



**UNODC**

United Nations Office on Drugs and Crime



**Islamic Republic of Afghanistan  
Ministry of Counter Narcotics**



# Afghanistan Opium Survey 2015

Provincial area estimates  
Part 1

**AUGUST 2015**

## 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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Survey Coordinators: Sayed Eshaq Masumi (Central Region), Abdullah Jan (Eastern Region), Abdul Latif Ehsan (Western Region), Fida Mohammad (Northern Region), Mohammed Ishaq Anderabi (North-eastern Region) and Khalil Ahmad Noori (Southern Region).

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Andrey Avetisyan (Regional Representative), Mark Colhoun (Deputy Representative), Devashish Dhar (International Project Coordinator), Abdul Manan Ahmadzai (Senior Survey Officer), Noor Mohammad Sadiq (Database Developer)

*Remote Sensing Analysts:* Ahmad Jawid Ghiasee and Sayed Mehdi Sadat.

Ziaulhaq Sidiqi (GIS Associate), Asia Noory (Project Associate)

*Survey Coordinators:* Abdul Basir Basiret (Eastern Region), Sayd Ghawash Nayer (Western Region), Rahimullah Omar (Central Region).

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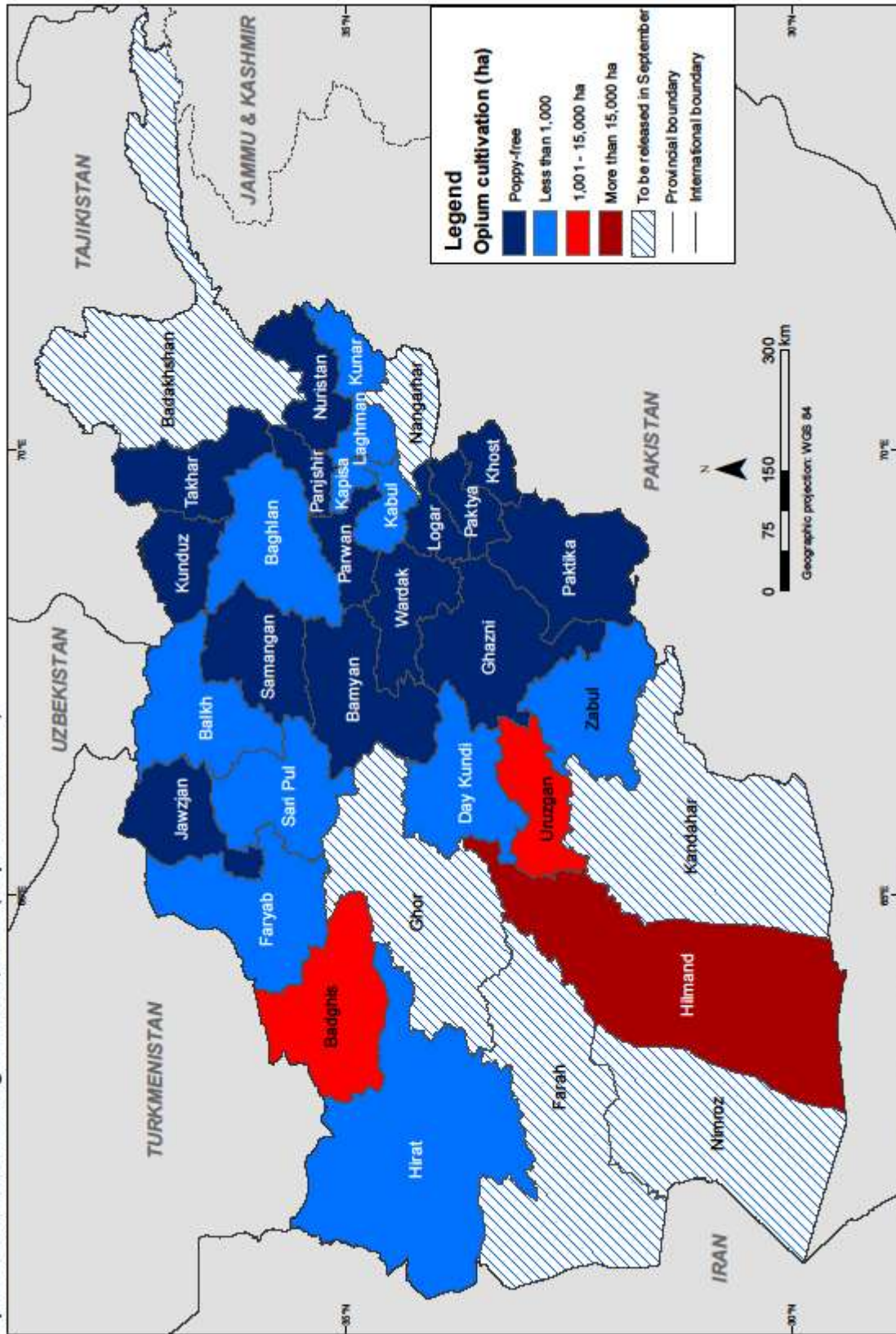
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Jean-Luc Lemahieu (Director, Division for Policy Analysis and Public Affairs), Angela Me (Chief, Research and Trend Analysis Branch), Chloe Carpentier (Chief Statistics and Surveys Section), Alexia Taveau (Programme Management), Coen Bussink (GIS & Remote Sensing Expert), Irmgard Zeiler (Statistician).

