

AFGHANISTAN'S OPIUM ECONOMY

AN AGRICULTURAL, LIVELIHOODS, AND GOVERNANCE PERSPECTIVE

**REPORT PREPARED FOR THE WORLD BANK
AFGHANISTAN AGRICULTURE SECTOR REVIEW
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EXECUTIVE SUMMARY

1. ***This study reviews Afghanistan’s opium economy from multiple perspectives, with the objective of informing the World Bank’s Agriculture Sector Review*** and the recommendations it puts forward on agriculture sector policies and investments. The study focuses on the economic dimensions of opium and on implications for agriculture, rural livelihoods, and governance. The overarching message is that the opium economy is so important that it must not be ignored in analysis of Afghan agriculture, rural livelihoods, and governance issues, and that to do so both could undermine ongoing and future development investments in the country and could possibly exacerbate the drugs problem.
2. ***The study draws heavily on a major body of evidence and analysis based on extensive field work on the rural opium economy.*** A central theme that emerges from this work is the diversity across regions and localities within Afghanistan in their degree of dependence on the opium economy. This means there is no “one-size-fits-all” solution to the opium problem in Afghanistan; programs need to be tailored to local circumstances to be effective. A second major theme is that the decisions of Afghan rural households, which determine aggregate patterns and trends of opium poppy cultivation, cannot be simplistically viewed as one-dimensional “profit maximization” based on the relative prices of opium and other alternative crops. Households are risk averse, particularly since survival/subsistence is a real consideration for a great many of them, they take into account a variety of factors in the environment, and more generally they make decisions on opium as part of a broader menu of choices for their livelihoods portfolios, which include a variety of on-farm, non-farm, and off-farm activities.
3. ***Counter-narcotics is not the main focus of this study, but some of the findings and lessons from experience with counter-narcotics have parallels with and implications for agriculture sector strategy.*** For example, significant counter-narcotics resources have been directed to supporting substitution of wheat for opium. However, from all but the shortest-term perspective this has not worked, and on the contrary has been counterproductive. This experience certainly has implications for thinking about the role of wheat in an agriculture sector strategy.
4. ***This study is comprised of seven chapters.*** Chapter I first lays out aggregate dimensions and linkages of Afghanistan’s opium economy, including both positive and negative aspects, and then reviews the evolution of the opium economy over time and the major fluctuations it has undergone. Chapter II discusses the great diversity in the opium economy across regions and localities, and the fluctuations and evolution over time within regions and localities. Chapter III outlines the microeconomics of rural households’ decision-making on opium, taking a livelihoods perspective and laying out the various parameters and constraints that households respond to. Chapter IV turns to counter-narcotics experience, reviewing the main counter-narcotics instruments, discussing several more radical solutions that have been proposed from time to time, and deriving some lessons that may be particularly relevant for thinking about and designing agriculture sector strategy. Chapter V analyzes the experience of banning opium poppy cultivation in Nangarhar Province and what this tells us about how development interventions might be better focused. Chapter VI looks at recent efforts to reduce opium poppy cultivation in central Helmand Province, under an initiative known as the Helmand Food Zone. Finally, Chapter VII develops concrete recommendations for agriculture strategy, policies, and investments taking fully into account the opium economy and its implications, building on a discussion of “mainstreaming” the counter-narcotics dimension in agricultural development strategy, policies, and investments, and also an assessment of the interactions between various prospective agriculture sector investments and the opium economy.
5. ***Afghanistan’s opium economy plays important and multi-faceted roles in the country’s agriculture sector and more generally in the economy,*** in addition to its global prominence as the

dominant source of illicit opiates in the world. From an *agricultural perspective*, opium is by far Afghanistan's most important cash crop. Cultivated on less than 3% the country's arable land, opium economizes on scarce water and can be rotated and in some areas double-cropped with other crops. Moreover, opium funds land development costs and joint capital inputs like tube wells that are also used for other crops, which would be impossible to pay for in the absence of poppy cultivation.

6. From a *macroeconomic perspective*, whether valued at the farm-gate (equivalent to around 5% of non-opium GDP), or more appropriately as the value of opiates at the border (currently in the neighborhood of 10-15% of GDP), opium remains Afghanistan's leading cash-generating economic activity. Opium's importance in the rural economy is considerably greater than the overall GDP share would suggest, and in areas where poppy cultivation is concentrated it tends to dominate the local economic scene, with significant multiplier effects stimulating demand and economic activity. Opiates are Afghanistan's largest export product by far; their total estimated value (at border prices) of roughly \$3 billion in 2013 exceeds that of all other exports combined (including official and unofficial exports other than opiates).

7. From a *livelihoods perspective*, opium poppy cultivation is highly labor-intensive, and provides a large number of on-farm jobs (estimated at around 376,000 full-time equivalent jobs in 2013). Opium provides much-needed purchasing power for a considerable segment of the rural population, and its receipts also can help fund expansion of livelihoods opportunities by providing capital for purchase of vehicles and other capital for non-farm entrepreneurship. Poppy cultivation is a convenient, frequently the only means to access rural credit, and provides a convenient, portable, and durable store of value for rural households, very useful in an insecure, uncertain environment. But probably the most important livelihoods-related benefit provided by opium poppy cultivation is the access to land it provides to landless and land-poor rural households. The short harvest season and the high labor requirements for harvesting opium mean that the crop creates a significant number of wage labor opportunities as well.

8. ***Set against the very real economic benefits of the opium economy are some major disadvantages it brings for Afghanistan***, which from a medium- to longer-term development perspective far outweigh the advantages described above. From an *agronomic perspective*, repeated mono-cropping of opium poppy is problematic, worsening soil quality, reducing yields for poppy as well as other crops, and increasing the risk of various diseases that affect poppy. Households with larger landholdings may be able to engage in appropriate crop rotation practices, but for land-poor let alone landless households this is often not an option, driving them toward repeated mono-cropping. The rapid expansion of cultivation into former desert areas of south and southwest Afghanistan over the last decade, where the crop is irrigated by deep tubewells, is believed to have already driven down the water table.

9. From a *broader economic perspective*, there are significant localized "Dutch Disease" like effects in the areas and regions where opium poppy is heavily cultivated—opium gets capitalized into land prices, rental rates, and sharecropping arrangements, so that it becomes difficult, unattractive, and indeed financially unviable to acquire agricultural land for any purpose that does not include substantial opium poppy cultivation. From a medium- to longer-term developmental perspective, as the near-monopoly global producer of illicit opiates Afghanistan is hostage to the vagaries of international demand, which although increasing is likely to grow slowly in the future. Moreover, Afghanistan is a high-cost producer, and if there is ever movement toward liberalization and a regulatory regime for opiates, Afghanistan would not be able to compete with existing producers of legal opiates, most notably Australia.

