion ratio.

[14] See Ministry of Counter Narcotics/UNODC (2011), *Afghanistan Opium Survey 2011*, p. 56.

Yield survey in Kabul province (Central region), 2013

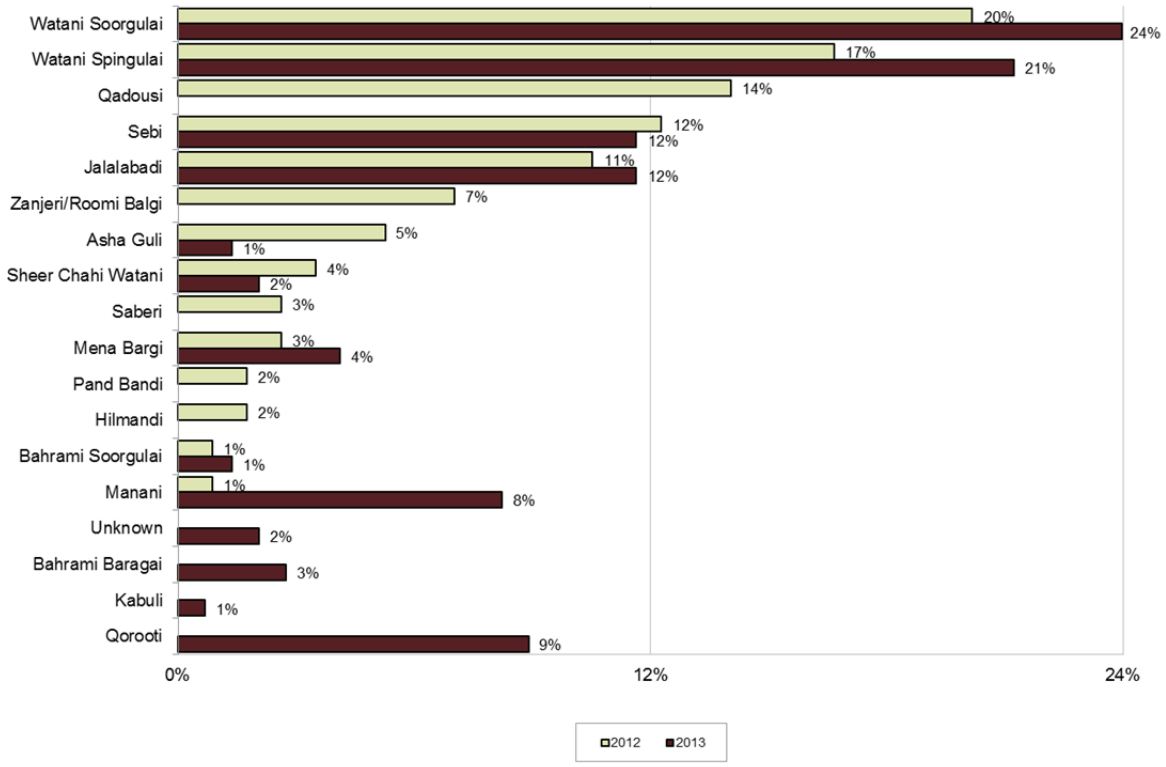
Yield survey in Hilmand province (Southern region), 2013

Affected opium poppy capsules in Western region, 2013

4.2 Opium poppy varieties

Farmers usually make their selection of poppy varieties in accordance with a variety's yield potential,[15] disease resistance, soil conditions, weather conditions that govern the plant's maturity date, and the need for inputs such as water, fertilizer and labour. As observed during the 2013 and 2012 yield surveys, *Watani Soorgulai* remained the most common variety reported by farmers (24% and 20%, respectively). The second most common variety planted in 2013 and 2012 was *Watani Spingulai* (21% and 17%, respectively). Other poppy varieties reported in 2013 were *Sebi* (12%), *Jalalabadi* (12%), *Qorooti* (9%), *Manani* (8%), *Mena Bargi* (4%), *Bahrami Baragai* (3%), *Bahrami Soorgulai* (1%) and *Kabuli* (1%). In 2008, *Sebi* was the most common variety reported (31.3%).

Figure 14: Opium poppy varieties reported by farmers in 2012 and 2013 (as percentage of farmers' responses)



[15] A separate study aimed at developing an inventory of opium poppy varieties in Afghanistan was carried out in 2007 with the assistance of botanists. The results are summarized in the *Afghanistan Opium Survey 2007*, published by UNODC.

5 Results of the socio-economic survey

5.1 Socio-economic survey 2013

With the objective of collecting information on socio-economic conditions in rural areas, a total of 1,497 villages were sampled in 2013, of which 1,407 (1,481 in 2012) were surveyed in 342 districts across all provinces. The remaining villages did not respond or could not be accessed by those conducting the survey.

Structured interviews were conducted with 1,407 headmen and 4,221 farmers. In each village, three types of farmer were sought for interview: one opium-growing farmer; one who had ceased opium cultivation; and one who had never grown opium. In poppy-free villages, less than three farmers were interviewed.

The following data were collected for all villages surveyed:

- Extent of cultivation of opium and other crops
- Total number of households/inhabitants living in the village
- Total number of households growing opium
- Farmer estimates of wheat and opium yield
- Wheat and opium prices
- Financial status of farmers
- Reasons for cultivation/non-cultivation of opium

5.2 Access to markets

In 2013, farmers in all the villages sampled were asked about the distance to their most commonly used market, the travel time to that market and their respective means of transport (2,719 out of 4,439 farmers, or 61%, responded). The survey neither attempted to verify the distances reported nor the poppy-growing status of the village, so the analysis was exclusively based on the information provided by the farmers.

The questions were asked in order to gain a better understanding of the relationship between opium cultivation and access to markets, as farmers in Afghanistan usually have to transport their licit crops to agricultural markets in order to sell them. Opium, however, is commonly bought by traders directly at the farm-gate.

As in 2012, the analysis concentrated on the main poppy-cultivating regions (Eastern, Southern and Western). In contrast to previous years, at the national level, the survey did not find any statistically significant difference between the distance to markets of poppy-growing villages and non-poppy-growing villages. A reason for that could be increasingly widespread poppy cultivation.

In the Eastern region, the situation was different: poppy-growing villages in 2013 were significantly further away from markets, making it more difficult for farmers in those villages to market licit cash crops, thus increasing the appeal of opium, which can be sold easily at the farm gate.

Table 23: Estimated average distance of villages to markets in the three main poppy-cultivating regions, reported by farmers, 2013 (Kilometres)

Region	Non-poppy-growing villages (km)	Poppy-growing villages (km)	Total (km)
Eastern*	14	28	21
Southern**	25	27	26
Western**	33	28	31
Average	**26**	**27**	**27**

**Test for significance revealed a statistically significant greater distance to markets for poppy-growing villages at 0.01 level. ** Tests for significance revealed no statistically significant difference between poppy-growing villages and poppy-free villages.*

When asked about the means of transport used to reach the market, the vast majority of headmen reported car/bus (73%), which was followed at some distance by donkey (15.5%), walking (11.2%) and bicycle (0.3%). These percentages are consistent with those reported in 2012.

Table 24: Means of transport and average travel time to market, reported by headman, 2013

Transport type	Percentage of headmen	Average travel time in hours
Bicycle	0.3 %	1.2
Car/Bus	73 %	1.1
Donkey	16 %	3.0
Walking	11 %	1.9
Average	**100%**	**1.5**

National average of all headmen interviews in all regions.

5.3 Opium poppy cultivation, access to basic development facilities and agricultural assistance

5.3.1 Access to basic facilities[16]

When comparing poppy-free villages with poppy-growing villages, several important differences can be noted. Testing for statistical significance revealed that certain facilities (such as schools) are more likely to be found in villages without poppy cultivation than in villages with poppy cultivation. Results also show that, in the main opium-growing provinces, opium is more likely to be cultivated in villages with less access to basic development facilities.

All village headmen were interviewed on the status and availability of basic development facilities in their villages. Information was gathered about access to electricity, medical facilities, off-farm employment opportunities, a boys' school and a girls' school.

According to village headmen, around 83% of the villages had access to a boys' school and 60% to a girls' school. A smaller percentage (between 10 and 30%) had access to electricity, a medical centre and off-farm employment opportunities. In the three main poppy-growing regions (Eastern, Southern and Western), differences between poppy-growing and non-poppy-growing villages were analysed. Poppy-free villages were more likely to be connected to the power grid, to have a clinic and to have access to schools.

[16] Surveyors did not formally verify the information provided by headmen or farmers.

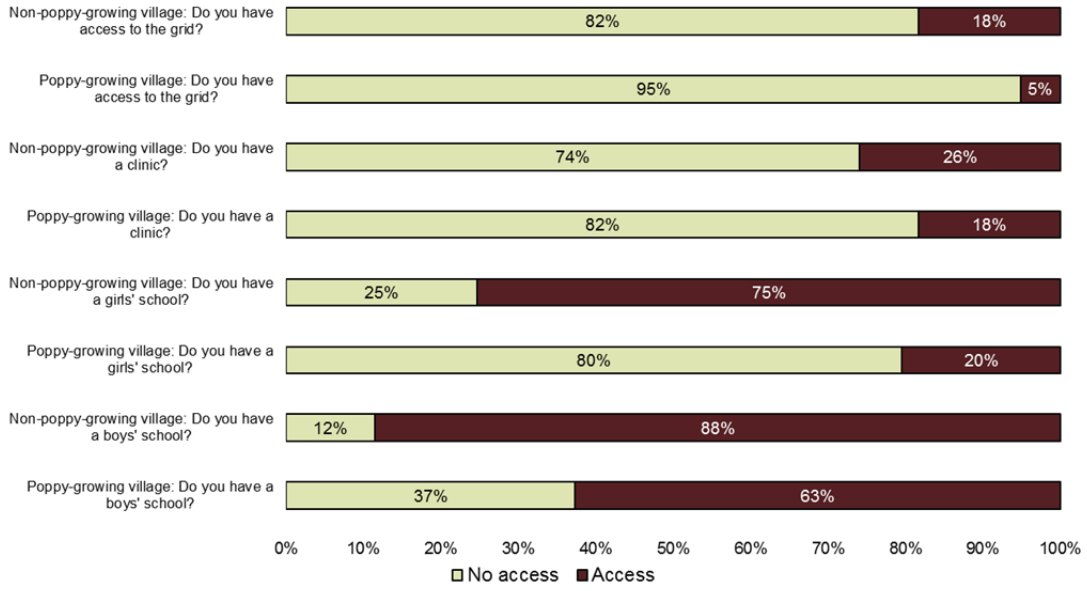
Table 25: Village-level access to facilities and other features, 2013

Access to/feature	Percentage of total villages
Boys' school	83%
Girls' school	60%
Medical centre	29%
Off-farm employment	19%
Power grid	12%

There is a marked difference in access to schools between poppy-growing and non-poppy-growing villages. While 88% of non-poppy-growing villages have a boys' school and almost three quarters a girls' school, these proportions drop to 63% (boys' school) and 20% (girls' school) in poppy-growing villages. This confirms the results of the previous year and shows an alarming situation in which the negative long-term effect of children having less access to education than their age-mates elsewhere, and the absence of schools for girls in three quarters of poppy-growing villages, in particular, limits the development of poppy-growing areas.

Access to the power grid was very limited overall (only 12% of villages reported having access), but poppy-growing villages were again significantly less likely to have access to the grid than non-poppy-growing villages.

Figure 15: Access to a boys' school, a girls' school, access to the power grid and clinic in Eastern, Southern and Western regions, by poppy-growing status, 2013

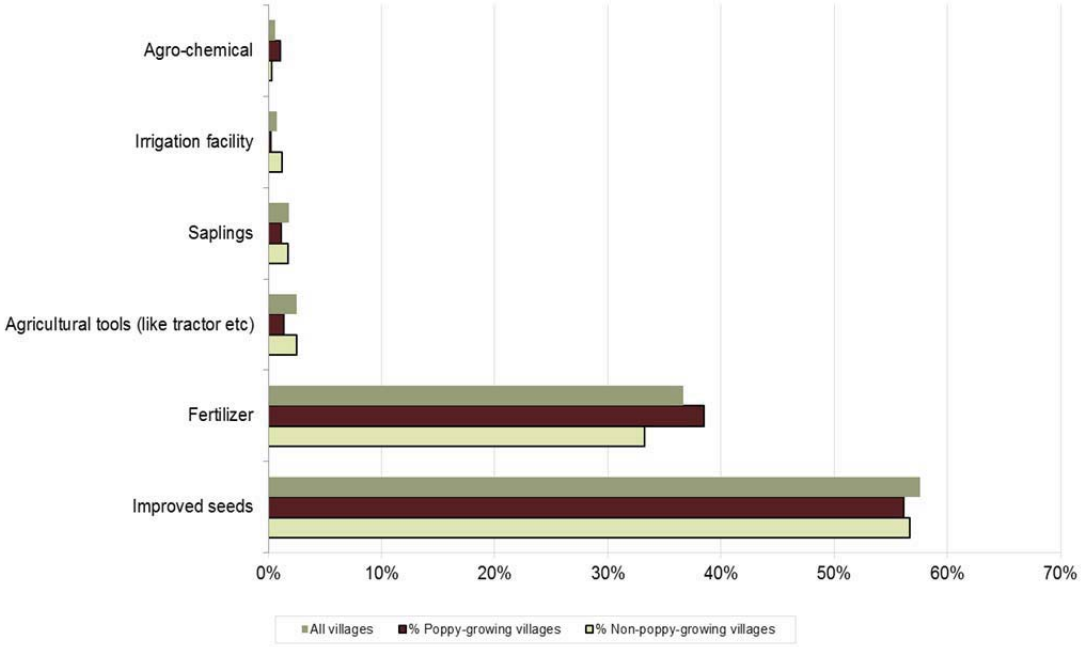


Differences are significant at the 0.01 level for boys' schools, girls' schools and access to the power grid. There was no statistical significant difference for access to clinics.

5.3.2 Agricultural assistance

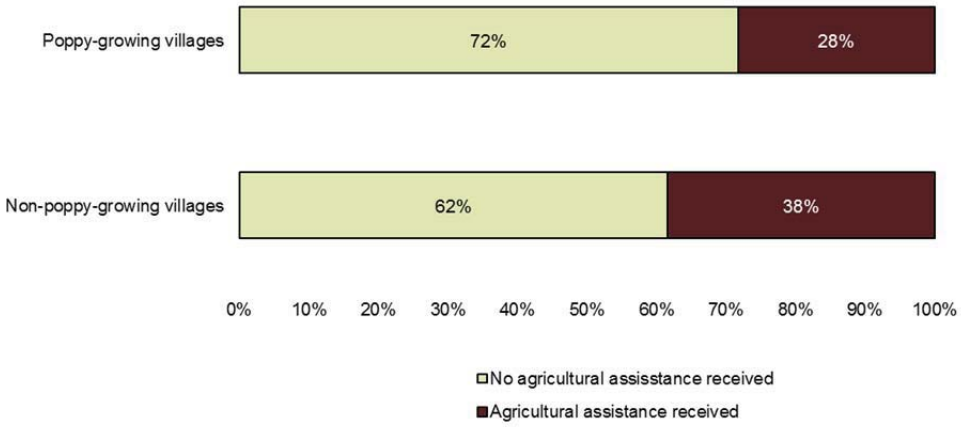
In the 12 months prior to the interview, 38% of all villages in Afghanistan received some form of agricultural assistance. Village headmen reported the type of assistance received, which included improved seeds (57% of receiving villages), fertilizers (37% of receiving villages), and irrigation facilities (1% of receiving villages). Only 3% received agricultural tools and 2% received saplings.

Figure 16: Type of agricultural assistance delivered to villages in the 12 months prior to the interview, as reported by headmen, 2013



Prior to 2013, the data showed a statistically significant nationwide association between growing poppy and not receiving agricultural assistance. The relationship was quite strong and suggested that, at the village level, the provision of agricultural assistance may influence whether poppy is grown or not. In 2012 and 2013, the difference was not as pronounced as in 2011, in particular when concentrating on the main poppy-cultivating regions. This may have been due to increased efforts to build alternative livelihoods in poppy-cultivating areas, but it could also have been caused by increasingly widespread poppy cultivation.

Figure 17: Percentage of villages in Eastern, Southern and Western regions that received agricultural assistance, by poppy-growing status, 2013



5.4 Poppy and cannabis cultivation are closely related

Cannabis cultivation continues to be closely related to poppy cultivation. This association had been observed in previous opium surveys and in cannabis surveys undertaken by UNODC/MCN, and it held true in 2013, at both the village and the farmer level.

Some 38% of poppy-growing villages (out of 543) reported cannabis cultivation, while only 5% of non-poppy-growing villages reported it (out of 864). This phenomenon has been consistent since it was first addressed in the 2009 survey, and these findings are supported by UNODC/MCN cannabis surveys, which have shown a clear association between opium and commercial cannabis cultivation at the provincial level.

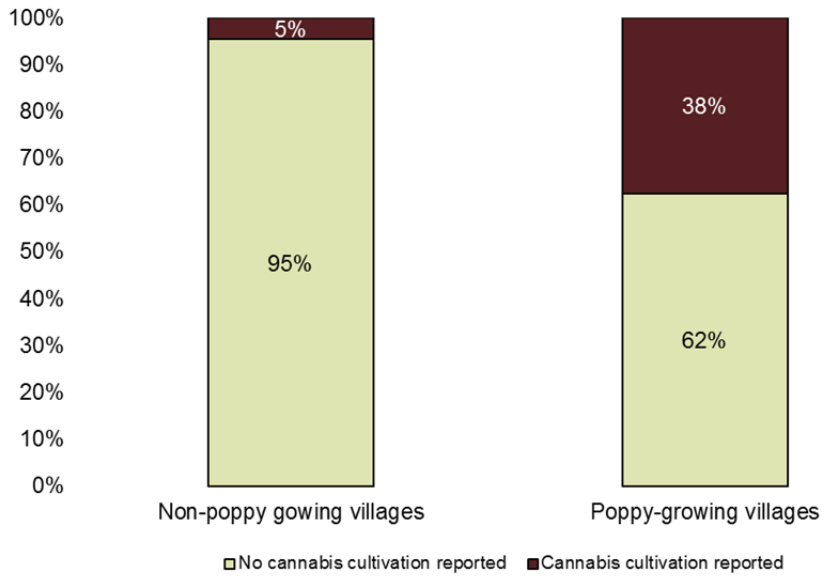
This strong relationship also holds at the farmer level. Some 18% (765) of all farmers interviewed reported having cultivated cannabis in the 2012 season, which precedes the opium cultivation season. Some 44% of all poppy-growing farmers reported cannabis cultivation (only 11% in 2012), while 14% of non-poppy-growing farmers reported it (2% in 2012).

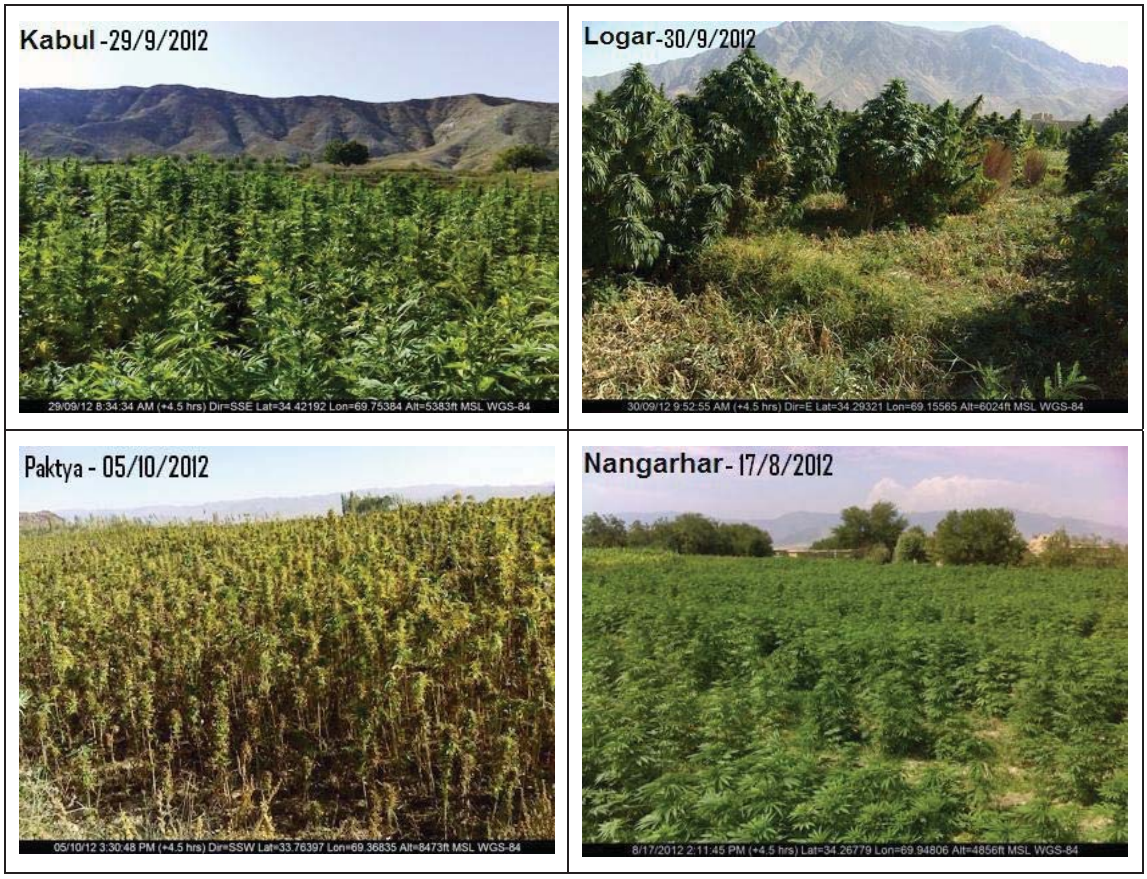
Table 26: Cannabis cultivation in preceding season, by type of farmer, 2013

Type of farmer	Total number of farmers interviewed	Farmers who grew cannabis in 2012	Percentage of cannabis-growing farmers
Non-poppy-growing farmers*	3,639	511	14%
Poppy-growing farmers	582	254	44%
Grand total	4,221	765	18%

** Includes farmers who had never grown poppy and those who had ceased poppy cultivation.*

Figure 18: Proportion of cannabis-cultivating in villages, by poppy-growing status, 2013





Cannabis fields in different provinces, 2012

5.5 Reasons for cultivating opium poppy

The high sale price of opium continued to be the most important reason for cultivating opium poppy cited by poppy farmers in 2013 (72%), as in 2012 (44%). High income from little land, improving living conditions, and the provision of basic food and shelter for the family were other important reasons given by farmers.

In 2013, farmers who had ceased cultivating opium in 2013 or before were asked about their major reasons for doing so. Religious belief (opium cultivation being against Islam) was mentioned by 18% of respondents in 2013 and 16% in 2012, making it the most frequently cited reason for ceasing opium cultivation. The government ban on opium cultivation was the second most cited reason (15%) in 2013, while disease, not enough yield, fear of the Government, and eradication were also important factors (12%, 10% and 8%, respectively).

A major change when compared to 2012 was ceasing opium cultivation out of the fear of plant disease, with only 12% of farmers reporting that they ceased for that reason in 2013, compared to 1.2% in 2012. The relatively high proportion of farmers citing plant disease in 2013 seemed to reflect their experience, or at least knowledge, of the widespread disease that affected opium poppy in 2010 and 2012. Elders and Shura decision, not enough yield, lack of water, opium's harmful effect on humans, and the small size of land holdings were the other reasons mentioned for ceasing opium cultivation.

In both 2012 and 2013, religious belief was the principal reason for never having cultivated opium poppy. In 2013, some 59% of farmers who had never grown opium (60% in 2012) reported that they did not do so because it is forbidden (*haraam*) by Islam. The government ban and opium's harmful effect on humans were the other main reasons for never cultivating opium poppy.

Figure 19: Reasons for cultivating opium, 2012-2013 (n=396 farmers in 2012)

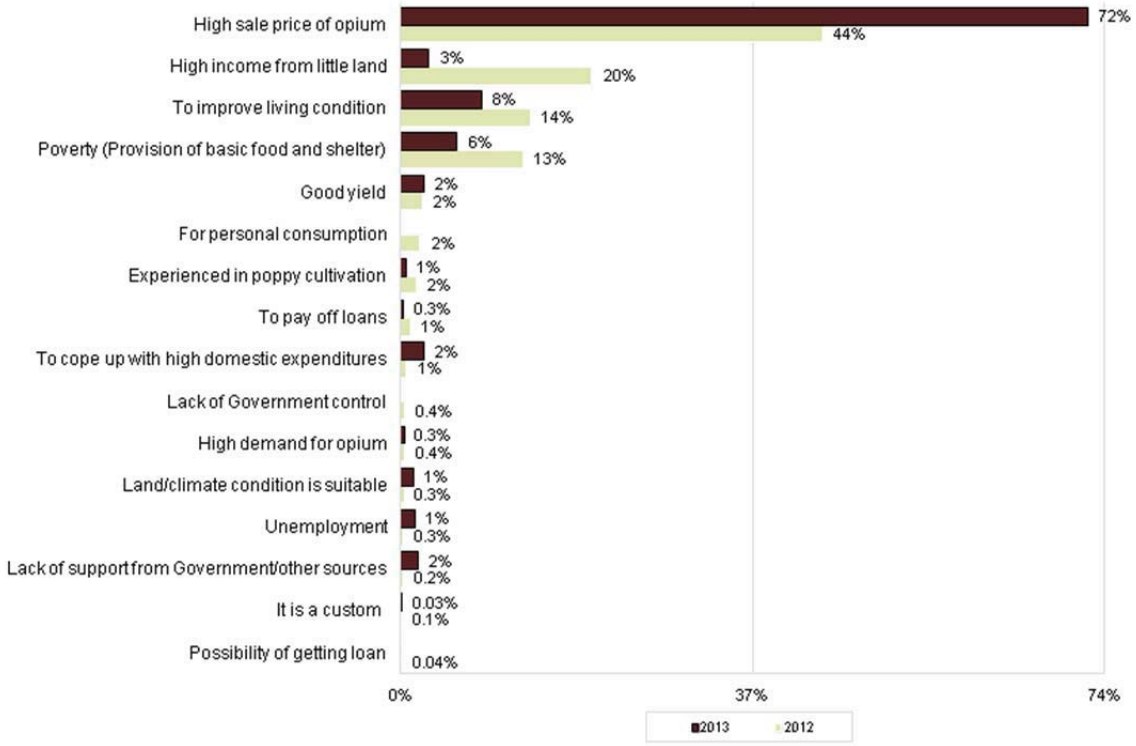


Figure 20: Reasons for ceasing opium cultivation in or before 2012-2013 (n=1,071 farmers in 2012)

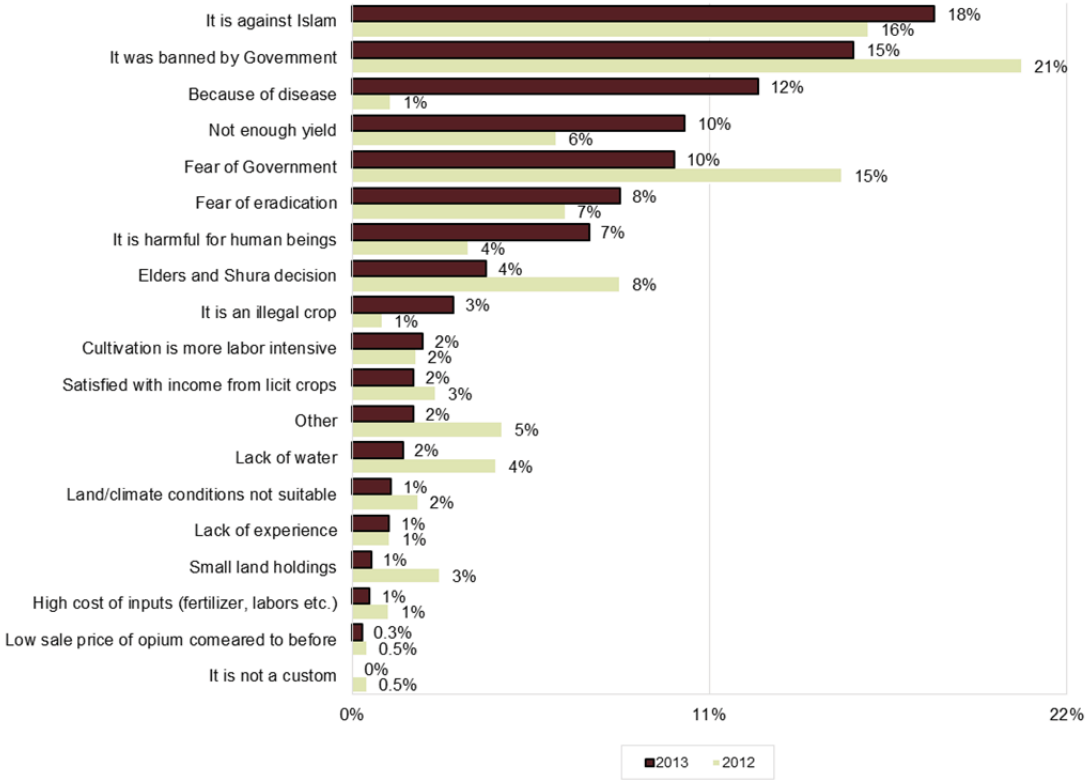
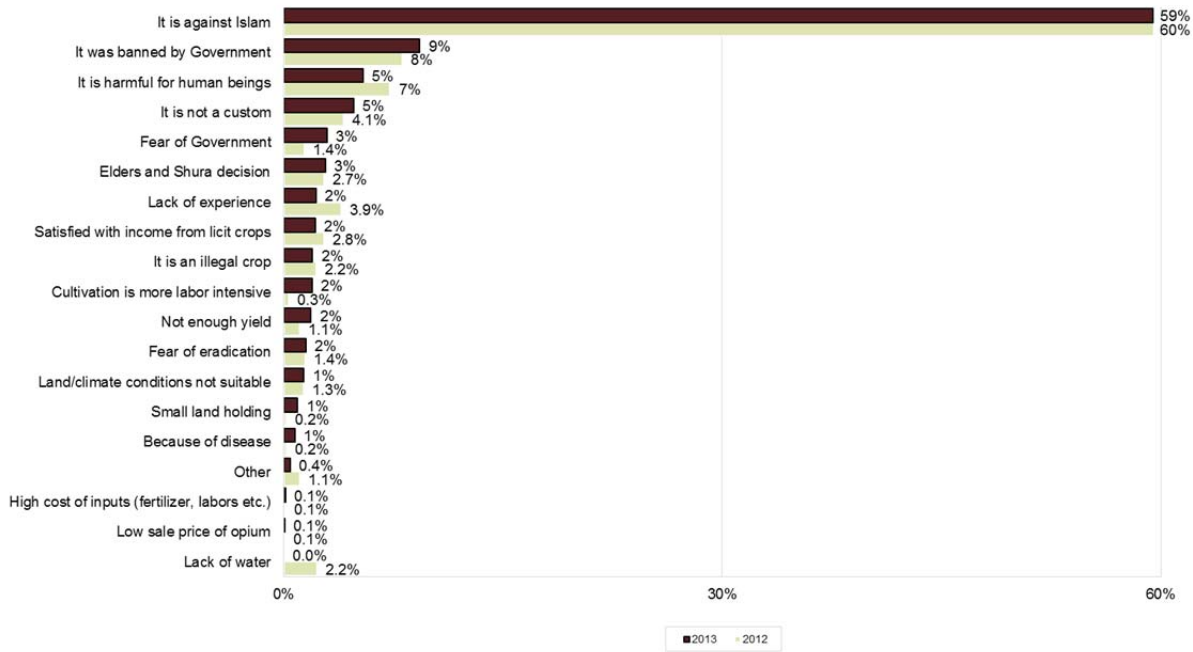


Figure 21: Reasons for never cultivating opium in 2012-2013 (n=2,962 farmers in 2012)



5.6 Daily wages for opium lancing

Extra labour is needed for opium lancing. Under normal conditions, three people can harvest (lance) 1 *jerib* (0.2 hectares) of opium poppy in 21 days. If all harvesting had taken place at the same time, a total of 3.3 million person-days would have been needed to reap the entire 2013 opium harvest in Afghanistan.