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Opium cultivation in Afghanistan, 2015 (at province level)



Source: Government of Afghanistan - National monitoring system implemented by MCM/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 report is a product of the *Afghanistan Opium Survey*. The survey is implemented annually by MCN in collaboration with the 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 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 in the context of the Plan of Action adopted by the United Nations (the 53<sup>rd</sup> 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: in Asia, Myanmar and the Lao People's Democratic Republic; in Latin America, the Plurinational State of Bolivia, Colombia, Ecuador, Mexico and Peru; in Africa, Nigeria.

The *Afghanistan Opium Survey 2015* 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 by provinces

This report presents estimates on area under opium poppy cultivation for selected provinces of Afghanistan. In contrast to previous years, the Ministry of Counter Narcotics (MCN) of Afghanistan together with the United Nations Office on Drugs and Crime (UNODC) have decided to release provincial estimates upon finalization in order to inform the Government of Afghanistan in a timely manner on the latest trends in opium poppy cultivation.

The report presents estimated area under poppy cultivation for 28 out of 34 provinces of Afghanistan. The area estimates of the provinces of Badakhshan, Farah, Ghor, Kandahar, Nangarhar and Nimroz will be released in the upcoming *Afghanistan opium survey report 2015*, which will as well contain finalized eradication figures for the province Badakhshan. In addition to the finalised national area estimate, this upcoming report will present district estimates, a full methodological annex, as well as a detailed analysis of the trends in cultivation and production.

**Table 1: Opium cultivation and eradication in Afghanistan 2014-2015 (Hectares)**

PROVINCE	Cultivation 2014 (ha)	Cultivation 2015 (ha)	Change 2014-2015 (%)	Estimation method 2015	Eradication in 2014 (ha)	Eradication in 2015 (ha)
Badakhshan	4,204	NA	NA	S	1,411	NA
Badghis	5,721	12,391	117%	S	0	0
Baghlan	168	180	7%	T	3	0
Balkh	Poppy-free	204		T	35	0
Bamyan	Poppy-free	Poppy-free		V	0	0
Day Kundi*	587	381	-35%	S	6	5
Farah	27,513	NA	NA	S	0	52
Faryab	211	1,160	451%	T	10	0
Ghazni	Poppy-free	Poppy-free		V	0	0
Ghor	493	NA	NA	S	8	0
Hilmand	103,240	86,443	-16%	S	787	1,747
Hirat	738	285	-61%	T	0	0
Jawzjan	Poppy-free	Poppy-free		T	0	0
Kabul	233	321	38%	T	0	0
Kandahar	33,713	NA	NA	S	68	396
Kapisa	472	460	-3%	T	26	0
Khost	Poppy-free	Poppy-free		V	0	0
Kunar	754	987	31%	S	75	9
Kunduz	Poppy-free	Poppy-free		T	9	0
Laghman	901	779	-14%	T	1	7
Logar	Poppy-free	Poppy-free		V	0	0
Nangarhar	18,227	NA	NA	S	34	137
Nimroz	14,584	NA	NA	S	0	40
Nuristan	Poppy-free	Poppy-free		T	0	0
Paktika	Poppy-free	Poppy-free		V	0	0
Paktya	Poppy-free	Poppy-free		V	0	0
Panjshir	Poppy-free	Poppy-free		V	0	0
Parwan	Poppy-free	Poppy-free		V	0	0
Samangan	Poppy-free	Poppy-free		V	0	0
Sari Pul	195	331	70%	T	43	33
Takhar	Poppy-free	Poppy-free		T	1	NA
Uruzgan*	9,277	11,277	21%	S	163	75
Wardak	Poppy-free	Poppy-free		V	0	0
Zabul	2,894	644	-78%	S	12	0

Area estimation method: S=remote sensing sample survey, T=remote sensing target survey, V=village sample survey and field observation. See Methodology section 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.