10. ***More serious are the problematic implications of the opium economy for governance and undermining rule of law.*** Although it appears that violent conflict over drugs per se is fairly limited in Afghanistan, the drug industry does generate large amounts of funds that benefit a variety of political power-holders and other politically connected actors, some of whom are in conflict with the government and many more of whom have a vested interest in maintaining a situation of weak state presence and poor governance. However, any simplistic linking of the drug industry with the Taliban (and the associated implicit or explicit assumption that success against the former would be very damaging to the latter) is way off the mark. On the contrary, drug money funding interests that are part of or associated with the Afghan government is if anything more substantial than the amounts funding the Taliban.

11. ***Drug-related corruption undermines institutions, rule of law, and perceptions of the credibility of government institutions and the political system.*** There are pay-offs to government officials to look the other way, to security forces to avoid counter-narcotics law enforcement measures, and to various local power-holders. Farmers may pay “protection money” to police and other forces to avoid or minimize eradication of their poppy fields, and in some areas may find themselves paying members of the Afghan National Police, the Afghan Local Police, and the Taliban to protect their crop.

12. From an ***international perspective***, the opium economy has major disadvantages for Afghanistan, not least the international opprobrium associated with being a major global producer of illicit narcotics. Although the country has not fallen into designated “pariah” status, this could be a risk in the future as the international engagement ebbs and could lead to further reductions in aid. Neighboring countries are concerned about flows of opiates from Afghanistan, and this (along with a perceived threat of terrorism) constitutes an obstacle to greater opening up of borders to flows of trade, people, vehicles, etc.

13. A final set of risks and problems associated with Afghanistan’s opium economy stems not from the opium economy itself but instead from ***ill-considered, counterproductive counter-narcotics actions which are considered from time to time***, including possibly as a “knee-jerk” reaction to the rising opium cultivation and production seen in 2013, and expected for 2014 and beyond. Notable examples include aerial chemical spraying of poppy fields and massive eradication of the standing poppy crop, both of which would be counterproductive and indeed worse in their impacts than the opium problem they would be intended to resolve.

14. ***The opium economy has been on a generally rising trend since the 1990s.*** The total area cultivated with opium poppy in Afghanistan and the estimated production of opium have been subject to severe year to year fluctuations, reflecting variable weather, yield changes, price changes, and sometimes counter-narcotics actions. However, both cultivation and production have shown a long-term rising trend since the mid-1990s, faster for the former than for the latter (implying a declining trend for average yields). In particular, the dip in cultivation and production during 2008-2010 has been reversed with increases in 2012 and especially 2013, returning to the longer-term rising trend. Declining yields most likely reflect a shift in the composition of opium poppy cultivation from well-irrigated areas to remote and former desert areas dependent on tubewells for irrigation, as well as incidence of yield-reducing crop disease probably resulting from mono-cropping opium poppy and lack of sensible crop rotation practices. Opium prices have been buffeted by a range of shocks from abroad and domestically, reflecting not just counter-narcotics actions but also supply-demand considerations and farmers’ and others’ expectations.

15. ***Spatial diversity is the hallmark of Afghanistan’s opium economy***, and the local and regional context in which opium poppy cultivation arises, evolves, and is stopped (sometimes on a sustained basis, more often only temporarily) cannot be ignored. Helmand Province has consistently cultivated

the largest area of opium poppy, often by an enormous margin over the second-highest province, except in two years (2001 under the Taliban ban, and 2003 when the cultivation in Helmand was nearly halved). Nangarhar Province was traditionally the second-largest opium poppy cultivating province in the 1990s, but subsequently opium poppy cultivation was effectively banned and fell to negligible levels on three occasions (in 2001 under the Taliban, in 2005, and during 2008-2010). In recent years Nangarhar has been just one of several significant opium-producing provinces (even in years without effective bans), far less important than Helmand. Other provinces have seen ups and downs, and the number of provinces cultivating significant amounts of opium poppy increased sharply in the early post-2001 years before falling back. In recent years large increases in poppy cultivation in former desert areas in the South and Southwest have been a main driver behind expansion of overall cultivation.

16. ***There is also wide diversity in the opium economy at the sub-provincial level***, and geography plays a determining role. Centrally-located and well-irrigated areas in Nangarhar Province, for example, have a wide range of livelihoods options, whereas mountainous remote districts of the same province have few if any viable alternatives to cultivating opium poppy. In Helmand Province, well-irrigated land in the canal command area often borders on former desert areas that require tubewell irrigation which is not viable financially unless opium poppy is an important part of the crop mix.

17. ***Simplistic models of household decision-making with regard to opium are misleading and can lead to policy mistakes.*** Examples include assuming that Afghan farmers decide whether or not to plant opium poppy based solely on the market prices of opium and other crops (such as wheat), and that they base their decisions solely on the gross returns for the crop, without taking into account input costs, byproducts, whether outside wage labor will be required, etc. Making a sharp bifurcation between poppy-cultivating farmers and non-poppy cultivating farmers also can be misleading in view of the variety of different kinds of engagement with the opium economy that occur and that rural households' decisions are far from static. Another common misconception, not backed up by solid evidence, is that "opium poppy is a crop of the rich" (i.e. sizable landowners); whether or not it may be true to some extent that larger landowners are more prone to include poppy in their crop mix, the high labor-intensity of opium means that large numbers of poorer households benefit from the opium economy through sharecropping, wage labor, etc.

18. ***A more informed understanding of rural household decision-making suggests that opium poppy cultivation is both contingent and contextual***—a function of where, who, and when—and therefore highly dependent on local factors. Indeed, decisions on opium poppy cultivation are dependent on the specific assets that an individual household has at its disposal.

19. ***There is an inverse relationship between household access to assets and dependency on opium poppy cultivation.*** The greater and more diversified a household's assets—in the form of land, especially irrigated land; livestock holdings; number of able-bodied males versus non-working dependents in the household; non-farm employment or businesses; access to markets; etc.—the less it is dependent on opium poppy cultivation. Better-off households with good market opportunities can stop cultivating opium poppy and switch to adequate, even lucrative non-poppy based activities within 1-2 years. Land-poor and landless households, on the other hand, may well be unable to adjust to a ban on poppy cultivation, having to make difficult and sometimes extreme adjustments, for example involving distress sales of assets, spending less on basic necessities, and outmigration.