In 2013, although there was a decrease in daily labour wages in the country in comparison to 2012 in US dollar terms, the daily wage for opium lancing/gum collection remained higher than other daily wages. Average daily wages for lancing and wheat harvesting went down to US$ 9.8, US$ 5.9 per day from US$ 11.7 and US$ 6.4, respectively, in 2012.

Local wages were reported in a number of different currencies, including Afghanis, Pakistani rupees and Iranian rials, which complicates a year-on-year comparison: between 2012 and 2013, the US dollar increased in value against the Afghani and the Pakistani rupee by around 9%, whereas its value increased dramatically against the Iranian rial, which faced a currency crisis due to international sanctions.

Table 27: Daily wage rates for different activities in Afghanistan, 2010-2013

Activity	Daily wage rate (US$)				Change 2012 - 2013
	2010	2011	2012	2013	
Labour (roads, construction, etc.)	4.7	5.6	5.7	5.6	-2%
Lancing / gum collection	9.3	12.6	11.7	9.8	-16%
Poppy weeding	5.4	6.6	5.7	6.2	9%
Wheat harvesting	5.4	6.6	6.4	5.9	-9%

5.7 Outstanding loans

It is important to understand the financial status of farmers in order to appreciate their reasons for cultivating opium and the dynamics of opium cultivation in Afghanistan. To that end, as part of the annual village survey, farmers were asked if they had any outstanding loans.

In 2013, 33% of farmers reported having outstanding loans (37% of farmers reported having outstanding loans in 2012), but the average[17] size of those loans per farmer decreased by 13%, to US$ 957 from US$ 1,106. This decrease was most pronounced among opium farmers and farmers that had never grown opium, who reported respective average loan amounts some 36% and 19% lower than in 2012. However, there was an 18% increase in the average size of loan (from US$ 935 in 2012 to US$ 1,107) among households that had ceased growing opium. Another observation in 2013 was that households which had ceased growing opium reported a higher average loan amount (US$ 1,107) in comparison to households that had never grown opium (US$ 928),which had never been the case in previous years.

Table 28: Average amount of outstanding loans in US$ per household and percentage of farmers with a loan (%), 2010-2013

	2010		2011		2012		2013	
	Amount	%	Amount	%	Amount	%	Amount	%
Opium farmers	1,029	31%	976	41%	1,298	18%	837	29%
Ceased cultivation	1,053	43%	1,097	43%	935	37%	1,107	39%
Never cultivated	1,043	41%	1,097	41%	1,145	40%	928	32%
All farmers	1,046	41%	1,085	41%	1,106	37%	957	33%

[17] Average size of loan calculated for farmers with current loan.

5.8 Income of farming households

Opium is a cash crop in Afghanistan. While it is interesting to understand the economic importance of opium at the household level, it is also important to understand which other sources of cash income rural households generate in addition, or as an alternative, to opium cultivation. The opium village survey investigates those two issues by looking at differences in the income patterns of rural households and the relative importance of different income sources. The survey is designed to investigate general differences between opium-growing and non-opium-growing households, but it cannot explain how successful or unsuccessful specific income strategies are.[18]

On average, poppy-growing households in Afghanistan have had a higher cash income than households that do not grow poppy. In 2013, however, the average income of poppy-growing households and of those that had ceased poppy cultivation appeared to be on similar levels, with a pronounced difference from households that have never cultivated poppy.

In 2011, reported household income of poppy-cultivating households in the South was very high, probably due to the very high opium prices in that year. In 2012, the average income was much more balanced across regions.

Table 29: Reported average 2011 and 2012 annual household income, by region and by opium-growing status (Data collected in 2012 and 2013, respectively)

	Opium farmers (US$)	Opium farmers (US$)	Farmers ceased growing opium(US$)	Farmers ceased growing opium (US$)	Farmers never grown opium (US$)	Farmers never grown opium (US$)
REGION/ YEAR	**2011**	**2012**	**2011**	**2012**	**2011**	**2012**
Central	NA	4,121	NA	3,470	NA	4,068
Eastern	3,282	3,469	3,144	3,396	2,985	3,393
North-eastern	NA	3,113	NA	4,164	NA	4,361
Northern	NA	4,928	NA	5,605	NA	3,481
Southern	6,373	4,247	4,912	4,141	2,912	3,664
Western	3,685	3,347	2,317	3,428	2,153	3,172
National	**5,478**	**4,028**	**3,865**	**4,044**	**2,631**	**3,704**

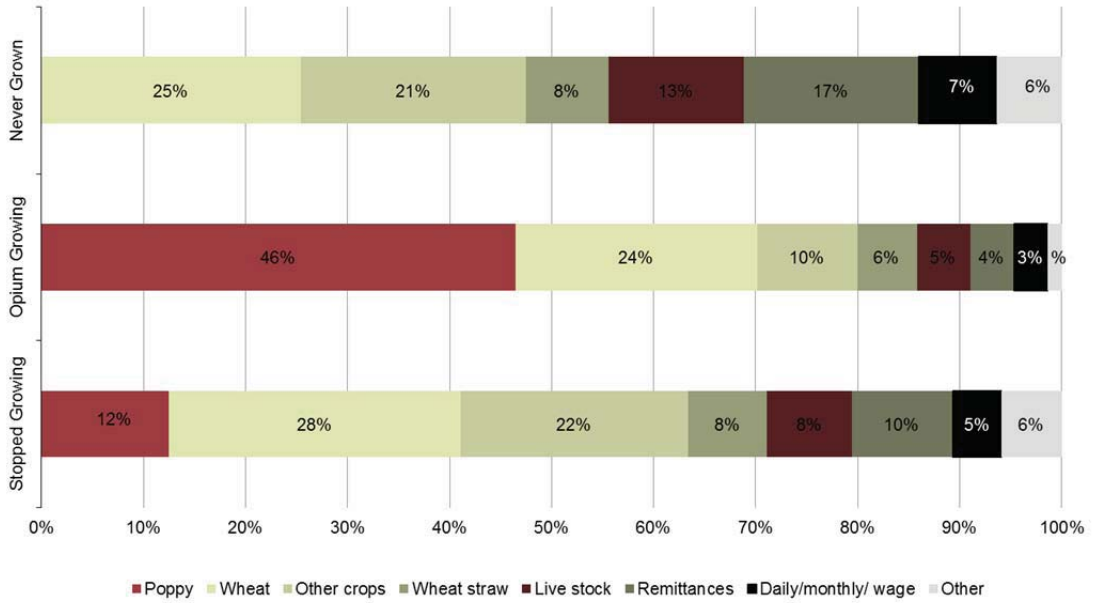
In 2012, Central, Northern and North-eastern regions were not analysed because of a low number of opium-growing villages in the sample.

Before 2011, farmers used to report that about a third of their household income came from wheat; a proportion that was relatively stable over the years. In 2011 and 2012, however, there was a trend towards a slight reduction in the importance of wheat income (26% in 2011 and 25% in 2012), and the importance of other crops (16% and 19%) and poppy made slight gains in their proportions of overall income.

The main difference between opium-growing and non-growing households remains the composition of the cash component. While opium-growing households have little cash income from sources other than opium, non-opium-growing households rely heavily on wage labour and remittances. A possible explanation for the low importance of wage labour for opium-growing households could be a trade-off between wage labour and opium: labour-intense opium cultivation may already absorb considerable man-power, which is then no longer available for wage labour.

[18] The survey relies on reported income, which is difficult to measure. While the absolute income figures reported may not always be reliable or complete, the proportions of different income sources are thought to be reliable enough to understand their relative importance and general differences between opium-growing and non-growing households at an aggregated level. Income in this context refers to the value of all products produced or cash income received in the previous 12 months, including products used for own consumption, such as wheat.

Figure 22: Proportion of different 2012 income sources, by type of farmer (data collected in 2013)



The relatively high importance of remittances for households that had ceased opium cultivation (10%), and an even higher one for those that had never grown opium (17%) is striking. It could indicate that suitable alternative cash income sources are still not sufficiently available within the country as a whole, let alone close to home.

Table 30: Sources of 2012 income for all farmers, by region (Reported in 2013)

REGION	Daily/monthly/ wage	Live-stock	Other	Other crops	Poppy	Remittances	Renting	Wheat	Wheat straw
Central	11%	15%	10%	12%	3%	27%	4%	11%	6%
Eastern	18%	14%	4%	13%	9%	17%	4%	16%	5%
North-eastern	2%	20%	2%	22%	2%	5%	2%	29%	16%
Northern	10%	12%	1%	13%	4%	15%	1%	33%	10%
Southern	1%	4%	4%	29%	22%	2%	0%	32%	6%
Western	5%	12%	2%	15%	15%	14%	3%	30%	5%
Grand total	**6%**	**10%**	**5%**	**19%**	**12%**	**12%**	**2%**	**25%**	**7%**

6 The opiate economy

6.1 Opium prices

In 2013, opium prices remained high but decreased slightly in all regions of Afghanistan, making this the second year to show a decreasing trend since the price hike caused by the 2010 poppy disease.

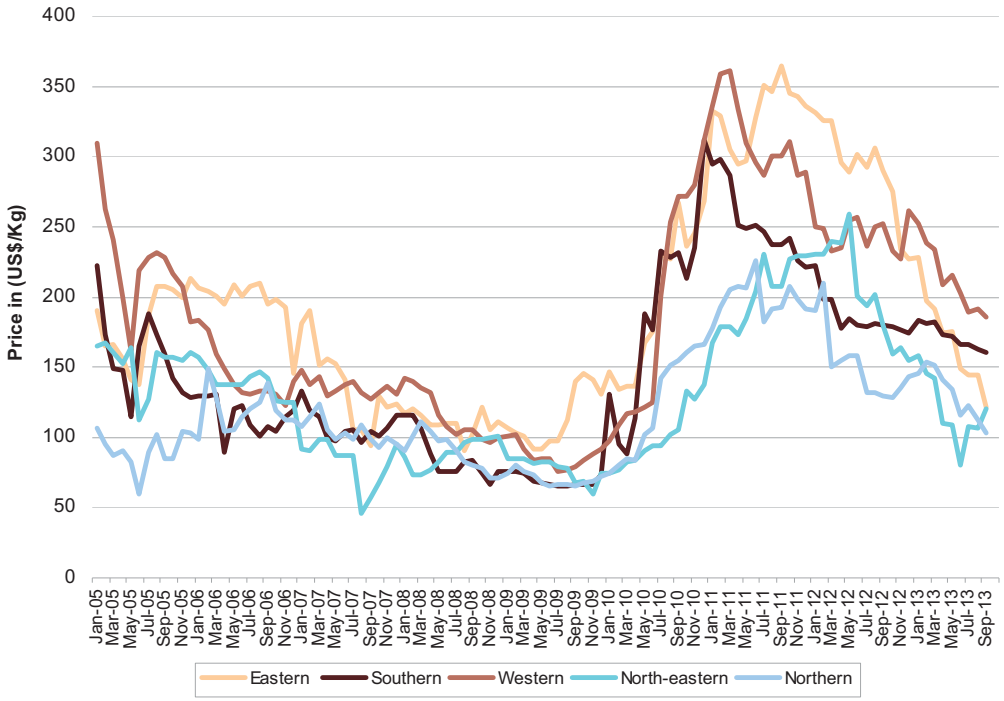
MCN/UNODC has monitored opium prices in selected provinces of Afghanistan on a monthly basis since 1994 (18 provinces as of September 2011). In 2008/2009, opium prices were at a low level but increased after that, most noticeably in the Eastern, Southern and Western regions, before reaching a maximum in 2011 after the unusually poor harvest caused by a disease of the opium poppy.

In 2011, opium prices started to decrease around harvest time in some regions but remained volatile and at a higher level than in any year since 2005 (in absolute terms, not adjusted for inflation). This decrease can be explained by the relatively good 2011 harvest, since when reported opium prices have shown a decreasing trend in all regions, with an overall decrease of 12% between October 2012 and October 2013. Dry opium prices reported by traders showed the same decreasing trend in all regions, with an overall decrease of 24% in the same period.

Table 31: Regional farm-gate prices of dry opium at harvest time, reported by farmers through the price-monitoring system, 2012-2013 (US dollars per kilogram)

Region	Average dry opium price (US$/kg) 2012	Average dry opium price (US$/kg) 2013	Change 2012-2013 (%)
Central	196	221	13%
Eastern	291	171	-41%
North-eastern	182	89	-51%
Northern	151	109	-28%
Southern	173	161	-7%
Western	245	209	-15%
National average weighted by production*	**196**	**172**	**-12%**

Figure 23: Regional average price of dry opium reported by traders, January 2005-October 2013 (US dollars per kilogram)

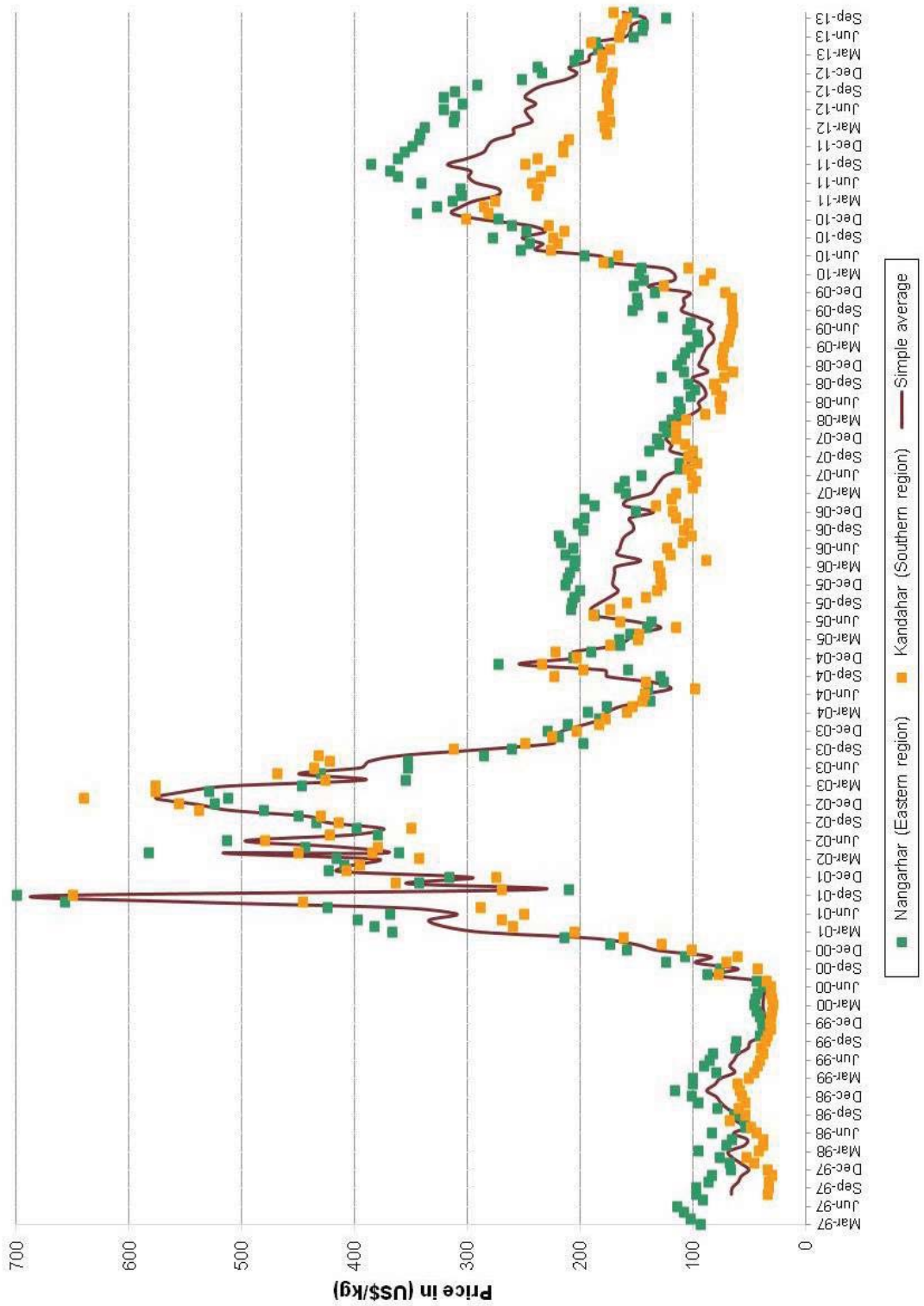


Source: MCN/UNODC Monthly Price Monitoring System

Table 32: Prices of dry opium reported by traders, by region, October 2012-October 2013 (US dollars per kilogram)

REGION	Regional average price (US$/kg) October 2012	Regional average price (US$/kg) October 2013	Change 2012-2013 (%)
	Trader	Trader	
Eastern region (Kunar, Laghman, Nangarhar)	275	145	-47%
Southern region (Hilmand, Kandahar)	179	171	-5%
Western region (Badghis, Farah, Ghor, Hirat, Nimroz)	233	190	-18%
North-eastern region (Badakhshan, Takhar)	159	122	-23%
Northern region (Balkh, Faryab, Kunduz)	128	107	-16%
Average	**195**	**147**	**-24%**

Figure 24: Monthly prices of dry opium in Kandahar and Nangarhar province, as collected from March 1997 to October 2013 (US dollars per kilogram)



Source: MCN/UNODC Monthly Price Monitoring System

6.2 Opium prices and currency conversion

The MCN/UNDOC price monitoring system collects prices in three different local currencies: Afghan afghani (AFN) in the Northern region, North-eastern region and parts of the Western region; Pakistani rupees (PKR) in the Eastern and Southern regions; and Iranian tuman (TMN) in parts of the Western region (see Table 33).

To obtain a national average, prices are first converted to US dollars (US$) using exchange rates from *oanda.com* on the day of collection. The national average price of dry opium presented in the reports is simply the average of all observations in US dollars (see Figure 23).

Table 33: Overview of provinces and currencies used in the MCN/UNODC price monitoring system

Prices collected in Pakistani rupees (PKR)	Prices collected in Afghan afghani (AFN)	Prices collected in Iranian tuman (TMN)
Hilmand, Kandahar, Kunar, Laghman, Nangarhar, Uruzgan, Zabul	Badakshan, Badghis, Baghlan, Balkh, Faryab, Ghor, Kunduz, Takhar	Farah, Hirat, Nimroz

Source: MCN/UNODC

For practical reasons, as well as for the reasoning that high-level traffickers may use them in their transactions, US dollars are used as the common denomination. Converting currencies can, however, lead to a distortion in trends, particularly when there is a marked change in the value of one currency in comparison to another. Over time, this may lead to an over- or under-representation of price developments.

For the purposes of the following analysis, the time frame January 2009-August 2013 is used; a period that covers the price hike which followed the 2010 poppy crop failure.

6.2.1 Iranian currency crisis

Figure 25 shows average prices of dry opium in the local currencies in which they were collected, whereas in Figure 26 those prices are converted to US dollars. In Figure 25, AFN and PKR prices present a very similar trend, though at different scales due to different exchange rates. Prices collected in TMN, on the other hand, increased very strongly after July 2012, a time at which prices in the other currencies had started to decline again. When looking at the same time series converted to US dollars, in Figure 26, one can see that after conversion to US dollars all three time series followed a similar trend.

In time period under consideration, the three currencies used in Afghanistan were subject to a change in their US dollar value. Figure 27 shows the exchange rates of US dollars to local currency units, with the exchange rate to Iranian tuman (TMN), because of its scaling, depicted on the secondary axis.

Most noticeable is that the TMN lost about two-thirds of its value, which was due to economic sanctions that curbed Iran's ability to export oil and conduct financial transactions. The Pakistani rupee (PKR) and the Afghan afghani (AFN) experienced fluctuations in their US dollar value, as well, although to a lesser extent. In January 2009, US$ 1 was worth PKR 79.04, in August 2013 it was worth PKR 102.85 (a 25% increase). In the same time period, the AFN first appreciated in relation to the US dollar before depreciating: in July 2010, the exchange rate was at its lowest at US$ 44.80, and at its highest in August 2013 at US$ 56.57, the last month in the time period under consideration. These developments only relate to exchange rates, however, with inflation not being taken into consideration.

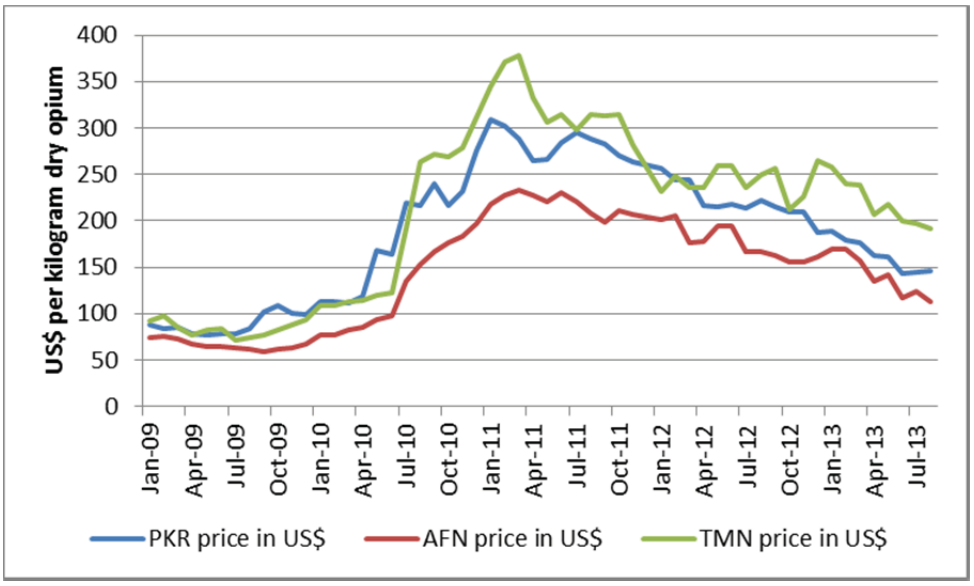
Interestingly, as far as prices paid in TMN are concerned, traders followed the currency devaluation by paying higher prices in TMN in the time period considered: the more TMN they needed to purchase US$ 1 (left axis), the more TMN farmers were paid per kilogram of dry opium (see Figure 28).

This explains why all three price time series in US dollars follow a similar trend while, in local currencies, the prices paid in TMN skyrocketed from mid-2011 onwards. The same holds when converting all prices into either PKR or AFN.

Figure 25: Local currency units (AFN, PKR and TMN) per kilogram of dry opium, 2009 to 2013

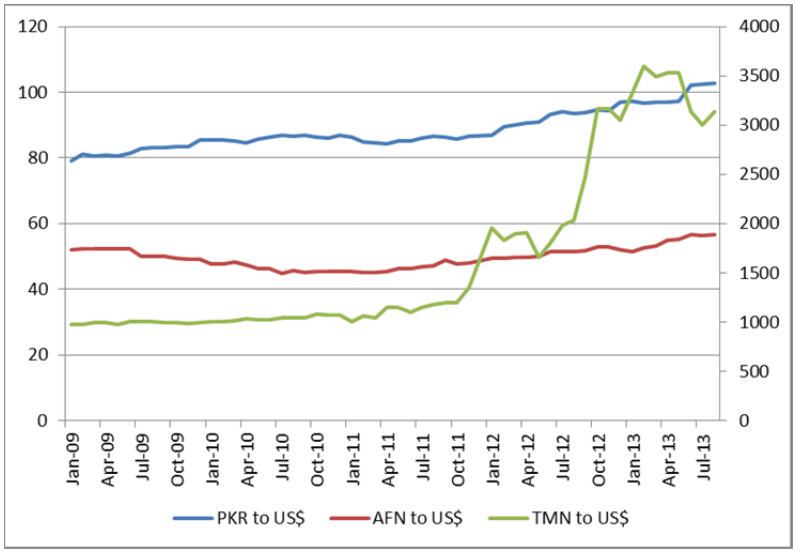
Source: MCN/UNODC price monitoring system.