\* Since 2014, Gizab district of Day Kundi province has been considered under Uruzgan province as per presidential decree.

Estimates of provinces in grey are to be released in September 2015.

Figure 1: Opium cultivation in Badghis province, 2002-2015 (Hectares)

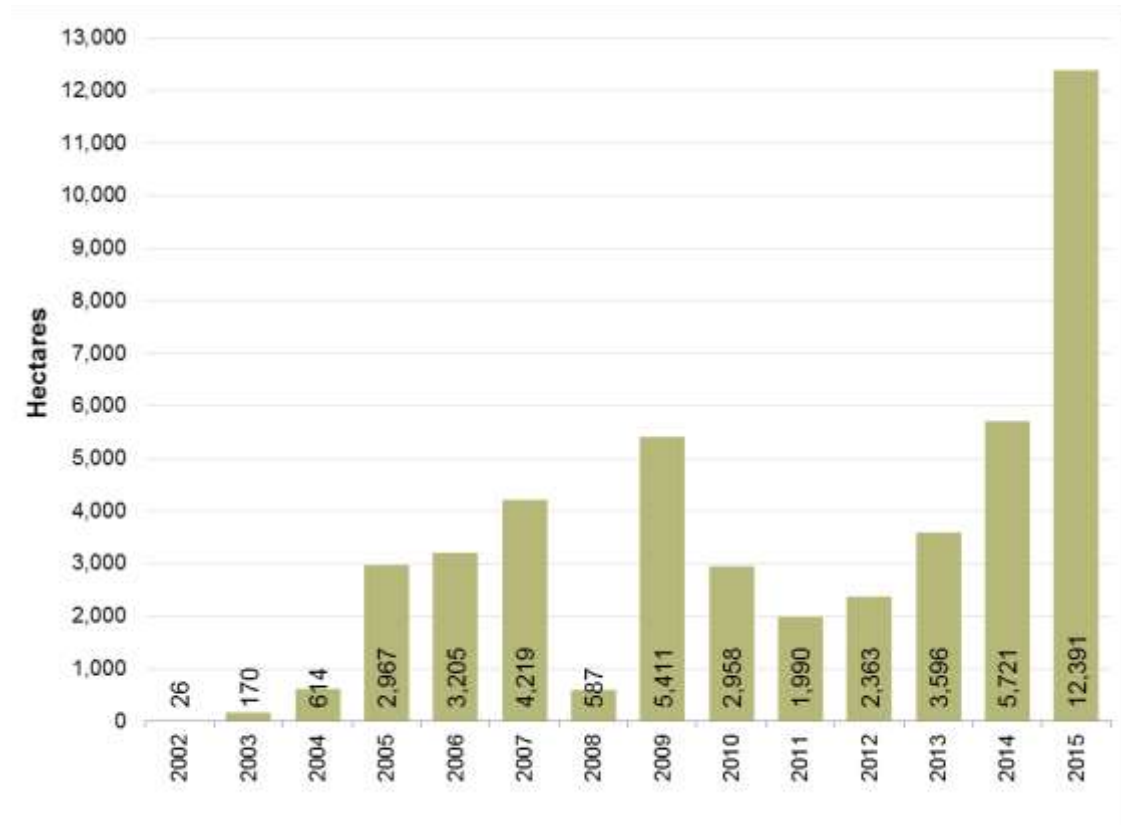


Figure 2: Opium cultivation in Baghlan, Balkh, Faryab and Sari Pul provinces, 2002-2015 (Hectares)