20. ***Not only does the degree of dependency on opium differ according to a household's access to assets, but the financial returns to the crop also vary.*** For the resource-rich, opium poppy can generate a relatively high income. Access to cheap labor through favorable (for them) sharecropping arrangements ensures that landowners accrue a disproportionate share of the opium crop. They can further increase their profits by purchasing opium through advance payments (at low prices, and with

very high implicit rates of interest) on the crop prior to its harvest. Finally, by retaining their opium crop and selling it some months after the harvest when prices have risen, households that are least dependent on opium as their sole source of income are most able to benefit from it. This is in sharp contrast to resource-poor households: they are required to provide relatively low-paid labor through unfavorable sharecropping arrangements; they are compelled to sell their opium at low prices prior to the harvest to access credit for basic expenses; and it is the poor that are most dependent on opium poppy cultivation due to limited other on-farm, off-farm, and non-farm income opportunities.

21. ***Opium provides access to a variety of income streams, assets, and opportunities for rural households, including poorer households which tend to be more dependent on opium.*** These include access to land (including for residence and some non-opium crops) and on-farm income through sharecropping; wage labor opportunities especially during the opium harvest; access to credit for meeting basic needs before the harvest; improving food security; facilitating investments in land which benefit other crops as well; and more generally maximizing returns on scarce water as compared to other crops. The multi-functional roles of opium and the access it provides means that many households will continue to cultivate poppy even if the net returns are relatively low—as they often are compared to some other horticultural crops and sometimes even lower than wheat when the opium-wheat price ratio is relatively low (and in particular if a household has to use expensive outside labor for poppy cultivation and particularly during the opium harvest).

22. ***Different counter-narcotics instruments have strengths and weaknesses, but no single one can work on its own, and the timeframe for sustainable progress is very long.*** Supply-side actions against opium poppy cultivation include opium bans (discussed in paragraphs 27-28) and eradication of poppy fields—but although some credible threat of eradication is needed to back up opium bans, large-scale eradication is not an effective let alone sustainable means of reducing cultivation, as demonstrated by experience in Afghanistan. Targeted “alternative livelihoods” projects (see paragraphs 25-26) as well as other, broader development interventions (see paragraphs 31-32) are intended to support farmers’ shift from opium to licit activities. Interdiction and law enforcement actions against drug trading, processing, trafficking, precursor chemicals, and drug-related money flows are attractive not least because they target the more criminal elements of the drug industry, but they are far from a panacea. Trading routes and processing facilities are quite “footloose”; detaining and arresting drug traders may have only temporary benefits as there is no shortage of replacements; and making law enforcement stick can be highly problematic if there is a weak and corrupt justice system, especially given the political connections and lucrative financial benefits of the drug industry in Afghanistan. Anti-money laundering efforts appear to have unexploited potential, particularly in relation to banks in surrounding countries.

23. ***Demand-side interventions, effective communications, and education have a role to play.*** Since the vast bulk of opiates produced in Afghanistan are exported, demand reduction efforts within the country, even if successful, would not make a significant dent in total demand for Afghan opiates. However, high problem drug use is a serious problem in Afghanistan, and interventions to reduce demand and mitigate the damaging effects of problem drug use are receiving more attention. There is a need to integrate drug demand reduction efforts into both health care provision and the education sector. Communication and education are an important cross-cutting instrument. Examples include communicating clearly to farmers to this effect where opium bans are being imposed; communications about the illegality (and religious unacceptability) of engagement in the opium economy; education about livelihoods opportunities; communication and education about the dangers of problem drug use; etc. There are clear challenges with such an approach, mainly related to the realism of messages and whether they are appropriately tailored (or not) to the area in which they are being disseminated.

24. ***More radical solutions sometimes proposed would be unworkable and counterproductive.*** At one extreme, aerial chemical spraying of poppy fields would be of very doubtful effectiveness and would be unsustainable, particularly given that opium is an annual crop that can be shifted from season to season. In Afghanistan, where poppy is cultivated in close proximity to other crops, livestock, and human habitation, spraying inevitably would affect other crops. Moreover, even if the chemicals used are not harmful to humans or livestock, there would be adverse public relations repercussions, with any deaths and illnesses (of both humans and livestock) blamed on spraying, and the Taliban using this as a tool to expand recruitment and support. At the other extreme of the counter-narcotics spectrum, licensing of Afghan opium for licit medicinal purposes also would not work. The institutional set-up, good governance, and security conditions are not in place to ensure minimal leakage from licit production into the illegal market. In fact, Afghanistan currently uses such a small proportion of its agricultural land for opium poppy that cultivation could increase sharply to cater for both licenced and illicit markets. Second, current market demand for licensed opiates is more than satisfied by existing producers (Australia, India, Turkey, France, others), which would resist losing market share to a new entrant like Afghanistan. Moreover, Afghanistan is a high-cost producer, and would find it difficult to viably produce for the much lower-priced licensed market. Indeed, if the market for opiates were more comprehensively liberalized, Afghanistan would not be a significant producer of opium, with costs on the order of 10 times those in Australia and simply unable to compete with the highly mechanized technique of producing concentrate of poppy straw rich in narcotic ingredients used there and in other producers.

25. ***Alternative livelihoods (and alternative development) remain undefined, confused concepts.*** Many of the current alternative livelihoods programs consist of single-sector development initiatives that do not address the myriad of reasons that farmers cultivate opium poppy or support the different sections within the rural population to build resilience to an opium ban. They are primarily targeted at building the political capital of provincial and local elites so that a ban can be imposed in a given area. Whereas most rural development programs undertaken in drug crop producing areas strive to deliver development outcomes that might support reductions in opium poppy cultivation as an additional benefit (although much more could be done to strengthen these), alternative livelihood programs are explicitly linked to efforts to reduce cultivation.

26. ***Many alternative livelihoods programs are conditional on reductions in or elimination of opium poppy cultivation—a flawed approach.*** Such programs require communities to agree to reduce opium poppy cultivation prior to receiving assistance, and will curtail programs if opium production does not stop within a given time frame. This approach misunderstands the nature of politics in much of rural Afghanistan, where power tends to be more decentralized and negotiated. Moreover, asking rural communities to forego their primary source of livelihood in return for the promise of development assistance neglects the rural population's perceptions of the Afghan state, as well as the history of weak state-societal relationships in many areas where opium poppy cultivation is concentrated. Finally, the different development programs that coexist in any given area in Afghanistan, the very different mandates of implementing agencies, and the growing presence of anti-government and criminal elements in areas where opium poppy is grown, mean that making development assistance contingent on reductions in cultivation is both impracticable and will undermine efforts to build bonds between rural communities and the Afghan state.