Figure 26: Prices in US dollars per kilogram of dry opium, by underlying currency (2009 to 2013)



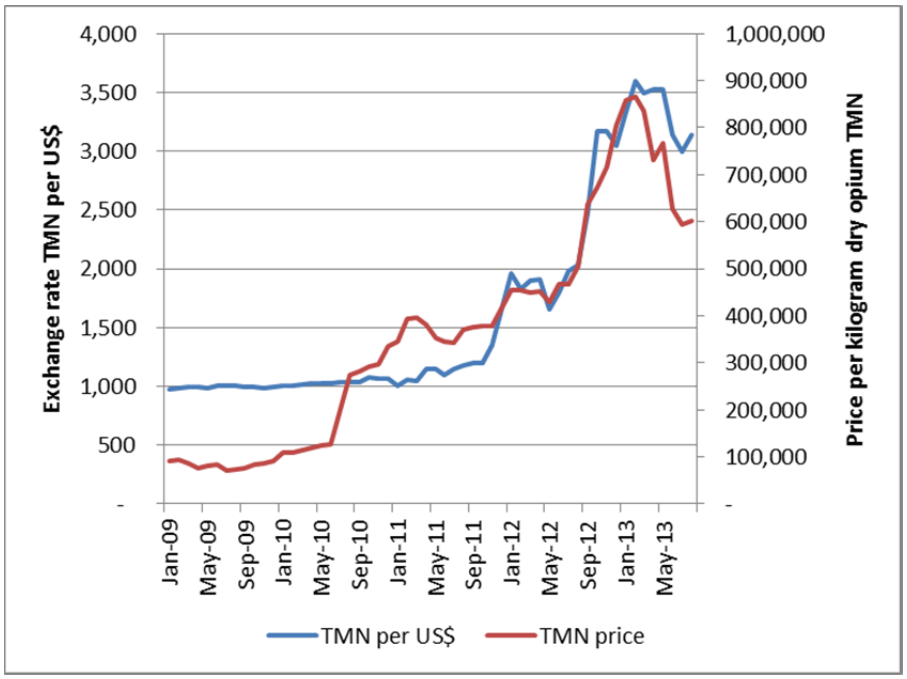
Source: MCN/UNODC price monitoring system.

Figure 27: US dollar exchange rates of AFN (red)**, PKR** (blue) **and TMN** (green, secondary axis)**, 2009 to 2013**



Source: oanda.com.

Figure 28: US dollar exchange rate of TMN (left axis)**; price per kilogram of dry opium in TMN** (right axis)



Source: oanda.com and MCN/UNODC price monitoring system.

6.2.2 Price hike in Afghan afghani (AFN) less pronounced than in US dollars

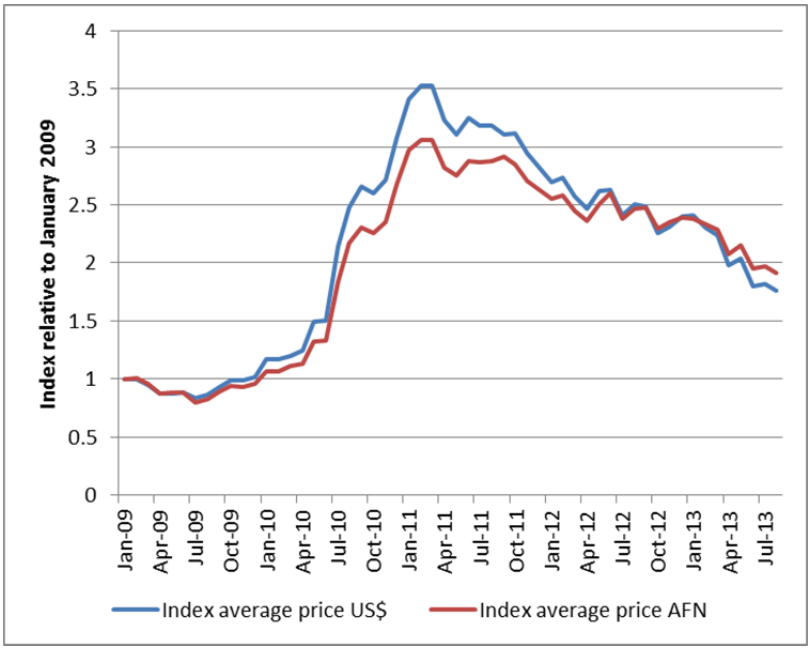
For assessing whether the use of the US dollar as a common denomination affects any trends, this section looks at the opium price hike in both US dollars and Afghan afghani. Here, average prices are considered, which are the simple average of the prices collected in locally used currencies, after conversion by the daily exchange rate.

The comparison of average prices in AFN (PKR and TMN converted to AFN) to average prices in US dollars paints the following picture. The 2010 price hike was less pronounced when

considered in AFN, with the lowest average price (July 2009, AFN 3,561) in the time period considered being about 3.8 times lower than the highest average price (March 2011, AFN 13,572). When measured in US dollars, the lowest value (July 2009, US$ 71) is about 4.2 times smaller than the highest value (February 2011, USD 300).

Figure 29 shows the average price per kilogram of dry opium in AFN and US dollars relative to the respective price in January 2009: the difference between the peaks is some 10 per cent.

Figure 29 Average prices per kilogram of dry opium in AFN (red) **and USD** (blue) **relative to the respective price in January 2009.**



Source: oanda.com and MCN/UNDOC drug price monitoring

Concrete conclusions are yet to be drawn from this kind of research, but it seems clear that price building happens at some common denomination (be it AFN or US$) and that adjustments are made in the other currencies to compensate for variations in exchange rates with the common denomination. Whether it is more correct to look at trends and developments in US dollars or in AFN depends to a great extent on the currency in which the transactions are made. At farm-gate level, this is most likely to be AFN or PKR, whereas high-level drug trafficking may take place in the US dollar as that appears to be the more stable currency.

Neither the use of US dollars nor AFN as a common currency changes the overall trend in the price time series, but when looking at year-on-year variations, fluctuations in exchange rates should be taken into consideration.

6.3 Farm-gate value of opium production and income from opium

6.3.1 Farm-gate value of opium production increased by 32% in 2013

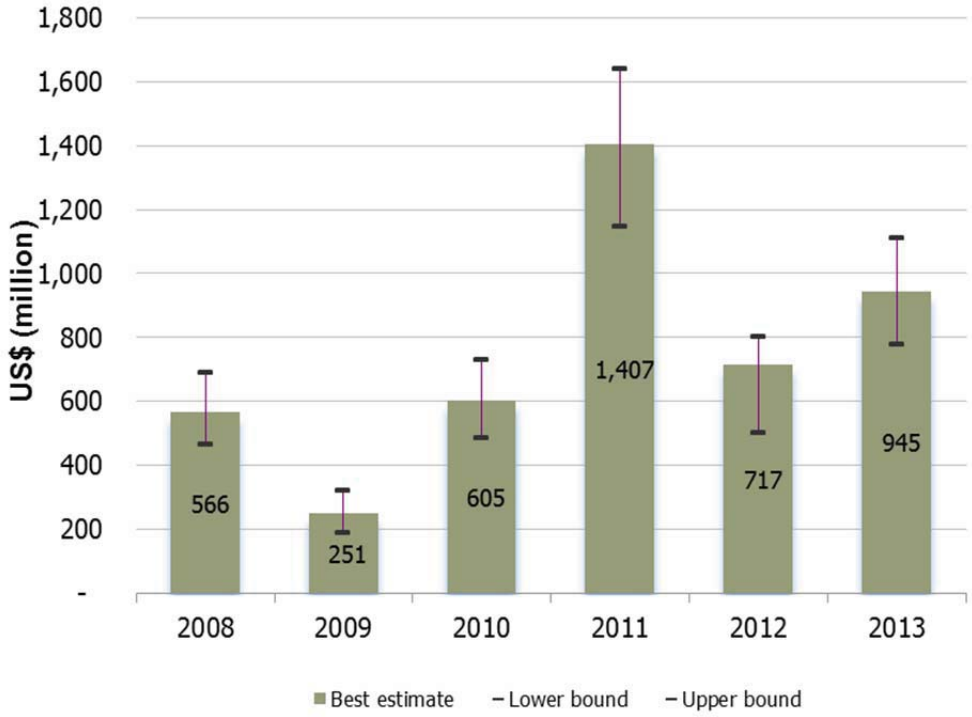
Amounting to US$ 945 million (US$ 777-1,100 million), the farm-gate value of opium production in 2013 increased by 32% in comparison to its 2012 level. This is equivalent to roughly 4% of estimated GDP: the total estimated 2013 GDP of Afghanistan amounted to 21.04 billion.[19]

Farmers in Hilmand, the country's largest opium-producing province, earned some US$ 377 million, which was equivalent to 40% of the total farm-gate value of opium production in Afghanistan in 2013; an increase of 16% from 2012 (US$ 325 million). The increase in farm-gate

[19] Nominal GDP. Source: Government of Afghanistan, Central Statistical Office. It is unclear if and to what extend illicit activities such as opium production are reflected in the GDP estimates.

value is mainly due to the increase in the area under cultivation, as prices in the Southern region declined and yield remained more or less stable (3% increase).

Figure 30: Farm-gate value of opium production in Afghanistan, 2008-2013 (US dollars per kilogram)



Figures for 2008 and 2009 were recalculated from the revised opium production estimates, see MCN/UNODC Afghanistan Opium Survey 2012. Ranges were calculated proportionally to the previously published estimate.

6.3.2 Per-hectare income from opium

In contrast to farm-gate value, the average per-hectare gross income from opium cultivation did not increase, but remained stable, though with a slight decrease of 2%, from 2012 (US$ 4,600) to 2013 (US$ 4,500).

Net income is derived by subtracting production costs from gross income. Production costs per hectare, reported by farmers, amounted to US$ 944 in 2013, a decrease from 2012 (US$ 1,299). The main cost factor in opium expenditure is lancing and fertilizing and the reduction in costs was mainly due to a decrease in expenditure on labour-intensive tasks such as weeding and lancing.

Variations in net income are mainly caused by variations in gross income, which are heavily driven by per-kilogram prices of dry opium and yield: in 2013, farmers reported average expenditure corresponding to 21% of gross income; in 2012, it was 28% of gross income; in 2011, the reported average expenditure was 13% of gross income, a much smaller proportion than in the previous two years, which was the result of the very high gross income caused by high opium prices and good yields in 2011.

These calculations represent an average value per hectare under poppy cultivation. Farmers whose fields were affected by diseases or adverse weather conditions may have made very little income, perhaps not even recovering costs, while others whose fields were unaffected would have made a good profit.

Table 34: Gross and net income per hectare, 2011-2013 (US dollars per kilogram)

	2011 (US$/ha)	2012 (US$/ha)	2013 (US$/ha)
Gross income per hectare of opium	10,700	4,600	4,500
Net income per hectare	9,300	3,300	3,600
Production costs (rounded)	1,390	1,300	900
Expenditure as share of gross income	13%	28%	21%

Some caveats should be added, however. Average production costs for opium do not necessarily apply to small-scale farmers who typically cultivate 1 *jerib* (= 0.2 hectares) or less in Afghanistan. They can make use of the "free" labour of their household members for ploughing and weeding the fields as well as for lancing and collecting opium. In some provinces, notably those with a strong insurgent presence, some or all farmers reported paying an opium tax, which further reduces their net income. This was not considered in this calculation of net income as it does not apply to all poppy farmers. The expenditure for opium cultivation may also be higher if farmers rely exclusively on pump irrigation.

6.3.3 Comparison of income from opium and from wheat

The comparison of the per-hectare income from wheat and opium poppy can be an indicator of the attraction of cultivating poppy. Opium poppy and wheat are planted during the same season in Afghanistan and, as most poppy is grown on irrigated land, wheat yield on irrigated land is used to make the comparison.

In 2013, at roughly 4:1, the ratio between gross income from opium and wheat was similar to its 2012 level, the highest ratio calculated since 2008. The price of wheat increased slightly after 2008 while the price of opium increased significantly, but the ratio was still much lower than prior to 2008. In 2003, for example, farmers earned 27 times more gross income per hectare of opium than per hectare of wheat.

The estimated per-hectare income from wheat was based on information provided by village headmen about wheat yield and price. The wheat price reported reflects the price level and expectations at the time of the survey (April/May 2013). The average reported wheat yield was 3,128 kilograms per hectare on irrigated land and farmers made an estimated average gross income of US$ 1,200 per hectare from wheat (the average price per kilogram of wheat was US$ 0.38).

Farmers were asked about their average expenditure per hectare under cultivation for the following activities: fertilizer, harvesting, irrigation, ploughing, seeds and weeding. As can be expected, expenditures for fertilizer, irrigation and ploughing are about the same for wheat as for poppy, while lancing and weeding, in particular, have a much higher cost factor for poppy than for wheat (see Table 34).

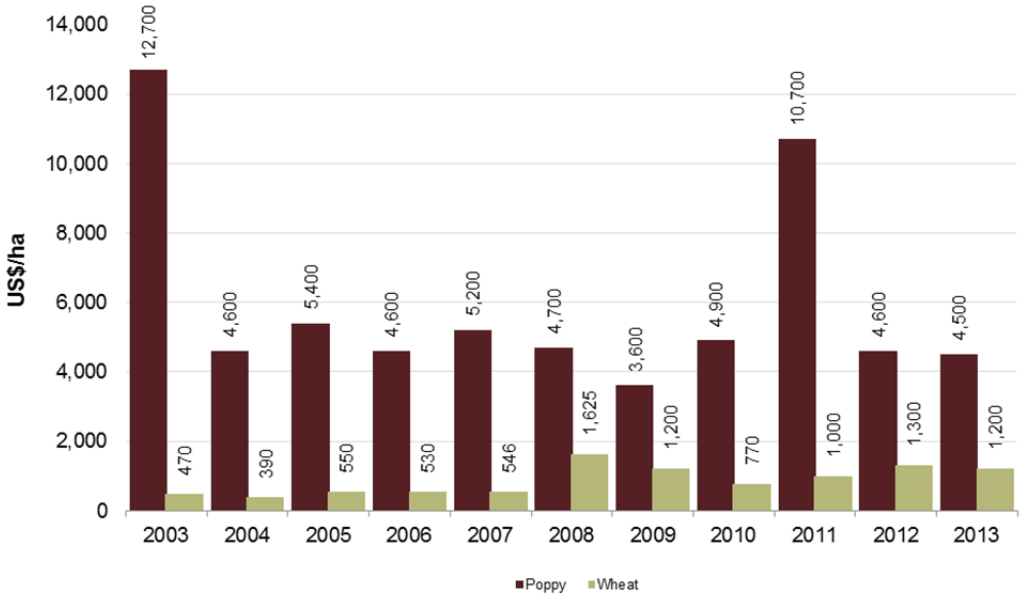
Average costs for wheat production per hectare were estimated to be US$ 556 in 2013. The ratio of net income from opium (US$ 3,600) to that of wheat (US$ 633) was about 6:1.[20] However, the income comparison presented here does not take into account income from the by-products of opium and wheat cultivation, such as poppy seed and wheat straw. According to field observations, wheat straw can provide considerable additional income to farmers and thus reduce the difference between opium and wheat income per hectare.

[20] The expenditure on wheat reported by farmers was used for calculating the net income instead of a proportional estimate of cultivation costs as in 2012.

Table 35: Average expenditure on poppy and wheat, per hectare, 2013 (US dollars per hectare)

Costs per hectare	Fertilizer	Harvesting/ Lancing	Irrigation	Ploughing	Seeds	Weeding	Total costs
Wheat (US$/ha)	116	228	82	75	44	12	556
Poppy (US$/ha)	164	497	98	76	13	96	944

Figure 31: Gross income per hectare from opium and wheat, 2003-2013 (US dollars per hectare)



6.4 Potential value of the opiate economy

The production and export of opium and heroin/morphine is the equivalent of a sizeable share of Afghan GDP. By far the largest share of income is generated by opiate transformation and exports to neighbouring countries, but there is also a domestic market for opium and heroin/morphine.

This section provides estimates of the potential income generated by the opium and its derivatives produced in Afghanistan in 2013. Unlike farm-gate value, potential value also includes all income generated after opium leaves the farm. Income is generated whenever opium is traded or modified in some way and includes income generated by opiates (opium, morphine and heroin) consumed domestically, as well as income generated by trading opiates that cross Afghanistan's borders and leave the country.

The value of exported opiates only includes the value of opiates traded across Afghanistan's borders. No further income from onward trafficking beyond the country's borders, for example, to Europe and other regions, is included. Indeed, Afghan traffickers seem to be heavily involved in shipping opiates over the border, notably to Iran and Pakistan, but much less so in subsequent trafficking. Thus, the far greater income generated on international trafficking routes does not find its way into the pockets of Afghan traffickers and into the Afghan economy.

It has to be stressed that despite ongoing attempts to improve estimates of the opiate economy through additional information-gathering activities, economic calculations remain far less robust than estimates of the area under cultivation, opium yield and opium production. The calculations

presented here are intended to provide reasonable orders of magnitude of the income generated rather than exact amounts.

6.4.1 Estimation of potential heroin/morphine production

Potentially, all opium produced in Afghanistan could be converted into morphine and heroin. In reality, however, a sizable proportion of opium is trafficked and consumed in the region in its raw form.

Calculating the potential production of heroin requires knowledge of how much opium is converted into morphine and heroin and how much remains unprocessed. This information can only be estimated on the basis of secondary information such as seizure data, thus any data about potential morphine and heroin production should be taken as a rough estimate: too little is known about how much opium is processed and when and where the conversion of opium to morphine and of morphine to heroin takes place.

Based on information on heroin/morphine and opium seizures in Afghanistan and neighbouring countries from 2009 to 2011, and assuming a 7:1 conversion ratio from opium to morphine/heroin,[21] an estimated 54% of potential opium production was converted into morphine or heroin in 2013. This ratio was higher than in previous years and can be attributed to a strong increase in morphine seizures in Afghanistan in 2011.

The following table shows potential heroin/morphine production if 54% of opium is converted to morphine/heroin and if all potential opium production is to be converted to heroin. Due to the uncertainties around the 7:1 conversion factor from opium to morphine/heroin, the factor refers to morphine/heroin of unknown purity.

Table 36: Potential morphine/heroin production (of unknown purity) from Afghanistan opium, 2013

	If 54% potential opium production converted (tons)	If total potential opium production converted (tons)
Morphine/heroin (of unknown purity)	421 (350-490)	786 (650-920)
Unprocessed opium	2,600 (2,100-3,000)	-

A 7:1 conversion ratio from opium to morphine/heroin is assumed. Ranges only refer to ranges of production, not to uncertainties in the conversion ratio.

6.4.2 Opium and heroin/morphine production available for export

Every year all the opium produced in Afghanistan is either exported as raw opium or heroin/morphine, consumed domestically in various forms, seized, stored for later use or lost (for example, due to mould, disposal to avoid seizures, etc.). Hence, the critical amounts needed for calculating the total value of opium products are the shares of opium produced that are destined for export and for the domestic market, the shares of opium that are seized and lost, and the remainder (if any), which does not enter the market in the year of interest.

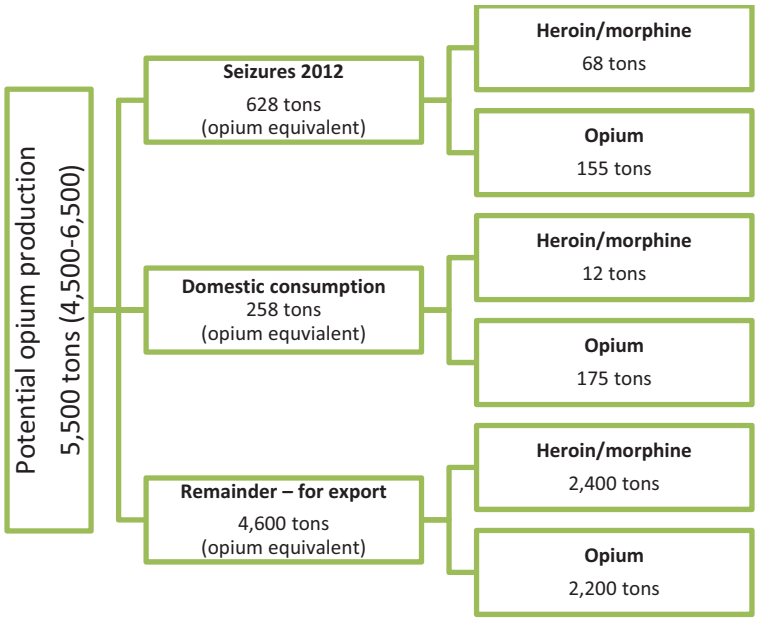
There is a clear understanding about the approximate amount of opium produced. The shares converted to morphine and heroin are much less certain as only secondary data, such as seizure data, can be used as a proxy. In the case of seizures, for example, the purity of the heroin is not known. Likewise, the purity of heroin domestically consumed may differ.

[21] The analysis of the morphine content of opium in Afghanistan's main growing region since 2010 gave rise to concerns that the ratio possibly used underestimates the amount of opium necessary to produce 1 kg of morphine or heroin (see Ministry of Counter Narcotics/UNODC (2011), *Afghanistan Opium Survey 2011*, p. 56), particularly if the reference is morphine or heroin of 100% purity. For more information on the conversion ratio, see also Ministry of Counter Narcotics/UNODC (2005): *Afghanistan Opium Survey 2005*, November 2005, p. 120 (http://www.unodc.org/unodc/en/crop-monitoring/index.html).

The share of opium destined for the domestic market is estimated based on the 2009 drug use survey.[22] The Methodology section of this report provides a detailed description of the estimation process. Remaining opium production is therefore either exported, lost, or kept as inventory (if any is left). As there is not enough information available for providing direct estimates of losses or export amounts, the following breakdown is the most detailed that can be provided.

In 2013, Afghanistan produced an estimated 5,500 tons of opium. Local consumption made up about 5% of it (258 tons), while approximately 11% of all opium was seized as opium or heroin/morphine (equivalent to 628 tons of opium equivalent). After its deduction from total production that leaves a remainder of some 84% of all opium being potentially available for export in the form of opium, morphine or heroin. However, that includes all opium lost due to reasons other than seizures (for example destruction of inventory, mould, or shipments discarded to avoid seizures), as well as possible surpluses of production or opium produced in previous years that enter the market in the current year.

Figure 32: Opiates in Afghanistan, by destination, 2013



Note: Heroin is transformed into opium equivalents by using the ratio 1:7; i.e. to produce 1 kg heroin, 7 kg of opium are needed. Seizures in 2012 reported in the MCN Afghanistan Drug Report 2012 are taken as a proxy for 2013 since the total amount of drugs seized in the current year is not yet known. Consumption estimates are based on 2009 drug use data. With the exception of potential opium production, ranges have been omitted for brevity.

6.4.3 Potential gross and net value of 2013 opium production

The gross value of Afghan opium production at end-consumer level and at the country's borders is calculated by the amounts consumed and traded multiplied by their respective prices. The net value of opiate production is the gross value minus all expenditure for imports from abroad needed for processing opium into morphine and heroin and results in a net gain for the Afghanistan economy. Net value is considered to be more suitable for comparison with GDP than gross value.

Seizures are not represented in these calculations, as the income that would be generated by seized products is lost. The value of the domestic market at end-consumer level is calculated by multiplying the amounts consumed by the street-level price for heroin/morphine and opium,

[22] Ministry of Counter Narcotics/Ministry of Health/UNODC*: Drug Use in Afghanistan: 2009 Survey*. (http://www.unodc.org/documents/data-and-analysis/Studies/Afghan-Drug-Survey-2009-Executive-Summary-web.pdf).

respectively. The cross-border price was used to calculate the value of the potential exports of opium and opiate products.

In 2013, the gross value of the opiate economy was estimated to be US$ 3.1 billion (US$ 2.0 billion in 2012). This value represents all income generated by the opium production that is believed to have remained in Afghanistan, and is the sum of the value of the domestic market and the value of opiates available for export. Its net value (US$ 2.99 billion) is considered to be best for comparison with GDP.

The gross export value of opium plus heroin/morphine exports in 2013 was US$ 2.99 billion. The gross value of the domestic market for heroin and opium was, however, much smaller. In 2013, the estimated worth of opiates consumed in Afghanistan was US$ 0.12 billion, which is slightly lower than in 2012 (US$ 0.16 billion). This difference is due to a decrease in prices with the same underlying demand.

The calculation of a possible range in the potential value of the Afghan opiate economy is based on different assumptions about the portion of opium converted to heroin or morphine for export. In the case of the upper bound, it is assumed that all opium available for export is converted to morphine or heroin in Afghanistan (corresponding to 786 tons of morphine/heroin), since the value of 1 kilogram of morphine/heroin is greater than the value of 7 kilograms of unprocessed opium. For the lower bound it is assumed that all opium available for export is exported unprocessed and that no conversion to morphine/heroin takes place in Afghanistan (corresponding to 4,613 tons of exported opium).

The resulting ranges are not meant to provide a confidence interval or any other statistical measure, but rather they constitute a what-if analysis that offers results on the basis of different assumptions about the further processing of opium in Afghanistan.

Table 37: Estimated gross and net values, 2013 (US dollars)

	Gross value US$ (rounded)	Net value US$ (rounded)	Net value in relation to GPD
Value of the opiate economy	3.1 billion (2.02-3.89 billion)	2.99 billion (2.02-3.67 billion)	15%
Value of opiates potentially available for export	2.99 billion	2.87 billion	14%
Farm-gate value of opium	0.95 billion	0.95 billion	4%
Value of domestic market	0.12 billion	0.12 billion	0.6 %
Export value of 1 kg of opium	437	437	
Export value of 1 kg of morphine/heroin	5,900	5,600	

Ranges are calculated based on different assumptions on the conversion of opium to morphine/heroin within Afghanistan. "*Value of the opiate economy" refers to the sum of the value of the domestic market and the export value of opiates available for export.*

The gross value of 1 kilogram of opium exported at wholesale level was approximately US$ 437 in 2013, while the value of 1 kilogram of heroin was US$ 5,900. In the case of exported opium, no significant import costs were considered, thus, in these estimations, gross value equals net value.

After subtracting the import costs of main precursors from the gross value (which in 2013 were some US$ 340 per kilogram of heroin) the net value of 1 kilogram of heroin/morphine is reduced to US$ 5,600. When multiplying these prices by the respective amounts exported, the net export value of opiates in 2013 was US$ 2.87 billion, as opposed to a gross export value of US$ 2.99 billion.

The gross value of 1 kilogram of heroin in the domestic market of Afghanistan in 2013 was about US$ 5,200, which refers to retail prices. Subtracting precursor costs leaves a net value of around

US$ 4,900 for 1 kilogram of heroin/morphine, and a net value of the domestic opiates market of US$ 0.12 billion.

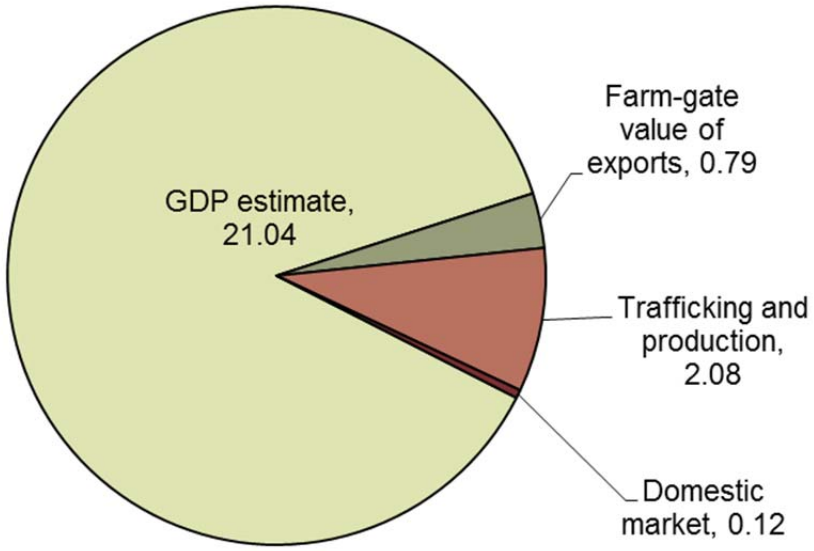
It should be noted that the wholesale and retail prices of opiates are approximates and not purity adjusted. There are large disparities in reported prices, which may stem from differences in the quality of opiates purchased. Indeed, calculating the value of exported morphine/heroin is limited by the fact that the product leaving laboratories in Afghanistan may undergo further processing (for example, adulteration) before reaching assumed points of sale in neighbouring countries. There are indications that heroin is already mixed with cutting agents in Afghanistan, which is done to increase profitability as well, perhaps, as for other reasons such as tailoring the product for specific types of usage. These factors cannot be estimated at present, but it is reasonable to assume that the use of cutting agents increases the profitability of exporting heroin/morphine, and not taking such factors into account could lead to an underestimation of the export value of the opium economy in Afghanistan.

6.4.4 Value of 2013 opium production and GDP

When comparing the above-mentioned gross and net values with the 2013 GDP of Afghanistan, which was US$ 21.04 billion,[23] the magnitude of the Afghan opium economy becomes apparent. In 2012, net opium exports were worth about 14% of GDP and the farm-gate value of the opium needed to produce those exports alone was equivalent to 4% of GDP. The net value of the domestic market for opiates is small by comparison, but still worth approximately 0.6% of GDP.