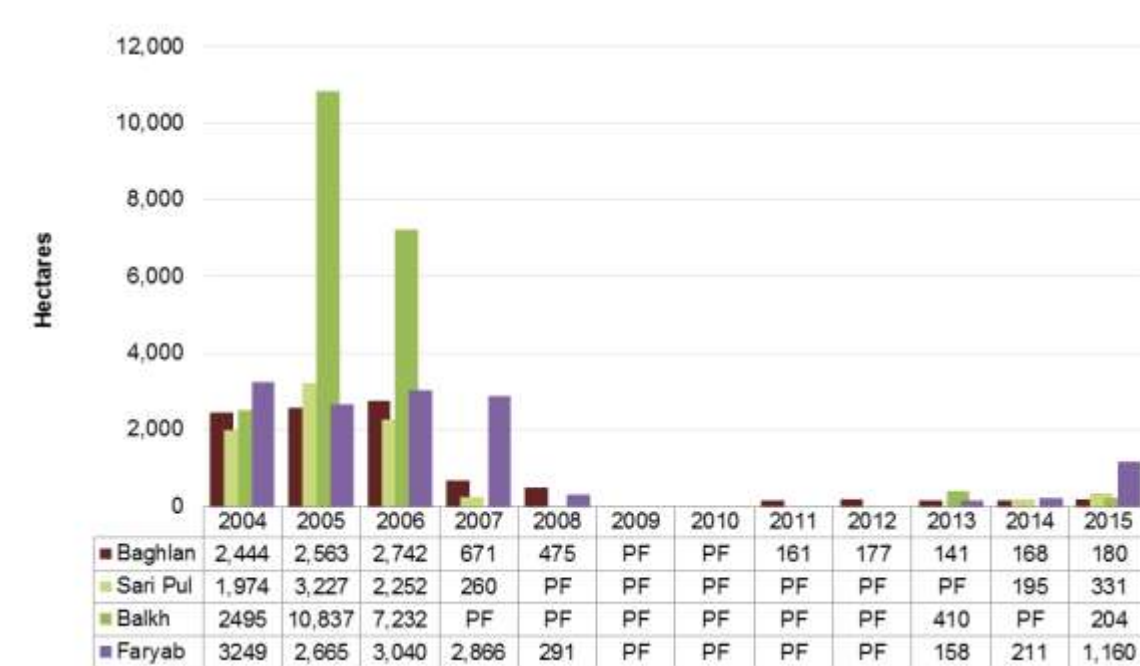


Figure 3: Opium cultivation in Hilmand province, 2002-2015 (Hectares)