27. ***Experience with opium bans in Nangarhar Province demonstrates that sustained reductions in opium poppy cultivation can be achieved in areas where the necessary conditions are in place.*** These are areas where rural communities can achieve diversified on-farm, off-farm, and non-farm income streams that not only raise incomes but also enable households to better manage risks, along with

improved provision of public goods that strengthens their social compact with the state. Evidence demonstrates that in the lower lying valleys of Nangarhar there are numerous other economic opportunities that farmers can exploit. Moreover, in the context of a significant international effort, their privileged position—a function of location, history, resource endowments and the close bond between local and sub national elites—and increased public and private sector investment has resulted in welfare gains for the rural population despite their abandoning opium production.

28. ***However, Nangarhar’s experience also shows that imposing a ban on opium poppy cultivation in areas where the necessary conditions are not in place will be counterproductive.*** These are areas that do not have a history of state presence and strong relations with local elites, there is a tradition of resistance, and above all there is high dependency on opium, with a lack of viable alternative income-generating opportunities. Banning opium in these kinds of areas fuels instability first and foremost because it exposes the rural population to significant economic shocks; it destabilizes the political order due to the fluid and fragile nature of local leadership and the perceived failure of the local elite to deliver improvements in welfare and state patronage; and finally it damages the bond between state and communities. Opium bans in these areas potentially can fuel violence and rural rebellion, not least because the ban presents an image of a state and a local leadership that does not care about the welfare of the population but prioritizes its own interests and those of foreign benefactors.

29. ***Dramatic reductions in opium poppy cultivation in the canal command area of central Helmand Province since 2008 must be viewed in a wider context.*** This includes the significant investments in security and economic growth in the province in the last few years, not just the counter-narcotics interventions of the Helmand Food Zone initiative. Central Helmand has seen profound changes—there has been rapid expansion in the amount of annual and perennial horticultural crops grown in well-irrigated areas near urban centers, and farmers are exploiting new technologies and agricultural techniques, such as production of off-season vegetables under polytunnels. The expansion in non-farm income opportunities, including in transport and trade, has helped farmers build resilience. Improvements in security, along with significant presence of Afghan National Security Forces, has aided mobility, enabled the sale of goods and services, and provided better access to public goods such as health and education. In this context, the provision of wheat seed and fertilizer, contingent on reductions in poppy cultivation and combined with the threat of eradication, provided a political impetus for the counter-narcotics effort in Helmand, but it alone was sufficient neither to compel communities to abandon poppy cultivation, nor to sustain opium reductions over time.

30. ***The Helmand Food Zone’s focus on wheat has led to large numbers of land-poor and landless households leaving the canal command area to settle in desert lands north of the Boghra canal.*** They have done so because the shift out of opium poppy to less labor-intensive crops like wheat has enabled landowning households in the canal command area to manage their farms without the need for sharecropped or tenant labor. This has created a displaced, cheap, and mobile population, skilled in opium poppy cultivation, and has accelerated the process of settlement in the former desert lands of southwest Afghanistan. Absent sufficient jobs and development assistance (and with landless households the least likely to receive what assistance was available), these farmers had little choice but to settle new land in former desert areas, build a home there, and bring the area under agricultural production based on opium poppy cultivation. Buoyed by the relatively high price of opium, these farmers have been able to purchase the land and technology required to bring the land under cultivation, or to use their skills as opium producers to gain access to land through sharecropping.

31. ***“Mainstreaming” the opium economy in development interventions has for some time been on the agenda in Afghanistan but has not really taken off.*** The World Bank and other development agencies did some promising initial work, and a mainstreaming “Guideline Note” was prepared for

World Bank projects. However, for various reasons such initiatives did not in the end get implemented. But factoring the opium dimension into analytical work as well as programs and projects in the agriculture sector will be important for success in terms of agricultural and rural development, poverty reduction, and counter-narcotics. Conversely, not doing so risks that programs and projects in the agriculture sector do not achieve their own objectives and/or inadvertently encourage further expansion of opium poppy cultivation. From a more positive perspective, there are significant potential benefits from agriculture sector investments in terms of reducing rural households' dependence on opium and thereby supporting longer-term counter-narcotics objectives; mainstreaming is necessary for realizing these potential benefits.

32. ***There are close linkages between the opium economy and the other main components of the agriculture sector*** (wheat, horticulture, and livestock, as well as rural infrastructure most notably irrigation and roads), which need to be brought out and made explicit in the agriculture sector strategy. Different subsectors carry different risks and potential benefits. In the case of wheat, the risks associated with expansion of wheat area are high (likely displacement of land-poor and landless farmers who had been cultivating more labor-intensive crops such as opium poppy), whereas the benefits from both agricultural and counter-narcotics perspectives appear limited. The balance of risks and benefits is much more positive in the case of livestock and also to a slightly lesser extent for horticulture. Irrigation investments carry high risks but are essential for future agricultural development, and roads are similar but with somewhat lesser risks. For all agricultural subsectors, risks need to be managed and potential counter-narcotics opportunities exploited.

33. Based on the analysis and findings of this study, some general principles and broad approaches can be applied in developing agriculture sector strategy including a counter-narcotics lens:

34. First, ***it is essential to avoid designing and implementing the different components of agriculture sector strategy in isolation from each other.*** This would jeopardize progress in each individual component as well as for the agriculture sector strategy as a whole, and increase counter-narcotics risks.

35. Second, ***the agriculture sector strategy needs to be tailored geographically to work well in different regional and local contexts.*** No one package of interventions will work everywhere.

36. Third, ***investments in the agriculture sector need to be focused on rural areas where they will deliver realistic outcomes and be practicable post-2014.*** Geographical priorities will need to be set in the context of the security situation post-2014 and what it means for delivering development interventions. The Pillar I geographical priorities put forward in the Agricultural Sector Review as a whole are broadly consonant with these perspectives, and make good sense from a counter-narcotics perspective as well.

37. Fourth, ***the opium dimension must be factored into decisions about broader agriculture sector strategy as well as specific programs and investments.*** Such mainstreaming will become all the more important as international funding declines, to enhance the effectiveness of development programs from both agriculture sector and counter-narcotics perspectives.

38. Fifth, ***look beyond simple models of crop substitution and do not assume that opium poppy can simply be replaced with high-value horticulture.*** Increased non-farm income has been a critical element in building resilience following opium bans, and livestock development also has encouraged a shift in cropping patterns, as well as improved incomes and a safety net for those with some livestock.