The net export value of Afghan opiates (US$ 2.99 billion) consists of the farm-gate value of the opiates believed to be exported (0.79 billion) and the value added by traffickers through the processing of opium into morphine/heroin and the export of processed and unprocessed opiates. This was estimated at US$ 2.08 billion in 2013.

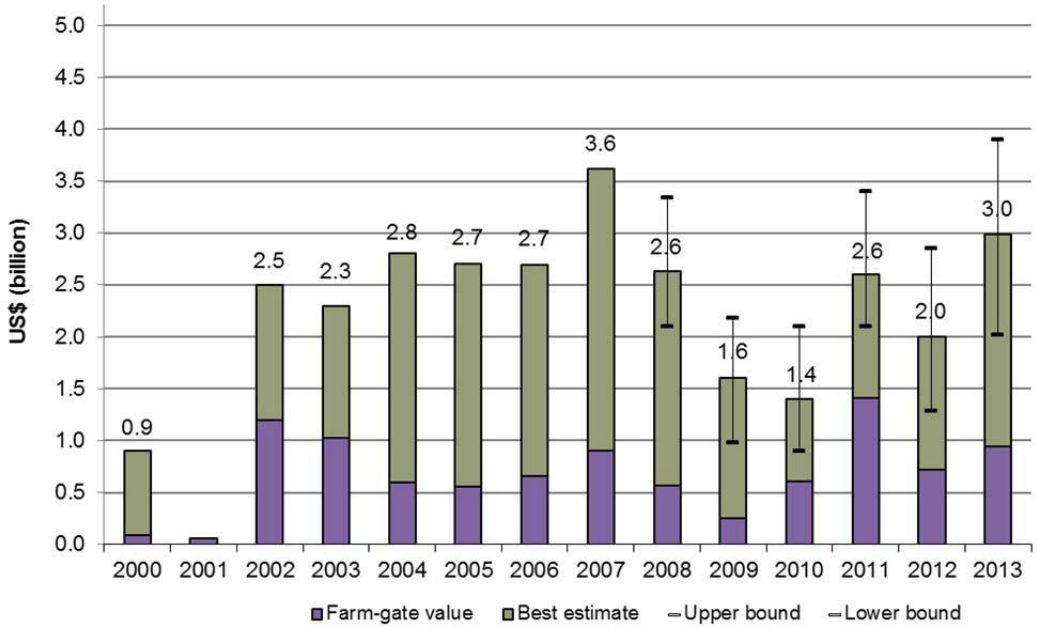
Figure 33: GDP and net value of the opiate industry in Afghanistan, 2013 (US dollars billion)



Note: "Farm-gate value" refers to the farm-gate value of the opium needed for producing exports. "Trafficking and production value" represents the value generated by opium between farm-gate and borders minus costs for imported precursors. "Domestic market" is the net value of the domestic opiates market. Sources: Afghanistan Central Statistical Office and MCN/UNODC 2012.

[23] Nominal GDP. Source: Government of Afghanistan, Central Statistical Office.

Figure 34: Potential gross export value of opiate production and farm-gate value, 2000-2013
(US dollars)



Sources: UNODC (2003): The Opium Economy in Afghanistan; MCN/UNODC: Afghanistan opium surveys 2003-2013. Note: The bars indicate the upper and lower margins of the range of the estimated value. Values for 2006 to 2009 have been revised, see Afghanistan opium survey 2012.

6.4.5 Costs and revenues of heroin and morphine production

Net export value (and the net value of the domestic market) accounts for import costs associated with the production of morphine and heroin. It therefore provides a proxy for the net amount of revenue entering Afghanistan generated by opiate exports.

Import costs, as far as they are known, are deducted from the gross export value of Afghan opiates. However, since many import cost factors are not well understood or known, net value only considers the costs of imported precursors that constitute an important cost element of morphine and heroin production.

The main (imported) precursor in terms of cost is acetic anhydride, which converts morphine base into brown heroin base. Acetic anhydride is a controlled substance for which there is no known licit use in Afghanistan, nor known licit production.

The net export value is calculated by:

- multiplying the cost of acetic anhydride per kilogram of heroin by the total amount of exported heroin potentially exported;
- subtracting the total cost of acetic anhydride from gross export value. Other import costs were not considered.

Table 38: Prices (rounded) **and approximate amounts of acetic anhydride needed for the production of a kilogram of heroin, 2013**

Precursors	Price (US$/unit)	Amount needed/kg heroin	Costs per kg of heroin (US$)
Acetic anhydride (litre)	221	1.5 l[24] (0.77-4.0)	331 (170-880)
Total			**331**

In contrast to farm-gate prices, the average cross-border prices of opium (US$ 437) remained stable at a high level in 2013 in comparison to 2012 (US$ 425). In the case of heroin, however, the situation is slightly different as there are more production costs to be considered. Average cross-border prices for 1 kilogram of heroin/morphine show a different development to opium prices. In 2009 and 2010, they were around US$ 3,200 (slightly higher in 2010) and in 2011 they reached US$ 4,500, an increase of approximately 30%. In 2012, a further increase to US$ 6,800 was noted, which again seemed to be related to the opium price hike in 2010/2011, though with less fluctuations and a certain delay between the farm-gate and eventual cross-border trafficking. In 2013, prices decreased to US$ 5,900, though due to the uncertainties in purity and in price-collection systems, it is difficult to draw strong conclusions.

Table 39: Overview of different values/gains for 1 kilogram of opium/heroin (rounded)**, 2009-2013**

	2010	2011	2012	2013
Export price per kilogram of heroin in US$	3,300	4,500	6,800	5,900
Export price per kilogram of opium in US$	360	400	425	437
Farm-gate price per kilogram of opium in US$	170	240	196	172
Cost per kilogram of heroin in US$ (precursor and dry opium)	1,600	2,400	1,700	1,530
Revenue for exporting one kilogram of opium in US$	190	160	230	265
Revenue for exporting one kilogram of heroin/morphine in US$	1,600	2,100	5,100	4,380
Revenue for 7 kilograms of opium in US$ (rounded)	1,300	1,100	1,700	1,900
Financial benefit of exporting heroin instead of opium (rounded)	300	1,000	3,400	2,500

Note: Costs other than the farm-gate price or precursor costs are not considered.

The first two lines of the above table present export prices of opium and heroin at the Afghan border. The third line presents the rounded average price per kilogram of opium at the farm-gate. The fourth line presents precursor and opium costs for producing a kilogram of heroin by using the amounts presented above. The last line then gives the extended net gain per unit exported.

Heroin revenue is not the net revenue of traffickers, but rather the value generated per kilogram of heroin along production and trafficking chains beginning at the farm-gate. From the difference, all production costs (including laboratories, labour, trader mark-ups, etc.) other than for precursor substances need to be financed.

The mechanisms driving these prices are not well understood. Many questions remain regarding the number of intermediate traders, production costs for heroin/morphine other than from

[24] Please note, that these values were adapted since the Opium Survey 2010; in 2010 2.4 litres per kilogramme were used for the calculations.

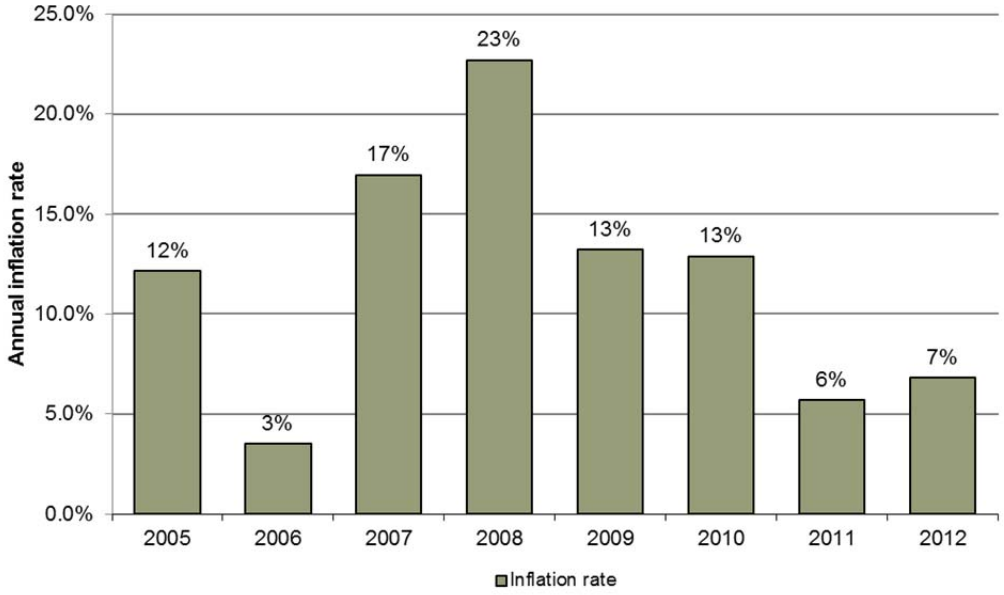
imported precursor substances, and, most importantly, the quality of the heroin exported. As these estimates are based on pure heroin, one explanation for the attraction of exporting heroin is that the heroin exported is of low quality.

6.5 Adjusting for inflation

Inflation is measured by a consumer price index and reflects the annual percentage change in the cost to an average consumer of acquiring a basket of goods and services.

Afghanistan has experienced high annual inflation rates over the past years. Figure 35 shows the fluctuating annual inflation rates from 2005 to 2012[25], which reached a low of 3% in 2006 and a high of 23% in 2008.

Figure 35: Inflation rates in Afghanistan



Source: World Bank.

All historical prices and values are shown at current prices in the price monitoring system and annual opium surveys, which means, for example, that the farm-gate value reflects the value of all opium produced in a given year at the price level in that given year. It does not take into account that the price level and thus the amount of goods and services that could be purchased for a certain amount of money has changed over the years.

Since gains or losses in purchasing power refer to common goods and services purchased in Afghanistan with currencies used in Afghanistan, all values here are presented in Afghan afghani (AFN). Values that were calculated in US dollars are converted back to AFN using the yearly average exchange rate provided by the World Bank.

Due to the availability of data, the base year is 2004 and the time period considered is from 2004 to 2012. With a 2004 base year, inflation adjustment looks at all values in terms of the purchasing power of 1 Afghan afghani (AFN 1) in 2004.

6.5.1 Farm-gate prices of dry opium adjusted for inflation

Figure 36 shows the average farm-gate price in AFN (weighted by production) of 1 kilogram of opium for the years 2004 to 2012, together with the prices adjusted for inflation. If the value of

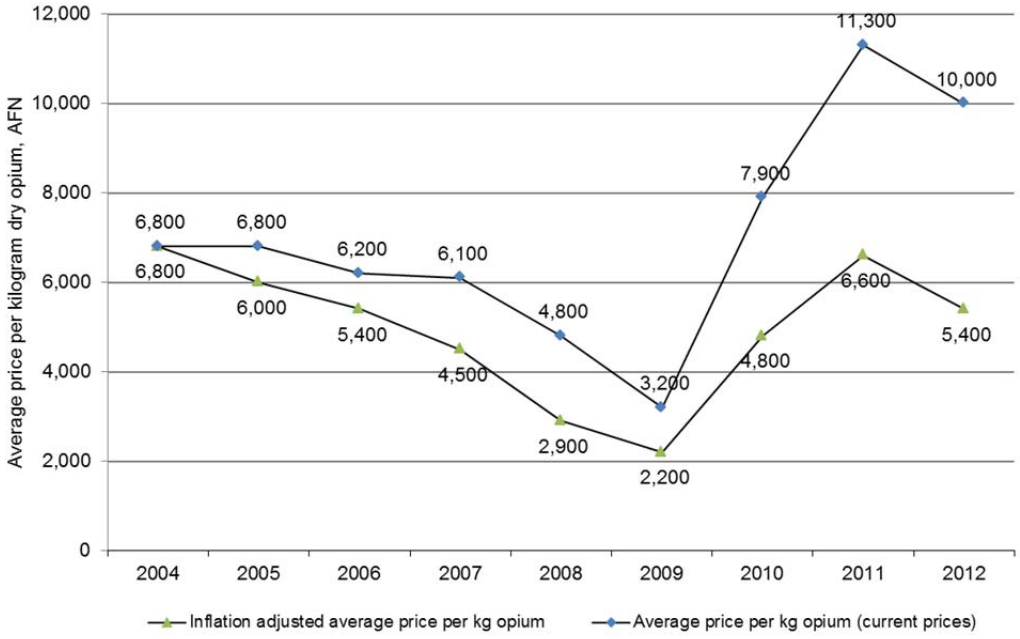
[25] Source: World Bank, World Development indicators. The Central Statistical Office Afghanistan provides monthly inflation data; however, a series of values is missing for 2009 and 2010. Therefore, the yearly estimates of the World Bank are used.

AFN had remained constant, opium production in 2004 would have been the most lucrative (relative to price level) in the years considered.

Figure 36 also shows that the loss of value of 1 kilogram of opium between 2004 and 2009 was even more drastic when considered together with the overall increase in price level in that time period. At the same time, the 2010 price hike seems to be relatively lower than when considered in current prices. Nevertheless, even at constant prices, the value of 1 kilogram of opium tripled between 2009 and 2011.

If the value of the AFN had been constant over time (and all other things being equal), the farm-gate value of 1 kilogram of opium in 2012 would have had the same purchasing power as in 2006. In 2004, the amount of money earned from 1 kilogram of opium had the highest purchasing power in the time period considered, as relative to the overall price level, the farm-gate value of 1 kilogram of opium was highest in 2004. The next highest was 2011, the year of the price hike caused by the poor 2010 harvest.

Figure 36 Average nominal farm-gate prices of dry opium in AFN (converted from US$) (blue line) **and adjusted for inflation** (green line)



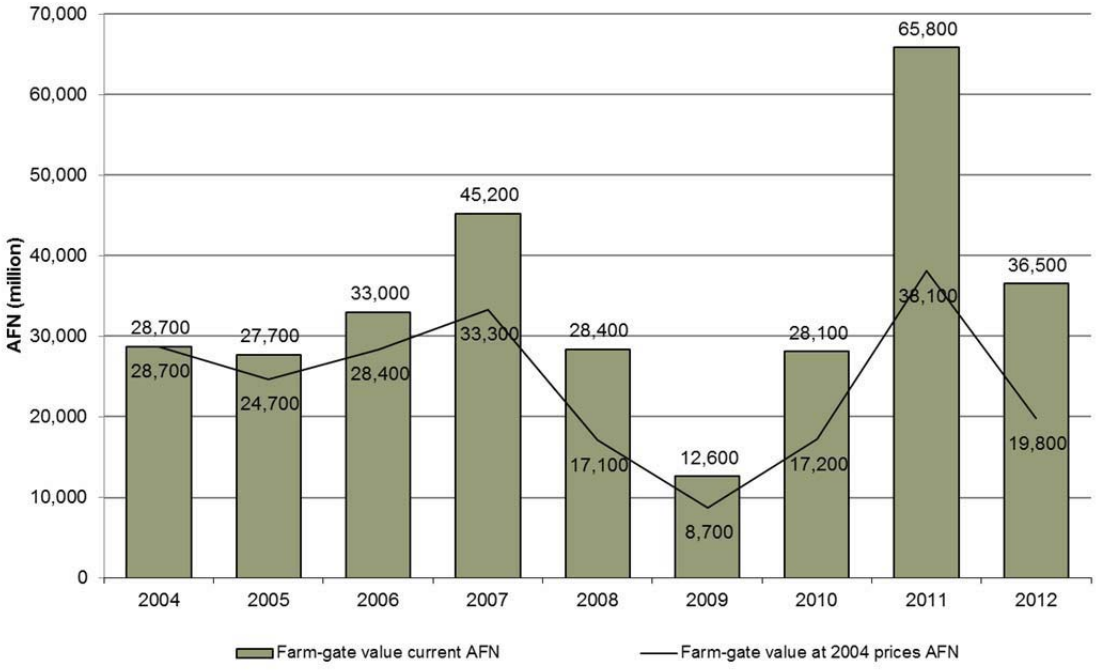
6.5.2 Farm-gate value of opium and inflation

The farm-gate value of opium represents the potential gross amount earned from opium by all farmers in a given year. Figure 37 shows the nominal farm-gate value in AFN[26] (columns refer to US$ values published previously) together with values adjusted for inflation (black line). In 2004, both numbers were identical as that year is the base line.

If the value of the AFN had been constant over time (and all other things being equal), the farm-gate value of all opium produced in 2012 would only have been AFN 19,800 million (US$ 389 million) instead of AFN 36,500 (US$ 717 million). Even in 2011, when opium prices were at a very high level, the inflation-adjusted farm-gate value exceeded that in 2004 to 2007, though far less dramatically than it did at nominal value. The 2013 farm-gate value (not shown) is, relative to the overall price level, lower than the farm-gate values in the years 2004 to 2006.

[26] Re-converted from US dollars by using the yearly average exchange rates as reported by the World Bank, http://databank.worldbank.org/data/home.aspx.

Figure 37: Nominal farm-gate value in AFN millions (converted from US$) (bars)**, together with the farm-gate value adjusted for inflation in AFN million, 2004 to 2012.**



Source: UNODC/MCN Afghanistan Opium Surveys

6.5.3 Value of the opiate economy adjusted for inflation

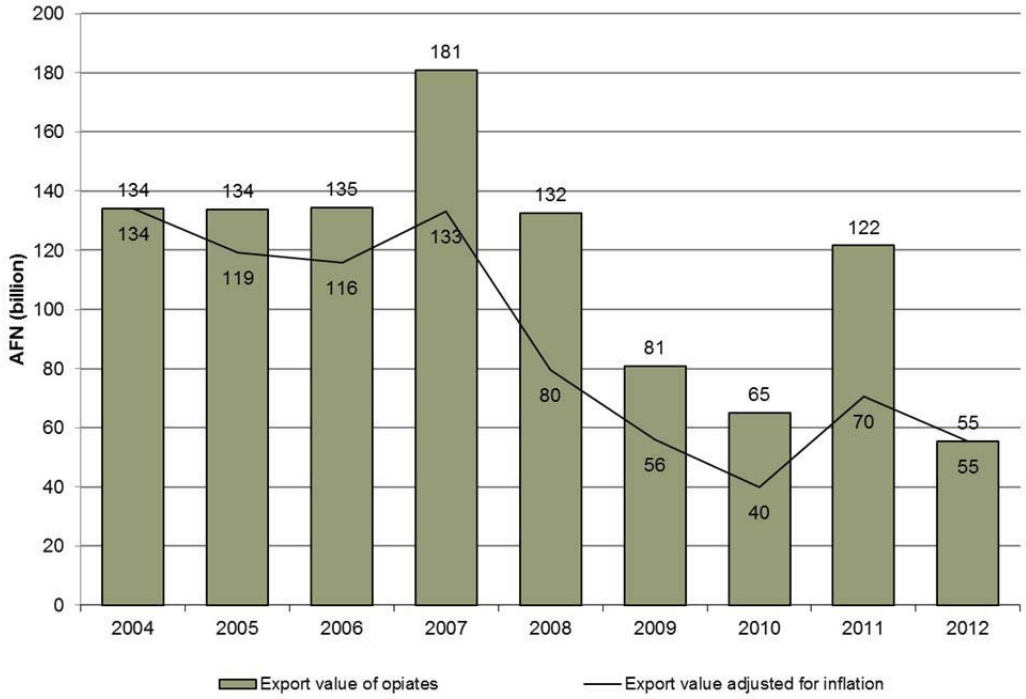
The gross export value of opiates is the value of all opiates destined for export (estimates of shares of heroin/morphine and unprocessed opium are based on seizure data), whereas the net value is the gross value minus all costs for imports needed to produce opiates (only precursor costs).

The gross value of all opiates destined for export presented a stable trend between 2004 and 2008 (with the exception of 2007). The low prices in 2009 and the poor harvest in 2010 and 2012 led to a further reduction. However, the relatively high level of production in 2011 led to a relatively lucrative year, with a gross export value comparable to that of 2008.

But when looking at value adjusted for inflation, the picture is different: due to high rates of inflation, the highest export value adjusted for inflation was in 2004, after which export value started to decline, except for in 2007 when it almost reached the 2004 level. From 2008 on, the overall level of the export value decreased drastically to less than half its 2004 value in 2011 despite the latter year's relatively high level of production.

However, as little is known about the way transactions are made during high-level trafficking and since many uncertainties are attached to the estimations of the potential export value of opiates, the values presented here are intended to provide reasonable orders of magnitude. Whether or not inflation-adjusted values actually represent a change in the real income made from opiates, depends on many factors, the most important being the currency in which high-volume trafficking transactions are made. Indeed, when it comes to reflecting income generated by the population, farm-gate value seems to be the better indicator.

Figure 38: Nominal gross export value of opiates in AFN million (converted from US$) (bars)**, together with the gross export value of opiates adjusted for inflation in AFN million** (line)**, 2004 to 2012**



Source: UNODC/MCN Afghanistan Opium Surveys

7 Methodology

This chapter covers various methodological aspects regarding survey design and estimation procedure.

7.1 Estimation of area under opium cultivation

Remote sensing methodologies have been used by UNODC since 2002 to monitor the extent of opium cultivation in Afghanistan. Changes in the location of opium poppy cultivation and the increased security difficulties involved in accessing the area under scrutiny requires continuous improvements of the sampling designs applied.[27]

A sampling approach is used to cover those provinces where most of the poppy is found, whereas a targeted approach is used in provinces with a low level of opium cultivation. "Targeted approach" means that a certain area of a province is fully covered by satellite imagery.

In 2013, out of 34 provinces in Afghanistan, 11 were sampled and 11 were targeted. The remaining 12 provinces were considered to be poppy-free[28] based on the Winter Assessment and additional information from the field. These provinces were not covered by the remote sensing survey, but they were covered by the village survey.

Table 40: Area estimation method by province, 2013

Region	Targeted approach	Sampling approach	Village survey only
Central	Kabul		Ghazni, Khost, Logar, Paktya, Panjshir, Parwan, Wardak, Paktika
Eastern	Kapisa, Laghman	Kunar, Nangarhar	Nuristan
Northern	Baghlan, Faryab, Jawzjan, Balkh		Bamyan, Samangan, Sari-Pul
North-eastern	Takhar, Kunduz	Badakhshan	
Southern		Day Kundi, Hilmand, Kandahar, Uruzgan, Zabul	
Western	Ghor, Hirat	Badghis, Farah, Nimroz	

7.1.1 Area estimation based on sampling methods and targeted approaches

7.1.1.1 Sampling frame

The area available for agriculture was updated based on Landsat 7 ETM images and DMC images. The total estimated agricultural area in Afghanistan in 2013 amounted to 76,032.4 km^2. The sampling frame was established by extracting the area of land potentially available for opium cultivation in 11 provinces. This area was divided into regular 10 km by 10 km grids, which constitute the sampling frame. The final sampling frame, from which the satellite images were randomly selected, consisted of 1,463 cells in 11 provinces. In the case of images that cut across provincial boundaries, only the part falling into a particular province was considered to be in that province.

The area available for agriculture in the sampling frame covers irrigated and rain-fed land. The total area in the 11 provinces was 23,028 km^2, which is equivalent to 30% of all potential agricultural land in Afghanistan. Potential land refers to all land available for cultivation and also includes land that is currently fallow.

[27] In 2012, the sampling methodology for the area estimation in Badakhshan, Hilmand, Kandahar and Kunar was adapted. In 2013, the sampling methodology for Nangarhar, Farah and Nimroz was adapted.

[28] Note that more than the remainder of 17 provinces turned out to be poppy-free as three provinces covered by the survey had less than 100 hectares of opium cultivation.

Cells with less than 1 km^2 of potential agricultural land were excluded from the sampling frame in order to reduce the likelihood of choosing cells with very little arable land. In total, the exclusions represented less than 2% of the total potential agricultural land.

Table 41: Sample size, agricultural land and sampling ratio, by province, 2013

Province	Total arable land (km^2)	Total # cells	Selected # cells	Percentage of selected cells over total cells	Arable land in selected cells (km^2)	Sample size (percentage of arable land in selected cells)
Badakhshan	3,983	130	16	12%	587	15%
Badghis	6,505	180	15	8%	808	12%
Day Kundi	585	140	8	6%	55	9%
Farah*	1,918	187	16	9%	146	8%
Hilmand*	3,713	199	40	20%	900	24%
Kandahar	2,835	214	22	10%	338	12%
Kunar	240	57	9	16%	51	21%
Nangarhar*	804	59	9	15%	126	16%
Nimroz*	896	68	10	15%	160	18%
Uruzgan	741	84	12	14%	159	21%
Zabul	808	145	8	6%	93	12%
Total	**23,028**	**1,463**	**165**	**11%**	**3,423**	**15%**

** The sampling locations were changed or newly introduced in these provinces.*

The sample size (meaning the number of images acquired in each province) was approximately proportional to the square root of the area of potential agricultural land. This allocation methodology is one form of compromise between the appropriate allocations for producing national estimates and for producing provincial estimates (Bankier, 1988). A minimum number of eight sample cells was set. The total number of images was constrained by cost considerations and the maximum number of images that the satellite provider could handle given the limited time window for each image.

The same image locations were used in 2013 as in 2012 for 7 out of the 11 sampled provinces. To account for the dynamics of poppy cultivation, the provinces Hilmand, Farah and Nimroz were re-sampled. The sampling approach was newly introduced in Nangarhar (targeted in 2012), in Badakhshan and in Kunar provinces (targeted in 2011), since more widespread cultivation was found after the collection of GPS points of poppy fields in advance. In Hirat, a different data source had to be used.

In greater detail, the following methods were used:

In the provinces of **Farah, Nimroz and Hilmand**, the study area ("frame") was divided into compact geographical strata of approximately equal area by applying a clustering algorithm ("k-means") in the statistical software R. In each stratum, two sampling locations were selected by simple random sampling. This method ensured a good geographical coverage by sampling locations while allowing for an unbiased estimation of the variance. In Hilmand and Nimroz, the area was additionally separated in two substrata: in Hilmand, this accounted for the lower poppy cultivation density in the former "Food Zone"; in Nimroz, it accounted for the high concentration of poppy cultivation in Dilaram district. This allowed the provision of two separate poppy estimates in Hilmand: one for the total area under cultivation in the province; and one for the area under cultivation within the former (2012) "Food Zone".

In **Kandahar**, a probability-proportional-to-size (PPS) approach was chosen in which the selection probability for each element was set to be proportional to a measure of size, which was based on a poppy density map. The poppy density map was the result of a successful test of an

area frame sampling methodology using 2011 data, which, through a combination of satellite images of very high resolution with lower resolution imagery, allowed the analysts to determine the probability of poppy being present for each location in the province, or poppy density, in that year. As presence of poppy in one year is positively correlated to poppy being present in the following year, the poppy density measure ensured that the selected images contained a large quantity of desired information, particularly on poppy cultivation.

In **Badakhshan Nangarhar and Kunar** provinces, a one-stage systematic random sampling approach was employed in which a sampling rule was applied that ensured good geographic coverage. Starting from a randomly chosen cell, every *k*th element from then onwards was chosen, where *k* is determined by the number of cells in the frame and the desired sample size (the actual sample size might differ slightly). To avoid adjacent cells, every other line was skipped.

In Nangarhar province, the districts Dara-e-Nur, Kuzkunar, Kama, Behsud, Jalalabad and partially Surkhrod were excluded from the frame.

In 2013, high-resolution satellite images were acquired for 165 sampled locations 10 km by 10 km in size, covering a total of 11 provinces and 65 locations, for the 11 target provinces in Afghanistan.

7.1.2 Area estimation in sampled provinces

The estimation of the extent of opium poppy cultivation is a ratio estimate for each of the provinces, using potential agricultural land as an auxiliary variable. The national estimate was obtained by adding up the provincial estimates in what is known as a separate ratio estimate.

The Hansen-Hurwitz estimator is one method of estimating the extent of opium poppy cultivation when the probability of selecting sampling units is not equal.

An unbiased estimate of the area of opium poppy cultivation, A_k, within province *k*:

$$A_k = \frac{R_k}{n_k} \sum_{i=1}^{n_k} P_i / R_i$$

where n_k is the number of satellite image locations within the province.