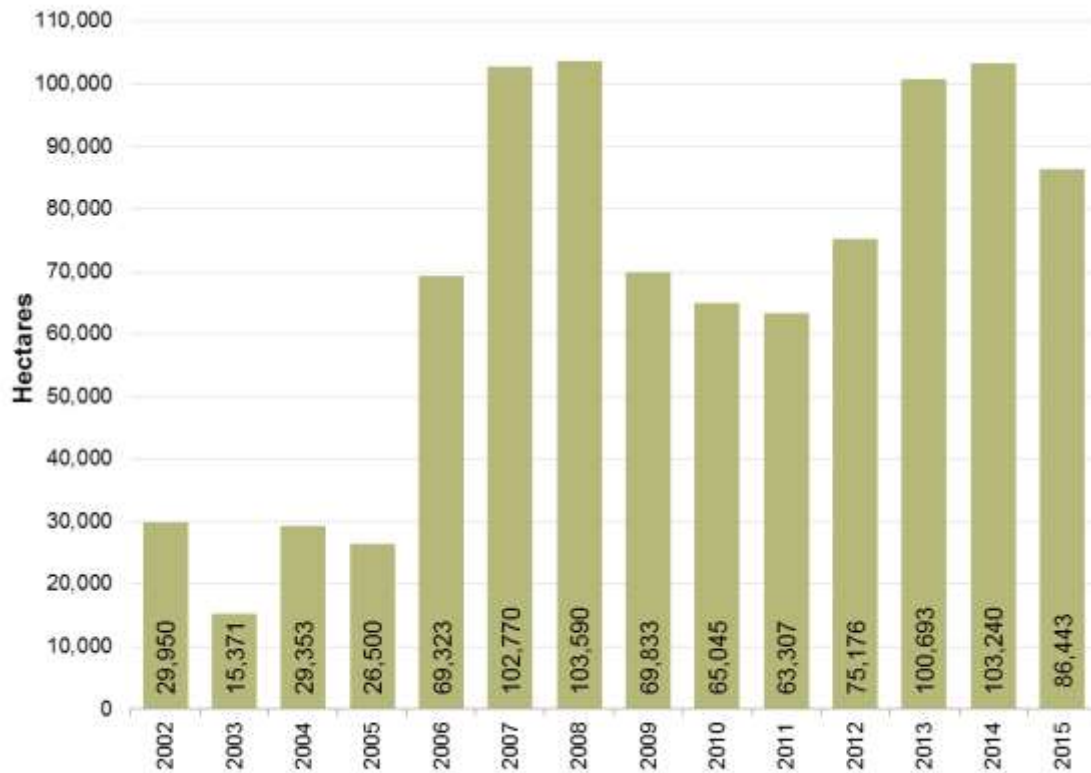
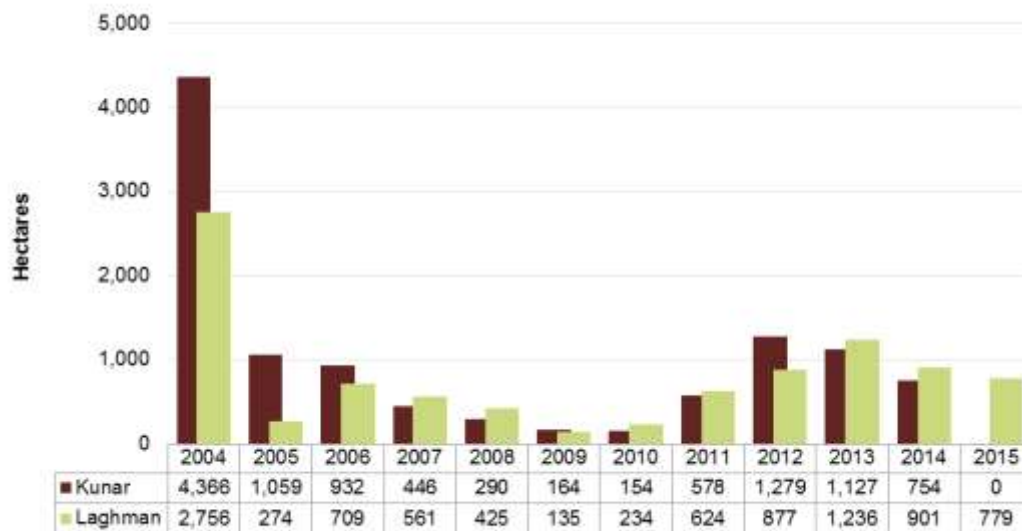
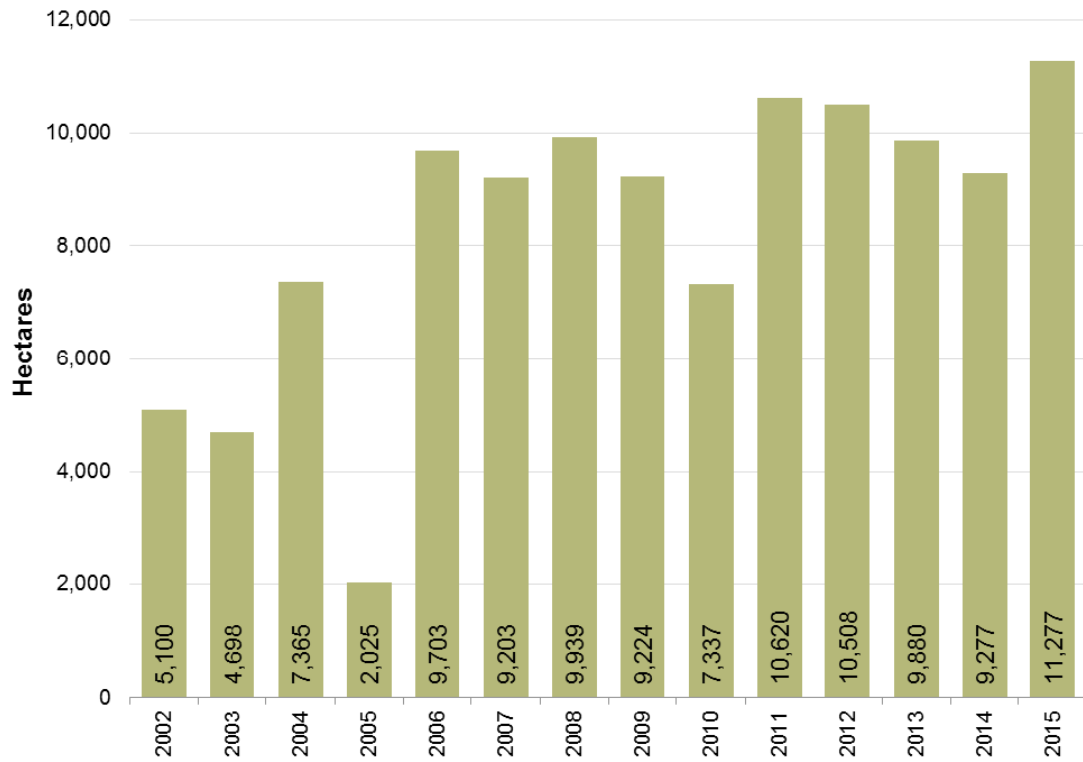