39. Sixth, ***interventions targeting land-poor and landless rural households generally make sense*** from both agricultural and counter-narcotics perspectives, as well as in terms of the broader objective of poverty alleviation.

40. In light of these general principles and approaches, some specific recommendations include:

41. ***Do not support interventions designed to expand the area of wheat cultivation by shifting land from other crops to wheat.*** Substituting wheat for other, higher-value and more labor-intensive crops (most notably opium poppy) has been counterproductive and harmful. Interventions supporting higher wheat yields make more sense than expansion of wheat cultivation and will promote greater wheat self-sufficiency among land-poor households, but for households with larger landholdings, higher wheat yields may lead to reduced cultivation, creating a risk that some land will be shifted to opium poppy.

42. ***Prioritize sensible livestock interventions targeted to the extent possible at poorer rural households.*** Livestock development carries low counter-narcotics related risks and has high potential benefits in reducing dependence on opium poppy cultivation, in combination with other interventions.

43. ***Prioritize labor-intensive perennials within the horticulture sector,*** since these crops commit land over the entire season and for a number of years, and have the potential to provide high net returns for the land-poor while making full use of household labor, as well as creating seasonal wage labor opportunities. Moreover, perennial horticultural crops offer access both to advance payments prior to harvest and to market support when established. Build on experience in areas like central Helmand, where there has been high uptake of perennials. Downstream value chain development will be essential in order to fully realize the potential returns to perennial horticulture, particularly exports.

44. ***Develop advice and support for cropping systems rather than focusing on any single crop.*** In a number of areas particularly around Jalalabad, Lashkar Gah, Kandahar, and other provincial capitals, farmers have adopted complex cropping systems that include annuals, short-season and off-season crops, and intercropping, to raise and regularize incomes and better manage risks of crop or market failure for any individual crop. This approach has competed successfully with poppy in these areas.

45. ***Irrigation investments are of very high priority since water is the scarce physical resource in Afghanistan.*** Where new land is being brought under cultivation through much-needed irrigation investments, allocation of new irrigated land in smaller parcels to land-poor and landless households would make the most sense.

46. ***Strengthen the technical capacity of line ministries so that they can better understand the potential impact of their development programs on levels of opium poppy cultivation.*** Targeted training and capacity building will be required to change mind-sets and inject awareness of counter-narcotics implications into these agencies' plans and investments.

I. BACKGROUND ON AFGHANISTAN'S OPIUM ECONOMY

Introduction

1.01 This study reviews Afghanistan's opium economy from multiple perspectives, with the objective of informing the World Bank's Agriculture Sector Review and the recommendations it puts forward on agriculture sector policies and investments. The study focuses on the economic dimensions of opium and on implications for agriculture, rural livelihoods, and governance. Although counter-narcotics aspects are touched on—not least because they may provide useful lessons when considering agricultural sector strategy, policy choices, and investment decisions—that is not a major focus here. The overarching message is that from a variety of perspectives the opium economy is so important that it cannot be ignored in analysis of Afghan agriculture, rural livelihoods, and governance issues, and it has serious implications that need to be taken into account in formulating agricultural and rural development strategies (as well as in other areas which are not covered in this study). Otherwise there is a serious risk that policies and investment priorities put forward as part of such strategies will not have the intended effects or even could be counterproductive.

1.02 The study makes selective use of available estimates on aggregate opium poppy cultivation, opium production, information from national accounts, price data, disaggregation of cultivation estimates by province, and rough estimates of employment, as well as information collected in the Wheat and Horticulture Reviews. These kinds of data suffer to varying degrees from limited reliability, unknown and often large margins of error, and sometimes systematic biases (e.g. due to not being able to properly collect data in more insecure areas).¹ Thus the analysis based on these data is treated with some caution and is appropriately caveated. Moreover, the paper does not make use of some of the more unreliable data sources, such as those that ask direct questions on drug crop production and do not place opium poppy cultivation within its wider socio-economic, political and environmental context, as these approaches can produce misleading results (see Statistical Appendix).

1.03 The study draws very heavily on a major body of evidence and analysis based on extensive field work on the rural opium economy conducted and led by one of the authors (David Mansfield) over an 18-year period, which combines livelihoods analysis, political economy, and high resolution imagery.² While it is impossible to convey the full richness of the data and findings of this body of research in a study like this one, some of it is presented selectively to illustrate key points. Moreover, the study's analysis, findings, and recommendations fully reflect the knowledge and insights gained through this field research. In particular, this research is invaluable for understanding rural households' decisions to cultivate opium poppy (or not to do so), how much to cultivate, and the factors that influence these decisions (and ultimately the level of poppy cultivation at a more aggregate level).

1.04 A central theme that emerges from this work is the diversity across regions and localities within Afghanistan in their degree of dependence on the opium economy, as well as in other characteristics influencing patterns and trends in opium poppy cultivation (see Chapter II). This means there is definitely no "one-size-fits-all" solution to the opium problem in Afghanistan; some general principles and approaches can be applied, but they need to be tailored to local circumstances to be effective.

¹ It should be noted however that data on the licit economy in Afghanistan also suffer from problems. Indeed, some of the more reliable of the various data on the opium economy (most notably the estimated total area of opium poppy cultivation) are probably better than much if not most of the information available on licit agriculture for example.

² For a synthesis of livelihoods analysis and remote sensing imagery, see Mansfield, Alcis and OSDR, "Managing Concurrent and Repeated Risks: Explaining the Reductions in Opium Production in Central Helmand between 2008 and 2011" (AREU, 2011); for integration of detailed work on political economy into this approach see David Mansfield, "All Bets are Off: Prospects for (B)reaching Agreements and Drug control in Helmand and Nangarhar in the run up to Transition" (AREU, January 2013).

1.05 A second major theme is that the decisions of Afghan rural households, which together with the constraints and other parameters they operate under determine aggregate patterns and trends of opium poppy cultivation, cannot be simplistically viewed as one-dimensional “profit maximization” based on the relative prices of opium and other crops (see Chapter III and Statistical Appendix). Households are risk averse, particularly since survival/subsistence is a very real consideration for a great many of them; they take into account insecurity, market reliability, local governance and corruption, and other key factors in the environment; and more generally they make decisions on opium as part of a broader menu of choices for their livelihoods portfolios, which include a variety of non-farm and off-farm activities in addition to cultivation, as well as other livelihoods options some of them extreme such as labor migration or even movements of entire households, both within the country and across borders to other nearby countries.