P_i is the area of poppy cultivation in image *i.*

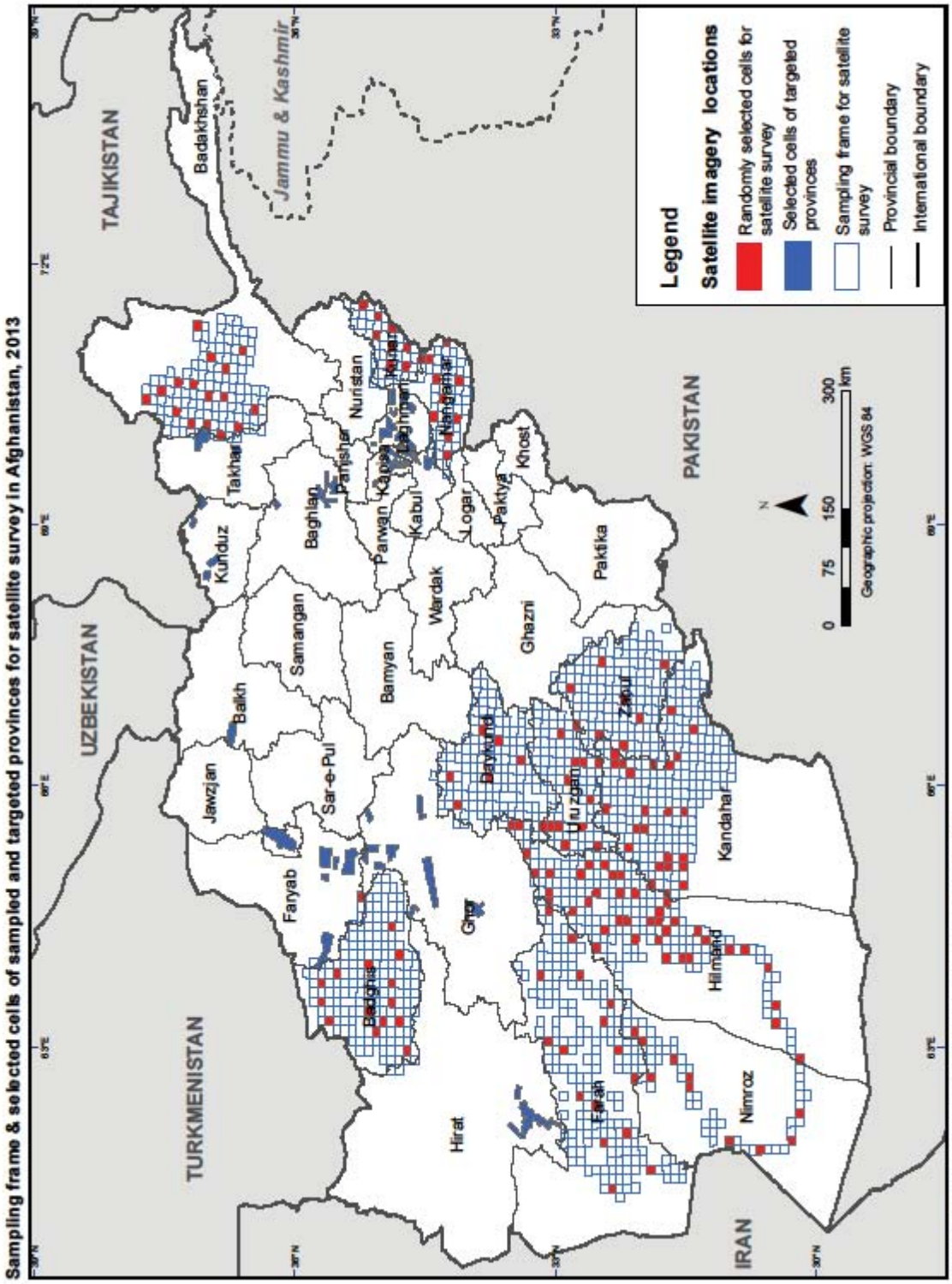
R_i is the area of land potentially available for poppy cultivation (risk area) in image *i*.

R_s is the total potential land available for poppy cultivation (risk area) from the sampling frame in province *k*.

In the newly sampled provinces with equal inclusion probability, a slightly different ratio estimate that uses agricultural area as regressor was used. An unbiased estimate of the area of opium poppy cultivation, A_k, within province *k*

$$A_k = \sum_{i=1}^{n_k} P_i \frac{R_s}{\sum_{i=1}^{n_k} R_i}$$

with the same notation, as above.


Sampling frame & selected cells of sampled and targeted provinces for satellite survey in Afghanistan, 2013
Legend
Satellite imagery locations
Randomly selected cells for satellite survey
Selected cells of targeted provinces
Sampling frame for satellite survey
Provincial boundary
International boundary
TAJIKISTAN
UZBEKISTAN
TURKMENISTAN
IRAN
PAKISTAN
Jammu & Kashmir
Badakhshan
Takhar
Kunduz
Baghlan
Parishar
Nuristan
Kapisa
Laghman
Nangarhar
Panjshir
Parwan
Kabul
Logar
Paktya
Khost
Paktika
Samangan
Balkh
Jawzjan
Sar-e-Pul
Bamyan
Wardak
Ghazni
Zabul
Kandahar
Uruzgan
Daykundi
Faryab
Ghor
Badghis
Hirat
Farah
Nimroz
Helmand
0 75 150 300 km
Geographic projection: WGS 84
Source: Government of Afghanistan - National monitoring system implemented by UNODC
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

7.1.2.1 Uncertainty

In all provinces where no unbiased estimator for the variance was available (all but Farah, Nimroz, Kandahar and Hilmand), confidence intervals were calculated using the bootstrap method with 100,000 iterations. Bootstrapping consists of re-sampling with replacements from the original sample. After each iteration the area under cultivation is estimated. After 100,000 iterations a distribution of cultivation areas can be observed and the 95% confidence interval is derived by using the 2.5 and 97.5 percentiles.

In Farah, Nimroz, Kandahar and Hilmand, the confidence intervals were calculated following statistical practice.[29]

Table 42: Area estimates of sample provinces with 95% confidence interval, 2013 (Hectares)

	Point estimate (hectares)	Lower bound (hectares)	Upper bound (hectares)
Badakhshan	2,374	1,923	9,241
Badghis	3,596	1,106	7,706
Day Kundi	1,536	105	3,605
Farah	24,492	13,234	36,274
Hilmand	100,693	80,883	124,827
Nangarahar	15,719	8,264	21,121
Kandahar	28,335	22,300	36,537
Nimroz	16,252	12,047	20,698
Kunar	1,127	511	2,446
Uruzgan	9,880	5,236	16,265
Zabul	1,335	139	3,778
Target provinces	4,124	NA	NA
National	209,464	179,886	244,989
National (rounded)	**209,000**	**180,000**	**245,000**

To express the uncertainty associated with the national area estimation that includes the provinces covered by the targeted approach and the sample provinces, but excludes provinces with an estimate of less than 100 hectares (which are considered "poppy-free" and not counted), a range was calculated by adding the poppy area figures of the target provinces to the upper and lower limits of the 95% confidence interval at the national level. The resulting range is not a confidence interval in the strict sense as it contains values from sampling and non-sampling approaches. However, considering that the contribution of the target provinces to the total poppy area was only 2%, this approach was regarded as expressing the uncertainty sufficiently well.

7.1.3 Area estimation in target provinces

The consensus view of those working in Afghanistan was that the MCN/UNODC surveillance system developed in the provinces can identify sites where poppy was grown, with further inputs being obtained from the Winter Assessment and the survey of village headmen. Fieldworkers visited potential poppy-growing sites to confirm the situation and provided GPS references for the sites. If geographical clusters of sites were identified, targeted satellite images were obtained to measure the areas involved. This approach assumes that all poppy areas were identified and covered by imagery. The total poppy area of a target province is equal to the poppy area measured on the imagery without any further calculation. For a list of provinces for which the target approach was used see Table 4.

In provinces where satellite images were targeted, the estimated area under opium cultivation is not affected by sampling errors, although they may be affected by the omission of areas with very

[29] See, e.g. Cochran, W. G., Sampling techniques, John Wiley & Sons (2007).

little cultivation. Area estimates of target provinces should therefore be considered as a minimum estimate.

7.1.4 District level estimation

District level results are indicative only. A combination of different methods is used. If districts are covered by sampled cells, the average value of these cells is used. In the case of districts where sampled cells were not available, two methods were used to calculate district estimates. If the agricultural area of a district with a sample grid extended into a neighbouring district(s) without interruption, the poppy proportion of the sample grid was also used for the neighbouring district(s). For districts with isolated, non-contiguous agricultural areas, the average poppy proportion of the province was applied. The methodology and sample was not designed to produce results at the district level.

7.1.5 Accuracy assessment

Due to the difficult security situation in many parts of Afghanistan, which prevented surveyors from carrying GPS and mapping equipment, an insufficient number of ground segments could be visited in order to conduct a systematic accuracy assessment.

7.1.6 Estimation of the net cultivation area

The area figure presented is the net harvestable opium poppy cultivation area. The effect of poppy eradication activities was taken into account based on data from the eradication verification survey, which provides exact GPS coordinates of all eradicated fields supplemented with additional information. The gross cultivation areas would be the net cultivation plus eradication.

In provinces where the poppy area is estimated with a sampling approach, the first step is to calculate the gross poppy cultivation area. The total area eradicated in those provinces is then deducted from the mid-point estimate of the provincial cultivation estimate to obtain the net cultivation area. If eradication activities were carried out after the date of the image acquisition, no adjustment is necessary as the poppy present in the image reflects the gross poppy area. If eradication activities were carried out in a sample block before the date of the image acquisition, the area interpreted as poppy would not reflect the gross area. Therefore, the eradicated fields are added to the interpreted fields. The adjusted poppy area figure for the block is then used for the provincial estimate.

In provinces where the poppy areas is estimated with a targeted approach (census), eradication activities that happened before the date of the image acquisition are already reflected, as these fields no longer appear as poppy in the image. Fields that were eradicated after the date of the images acquisition are simply deleted.

7.2 Satellite image interpretation

7.2.1 Acquisition of satellite images

The acquisition of satellite images at the appropriate growth stage of the opium poppy is key to the successful identification of opium poppy fields on satellite images. Satellite data is collected at two stages: the pre-harvest (flowering) stage and the post-harvest (post-lancing) stage. In recent years, detailed information on the crop growth cycle of each district has been collected in the form of a phenological chart, which is useful for deciding on appropriate dates for satellite data acquisition. First-dated images of the Southern, Eastern and Western regions are collected during March and April due to the early cultivation and maturity of crops in those regions. The crop growth cycle begins later as one goes northward. Images of the North and North-eastern region are acquired during May, June and July. Second-dated satellite images are collected approximately two months after the first images are collected.

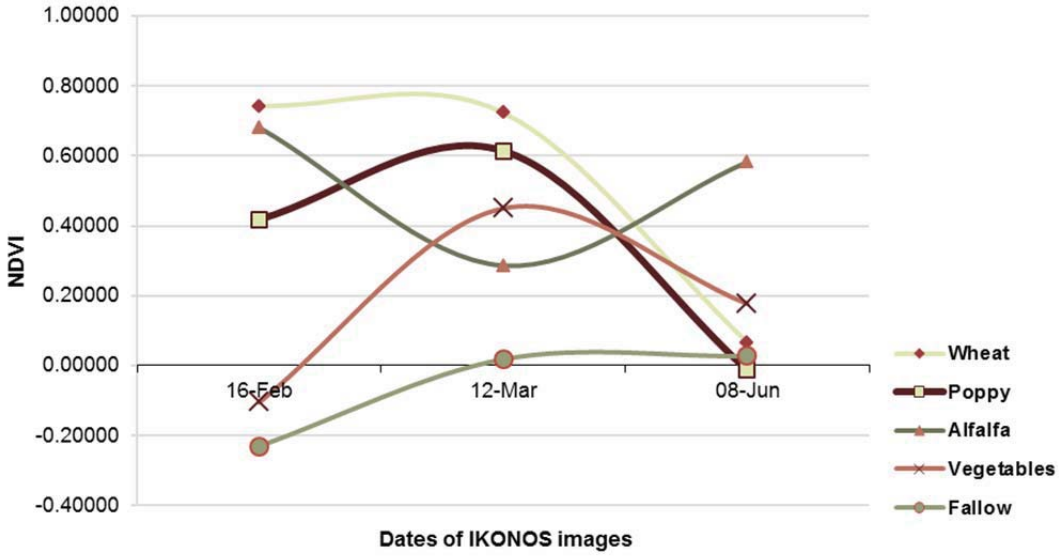
The normal time window for satellite data acquisition is one month, depending on the scheduled passing of satellite and weather conditions. The time window for first-dated image acquisition begins at the full flowering stage and continues through the capsule stage. Second-dated image acquisition begins towards the end of the lancing stage and continues until the opium poppy fields

are ploughed. Images acquired in the middle of the prescribed time window facilitate optimum discrimination between opium poppy and other crops.

The figure below illustrates the spectral characteristics (Normalized Difference Vegetation Index (NDVI)) of opium poppy and other crops between February and June. Wheat and opium poppy have the same growth cycle between March and June, as illustrated. The spectral differences between those two crops are more pronounced in February, which marks the beginning of the capsule stage of the crop in this example. Poppy fields are ploughed immediately after the harvest, whereas wheat fields are not. That is why two-dated images (pre-harvest and post-harvest) are collected for the same location.

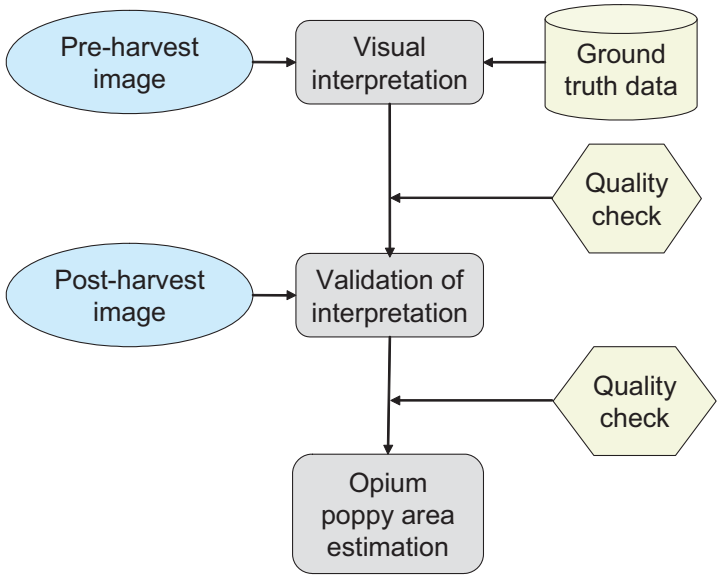
Figure 39: Illustrations of opium poppy, wheat and clover growth cycles

Figure 40: Spectral reflectance of opium poppy and other crops



The figure above illustrates the growth cycles of opium poppy, wheat and clover from February to June, with the help of ground photographs. Note that maximum visual discrimination between opium poppy and other crops is possible during the flowering/capsule stage and after capsule lancing. The different phenological stages described above are shown in the figure on the previous page (field photographs of opium poppy, wheat and clover on different dates).

Figure 41: Image classification methodology for estimating opium cultivation area



7.2.2 Interpretation of opium cultivation from satellite images

First-dated images were acquired during the flowering or capsule stage and second-dated images were acquired after the opium harvest. For example, wheat appears mostly in bright red on the first date image in false colour composite (full coverage with vegetation appears in red; bare soil in grey/green), while opium poppy fields are shown in tones of pink. Although there can be some

confusion between opium poppy and wheat in the first-dated images, the acquisition of second-dated images makes it possible to distinguish opium poppy from other crops, because the opium poppy crop has been harvested and the fields appear in grey/green.

Visual interpretation has been used to delineate opium poppy fields by interpreting IKONOS images covering a 10 km by 10 km area. Ortho-rectified IKONOS, QUICKBIRD, WORLD-VIEW2 and GEO-EYE images of 1 m resolution and 0.5 m resolution (PAN-sharpened) were used for this purpose. Opium poppy was initially identified using first-dated high resolution images. Ground truth information collected in the form of segment maps and GPS points was also useful in identifying opium poppy fields. The interpretation based on first-dated images was improved using patterns of observation in second-dated images. Aerial photographs of the poppy fields were acquired using helicopters in the provinces of Kandahar and Hilmand during the eradication season, as well as in Kabul, Kapisa, Kunar, Laghman and Nangarhar provinces during the flowering and capsule stages. These photographs were tagged by latitude and longitude and facilitated to locate the poppy areas on satellite images, and were very helpful in confirming the poppy areas in the satellite images. Poppy field boundaries in 2012 were delineated by an on-screen digitization method.

7.2.2.1 Band combination for opium poppy identification

Two kinds of band combination were used to detect opium poppy. True-colour combination (blue, green, red) was used in areas where land use is dominated by opium (for example, Hilmand and Kandahar) and in cases where images were obtained during the flowering and lancing stages of opium poppy. False-colour combination (infra-red, red, green) was used in almost all cases. Analysts used both combinations simultaneously to optimize discrimination between opium poppy and other crops.

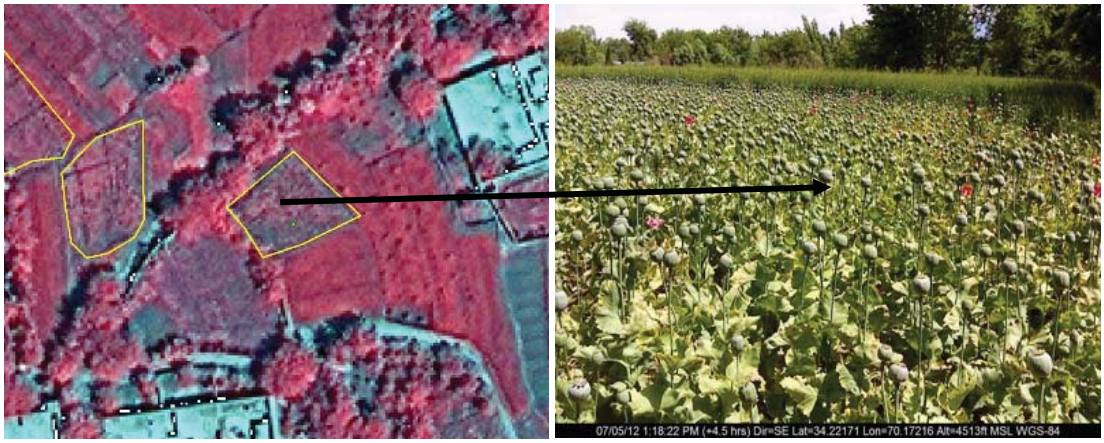
Some of the images could not be acquired at the appropriate time due to weather conditions and/or the time at which the satellite passed. The delayed acquisition of images makes it difficult to detect opium poppy, since fields may be at the senescence stage due to the lancing of capsules and can therefore be confused with fallow fields. In such cases, second-dated images are often useful in confirming opium poppy fields, since harvest patterns are different for wheat and opium poppy.

7.2.2.2 Ground reference information

Ground reference data were collected in the form of GPS points, field photographs and aerial photographs. Some 4,848 GPS points of poppy fields, supported with pictures, were collected from the provinces of Badakhshan, Takhar, Kunduz, Baghlan, Balkh, Faryab, Kapisa, Nangarhar and Laghman.

GPS point data were superimposed over the ortho-rectified satellite images to facilitate identification of poppy fields during visual interpretation.

Figure 42: Use of geo-referenced ground photos for image interpretation

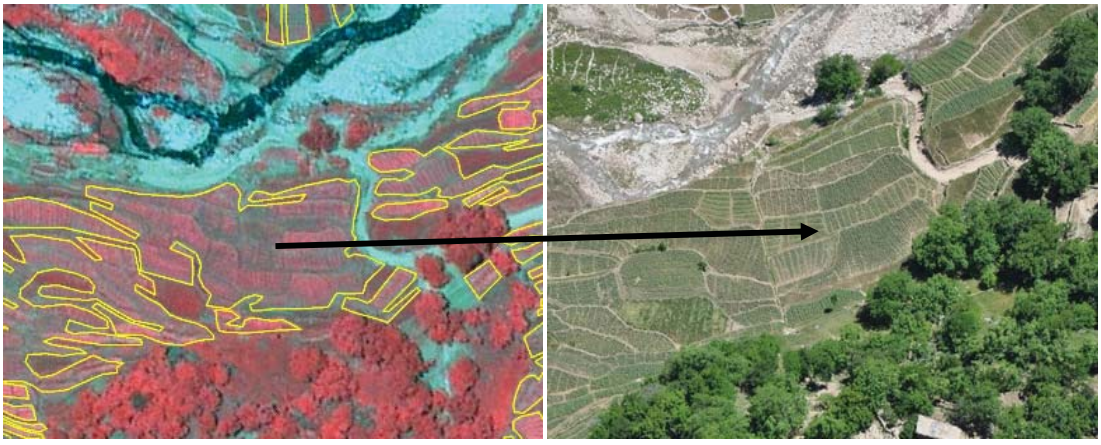


Satellite image (infra-red) *Field photograph (natural colour)*

Natural colour aerial photographs acquired from helicopters were co-related with the satellite images to identify poppy from other crops, as shown below.

Figure 43: Use of aerial photos for image interpretation

Satellite image (infra-red) *Aerial photograph (natural colour)*

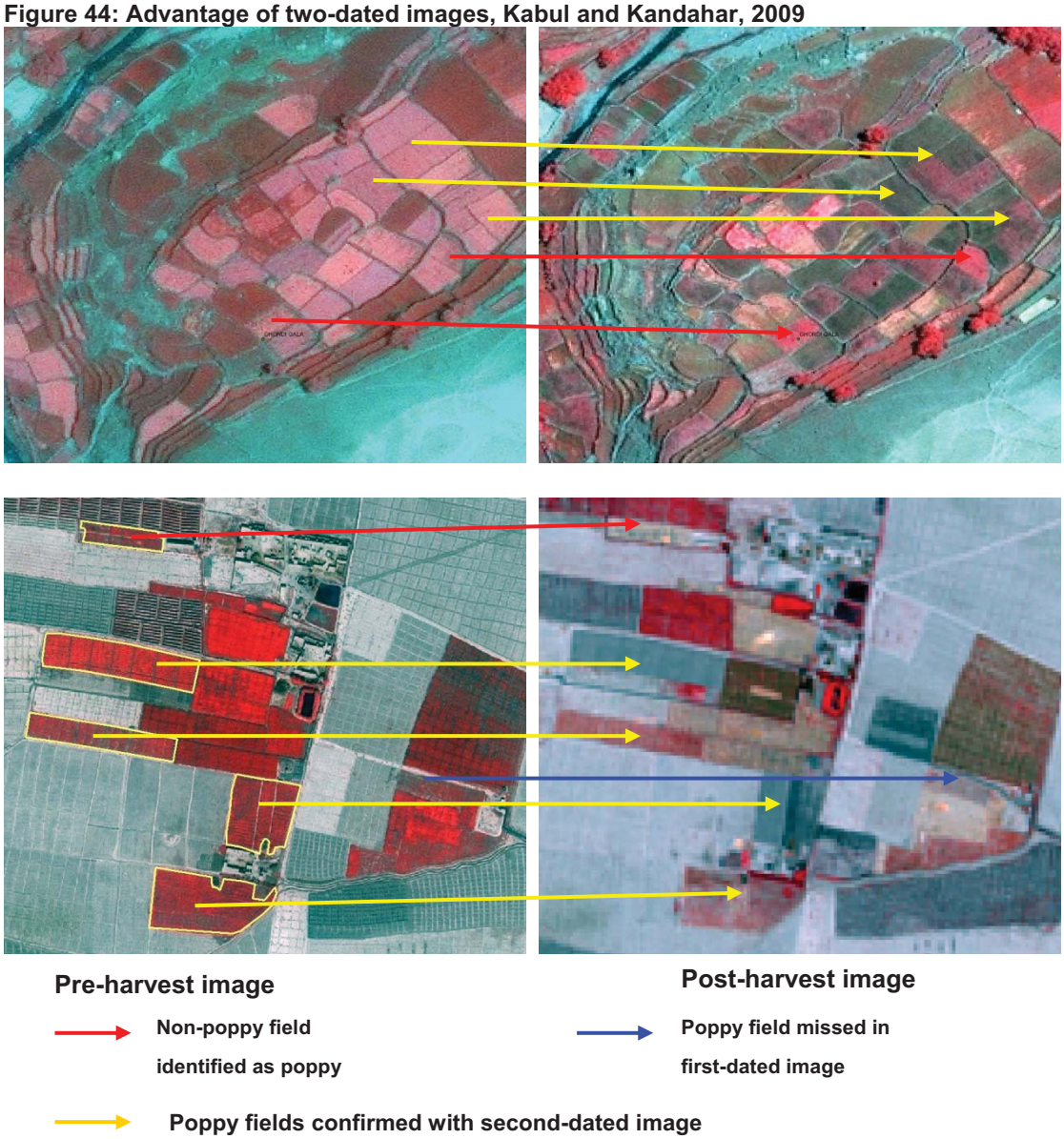


7.2.2.3 Advantage of two-dated images

Visual interpretation of single-dated very high-resolution images was a relatively easy task in Hilmand, Kandahar, Uruzgan, Farah and Nimroz provinces. This was due to larger field sizes and timely acquisition of the images. Interpretation in target provinces Nangarhar, Laghman, Kunar, Kabul, Kapisa, Hirat, Ghor, Baghlan, Faryab and Badakhshan was easy with the help of GPS points and aerial photographs. Interpretation of images in Badghis and Zabul was more difficult

since the spectral signatures of opium poppy were not as clear as in Hilmand, Kandahar, Uruzgan and Nangarhar. The second-dated images were useful to distinguish poppy from barley, wheat and grapes in certain provinces, namely Kabul, Kandahar and Nangarhar, particularly where the first-dated images were acquired late during the senescence stage. The second-dated (post-harvest) images were therefore useful in confirming whether the opium poppy on the first-dated images had been correctly identified. Image acquisition at two different times (pre- and post-harvest) is thus proven to be essential in such cases.

Figure 44: Advantage of two-dated images, Kabul and Kandahar, 2009



7.2.2.4 Quality control

A quality control mechanism was applied to the image interpretation process, with each analyst's work being checked by two other experts. Both first-dated and second-dated images were cross-checked.

All fields determined as likely to be under opium cultivation (potential opium poppy fields) were delineated on the basis of the interpretation of first-dated satellite imagery. In some cases a second-dated image was acquired for the purpose of confirmation. The corrections involved a few commissions and omissions.

7.3 Opium yield and production

7.3.1 Estimating opium yield

The relationship between poppy capsule volume per square metre and dry opium yield is used to estimate opium production.[30] It takes the form of a non-rectangular hyperbola.

Non-rectangular hyperbola formula for opium yield as function of capsule volume:

$$Y = [(VC + 1495) – ((VC + 1495)^2 – 395.259\ VC)^{0.5}] / 1.795$$

where

Y = Dry opium gum yield (kg/ha), and

VC = Mature capsule volume (cm^3/m^2).

In the yield survey, data on the number of yield capsules per plot and capsule volume is collected. The survey follows the procedure established in the UNODC *Guidelines for Yield Assessment*.

An imaginary transect was drawn on each surveyed field, along which three one-metre square plots were selected. In each plot, the number of flower buds, flowers, immature capsules and mature capsules that were expected to yield opium were counted, and the diameter and height of 10 to 15 opium-yielding capsules were measured with a calliper. The capsule volume per square metre was calculated with these data and entered into the formula for the yield calculation. Each plot thus provided one yield observation. The simple average of the three plots in a field is the field yield. The simple average of all fields in a region is the regional yield. A range was calculated to express the uncertainty of the yield estimate due to sampling with the 95% confidence interval.

Table 43: Regional opium yield values with 95% confidence intervals, 2013 (Kilograms per hectare)

REGION	Best estimate	Lower bound	Upper bound
Central	48.5	41.43	55.56
Eastern	45.1	32.88	57.35
Northern	34.7	28.81	40.67
Southern	23.2	19.34	27.12
Western	26.9	21.66	32.06
National weighted by opium cultivation	**26.3**	**21.6**	**30.8**

7.3.2 Changes to the yield survey and data quality

In 2012 and 2013, the yield survey was significantly reduced in comparison to previous years. Because of the increasingly difficult security situation, only fields where it was possible to complete the survey without time pressure were visited. Furthermore, training was improved and surveyors worked in pairs instead of alone. The survey is therefore no longer statistically representative.

In 2013, data quality checks developed with external experts were also applied. The statistical tests developed in 2011[31] were applied to the capsule measurements, i.e. to the values reported regarding height and diameter, and thus the resulting capsule volumes. Regarding the number of capsules contributing to yield per plot, no systematic tests are available.