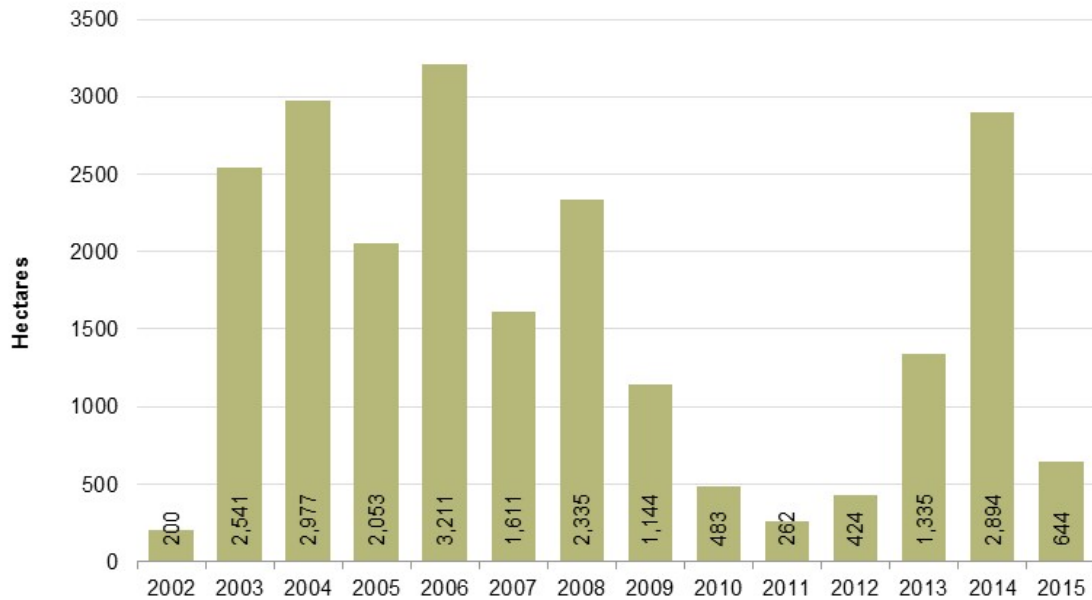
Figure 4: Opium cultivation in Kunar and Laghman provinces, 2002-2015 (Hectares)



**Figure 5: Opium cultivation in Uruzgan province, 2002-2015 (Hectares)**



**Figure 6: Opium cultivation in Zabul province, 2002-2015**





### 3 Methodology

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 require continuous improvements of the sampling designs applied.

More details on the methodology and on the statistical methods applied will be provided in the upcoming “Afghanistan opium survey report 2015” on cultivation and production.

As in previous years, 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 2015, out of 34 provinces in Afghanistan, 12 were sampled and 12 were targeted. The remaining 10 provinces were considered to be poppy-free<sup>1</sup> based on information from the field. These provinces were not covered by the remote sensing survey, but were covered by the village survey.

**Table 2: Area estimation method, by province, 2014**

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

#### 3.1 Changes in methodology

##### Sampling approach

In 2015, it was decided to conduct a major change in the study design: the size of the grid cells used for acquiring satellite imagery has been reduced from 10 x 10 km images to 5 x 5 km images. Provinces where a target approach was used, were not affected by this change.

The change in size in satellite imagery allowed for reducing the total area observed (which reduced costs) while keeping the same accuracy of estimates by increasing the number of samples in each province. The change in size of imagery required to re-sample all provinces where a sampling approach is applied. MCN/UNODC undertook a simulation study in order to identify the most suitable sampling design.