1.06 This body of research also sheds much light on counter-narcotics policies and measures—what has worked, what has not worked, what has been sustainable and what not, what have been the adjustments and hardships imposed on rural households and local rural economies, when these have paid off in terms of sustainable movement away from dependence on opium economy and when not, the role of government authorities and rural elites in this process, etc. While counter-narcotics is not the focus of this study, some of the findings and hard-learned lessons from experience in this regard have parallels with and implications for choices and priorities in agriculture sector strategy (see Chapter IV). For example, substantial counter-narcotics resources have gone into supporting substitution of wheat for opium (especially the provision of seed and other inputs in the insecure south, but also other forms of assistance). However, from all but the shortest-term perspective this has not worked, and results have turned out to be counterproductive. This experience certainly has implications for thinking about the role of wheat in an agriculture sector strategy.

1.07 This study is comprised of seven chapters, along with two Annexes and a Statistical Appendix. The rest of Chapter I provides necessary background, first laying out aggregate dimensions and linkages of Afghanistan’s opium economy, including the various agricultural, economic, and livelihoods implications that have positive aspects at least in the short run, and also the major drawbacks and disadvantages of the opium economy for Afghanistan from a medium-term perspective. The evolution of the opium economy over time and the major fluctuations it has undergone are then reviewed. Chapter II discusses the great diversity evident in the opium economy across regions and localities, and the fluctuations and evolution over time within regions and localities. Chapter III outlines the microeconomics of rural households’ decision-making on opium, taking a livelihoods perspective and laying out the various parameters and constraints that households respond to.

1.08 The study then in Chapter IV turns to counter-narcotics experience, not striving to be comprehensive on this topic but rather deriving some patterns and lessons that may be particularly relevant for thinking about and design of agriculture sector strategy. It reviews the main counter-narcotics instruments and also discusses several more radical solutions that have been proposed from time to time but are unworkable and would be very counterproductive. Chapter V analyzes the experience of banning opium poppy cultivation in Nangarhar Province and what this tells us about how development interventions might be better directed and focused. Chapter VI looks at recent efforts to reduce opium poppy cultivation in the central canal command area of Helmand Province, under an initiative known as the Helmand Food Zone, and the impacts on different geographical areas and socio-economic groups.

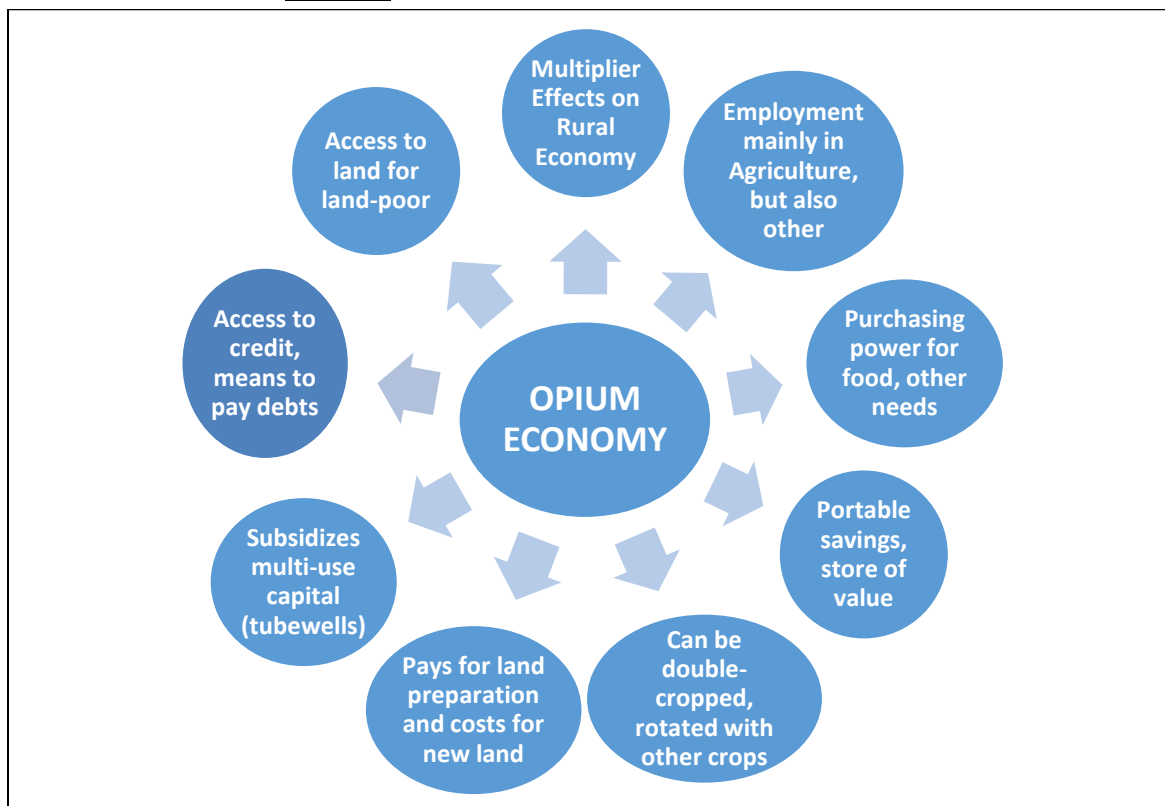
1.09 The final part of the study (Chapter VII) develops concrete recommendations for agriculture strategy, policies, and investments taking into account the opium economy and its implications. It starts with a brief review of recent developments, the current outlook, and likely prospects for the opium

economy in coming years. Then “mainstreaming” the counter-narcotics dimension in agricultural development strategy, policies, and investments is discussed, including the rationale for mainstreaming, the history of such efforts in Afghanistan, and some lessons for the future. The interaction between various prospective agriculture sector investments and the opium economy are reviewed in greater specificity, including the likely impact of the opium economy on the effectiveness and outcomes of such policies and investments. The study concludes by putting forward some general approaches as well as concrete recommendations on how to direct, prioritize, and make more opium-sensitive agriculture sector strategy, in light of the evidence and findings of this study.

The Importance and Multi-faceted Roles of the Opium Economy

1.10 In addition to its global prominence as by far the largest source of illicit opiates in the world, Afghanistan’s opium economy plays important and multi-faceted roles in the country’s agriculture sector and more generally in the economy. The opium economy is certainly not marginal even when considered in relation to Afghanistan’s economy as a whole, and it is a very important part of the rural economy overall, especially so in localities where significant opium cultivation is occurring. The main positive economic linkages are shown in Figure 1 and discussed briefly below.

Figure 1: POSITIVE ECONOMIC LINKAGES OF OPIUM



Source: Authors.