[30] UNODC Guidelines for yield assessment of opium gum and coca leaf from brief field visits, UN New York, 2001, ST/NAR/33. See also UNODC (2003): Limited opium yield assessment surveys. Technical report: Observations and findings. Guidance for future activities. In: Scientific and Technical Notes, SCITEC/19, December 2003.

[31] See MCN/UNODC *Afghanistan Opium Survey 201, December 2011*, page 95.

The results showed that data continued to be of a high quality. In 2013, data collected in Badakhsan (30 fields) had to be excluded. MCN and UNODC continue to work on improving the yield surveys.

Table 44: Yield survey villages and fields surveyed (all data)**, 2009-2013**

	2009	2010	2011	2012	2013
Number of villages	248	240	232	41	48
Number of fields (max. 3 per village)	699	685	685	114	142
Number of plots (3 per field)	2,415	2,040	2,055	342	426
Number of capsules measured	26,901	20,474	20,769	3,211	4,009

7.3.3 Estimating opium production

Opium production was calculated by the estimated regional area under opium cultivation being multiplied by the corresponding regional opium yield. All opium estimates in this report are expressed in oven-dry opium equivalent, i.e. the opium is assumed to contain 0% moisture. The same figure expressed in air-dry opium, i.e. opium under "normal" conditions as traded, would be higher as such air-dry opium contains some moisture.

The point estimates and uncertainties of the opium production estimate due to sampling for the area under poppy cultivation and yield can be expressed as $a_p \pm \Delta a$ and $y_p \pm \Delta y$, respectively, where the uncertainty is determined from the 95% confidence intervals.

These uncertainties will impact on the estimate of production ($p_p \pm \Delta p$, or equivalently expressed as the range ($p_p - \Delta p$, $p_p + \Delta p$)), where the best estimate $p_p = a_p y_p$, such that

$$\frac{\Delta p}{p_p} = \left[\left(\frac{\Delta a}{a_p} \right)^2 + \left(\frac{\Delta y}{y_p} \right)^2 \right]^{\frac{1}{2}}$$

expresses the error in production, Δp , resulting from uncertainty in the estimates for cultivation area and yield.

For targeted regions there is no sampling error in the area under cultivation. In such cases, the error in production relates only to the uncertainty in the yield and is given by $\Delta p = p_p \Delta y / y_p$.

Yield survey training in Kabul, 2012

7.4 Eradication verification methodology

7.4.1 Verification of Governor-led eradication (GLE)

UNODC/MCN has improved field-based verification activities since 2010 by enhancing the control mechanism. The areas verified by eradication verifiers were randomly checked by the team leader and UNODC/MCN survey coordinators for validation of the reported figures. A total of 124 eradication verifiers were trained in eradication verification techniques and deployed in a phased manner to provinces where eradication activities were envisaged. The eradication verifiers were part of the eradication teams led by the respective provincial governor. Verifiers reported to the office of Provincial Governors at the last week of February 2013.

Verification methodology for GLE:

- Eradication verifiers were part of the Governor-led eradication teams.

- The verifiers took measurements of each eradicated field by their pace length, converted them into metres and calculated the area in jerib (1 jerib=2000 m^2), collected field coordinates using new GPS cameras and took photographs.
- The verifiers drew sketch maps of each field as a reference for area calculations.
- The verification-reporting officers in Kabul obtained the provisional data from the verifiers by telephone (mobile/satellite phones) and updated the database on a daily basis.
- The verifiers filled in hardcopy survey forms and submitted them to UNODC regional offices. The forms were then sent to the Kabul office for data entry. Quality control was undertaken by MCN/UNODC survey coordinators at the regional level. Eradicated fields were revisited randomly by team leaders and MCN/UNODC survey coordinators to check the accuracy of the reports. Further validation of the results was done using data obtained through helicopter flights, as well as from satellite imagery, to calculate the final area of eradicated poppy fields wherever possible.
- In Hilmand province, the area calculations of the eradicated poppy fields is facilitated by calculating the area of fields automatically using a standard template in Excel file, thus avoiding manual calculation errors at field level.
- MCN/UNODC published periodical reports on a weekly basis to inform stakeholders of eradication activities. The eradication figures provided in these reports were considered provisional until they were finalized based on field checks and/or checks based on the satellite image interpretation.

7.5 Village survey methodology

Village survey activities (such as training, deployment and data collection) were carried out from March to July 2013 by 115 local field surveyors across all provinces. These activities were supervised jointly by MCN and UNODC. The surveyors were selected on the basis of their experience in opium poppy surveys, knowledge of local customs and their acceptance by local communities. Security was generally problematic for the surveyors, but the selection of surveyors actually from the regions surveyed helped to reduce security risks.

7.5.1 Sampling framework and village frame

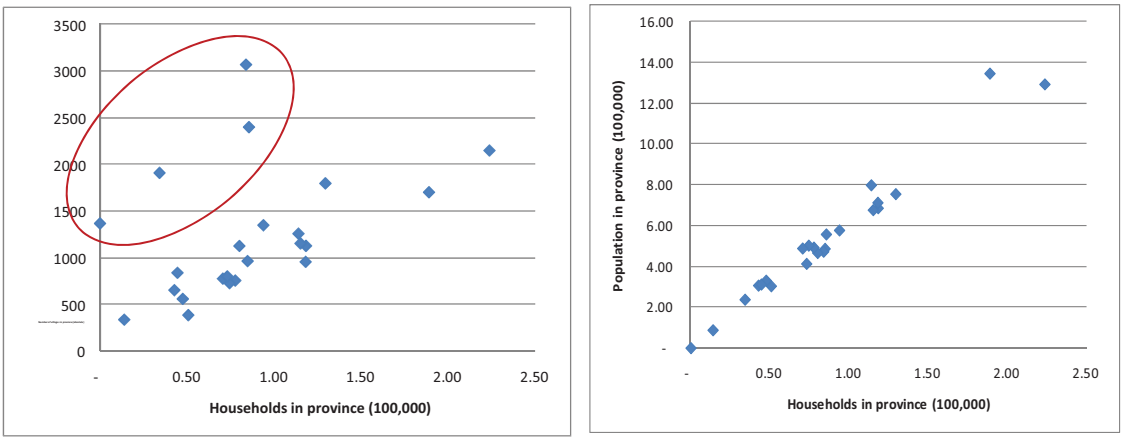
The sampling frame for the village survey data is comprised of a list of 41,419 villages in Afghanistan, which is based on information from the Central Statistical Office and UN databases. It contains the village name, district, province and location and, for most provinces, also the number of households and average household size of the villages listed. The village frame has not been updated since 2010. In addition to the sampled villages, the surveyors, using their knowledge of the local situation, visited other areas in their provinces to complement their assessment of opium cultivation trends and the security situation throughout the province.

The sample of villages visited was a nationally representative sample. It was drawn by means of a systematic random sampling approach stratified according to regions that assured the sample followed the distribution of village sizes in the frame. The sample size was allocated proportionally to the square root of the size of the region (measured by the number of villages).

Surveyors sought to interview three farmers in each village: one opium-growing farmer; one who had stopped opium cultivation; and one who had never grown opium. In poppy-free villages, less than three farmers were interviewed. Interview partners were recruited by opportunity sampling.

The following two figures show scatter plots of the numbers of households (x-axes) together with the numbers of villages (left) and with the population size (right).

Figure 45: Scatter plots of household data, village data and population data of the village frame



As one can see, the total population is highly correlated with total numbers of households (all dots align along one line), whereas the number of villages compared to the numbers of households in the province has four remarkable outliers in the Day Kundi, Kandahar, Nangarhar and Zabul provinces (all within the red circle). When compared to household numbers a relatively larger number of villages can come from a significantly smaller size of village. However, double counting of villages or other problems with the database cannot be excluded. Deeper analyses of these issues are out of the scope of this survey, but the discrepancies between the number of villages and the number of households in some provinces should be kept in mind when interpreting the results. Too large a number (relatively) of villages can lead to an overestimation of indicators of interest.

7.5.2 Surveyor training

Until 2007, all surveyors were provided with village survey training in Kabul. In order to prepare for the 2009 village survey, and as part of a capacity-building exercise for national staff, regional survey coordinators and their assistants were trained in Kabul over a four-day period. They, in turn, trained surveyors in their respective regions. The extension of survey training sessions to the regional level is one of the milestones reached in building national capacity to conduct opium poppy surveys.

During the training period, a total of 115 surveyors and 11 MCN/UNODC survey coordinators were trained in the use of the survey form and techniques. Surveyor training began in March 2008 and was conducted by MCN under the supervision of UNODC national staff. The training included practical (use of GPS, area calculation, etc.) and theoretical aspects (interviewing and dialogue with village headmen and farmers).

7.5.2.1 Data collection

Opium cultivation is illegal in Afghanistan and is considered to be forbidden by Islam. Given the sensitive nature of the issue, data collection is difficult and can be dangerous. Surveyors are thus selected from different regions of Afghanistan by means of a very careful process. MCN and UNODC regional offices and coordinators recruit surveyors according to survey specifications and the surveyors' skills. Most of those selected already have experience of conducting UNODC surveys.

Surveyors were trained in techniques for approaching local community members and conducting interviews. Following intensive theoretical and practical training, they were deployed to the field where they interviewed village headmen and conducted other survey-related activities. MCN and UNODC coordinators closely monitored data quality and the progress of the survey. Fortunately, the surveyors did not encounter any security problems.

7.5.2.2 Debriefing

After the survey, surveyors were debriefed by survey coordinators, whom it helps to understand the difficulties surveyors may have encountered (for example, due to the difficult security situation) and whether questions were properly understood by respondents.

7.6 Average farm-gate price and farm-gate value of opium production

Since 2009, farm-gate prices at harvest time have been derived from the opium price monitoring system and refer to the month when opium harvesting actually took place in the different regions of the country, which is thought to reflect opium prices at harvest time better. To calculate the national average price, regional price averages were weighted by regional opium production. The opium price in the Central region was calculated from the annual village survey, as there is no monthly opium price monitoring in that region.

The farm-gate value of opium production is the product of potential opium production at the national level multiplied by the weighted average farm-gate price of dry opium at harvest time. The upper and lower limits of the range of the farm-gate value were determined by using the upper and lower opium production estimate.

7.7 Estimating the value of the Afghan opiate economy

7.7.1 Key components and underlying assumptions

- **Conversion factors** A factor of 7:1 is used for the conversion of opium into morphine, while a factor of 1:1 is used for the conversion of morphine into heroin. Both of these factors are under investigation by, for example, the on-going yield experiments that include investigations into the morphine content of Afghan opium. The heroin figures calculated here refer to "brown" heroin base. More than 7 kilograms of opium is needed for the production of 1 kilogram of high quality white heroin (heroin hydrochloride). However, the export of such high-quality white heroin from Afghanistan appears to be very limited in comparison to that of brown heroin, thus the production and export of white heroin were not considered in this estimation. None of the factors in the opium-to-heroin estimation chain is well researched, but opium samples are collected and investigated for their morphine content so as to gather more information on these issues

- **Precursor substances.** For the production of 1 kilogram of heroin, 1.5 litres of the costly precursor substance Acetic Anhydride is needed (updated in 2011 from 2.5 litres).

- **Purity.** The calculation of the value of the opium economy is limited by the fact that the drug products leaving laboratories in Afghanistan may undergo further processing, such as adulterations, before reaching assumed points of sale in neighbouring countries. Indeed, there is evidence that heroin is mixed with cutting agents already in Afghanistan. This is done to increase profitability but can also be done for other reasons, such as tailoring the drug product for specific usages,[32] which not only alters the volume of the drug exported but also influences costs. These factors cannot be estimated at the moment, but it is reasonable to assume that the use of cutting agents would increase the profitability of exporting opiates. Not taking them into account could thus lead to an under-estimation of the export value of the opium economy.

- **Amounts of opium converted to morphine/heroin.** When estimating the amount of opium converted to heroin, seizures in Afghanistan and in neighbouring countries, such as the Islamic Republic of Iran, Pakistan and Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan), are considered in the model. There are indications of direct drug exports to China and India as well as to other countries by air or land, but the amounts trafficked through those routes are thought to be comparatively small and are not considered in the model. All seizure data from Afghanistan and neighbouring

[32] See UNODC (2009): World Drug Report 2009, p. 61, where evidence from the forensic laboratory of CNPA is presented confirming the use of various cutting agents in Afghanistan in 2008.

countries is used for the estimation, which implicitly assumes that the shares converted in and exported from Afghanistan are proportional to all seizures made in those countries.

- **Morphine/heroin exports.** Recent morphine seizures bear evidence of morphine exports from Afghanistan to neighbouring countries. No difference is made between morphine and heroin in their estimation, as the proportion of opiates exported as morphine is not known. Morphine and heroin are both treated as pure heroin in the calculations.
- **Income from trafficking.** The value of exported opium (partly transformed into morphine/heroin) was based on its value at border areas with neighbouring countries. Opiates are usually trafficked to neighbouring countries by Afghan traffickers who, in general, are involved in shipping the opiates over the borders, from where traffickers from neighbouring countries take over the consignments. The total gross value of exported Afghan opium can therefore be estimated by multiplying wholesale prices for opium and heroin in the border regions of neighbouring countries by estimated amounts of drugs trafficked.
- **Domestic market.** The calculation of opiates consumed within Afghanistan uses the drug use estimates from the 2009 Drug Use Survey implemented by the Government of Afghanistan and UNODC, as well as more recent price data. The average quantity of opiates typically consumed per day was 0.35 grams; the quantity of opium consumed was 3.1 grams per day. The underlying assumption is that the quantity used has not changed since 2009. This might be a simplification, because recent strong increases in price levels may have led to a reduction in use (elasticity of demand), either by reducing the number of users and/or the quantities used.
- **Gross and net export value.** For the calculation of gross export value, the potential volumes of opium and heroin exported to neighbouring countries were multiplied by the corresponding average cross-border prices. The total gross export value is the combined gross export value of opium and morphine/heroin exports. As indicated above, morphine exports are not considered separately and all processed opium exports are assumed to be in the form of heroin. To estimate the net value, the value of imports has to be subtracted from the gross value of all final goods, since this is income lost to the exporting country (Afghanistan). There are many imports necessary for opiate production but only imports of the main precursor substance for heroin production were considered in the calculation.

7.7.2 Components of the estimation

The opium economy estimation process includes the following steps:

- Estimation of the gross value of the domestic market for heroin/morphine and opium;
- Estimation of the gross export value of the remaining opium in the form of opium or heroin/morphine, after deducting seizures and domestic consumption. The respective value is calculated by multiplying quantities by prices in respective neighbouring countries;
- Estimation of the net value of the economy by subtracting the costs of imported precursors used for the production of domestically consumed opiates and the gross export value of remaining opiates;
- Therefore, up-to-date cross-border (for the export value) and end-consumer market (for the domestic market value) prices are needed, as well as the prices of the main precursor substances;
- Furthermore, in order to estimate the amount of opium needed for each of those markets a conversion factor for opium into morphine and heroin is needed.

7.7.3 Proportion of opium converted into morphine and heroin

The proportion of opium converted into morphine and heroin was derived from seizure data in Afghanistan and its neighbouring countries. A three-year average of all reported amounts was taken.

Table 45: Proportions of opiate seizures in Afghanistan and neighbouring countries
(Percentage)

Distribution	2010	2011	2012	Average 2010-2012 weighted by amounts seized
Opium	55%	42%	45%	46%
Heroin	12%	30%	37%	25%
Morphine	33%	28%	18%	28%

As seizures are often driven by pure chance and seizure data have some inherent uncertainties, changes should be interpreted with caution. Information from the CNPA laboratory indicates that not all assumed seizures of heroin turn out to actually contain heroin, or they contain heroin in combination with various other substances.[33] This is rather typical for seizures and not specific only to Afghanistan. The present level of information does not allow the correction of official seizure figures for purity.

7.7.4 Prices

For Pakistan, the cross-border price of opium was the simple average of the average monthly wholesale price in Peshawar, Pakistan (between March and December 2012) and the average monthly wholesale price in Quetta, Pakistan (between March and December 2012).[34]

Similarly, heroin prices were calculated from the monthly wholesale prices of best-quality heroin in Peshawar and Quetta. The higher best-quality price for heroin of injection quality was used to account for adulterations and other profit-increasing methods. All these prices were collected by UNODC in the framework of its monthly drug price monitoring.

For Central Asia, prices from Tajikistan, as reported by the *Paris Pact Drug Situation Report,* were used. The same report was the source of the prices for the Islamic Republic of Iran in 2012.

The simple average of the average prices (Central Asia, Islamic Republic of Iran and Pakistan) was used for estimating the value of exported opiates. It should be noted that price information obtained from all three countries has strong limitations and needs be improved in order to enhance the reliability of the estimate.

7.7.5 Estimation of domestic consumption

In 2009, the Ministries of Health and Counter Narcotics, in collaboration with UNODC, implemented an extensive national drug use survey in Afghanistan,[35] in which the number of opium and heroin users in the country was estimated to be 230,000 (210,000-260,000) and 120,000 (110,000-140,000), respectively. These numbers account for poly-drug use, i.e. one person is counted in both groups if using both opium and heroin.

The report provides information on the numbers of days that both groups consume the drugs. This information, together with the average amount spent on each drug per day, can be used to calculate the total amount spent on opium and heroin in Afghanistan in a given year. This total amount divided by the average end-consumer price gives the total quantity consumed. As there were no end-consumer prices available for 2009, the earliest (and lowest) data available, which was the price average of October 2010, was used. The price of 1 kilogram of heroin was reported to be US$ 6,300 and of 1 kilogram of opium to be US$ 530. Combining the price data with the other estimates yields the results shown in the following table.

[33] Counter Narcotics Police of Afghanistan, Forensic Laboratory/UNODC (2008): Laboratory Information Bulletin 12/2008 (LIB IV/2008). http://www.unodc.org/pdf/scientific/LIB%20IV-2008_Kabul-.pdf.

[34] Ministry of Counter Narcotics and UNODC: Afghanistan Opium Price Monitoring, 2012.

[35] Ministry of Counter Narcotics/Ministry of Health/UNODC: Drug Use in Afghanistan: 2009 Survey (in print).

Table 46: Domestic opiate market, 2009

	Days consumed, 2009*	Total expenditure (US$), 2009	Total consumption (tons)	Average daily consumption (grams)
Opium	58,045,000	92,872,000	175	3
Heroin/ Morphine	34,142,000	75,113,000	12	0.4

**Source: Ministry of Counter Narcotics/Ministry of Health/UNODC: Drug Use in Afghanistan: 2009 Survey.*

The resulting average daily consumption is a sensible magnitude for Afghanistan and is confirmed by regular non-representative use surveys undertaken by MCN/UNODC among heavy users in Afghanistan. It should be noted that there are indications that the quality of heroin/morphine at street level is very poor. When multiplying these quantities consumed by current end-consumer level prices, the value of the domestic opiate market can be calculated.

ANNEX I: OPIUM POPPY CULTIVATION PER PROVINCE, 2002-2013 (HECTARES)

PROVINCE	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Change 2012-2013 (ha)	Change 2012-2013 (%)
Badakhshan	8,250	12,756	15,607	7,370	13,056	3,642	200	557	1,100	1,705	1,927	2,374	+447	+23%
Badghis	26	170	614	2,967	3,205	4,219	587	5,411	2,958	1,990	2,363	3,596	+1233	+52%
Baghlan	152	597	2,444	2,563	2,742	671	475	Poppy-free	Poppy-free	161	177	141	-36	-20%
Balkh	217	1,108	2,495	10,837	7,232	-	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	410	NA	NA
Bamyan	-	610	803	126	17	-	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Day Kundi	-	2,445	3,715	2,581	7,044	3,346	2,273	3,002	1,547	1,003	1,058	1,536	+478	+45%
Farah	500	1,700	2,288	10,240	7,694	14,865	15,010	12,405	14,552	17,499	27,733	24,492	-3241	-12%
Faryab	28	766	3,249	2,665	3,040	2,866	291	Poppy-free	Poppy-free	Poppy-free	Poppy-free	158	NA	NA
Ghazni	-	-	62	9	-	-	Poppy-free	Poppy-free	Poppy-free	145	Poppy-free	Poppy-free	NA	NA
Ghor	2,200	3,782	4,983	2,689	4,679	1,503	Poppy-free	Poppy-free	Poppy-free	Poppy-free	125	264	+139	+111%
Hilmand	29,950	15,371	29,353	26,500	69,324	102,770	103,590	69,833	65,045	63,307	75,176	100,693	+25517	+34%
Hirat	50	134	2,531	1,924	2,287	1,525	266	556	360	366	1,080	952	-128	-12%
Jawzjan	137	888	1,673	1,748	2,024	1,085	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Kabul	58	237	282	-	80	500	310	132	152	220	120	298	+178	+148%
Kandahar	3,970	3,055	4,959	12,989	12,619	16,615	14,623	19,811	25,835	27,213	24,341	28,335	+3994	+16%
Kapisa	207	326	522	115	282	835	436	Poppy-free	Poppy-free	181	290	583	+293	+101%
Khost	-	375	838	2	133	-	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Kunar	972	2,025	4,366	1,059	932	446	290	164	154	578	1,279	1,127	-152	-12%
Kunduz	16	49	224	275	102	-	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Laghman	950	1,907	2,756	274	710	561	425	135	234	624	877	1,236	+359	+41%
Logar	-	-	24	-	-	-	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Nangarhar	19,780	18,904	28,213	1,093	4,872	18,739	0	294	719	2,700	3,151	15,719	+12569	+399%
Nimroz	300	26	115	1,690	1,955	6,507	6,203	428	2,039	2,493	3,808	16,252	+12445	+327%
Nuristan	-	648	764	1,554	1,516	0	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Paktika	-	-	-	-	-	-	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Paktya	38	721	1,200	-	-	-	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Panjshir	-	-	-	-	-	-	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Parwan	-	-	1,310	-	124	-	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Samangan	100	101	1,151	3,874	1,960	-	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Sari Pul	57	1,428	1,974	3,227	2,252	260	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Takhar	788	380	762	1,364	2,178	1,211	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Uruzgan	5,100	4,698	7,365	2,024	9,703	9,204	9,939	9224	7,337	10,620	10,508	9,880	-628	-6%
Wardak	-	2,735	1,017	106	-	-	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	Poppy-free	NA	NA
Zabul	200	2,541	2,977	2,053	3,210	1,611	2,335	1,144	483	262	424	1,335	+911	+215%
Total (rounded)	**74,000**	**80,000**	**131,000**	**104,000**	**165,000**	**193,000**	**157,000**	**123,000**	**123,000**	**131,000**	**154,000**	**209,000**	**+55,000**	**+36%**

ANNEX II: INDICATIVE DISTRICT LEVEL ESTIMATES OF OPIUM CULTIVATION, 2002-2013 (HECTARES)[36]

Province	District	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Badakhshan	Arghanj Khwah							54	0	0	0	0	0	0
Badakhshan	Argo							210	60	203	327	617	610	565
Badakhshan	Baharak	345	180		5,544	1,635	710	0	14	2	0	0	43	322
Badakhshan	Darayim							682	43	145	289	662	898	684
Badakhshan	Darwaz-i Payin (mamay)						0	0	0	0	0	0	0	0
Badakhshan	Darwaz-i- Bala (nesay)							0	0	0	0	0	0	0
Badakhshan	Faiz abad (Provincial Center)	868	2,370	3,109	2,362	3,111	7,154	83	64	11	10	64	7	48
Badakhshan	Eshkashim						0	0	0	0	0	0	0	0
Badakhshan	Jurm	2,897	2,690	4,502	4,818	1,460	2,027	170	6	6	2	43	98	196
Badakhshan	Khash							999	7	6	4	46	0	0
Badakhshan	Khwahan						0	0	0	0	0	0	0	5
Badakhshan	Kishim	2,191	2,840	4,530	2,883	1,076	3,165	0	2	68	204	73	45	141
Badakhshan	Kohistan							0	0	0	0	0	2	0
Badakhshan	Kuf Ab							0	0	0	0	0	0	0
Badakhshan	Kiran wa Munjan					48	0	10	0	0	0	0	0	0
Badakhshan	Raghistan						0	400	0	0	0	0	19	9
Badakhshan	Shahri Buzurg	41	170	615		39	0	313	0	2	3	3	36	148
Badakhshan	Shighnan						0	0	0	0	0	0	0	0
Badakhshan	Shiki							0	0	0	0	0	0	0
Badakhshan	Shuhada							0	0	0	0	0	12	86
Badakhshan	Tagab							93	0	0	0	0	22	36
Badakhshan	Tashkan							136	0	57	163	145	73	107
Badakhshan	Wakhan						0	0	0	0	0	0	0	0
Badakhshan	Wardooj							9	3	14	1	1	0	0
Badakhshan	Yaftal-i-Sufla							305	0	43	97	50	32	18
Badakhshan	Yamgan							10	0	0	0	1	0	5
Badakhshan	Yawan							166	0	0	0	0	30	0
Badakhshan	Zaybak						0	0	0	0	0	0	0	0
Badakhshan Total		**6,342**	**8,250**	**12,756**	**15,607**	**7,369**	**13,056**	**3,642**	**200**	**557**	**1,100**	**1,705**	**1,927**	**2,374**
Badghis	Ab Kamari						127	0	11	161	16	5	14	24
Badghis	Ghormach		4	101		944	624	250	328	299	486	1485	1005	2395
Badghis	Jawand				226	134	431	66	13	1,090	130	106	187	850
Badghis	Muqur						220	149	7	102	81	9	61	26
Badghis	Bala Murghab		22	69	345	1,889	1,034	3,557	81	2,754	2055	284	870	0
Badghis	Qadis						391	198	146	906	135	92	152	264
Badghis	Qala-i-Now (Provincial Center)				43		378	0	0	99	55	9	75	37
Badghis Total		**0**	**26**	**170**	**614**	**2,967**	**3,205**	**4,219**	**587**	**5,411**	**2,958**	**1,990**	**2,363**	**3,596**
Baghlan	Andarab	81	31	301	564	548	947	130	475	0	0	18	5	3
Baghlan	Baghlan *		120	16	154	374	72		0	0	0	0	0	0
Baghlan	Baghlan-i-Jadeed				81	248	371	287	0	0	0	0	0	0
Baghlan	Burka				198	242	39	31	0	0	0	0	0	4
Baghlan	Dahana-i- Ghuri			37	200	24	35	0	0	0	0	0	0	0
Baghlan	Deh Salah							14	0	0	0	113	33	37
Baghlan	Dushi				89	116	174	68	0	0	0	0	0	0
Baghlan	Firing Wa Gharu							0	0	0	0	0	0	0
Baghlan	Gozargah-i-Noor							30	0	0	0	0	0	0
Baghlan	Kahmard *				527	263	255		0	0	0	0	0	0
Baghlan	Khinjan			9	21	92	137	23	0	0	0	0	0	0
Baghlan	Khost Wa Firing			21	0	295	442	56	0	0	0	0	0	0
Baghlan	Khwajah Hijran (Jalgah)							10	0	0	0	0	0	0
Baghlan	Nahreen	1		63	276	35	36	0	0	0	0	0	0	0
Baghlan	Pul-i-Hisar							0	0	0	0	30	139	97
Baghlan	Pul-i-Khumri (Provincial Center)		1	37	173	224	81	21	0	0	0	0	0	0
Baghlan	Talah wa Barfak			113	161	102	153	0	0	0	0	0	0	0
Baghlan Total		**82**	**152**	**597**	**2,444**	**2,563**	**2,742**	**671**	**475**	**p-f**	**p-f**	**161**	**177**	**141**
Balkh	Balkh	1	22	332	411	2,786	1,975	0	0	0	0	0	0	0
Balkh	Chahar Bolak			68	877	2,701	799	0	0	0	0	0	0	10
Balkh	Chahar Kent				23	25	16	0	0	0	0	0	0	0
Balkh	Chimtal		153	617	258	1,878	2,074	0	0	0	0	0	0	400
Balkh	Dowlat abad	3	-		141	202	181	0	0	0	0	0	0	0
Balkh	Dehdadi		8	35	16	990	307	0	0	0	0	0	0	0
Balkh	Kaldar (Shahrak-i-Hairatan)				152	395	123	0	0	0	0	0	0	0
Balkh	Khulm				50	367	0	0	0	0	0	0	0	0
Balkh	Kishindeh				111	290	189	0	0	0	0	0	0	0
Balkh	Marmul				3	18	12	0	0	0	0	0	0	0
Balkh	Mazar-i-Sharif				50	119	78	0	0	0	0	0	0	0
Balkh	Nahr-i-Shahi		14	30	139	425	833	0	0	0	0	0	0	0
Balkh	Sholgarah		19	28	256	543	245	0	0	0	0	0	0	0
Balkh	Shortepa				8	98	401	0	0	0	0	0	0	0
Balkh	Zari							0	0	0	0	0	0	0
Balkh Total		**4**	**217**	**1,108**	**2,495**	**10,837**	**7,233**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**410**

[36] The survey is designed to produce province level estimates. District estimates are derived by a combination of different approaches. They are indicative only, and suggest a possible distribution of the estimated provincial poppy area among the districts of a province.