In more detail, in the provinces **Farah, Hilmand, Nimroz, Kandahar and Zabul** a district based probability-proportional-to-size approach was employed, where the selection probability of each element was proportional its agricultural land, that is agricultural land acted as auxiliary variable. The sampling frame was stratified by district, which is supposed to improve the district estimates and ensures adequate geographical coverage.

<sup>1</sup> Note that more than these 10 provinces turned out to be poppy-free in the satellite survey, because less than 100 hectares of opium cultivation was detected.

In the remaining sampled provinces (**Badakhshan, Badghis, Day Kundi, Ghor, Kunar, Nangarhar and Uruzgan** 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).

For all sample provinces, a (combined) ratio estimator was applied that estimates the ratio of poppy to agricultural land in a province. This ratio is subsequently used to extrapolate to total area under poppy cultivation. The estimation method remained the same as in 2014.

More detail on the reasoning behind the choice of sampling strategy and a detailed description of the methods used will be provided in the upcoming report.

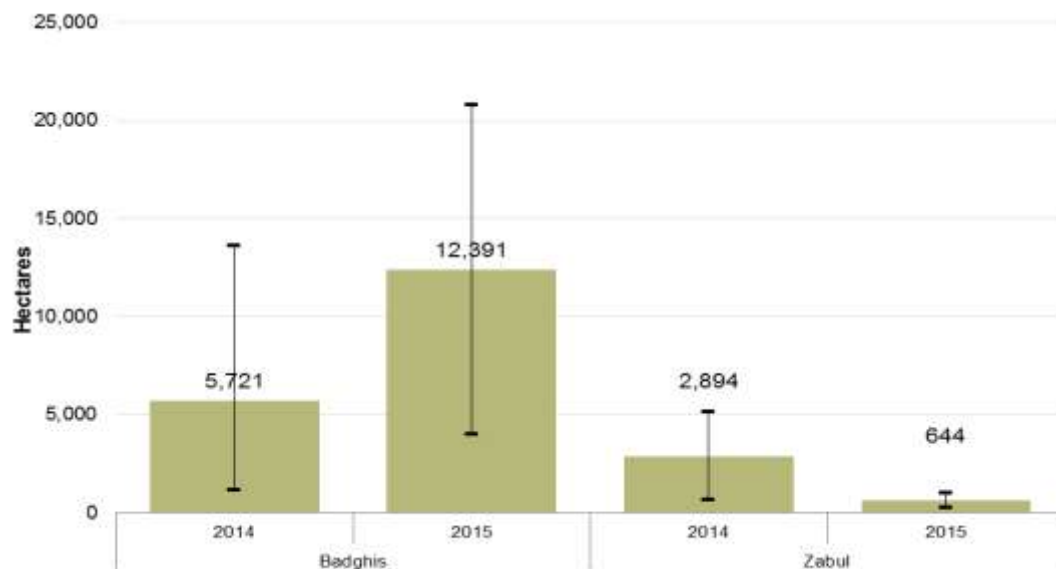
### Comparability of results

Provinces with where a target approach was used were not affected by any changes. In these cases the area estimates are directly comparable.

In the case of sampled provinces, the change in methodology might limit the comparability of the results with last year's: a smaller area covered by the individual samples increased the efficiency of the sample and a significantly higher sample size ensured a better geographical coverage of the area under observation. These two effects are supposed to increase the accuracy of the estimates. However, in total, less area was covered by the imagery, which may have had a detrimental effect on the estimates.

In two of the presented provinces, **Badghis and Zabul**, an additional factor needs to be considered. In 2014, Zabul province had a very small number of 10 x 10 km samples (8), out of which one sample contained a very high poppy density. The small sample size caused each sample to have a large relative weight on the estimate and a high uncertainty around the estimate (large confidence interval). With the much higher sample size in 2015 (29), the estimate gained strongly in accuracy (see Figure 7). In Badghis province, up until 2014, a historically grown, non-random sample was used. The change to a random probability sample and a strong increase in sample size (57 in 2015 instead of 16 in 2014) may have had a strong impact on Badghis and may in particular limit the comparability of the results.

**Figure 7: Area estimates of selected sample provinces with 95% confidence interval, 2014 and 2015 (Hectares)\***



*Confidence intervals of remaining provinces will be released in the full report in September 2015.*