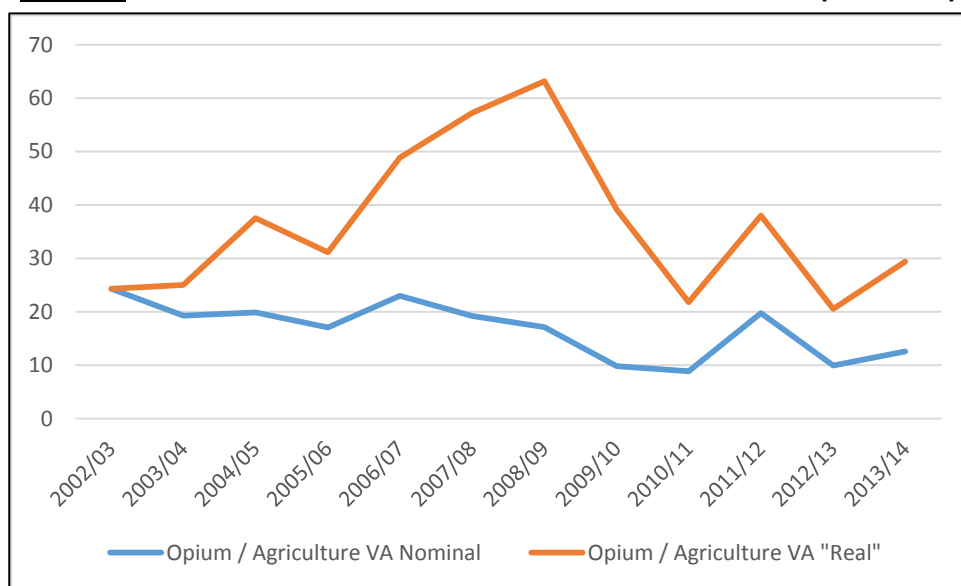
1.11 From an **agricultural perspective**, opium is by far Afghanistan’s most important cash crop. Virtually all opium poppy is cultivated for sale, and the farm-gate value of opium, (estimated by UNODC at \$950 million in 2013) dwarfs the value of domestically produced wheat sold on markets.³ Cultivated

³ This is true even though the farm-gate price of opium comprises a small proportion (less than one-third in 2013) of the border price of opiates, and a minuscule part of the downstream value of heroin in consuming countries.

on less than 3% the country’s arable land,⁴ opium economizes on scarce water and can be rotated and in some areas double-cropped with other crops. Moreover, opium funds land development costs and joint capital inputs like tube wells that are also used for other crops, which would be impossible to pay for in the absence of poppy cultivation.

1.12 Although the ratio of the farm-gate value of opium production (or the very roughly estimated “value added” in this activity) to non-opium agriculture value added has been declining in nominal terms (Figure 2), this has been entirely due to relative price changes. However imperfect UNODC’s estimates of farm-gate opium prices may be, there is no question that prices have declined a great deal since peaks reached during the Taliban’s comprehensive ban on poppy cultivation in 2000/2001 and the years immediately thereafter (see Figure 9 and associated discussion later in this chapter). As is also shown in Figure 2, the ratio of opium farm-gate value in real terms (proxied by metric tons of opium produced) to real non-opium agriculture value added has risen slightly during 2002-2013 amidst large year-to-year fluctuations (and indeed was higher than the 2002/03 level during most of this period).

Figure 2: RATIO OF OPIUM TO AGRICULTURE VALUE ADDED (PERCENT)



Source: Central Statistics Organization and World Bank staff calculations based on UNODC data.

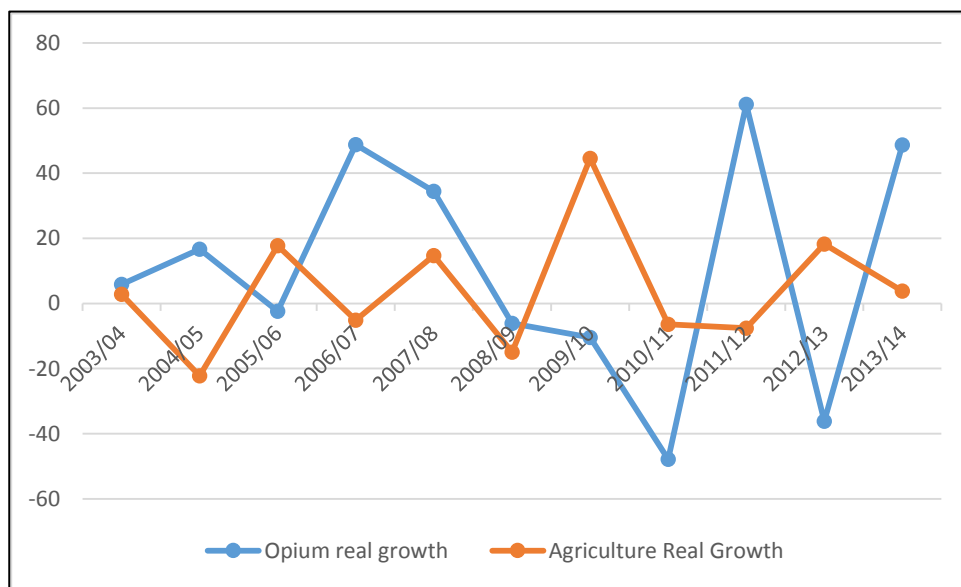
1.13 Like agriculture as a whole, opium production has been quite volatile, subject to major year-to-year fluctuations. In addition to the low, highly variable, and seasonally concentrated (and variable in terms of timing) precipitation that plagues Afghan agriculture in general, exacerbated by limited water storage capacity, opium yields and production are buffeted by large fluctuations in acreage, reflecting among other factors price fluctuations, variability and changes in counter-narcotics measures, and also vulnerability to disease.⁵ Nevertheless, fluctuations in opium production if anything have been slightly

⁴ The World Bank reports that Afghanistan has a land area of 652,230 square kilometers (<http://data.worldbank.org/indicator/AG.LND.ARBL.ZS/countries>), of which 11.9% was arable between 2009 and 2013, (<http://data.worldbank.org/indicator/AG.LND.TOTL.K2>), which is the equivalent of 77,615.37 square kilometers or 7.7 million hectares. UNODC estimates that opium poppy was cultivated on a total of 209,000 hectares in 2013 (UNODC/MCN Afghanistan Opium Survey 2013, December 2013, UNODC/MCN: Kabul, page 8), which was a record high level.