ANNEX II (continued…)

Province	District	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Bamyan	Bamyan (Provincial Center)			20	93	19	17	0	0	0	0	0	0	0
Bamyan	Panjab			250	31		0	0	0	0	0	0	0	0
Bamyan	Saighan							0	0	0	0	0	0	0
Bamyan	Shebar			36	492	107	0	0	0	0	0	0	0	0
Bamyan	Waras			191	64		0	0	0	0	0	0	0	0
Bamyan	Yakawlang			112	123		0	0	0	0	0	0	0	0
Bamyan Total				**610**	**803**	**126**	**17**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**
Day Kundi	Day Kundi *	0	-	836	1,996		1,948			0	0	0	0	0
Day Kundi	Gizab	0	-	776	1,109		1,243	1,054	665	810	722	621	684	727
Day Kundi	Ishtarlay							535	214	239	9	9	9	6
Day Kundi	Kajran	0	-	418	189		1,633	366	357	704	622	153	288	700
Day Kundi	Khedir							531	289	160	5	8	9	4
Day Kundi	Kiti							282	168	284	134	151	14	0
Day Kundi	Mir Amor							512	281	703	19	22	5	12
Day Kundi	Nili (Provincial Center)							0	214	5	5	9	16	3
Day Kundi	Sang-i-Takht							2	1	68	10	15	8	30
Day Kundi	Shahristan	1	-	415	421		2,220	64	85	29	21	13	25	53
Day Kundi Total		**1**	**0**	**2,445**	**3,715**	**2,581**	**7,044**	**3,346**	**2,273**	**3,002**	**1,547**	**1,003**	**1,058**	**1,536**
Farah	Anar Darah				91	1,828	143	16	239	79	1	9	3	314
Farah	Bakwah				39	390	1,093	3,458	3,090	3,570	1,936	800	5,822	8844
Farah	Bala Buluk			513	336	1,665	1,669	5,312	1,509	2,705	2,586	3,157	3,951	1947
Farah	Delaram									3,011	4,404	4,263	8,899	part of Nimroz
Farah	Farah (Provincial Center)				87	729	905	1,328	1,013	1,142	51	0	129	4451
Farah	Gulistan			1,187	447	163	202	1,132	4,756	1,355	2,661	4,565	3,920	3759
Farah	Khaki-Safed				84	432	537	99	609	232	645	1,103	2,220	1186
Farah	Lash-i-Juwayn				41	1,568	215	233	109	45	3	6	2	179
Farah	Pur Chaman				409	293	363	1,549	1,046	96	2,175	3,512	2,164	230
Farah	PushtRod				554	2,482	1,709	1,314	1,588	46	61	46	505	2521
Farah	Qala-i-Kah				189	407	506	337	888	47	11	39	117	914
Farah	Shib Koh				12	283	352	87	163	77	18	0	0	149
Farah Total		**0**	**500**	**1,700**	**2,289**	**10,240**	**7,694**	**14,865**	**15,010**	**12,405**	**14,552**	**17,499**	**27,733**	**24,492**
Faryab	Almar				239	57	338	213	0	0	0	0	0	0
Faryab	Andkhoy				15	13	31	0	0	0	0	0	0	0
Faryab	Bil Chiragh		26	232	24		322	620	102	0	0	0	0	0
Faryab	Dowlat abad				78	133	27	0	0	0	0	0	0	0
Faryab	Gurziwan							101	0	0	0	75	0	46
Faryab	Khani ChaharBagh				205	6	490	0	0	0	0	0	0	0
Faryab	Khwajah Sabz Poshi Wali				129	451	375	238	0	0	0	0	0	0
Faryab	Kohistan				640	50	84	152	10	0	0	49	0	65
Faryab	Maimanah				248		218	66	10	0	0	0	0	0
Faryab	Pashtun Kot		1	281	429	97	60	249	0	0	0	9	0	1
Faryab	Qaram Qul				55	138	43	0	0	0	0	0	0	0
Faryab	Qaisar			150	1,050	579	880	303	168	0	0	13	0	46
Faryab	Qurghan							0	0	0	0	0	0	0
Faryab	Shirin Tagab			103	137	1,141	172	924	0	0	0	0	0	0
Faryab Total		**0**	**28**	**766**	**3,249**	**2,665**	**3,040**	**2,866**	**291**	**p-f**	**p-f**	**146**	**p-f**	**158**
Ghazni	Ab Band						0	0	0	0	0	0	0	0
Ghazni	Ajristan		-		62		0	0	0	0	0	0	0	0
Ghazni	Andar						0	0	0	0	0	0	0	0
Ghazni	Bahram-e Shahid (Jaghatu)					9	0	0	0	0	0	0	0	0
Ghazni	Deh Yak						0	0	0	0	0	0	0	0
Ghazni	Gelan						0	0	0	0	0	0	0	0
Ghazni	Ghazni (Provincial Center)						0	0	0	0	0	0	0	0
Ghazni	Giro						0	0	0	0	0	0	0	0
Ghazni	Jaghatu *						0		0	0	0	0	0	0
Ghazni	Jaghuri						0	0	0	0	0	0	0	0
Ghazni	Khwajah Omari						0	0	0	0	0	0	0	0
Ghazni	Malistan						0	0	0	0	0	0	0	0
Ghazni	Muqur						0	0	0	0	0	0	0	0
Ghazni	Nawa						0	0	0	0	0	0	0	0
Ghazni	Nawur						0	0	0	0	0	0	0	0
Ghazni	Qara Bagh						0	0	0	0	0	0	0	0
Ghazni	Rashidan						0	0	0	0	0	0	0	0
Ghazni	Waghaz						0	0	0	0	0	0	0	0
Ghazni	Wali Muhammad Shadid Khugyani						0	0	0	0	0	0	0	0
Ghazni	Zanakhan						0	0	0	0	0	0	0	0
Ghazni Total		**0**	**0**	**0**	**62**	**9**	**0**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**
Ghor	Chaghcharan (Provincial Center)		700	1,189	872	1,149	1,233	910	0	0	0	0	71	72
Ghor	Chahar Sadah							41	0	0	0	0	0	64
Ghor	Dowlatyar							132	0	0	0	0	5	82
Ghor	Do Lainah							131	0	0	0	0	16	9
Ghor	Lal Wa Sarjangal				1,055	718	771	200	0	0	0	0	0	0
Ghor	Pasaband		700	805	175	48	241	17	0	0	0	0	0	0
Ghor	Saghar		300	256	340	120	283	18	0	0	0	0	0	0
Ghor	Shahrak			640	902	18	1,398	0	0	0	0	0	33	37
Ghor	Taywara		500	808	649	240	608	39	0	0	0	0	0	0
Ghor	Tulak			84	990	396	145	16	0	0	0	0	0	0
Ghor Total			**2,200**	**3,782**	**4,983**	**2,689**	**4,679**	**1,503**	**p-f**	**p-f**	**p-f**	**p-f**	**125**	**264**

ANNEX II (continued…)

Province	District	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Hilmand	Baghran		1,800	2,309	2,232	2,507	2,890	4,287	4,279	3,343	4,049	6,739	2,788	4,037
Hilmand	Dishu		-		369	911	851	1,160	688	475	119	481	1,601	4,161
Hilmand	Garm Ser		2,020	462	1,922	1,912	6,168	6,523	8,000	5,789	6,333	4,342	1,246	4,527
Hilmand	Kajaki		2,640	1,392	1,676	1,639	6,760	5,807	6,240	3,696	3,299	6,435	9,065	10,611
Hilmand	Lashkargah (Provincial Center)		1,140	605	1,380	1,332	4,008	6,320	7,857	4,379	2,014	649	1,469	1,828
Hilmand	Musa Qala		3,690	2,455	2,404	1,664	6,371	8,854	12,687	8,603	8,415	10,340	7,235	10,586
Hilmand	Nad Ali		5,880	870	4,177	2,356	11,652	20,045	20,824	17,063	18,646	5,413	8,038	19,136
Hilmand	Marja										0	2,629	2,046	0
Hilmand	Naher-i-Saraj		1,850	1,575	6,486	3,548	10,386	22,769	13,270	9,598	11,517	12,638	22,468	18,701
Hilmand	Nowzad		2,650	3,096	1,051	3,737	2,707	6,192	3,863	6,473	2,845	4,694	10,822	11,944
Hilmand	Nawa-i-Barukzai		2,730	1,240	3,506	2,552	10,168	6,314	13,978	4,416	1,328	1,610	41	97
Hilmand	Reg-i-Khan Nishin		1,940		1,893	2,772	3,765	8,484	4,720	2,056	2,292	2,120	2,718	5,912
Hilmand	Sangin Qala		2,810	777	1,365	1,184	2,862	5,150	5,532	2,754	2,631	2,941	2,882	3,709
Hilmand	Washer		800	590	892	386	735	865	1,653	1,188	1,555	2,275	2,757	5,445
Hilmand Total		**0**	**29,950**	**15,371**	**29,353**	**26,500**	**69,323**	**102,770**	**103,590**	**69,833**	**65,045**	**63,307**	**75,176**	**100,693**
Hirat	Adraskan				133	9	99	196	22	1	0	0	0	3
Hirat	Chiisht-i-Sharif				166	42	42	0	0	0	0	0	0	0
Hirat	Fersi			134	28	110	111	0	0	0	0	0	0	0
Hirat	Ghoryan				60	238	204	302	0	0	0	0	0	0
Hirat	Gulran				240	33	32	0	0	0	0	0	0	0
Hirat	Guzara				88	231	233	0	0	0	0	0	0	0
Hirat	Hirat				0	16	16	0	0	0	0	0	0	0
Hirat	Enjil				41	394	382	0	0	0	0	0	0	0
Hirat	Karrukh				265	124	121	0	0	0	0	0	0	0
Hirat	Kohsan				4	72	73	146	0	0	0	0	0	0
Hirat	Kushk (Rabat-i-Sangi)				73	64	50	367	43	0	0	0	0	0
Hirat	Kusk-i-Kohnah				3	15	15	0	0	0	0	0	0	0
Hirat	Obe				842	144	131	0	0	0	0	0	0	0
Hirat	Pashtun Zarghun				154	249	242	0	0	0	0	0	0	0
Hirat	Shindand				427	54	408	516	201	555	360	366	1,080	949
Hirat	Zendah Jan				7	128	129	0	0	0	0	0	0	0
Hirat Total		**0**	**50**	**134**	**2,531**	**1,924**	**2,288**	**1,526**	**266**	**556**	**360**	**366**	**1,080**	**952**
Jawzjan	Aqchah		47	171	247	631	30	0	0	0	0	0	0	0
Jawzjan	Darzab				625	272	16	803	0	0	0	0	0	0
Jawzjan	Faizabad		24	280	218	112	473	21	0	0	0	0	0	0
Jawzjan	Khamyab		30	51	40	68	2	0	0	0	0	0	0	0
Jawzjan	Khanaqa							0	0	0	0	0	0	0
Jawzjan	Khwajah DuKoh				19	15	271	0	0	0	0	0	0	0
Jawzjan	Mardyan		4	228	174	21	348	62	0	0	0	0	0	0
Jawzjan	Mingajik		7	64	101	77	38	0	0	0	0	0	0	0
Jawzjan	Qarqin		24	58	151	43	17	0	0	0	0	0	0	0
Jawzjan	Qush Tepah							43	0	0	0	0	0	0
Jawzjan	Sheberghan (Provincial Center)		1	36	98	508	828	156	0	0	0	0	0	0
Jawzjan Total		**0**	**137**	**888**	**1,673**	**1,748**	**2,023**	**1,086**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**
Kabul	Bagrami						0	0	0	0	0	0	0	0
Kabul	Chahar Asyab						0	0	0	0	0	0	0	0
Kabul	DehSabz						0	0	0	0	0	0	0	0
Kabul	Farzah							0	0	0	0	0	0	0
Kabul	Gulara						0	0	0	0	0	0	0	0
Kabul	Estalef						0	0	0	0	0	0	0	0
Kabul	Kabul						0	0	0	0	0	0	0	0
Kabul	Kalakan						0	0	0	0	0	0	0	0
Kabul	Khak-i-Jabar						0	0	0	0	0	0	0	0
Kabul	Mir Bacha Kot						0	0	0	0	0	0	0	0
Kabul	Musahi						0	0	0	0	0	0	0	0
Kabul	Paghman						0	0	0	0	0	0	0	0
Kabul	Qara Bagh						0	0	0	0	0	0	0	0
Kabul	Shakar Dara						0	0	0	0	0	0	0	0
Kabul	Surubi	29	58	237	282		80	500	310	132	152	220	120	298
Kabul Total		**29**	**58**	**237**	**282**	**0**	**80**	**500**	**310**	**132**	**152**	**220**	**120**	**298**

ANNEX II (continued…)

Province	District	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Kapisa	AlaSai				77	82	0	367	0	0	0	3	34	33
Kapisa	Hisah-i-Awal Kohistan							0	0	0	0	0	0	0
Kapisa	Hisah-i-Duwumi Kohistan							0	0	0	0	0	0	0
Kapisa	Koh Band				111	33	0	0	0	0	0	9	16	20
Kapisa	Kohistan *				116		0		0	0	0	0	0	0
Kapisa	Mahmood-i-Raqi (Provincial Center)				10		0	0	0	0	0	0	0	1
Kapisa	Nijrab				92		0	0	0	0	0	14	21	20
Kapisa	Tagab	0	207	326	116		282	468	436	0	0	155	219	508
Kapisa Total		**0**	**207**	**326**	**522**	**115**	**282**	**835**	**436**	**p-f**	**p-f**	**181**	**290**	**582**
Khost	Bak				0		14	0	0	0	0	0	0	0
Khost	Gurbuz				47		10	0	0	0	0	0	0	0
Khost	Jaji Maidan				8		16	0	0	0	0	0	0	0
Khost	Khost Matun (Provincial Center)				0		0	0	0	0	0	0	0	0
Khost	Manduzay (Ismyel Khel)				125		0	0	0	0	0	0	0	0
Khost	Musa Khel (Mangal)				86		0	0	0	0	0	0	0	0
Khost	NadirShah Kot				75		0	0	0	0	0	0	0	0
Khost	Qalandar				39		0	0	0	0	0	0	0	0
Khost	Sabari (Yaqubi)				0		0	0	0	0	0	0	0	0
Khost	Shamul (Dzadran)							0	0	0	0	0	0	0
Khost	Spera			118	0		5	0	0	0	0	0	0	0
Khost	Tanay	6		257	458	2	88	0	0	0	0	0	0	0
Khost	Terayzai (Ali Sher)				0		0	0	0	0	0	0	0	0
Khost Total		**6**	**0**	**375**	**838**	**2**	**133**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**
Kunar	Asad Abad (Provincial center	1	140	396	841	270	356	42	252	4	0	0	61	342
Kunar	Bar Kunar (Asmar)	31	40	163	52	14	10	111	7	9	7	18	62	83
Kunar	Chapa Dara				535	147	23	0	0	0	12	42	0	0
Kunar	Dangam	4	49		44	22	9	90	0	9	0	43	30	46
Kunar	Dara-i-Pech	11	263	310	585	76	183	0	0	1	5	170	298	254
Kunar	Ghazi Abad							5	0	0	4	13	0	0
Kunar	Khas Kunar		70		298	41	18	8	1	0	0	0	57	79
Kunar	Mara warah			345	170	22	33	6	0	84	0	2	4	1
Kunar	Narang wa Badil	10	100	173	425	55	25	57	0	4	1	1	41	22
Kunar	Nari	1	-	60	0	19	0	80	15	1	0	0	21	18
Kunar	Noor Gal	9	70	353	460	58	88	7	0	4	20	20	101	0
Kunar	Sar Kani	8	100	141	385	50	75	11	6	1	0	0	14	25
Kunar	Shigal wa Sheltan							5	0	36	73	102	459	212
Kunar	Sawkai	8	140	83	571	284	111	19	9	4	33	30	124	0
Kunar	Watapoor							3	0	6	0	137	7	46
Kunar Total		**74**	**832**	**1,942**	**3,795**	**775**	**820**	**446**	**290**	**164**	**155**	**578**	**1,279**	**1,127**
Kunduz	Ali Abad		3	5	41		0	0	0	0	0	0	0	0
Kunduz	Dashti-i-Archi				9		102	0	0	0	0	0	0	0
Kunduz	Chahar Darah		6	15	37		0	0	0	0	0	0	0	0
Kunduz	Hazrati Imam Sahib				28		0	0	0	0	0	0	0	0
Kunduz	Khanabad			11	70		0	0	0	0	0	0	0	0
Kunduz	Kunduz (Provincial Center)		3	9	32		0	0	0	0	0	0	0	0
Kunduz	Qala-i-Zal		5	8	7	275	0	0	0	0	0	0	0	0
Kunduz Total		**0**	**16**	**49**	**224**	**275**	**102**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**
Laghman	Alingar	3	146	354	593	107	259	23	13	1	48	343	303	503
Laghman	Alisheng	0	104	148	597	69	192	237	370	1	65	124	335	472
Laghman	Dowlat Shah	12	-	571	233	44	118	124	3	0	31	52	158	142
Laghman	Mehterlam (Provincial Center)		240	366	580	25	0	0	16	43	90	104	69	119
Laghman	Qarghayee	0	460	468	753	30	140	177	23	90	0	0	12	0
Laghman Total		**15**	**950**	**1,907**	**2,756**	**274**	**709**	**561**	**425**	**135**	**234**	**624**	**877**	**1,236**
Logar	Azra							0	0	0	0	0	0	0
Logar	Baraki Barak						0	0	0	0	0	0	0	0
Logar	Charkh						0	0	0	0	0	0	0	0
Logar	Kharwar							0	0	0	0	0	0	0
Logar	Khoshi						0	0	0	0	0	0	0	0
Logar	Muhammad Aghah						0	0	0	0	0	0	0	0
Logar	Pul-i-Alam						0	0	0	0	0	0	0	0
Logar Total		**0**	**0**	**0**	**0**	**0**	**0**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**
Nangarhar	Achin	1	940	2,131	1,907	198	1,274	1,797	0	14	10	254	580	2224
Nangarhar	Bati Kot		2,390	1,994	4,683	166	550	1,774	0	0	0	0	0	0
Nangarhar	Behsud							0	0	0	0	0	0	0
Nangarhar	Chaparhar	2	990	1,169	1,818	20	209	878	0	0	0	12	19	1452
Nangarhar	Darah-i- Noor		380	24	472	2	0	322	0	0	0	0	0	0
Nangarhar	Deh Bala	11	650	927	358	17	68	1,075	0	0	0	0	14	0
Nangarhar	Dur Baba		40	31	99	5	19	36	0	0	0	0	0	0
Nangarhar	Goshta	99	150	13	217	10	41	109	0	0	0	0	0	19
Nangarhar	Hesarak	2	620	1,016	1,392	64	283	295	0	18	5	178	89	0
Nangarhar	Jalalabad		90	4	1,658	77	0	0	0	0	0	0	0	0
Nangarhar	Kama		1,120	558	1,898	82	0	0	0	0	0	0	0	0
Nangarhar	Khugyani	3	2,640	2,986	2,269	117	750	3,253	0	108	131	557	1,481	5746
Nangarhar	Kot							0	0	0	0	0	0	993
Nangarhar	Kuzkunar		500	102	801	37	151	153	0	0	0	0	0	0
Nangarhar	Lalpoor	95	250	1	362	17	68	356	0	5	59	185	0	798
Nangarhar	Mohmand Dara		720	19	1,170	54	221	995	0	0	1	1	0	155
Nangarhar	Nazyan		150	98	168	8	160	266	0	1	0	0	0	0
Nangarhar	Pachir wagam	3	420	1,142	1,091	35	143	594	0	0	0	3	418	1672
Nangarhar	Rodat		2,760	3,313	3,633	50	0	3,755	0	0	0	0	0	11
Nangarhar	Sherzad	2	1,470	1,641	1,229	57	430	864	0	148	513	1,510	550	2650
Nangarhar	Shinwar		2,060	1,616	1,759	79	504	2,218	0	0	0	0	0	0
Nangarhar	Surkh Rud	0	1,440	118	1,229	0		0	0	0	0	0	0	0
Nangarhar Total		**218**	**19,780**	**18,904**	**28,213**	**1,093**	**4,871**	**18,739**	**0**	**294**	**719**	**2,700**	**3,151**	**15,719**
Nimroz	Asl-i-Chakhansur				0		0	0	1	0	183	855	98	9
Nimroz	Chahar Burjak				65	526	1,119	87	4	84	144	181	696	511
Nimroz	Kang				0		40	0	0	0	10	31	36	0
Nimroz	Khash Rod			26	50	1164	661	6,421	6,197	326	1,621	1,323	2,536	15,731
Nimroz	Zaranj (Provincial Center)						135	0	0	17	81	102	442	1
Nimroz Total		**0**	**300**	**26**	**115**	**1,690**	**1,955**	**6,507**	**6,202**	**428**	**1,856**	**2,493**	**3,808**	**16,252**

ANNEX II (continued…)

Province	District	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Nuristan	Barg-i-Matal				2	535	522	0	0	0	0	0	0	0
Nuristan	Du Ab							0	0	0	0	0	0	0
Nuristan	Kamdesh			210	307	269	262	0	0	0	0	0	0	0
Nuristan	Mandol				0	731	713	0	0	0	0	0	0	0
Nuristan	Noor Gram							0	0	0	0	0	0	0
Nuristan	Nuristan Paroon (Provincial Center)			438	185	19	19	0	0	0	0	0	0	0
Nuristan	Wama				66		0	0	0	0	0	0	0	0
Nuristan	Waygal				205		0	0	0	0	0	0	0	0
Nuristan Total				**648**	**765**	**1,554**	**1,516**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**
Paktika	Barmal						0	0	0	0	0	0	0	0
Paktika	Dilah wa Khwoshamand						0	0	0	0	0	0	0	0
Paktika	Giyan						0	0	0	0	0	0	0	0
Paktika	Gomal						0	0	0	0	0	0	0	0
Paktika	Jani Khel							0	0	0	0	0	0	0
Paktika	Mata Khan						0	0	0	0	0	0	0	0
Paktika	Nika						0	0	0	0	0	0	0	0
Paktika	Omna						0	0	0	0	0	0	0	0
Paktika	Sar Rowza						0	0	0	0	0	0	0	0
Paktika	Sharan (Provincial Center)						0	0	0	0	0	0	0	0
Paktika	Surubi						0	0	0	0	0	0	0	0
Paktika	Turwo							0	0	0	0	0	0	0
Paktika	Urgun						0	0	0	0	0	0	0	0
Paktika	Wazahkhwah						0	0	0	0	0	0	0	0
Paktika	Wor Mamay						0	0	0	0	0	0	0	0
Paktika	Yahya Khel							0	0	0	0	0	0	0
Paktika	Yosuf Khel							0	0	0	0	0	0	0
Paktika	Zarghun Shahr						0	0	0	0	0	0	0	0
Paktika	Ziruk						0	0	0	0	0	0	0	0
Paktika Total		**0**	**0**	**0**	**0**	**0**	**0**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**
Paktya	Azra *	1	38	419	603		0	0	0	0	0	0	0	0
Paktya	Ahmadabad *									0	0	0	0	0
Paktya	Samkani	0	-	76	275		0	0	0	0	0	0	0	0
Paktya	Dand Patan				175		0	0	0	0	0	0	0	0
Paktya	Gardez (Provincial Center)						0	0	0	0	0	0	0	0
Paktya	Woza Jadran				0		0	0	0	0	0	0	0	0
Paktya	Jaji	0	-	185	11		0	0	0	0	0	0	0	0
Paktya	Jani Khel				18		0	0	0	0	0	0	0	0
Paktya	Laja Ahmad Khel									0	0	0	0	0
Paktya	Lija Mangal	0	-		118		0	0	0	0	0	0	0	0
Paktya	Sayyid Karam	0	-	41	0		0	0	0	0	0	0	0	0
Paktya	Shamul *				0		0		0	0	0	0	0	0
Paktya	Shwak				0		0	0	0	0	0	0	0	0
Paktya	Zurmat				0		0	0	0	0	0	0	0	0
Paktya Total		**1**	**38**	**721**	**1,200**	**0**	**0**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**
Panjshir	Bazarak (Provincial Center)							0	0	0	0	0	0	0
Panjshir	Darah							0	0	0	0	0	0	0
Panjshir	Hissa-i-Awal(Khinj)				0		0	0	0	0	0	0	0	0
Panjshir	Hisa-i-Duwumi				0		0	0	0	0	0	0	0	0
Panjshir	Panjshir				0		0	0	0	0	0	0	0	0
Panjshir	Paryan							0	0	0	0	0	0	0
Panjshir	Rukhah							0	0	0	0	0	0	0
Panjshir	Shutul							0	0	0	0	0	0	0
Panjshir	Unaba							0	0	0	0	0	0	0
Panjsher Total					**0**		**0**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**
Parwan	Bagram				274		0	0	0	0	0	0	0	0
Parwan	Charikar (Provincial Center)				181		0	0	0	0	0	0	0	0
Parwan	Syahgird (Ghorband)				141		0	0	0	0	0	0	0	0
Parwan	Jabalussaraj				21		0	0	0	0	0	0	0	0
Parwan	Koh-i-Safi				41		124	0	0	0	0	0	0	0
Parwan	Salang				0		0	0	0	0	0	0	0	0
Parwan	Sayyid Khel							0	0	0	0	0	0	0
Parwan	Shaykh Ali				263		0	0	0	0	0	0	0	0
Parwan	Shinwari				389		0	0	0	0	0	0	0	0
Parwan	Surkh-i-Parsa				0		0	0	0	0	0	0	0	0
Parwan Total		**0**	**0**	**0**	**1,310**	**0**	**124**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**
Samangan	Aybak (Provincial Center)			14	27	0	0	0	0	0	0	0	0	0
Samangan	Darah-i-Soof-i-Bala	614		34	196	1,454	1,182	0	0	0	0	0	0	0
Samangan	Darah-i-Suf-i-Payin							0	0	0	0	0	0	0
Samangan	Fayroz Nakhcheer									0	0	0	0	0
Samangan	Hazrat-i-Sultan			29	85	280	90	0	0	0	0	0	0	0
Samangan	Khuram wa Sar Bagh	0		24	238	307	99	0	0	0	0	0	0	0
Samangan	Roi-Do-Ab				605	1,833	589	0	0	0	0	0	0	0
Samangan Total		**614**	**100**	**101**	**1,151**	**3,874**	**1,960**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**
Sari Pul	Balkhab			453	204	95	188	0	0	0	0	0	0	0
Sari Pul	Gosfandi							0	0	0	0	0	0	0
Sari Pul	Kohistanat				471	1,424	377	0	0	0	0	0	0	0
Sari Pul	Sangcharak				687	441	1,122	16	0	0	0	0	0	0
Sari Pul	Sari Pul (Provincial Center)			595	476	959	415	203	0	0	0	0	0	0
Sari Pul	Sayyad				23	52	25	41	0	0	0	0	0	0
Sari Pul	Sozma Qala	0	57	380	113	256	124	0	0	0	0	0	0	0
Sari Pul Total		**0**	**57**	**1,428**	**1,974**	**3,227**	**2,251**	**260**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**

ANNEX II (continued…)

Province	District	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2,013
Takhar	Baharak							0	0	0	0	0	0	0
Takhar	Bangi	0		20	13		0	79	0	0	0	0	0	0
Takhar	Chahab	19		4	27		70	0	0	0	0	0	0	0
Takhar	Chal	20			30		15	9	0	0	0	0	0	0
Takhar	Darqad				15		0	0	0	0	0	0	0	0
Takhar	DashtiQala							0	0	0	0	0	0	0
Takhar	Farkhar	26		43	27	43	118	32	0	0	0	0	0	22
Takhar	Hazar Sumuch							32	0	0	0	0	0	0
Takhar	Eshkamish	19		77	40		2	47	0	0	0	0	0	0
Takhar	Kalafgan	27		77	69		609	318	0	0	0	0	0	21
Takhar	Khwaja Bahawuddin							0	0	0	0	0	0	0
Takhar	Khwaja Ghar	32		26	35		109	0	0	0	0	0	0	0
Takhar	Namak Ab							0	0	0	0	0	0	0
Takhar	Rustaq	24		34	194	1,321	816	118	0	0	0	0	0	25
Takhar	Taloqan (Provincial Center)	16		14	115		77	577	0	0	0	0	0	2
Takhar	Warsaj	10		14	66		46	0	0	0	0	0	0	0
Takhar	Yangi Qala	20		71	131		317	0	0	0	0	0	0	0
Takhar Total		**211**	**788**	**380**	**762**	**1,364**	**2,179**	**1,211**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**70**
Uruzgan	Chorah	0	1,330	975	1,402	259	2,024	71	316	306	221	301	349	611
Uruzgan	Dihrawud	0	1,340	1,282	2,523	209	1,704	3,538	2,849	2,038	145	3,438	4,375	3,321
Uruzgan	Khas Uruzgan	0	-	580	358	338	886	173	304	407	230	384	38	123
Uruzgan	Nesh *	0	490	59	426	352	614			0	0	0	0	0
Uruzgan	Shahidi Hasas	0	1,190	1,333	782	646	1,127	3,109	4,403	2,445	3,635	3,601	3,617	3,888
Uruzgan	Tirin Kot (Provincial Center)	0	750	469	1,874	221	3,348	2,312	2,067	4,028	3,106	2,895	2,129	1,936
Uruzgan Total		**0**	**5,100**	**4,698**	**7,365**	**2,025**	**9,703**	**9,203**	**9,939**	**9,224**	**7,337**	**10,620**	**10,508**	**9,880**
Wardak	Chak-i-Wardak			211	284		0	0	0	0	0	0	0	0
Wardak	Daimirdad			0	90	106	0	0	0	0	0	0	0	0
Wardak	Hisah-i-Awal Behsud			22	0		0	0	0	0	0	0	0	0
Wardak	Jaghatu									0	0	0	0	0
Wardak	Jalrez			531	78		0	0	0	0	0	0	0	0
Wardak	Markaz-i- Behsud			472	0		0	0	0	0	0	0	0	0
Wardak	Maidan Shahr (Provincial Center)			527	102		0	0	0	0	0	0	0	0
Wardak	Nerkh			780	215		0	0	0	0	0	0	0	0
Wardak	Sayyidabad			192	248		0	0	0	0	0	0	0	0
Wardak Total				**2,735**	**1,017**	**106**	**0**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**	**p-f**
Zabul	Arghandab	0		302	526	205	346	79	55	103	91	47	79	32
Zabul	Atghar			188	32	86	36	16	3	2	16	1	5	12
Zabul	Daychopan	0		646	431	1,016	742	389	422	147	122	26	25	259
Zabul	Kakar Kak-e Afghan							104	110	219	44	40	38	50
Zabul	Mizan	0		309	251	56	123	129	289	309	140	74	155	858
Zabul	Naw Bahar							63	44	33	4	2	12	0
Zabul	Qalat (Provincial Center)	0		689	317	188	657	78	310	19	20	56	10	28
Zabul	Shah Joi	0		178	679	240	538	320	237	175	20	11	69	96
Zabul	Shemel Zayi			65	44	16	35	159	153	46	15	1	5	0
Zabul	Shinkai			164	287	102	228	139	105	87	0	0	0	0
Zabul	Tarnak wa Jaldak	1			410	145	506	136	608	5	10	5	26	0
Zabul Total		**1**	**200**	**2,541**	**2,977**	**2,053**	**3,211**	**1,611**	**2,335**	**1,144**	**482**	**262**	**424**	**1,335**
TOTAL		**7,598**	**73,905**	**80,399**	**126,328**	**103,635**	**164,858**	**192,981**	**157,252**	**123,095**	**122,332**	**131,065**	**154,436**	**209,450**
Rounded Total		**8,000**	**74,000**	**80,000**	**131,000**	**104,000**	**165,000**	**193,000**	**157,000**	**123,000**	**122,000**	**131,000**	**154,000**	**209,000**

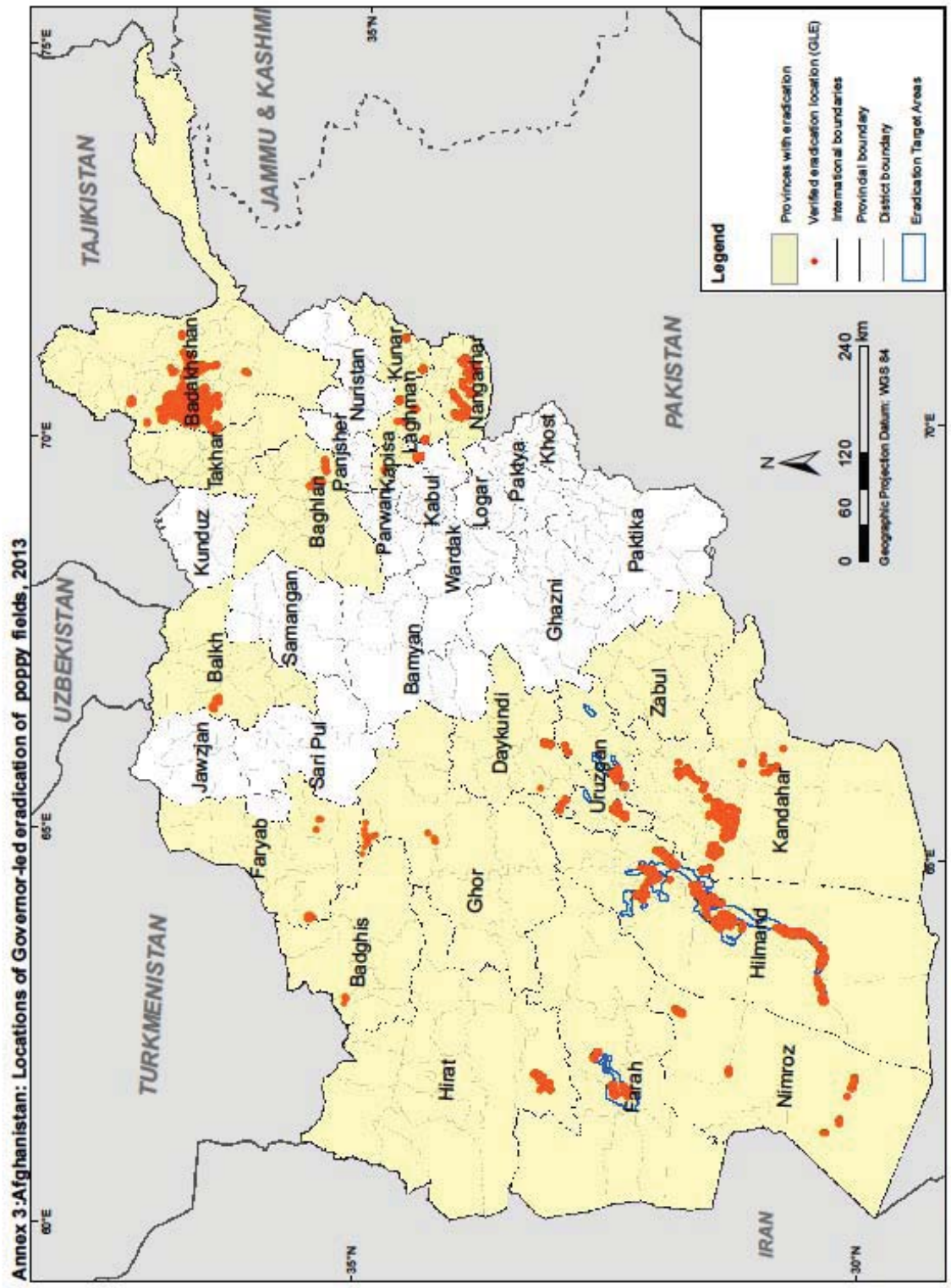
p-f: poppy-free according to the definition of the respective year. This concept was introduced in 2007. In 2007, provinces with no poppy were considered poppy-free; since 2008, provinces with less than 100 hectares of poppy have been considered poppy-free.

ANNEX III: ERADICATION FIGURES, BY DISTRICT (2013)

Province	DISTRICT	Eradication verified (ha)	No. of fields eradication reported	No. of villages eradication reported
Badakhshan	Arghan Khaw	21	24	2
	Argo	1398	5212	135
	Baharak	23	160	12
	Darayim	490	1214	49
	Jurm	100	390	16
	Khash	15	239	8
	Kisham	283	2355	39
	Shahri Buzurg	9	32	4
	Shuhada	2	44	5
	Tashkan	325	1184	51
	Yaftal	94	142	6
	Tagab	7	14	2
	Yemgan	11	43	5
	Yawan	20	39	4
Badakhshan Total		**2,798**	**11,092**	**338**
Badghis	Muqur	3	22	2
Badghis Total		**3**	**22**	**2**
Baghlan	Burka	17	132	2
	Deh Salah	1	13	1
	Pul-i-Hisar	16	146	5
Baghlan Total		**34**	**291**	**8**
Balkh	Chimtal	80	35	9
Balkh Total		**80**	**35**	**9**
Day Kundi	Kejran	9	68	2
	Kiti	0	3	1
Day Kundi Total		**9**	**71**	**3**
Farah	Bala Buluk	88	31	3
	Farah (Provincial Center)	15	65	3
	Khak-i- Safed	120	96	1
	Pushtrud	39	63	3
Farah Total		**262**	**255**	**10**
Faryab	Gurziwan	4	9	2
	Qaisar	3	15	5
Faryab Total		**7**	**24**	**7**
Ghor	Char Sada	3	28	14
	Chighcheran (Provincial Center)	2	15	3
Ghor Total		**6**	**43**	**17**
Hilmand	Garm Ser	189	276	25
	Khanishin	77	159	20
	Lashkargah (Provincial Center)	848	1,272	21
	Marja	193	279	5
	Musa Qala	50	172	11
	Nad ali	316	555	10
	Naher-i- Saraj	165	218	16
	Nawa	148	325	2
	Nawzad	15	77	14
	Sangiin Qala	160	266	25
Hilmand Total		**2,162**	**3,599**	**149**
Hirat	Shindand	77	559	15
Hirat Total		**77**	**559**	**15**

ANNEX III (continued…)

Province	DISTRICT	Eradication verified (ha)	No. of fields eradication reported	No. of villages eradication reported
Kandahar	Arghandab	43	64	9
	Arghistan	3	6	2
	Kandahar (Provincial Center)	1	8	2
	Maiwand	347	355	28
	Panjwayee	105	244	16
	Shah Wali Kot	111	80	16
	Spin Boldak	2	3	2
	Takhta Pul	34	38	12
	Zhire	437	577	34
Kandahar Total		**1,083**	**1,375**	**121**
Kapisa	Nijrab	1	4	1
	Tagab	10	126	2
Kapisa Total		**11**	**130**	**3**
Kunar	Noor Gal	48	88	8
	Sar Kani	60	133	6
Kunar Total		**108**	**221**	**14**
Laghman	Alingar	7	87	1
	Alishing	1	25	1
	Mehterlam (Provincial Center)	11	80	2
Laghman Total		**20**	**192**	**4**
Nangarhar	Achin (Speen Ghar)	32	183	11
	Chaparhar	20	42	6
	Debala	5	68	2
	Khugyani	53	515	15
	Koot	1	9	1
	Naziyan	1	13	1
	Pachir Wagam	6	20	4
	Roodat	0	8	1
	Shinwari	40	232	7
Nangarhar Total		**157**	**1,090**	**48**
Nimroz	Chakhansor	10	4	1
	Char Burjak	50	47	10
	Khashrod	60	38	4
Nimroz Total		**120**	**89**	**15**
Takhar	Rustaq	60	183	10
Takhar Total		**60**	**183**	**10**
Uruzgan	Dihrawud	160	486	12
	Gizab*	22	105	16
	Tirinkot (Provincial Center)	170	512	13
Uruzgan Total		**352**	**1,103**	**41**
Grand Total		**7,348**	**20,374**	**814**


Annex 3:Afghanistan: Locations of Governor-led eradication of poppy fields, 2013
TAJIKISTAN
UZBEKISTAN
TURKMENISTAN
IRAN
PAKISTAN
JAMMU & KASHMI
Badakhshan
Takhar
Kunduz
Baghlan
Panjsher
Nuristan
Kunar
Laghman
Nangarhar
Parwan
Kapisa
Kabul
Logar
Paktya
Khost
Wardak
Paktika
Ghazni
Balkh
Samangan
Jawzjan
Sari Pul
Bamyan
Daykundi
Uruzgan
Zabul
Kandahar
Faryab
Ghor
Badghis
Hilmand
Hirat
Farah
Nimroz
Legend
Provinces with eradication
Verified eradication location (GLE)
International boundaries
Provincial boundary
District boundary
Eradication Target Areas
N
0 60 120 240 km
Geographic Projection Datum: WGS 84
Source: MCN - UNODC Afghanistan Eradication Survey 2013
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

ANNEX IV: ERADICATION SCENES, BY REGION

Eastern region (Kapisa, Kunar, Laghman, Nangarhar)

Governor-led eradication in Achin district, Nangarhar province

Governor-led eradication in Mehtarlam district, Laghman province

Governor-led eradication in Noor Gul district, Kunar province

Governor-led eradication in Tagab district, Kapisa province

Southern region (Day Kundi, Hilmand, Kandahar, Uruzgan, Zabul)

Governor-led eradication in Nad-Ali district, Hilmand province

Governor-led eradication in Sangin Qala district, Hilmand province

Governor-led eradication in Panjway district, Kandahar province

Governor-led eradication in Shawali Kot district, Kandahar province

Governor-led eradication in Maiwand district, Kandahar province

Governor-led eradication in Zhire district, Kandahar province

Governor-led eradication in Tirinkot (Provincial Centre) district, Uruzgan province

Governor-led eradication in Dehrawod district, Zabul province

Western region (Badghis, Farah, Ghor, Hirat, Nimroz)

Governor-led eradication in Bala Buluk district, Farah province

Governor-led eradication in Shindand district, Hirat province

Governor-led eradication in Muqur district, Badghis province

Governor-led eradication in Khashrod district, Nimroz province

Northern region (Baghlan, Faryab)

Governor-led eradication in Qaisar district, Faryab province

Governor-led eradication in Burka district, Baghlan province

North-eastern region (Badakhshan)

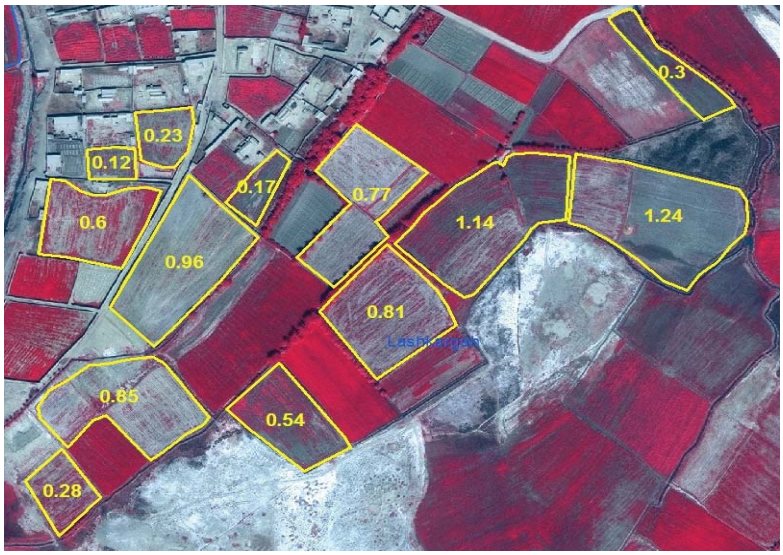
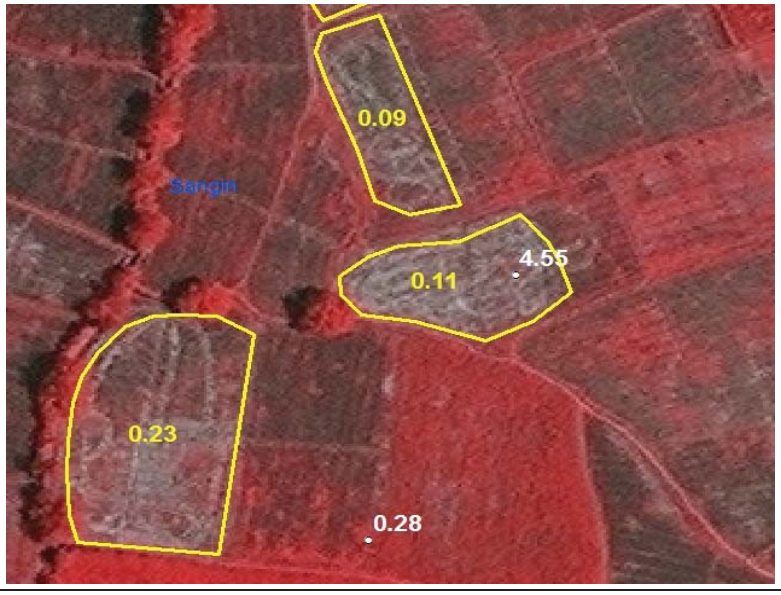
Governor-led eradication in Argo district, Badakhshan province

Governor-led eradication in Darayim district, Badakhshan province

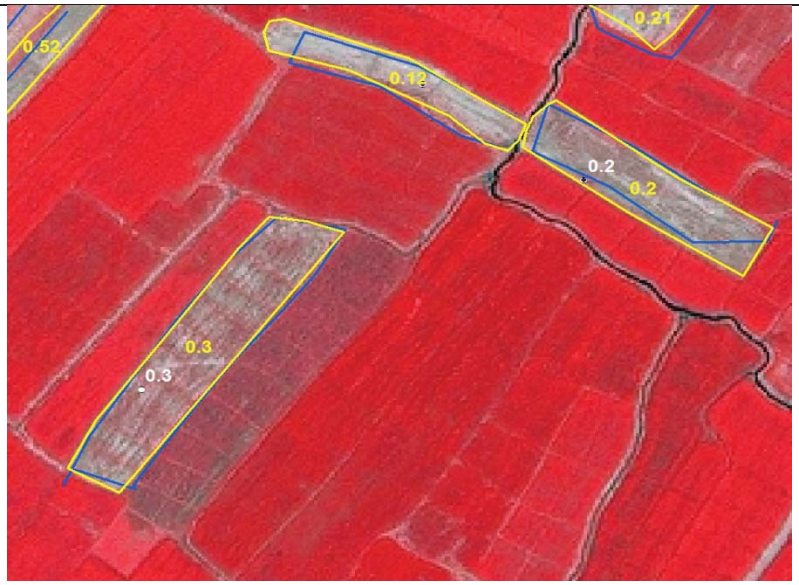
Governor-led eradication in Argo district, Badakhshan province

Growth stage of wheat in Kishamdistrict, Badakhshan province

ANNEX V: SELECTED EXAMPLES OF ERADICATION OVER- AND UNDER-REPORTING

	*Under reporting in Lashkargah district of Hilmand province.* *Date of eradication: 13 April 2013* *Verifier reported: 1.24 hectares* *Checked with satellite: 2 hectares* *Figures in white: reported by verifiers* *Figures in yellow: calculated from satellite imager*
	*Not reported in Hilmand province.* *Figures in yellow: calculated from satellite imagery*
	*Over reporting in Sangin district of Hilmand province.* *Date of eradication: 30 March 2013* *Verifier reported: 5 hectares* *Checked with satellite: 0.6 hectares* *Figures in white: reported by verifiers* *Figures in yellow: calculated from satellite imagery*

	*Over reporting in Khake saphid district of Farah province.* *Date of eradication: 10 March 2013* *Verifier reported: 6.38 hectares* *Checked with satellite: 3.39 hectares* *Figures in white: reported by verifiers* *Figures in yellow: calculated from satellite imagery* *Polyline in blue: GPS tracking taken by verifiers*
	*Over reporting in Pusht Road district of Farah province.* *Date of eradication: 31 March 2013* *Verifier reported: 3.86 hectares* *Checked with satellite: 1.76 hectares* *Figures in white: reported by verifiers* *Figures in yellow: calculated from satellite imagery* *Polyline in blue: GPS tracking taken by verifiers*



Over-reporting in Shah Wali Kot district of Kandahar province.

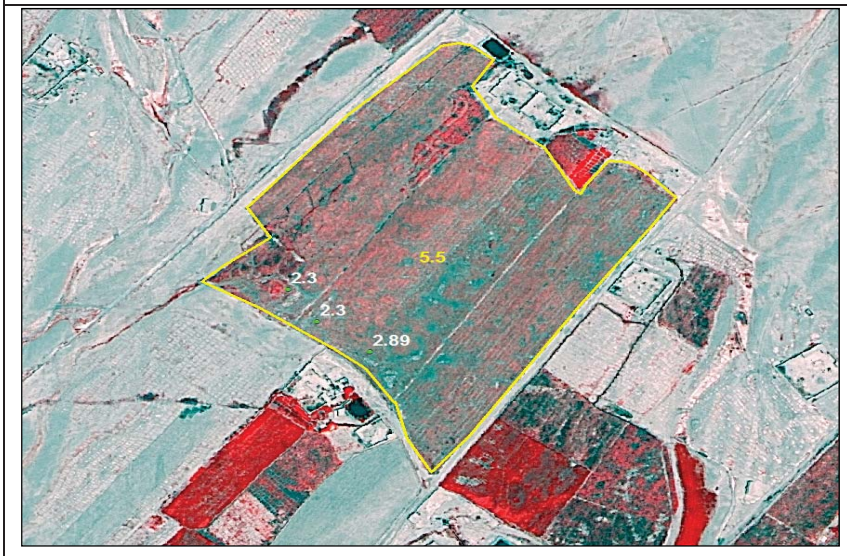
Date of eradication: 22 April 2012

Verifier reported: 9.54 hectares

Checked with satellite: 1.8 hectares

Figures in white: reported by verifiers

Figures in yellow: calculated from satellite imagery



Over reporting in Maywand district of Kandahar province.

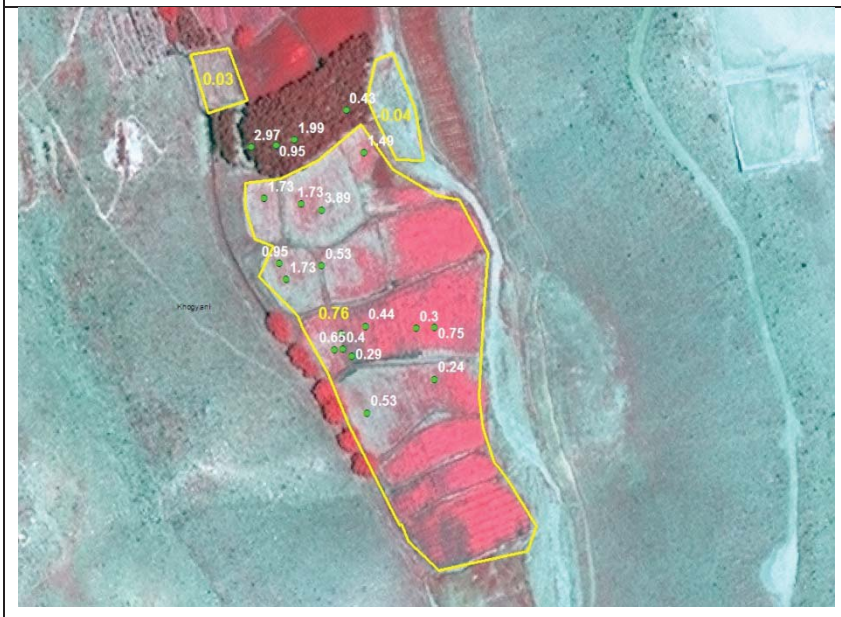
Date of eradication: 11 April 2013

Verifier reported: 7.49 hectares

Checked with satellite: 5.5 hectares

Figures in white: reported by verifiers

Figures in yellow: calculated from satellite imagery



Over reporting in Khogyani district of Nangarhar province.

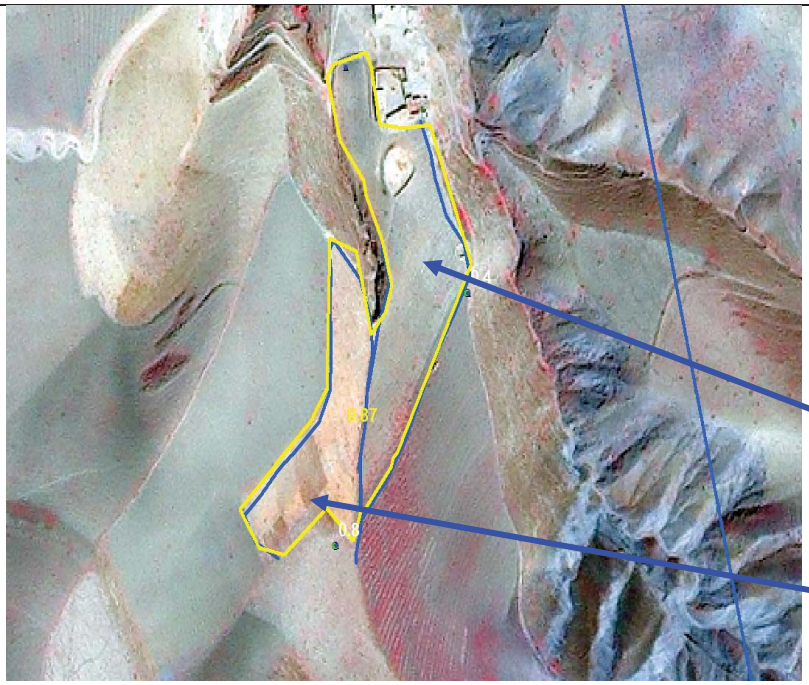
Date of eradication: 25 April 2013

Verifier reported: 22.5 hectares

Checked with satellite: 0.8 hectares

Figures in white: reported by verifiers

Figures in yellow: calculated from satellite imagery



Over reporting in Argo district of Badakhshan province.

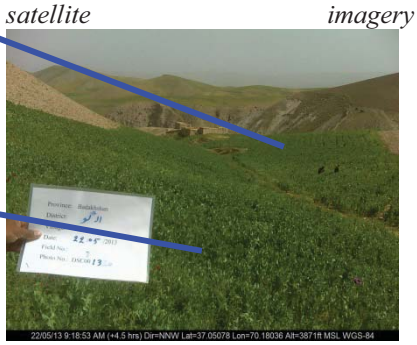
Date of eradication: 2 June 2012

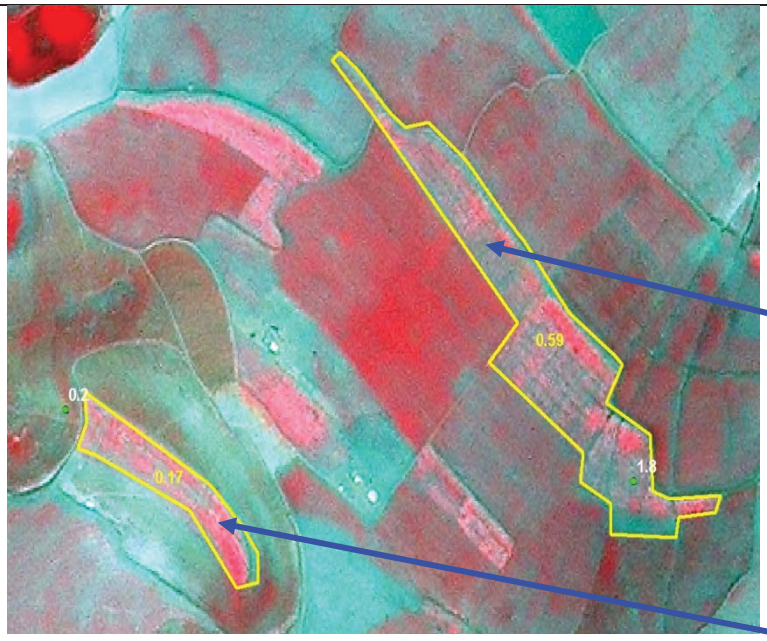
Verifier reported: 16.42 hectares

Checked with satellite: 5.63 hectares

Figures in white: reported by verifiers

Figures in yellow: calculated from satellite imagery





Date of eradication: 16 June 2013

Image date: 12 July 2013

Verifier reported: 2 hectares

Checked with satellite: 0.77 hectares

Figures in white: reported by verifiers

Figures in yellow: calculated from satellite imagery

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