⁵ The risk of and damage from disease is inevitably greater for an individual crop like opium (particularly if it is mono-cropped over several years and the soil doesn’t have a chance to “rest”) than for the mix of crops that constitutes the rest of Afghan agriculture.

less than for the rest of agriculture.⁶ Moreover, as can be seen from Figure 3, growth of opium production / real value has not been closely correlated with real growth of the rest of agriculture; on the contrary, the correlation coefficient between the two during 2002-2013 was negative (-0.24). This suggests that opium was not in general exacerbating the large year-to-year fluctuations in Afghan agriculture but may have played a modest offsetting role. However, the situation varies so much across regions and localities (see following section) that these aggregate patterns must be interpreted with great caution.

Figure 3: OPIUM AND REAL AGRICULTURAL GROWTH (PERCENT P.A.)



Source: Central Statistics Organization and World Bank staff calculations based on UNODC data.

1.14 From a **macroeconomic perspective**, it is true that the share of opium in total economic activity has been declining in recent years, amidst rapid overall economic growth. Nevertheless, whether measured as opium at the farm-gate (equivalent to around 5% of non-opium GDP), or more appropriately as the value of opiates at the border (currently in the neighborhood of 10-15% of GDP), the drug industry remains Afghanistan’s leading cash-generating economic activity. Opium’s economic importance in the rural economy is considerably greater than the overall GDP share would suggest (see also Figure 2), and in areas where poppy cultivation is concentrated it tends to dominate the local economic scene, with significant multiplier effects stimulating demand and economic activity. Although the multiplier effect cannot be estimated with any precision in Afghanistan, given rural farm households’ consumption patterns it would be reasonable to assume a significant multiplier effect (on the order of at least one and likely higher than that) for the farm-gate income from opium.⁷ Opiates are Afghanistan’s

⁶ During the 2002-2013 period, the coefficients of variation for annual real growth of agricultural value added and real opium growth were both rather high, but the latter was slightly lower than the former.

⁷ Although rural households may purchase some imported consumer durables, vehicles, imported food or medicine, etc., and may save a portion of opium revenues, they for the most part spend much more on domestically-produced goods and services. Conversely, research in Nangarhar and Helmand provinces demonstrates that crop failure or bans on opium poppy cultivation have an immediate negative effect on more vulnerable socio-economic groups, resulting in reductions in their consumption of meat and fruit, delay of health care expenditures, and sale of long-term productive assets. This in turn has a wider impact on local economies. For example, when a ban on poppy cultivation was imposed in Nangarhar during the 2004/05 growing season, with continued low levels of cultivation into 2005/06, there was an immediate downturn in the economy impacting on a range of different businesses, including those selling food, local hoteliers, general stores, and those selling vehicles (see Mansfield, David, *Resurgence and Reductions: Explanations for Changing Levels of Opium Poppy Cultivation in Nangarhar and Ghor in*

largest export product by far; the bulk of opiates produced in the country are exported, and their total estimated value (at border prices) of roughly \$3 billion in 2013 exceeds the estimated value of all other exports combined (including official and unofficial exports other than opiates).⁸ Although many export proceeds from opiates never enter the country or are offset by capital flight, nevertheless drugs clearly do provide indirect support for the balance of payments.⁹

1.15 From a *livelihoods perspective*, opium poppy cultivation is highly labor-intensive, and provides a large number of on-farm jobs (estimated at around 376,000 full-time equivalent jobs in 2013). Trading, transport, and processing provide some additional employment, estimated very roughly at 21,000-43,000 full-time equivalent jobs (see Table 1), adding another 6-13% to employment associated with opium poppy cultivation. These figures do not include provision of security for the drug industry, which can be expected to generate substantial additional employment. Secondary job creation from opium's multiplier effects on local demand is also very significant. Opium provides much-needed purchasing power for a considerable segment of the rural population, which enables households to improve the quality of their food consumption, pay for medical care and other extraordinary expenses (e.g. weddings and funerals), purchase some consumer durables, etc. Opium receipts also can help fund expansion of livelihoods opportunities by providing capital for purchase of vehicles and other capital for non-farm entrepreneurship. Poppy cultivation is a convenient, frequently the only means to access rural credit, and for indebted households it provides the best, often the only option for managing and paying off debts. Related, opium provides a convenient, portable, and durable¹⁰ store of value for rural households, very useful in an insecure, uncertain environment where there is often a risk of raids by a variety of different actors and at the extreme, the need for a household to flee. In sum, opium supports the livelihoods of those cultivating poppy in a variety of useful ways.

1.16 But probably the most important livelihoods-related benefit provided by opium poppy cultivation is the access to land it provides to landless and land-poor rural households. As a labor-intensive high-value cash crop, poppy requires large amounts of labor, which means that households with sizable land-holdings sharecrop or rent to other households, providing the landless and land-poor with land, a house, as well as some amount of land for the cultivation of food crops and the means by which to maintain a small amount of livestock. The short harvest season and the high labor requirements for harvesting opium mean that the crop also creates a significant number of wage labor opportunities. The high labor-intensity and employment associated with opium poppy cultivation—an estimated 1.8 full time equivalent (FTE) annual jobs per hectare, as compared with an estimated average of 0.23 for wheat in 2012 (0.32 for irrigated wheat and 0.16 for rainfed wheat)¹¹—also means that any assertions that “opium is a crop of the rich” or arguments along similar lines are of questionable validity. Even if the debatable point that opium poppy is cultivated disproportionately by those with larger

2005-2007 (A report for AREU's Applied Thematic Research into Water Management, Livestock and the Opium Economy, AREU, Kabul, 2008).

⁸ Afghanistan's total official and unofficial exports in 2013 (excluding opiates) are estimated at \$2.6 billion, slightly less than the estimated value of opiates exports (see World Bank, *Afghanistan Economic Update, April 2014*, Annex 3, p. 26).

⁹ Much if not most of the farm-gate value of opium translates into domestic consumption and positively impacts the balance of payments. Some downstream opium proceeds also get spent on domestic goods, services, and assets, including real estate.

¹⁰ The “shelf life” of raw opium is typically 8-10 years, longer than that of heroin powder which will last up to 18 months but only if kept absolutely dry. Moreover, although opium dries out over time, reducing its weight, if dried properly “dry” opium typically sells for a higher price than that of newly-harvested “wet” opium (Mansfield, field notes 2007, and 2014).

¹¹ Based on 586,300 FTEs total for wheat and a total of 2,512,000 ha cultivated with wheat—irrigated plus rain-fed (see Table 2 and Statistical Appendix). This draws on Maletta's (2004) estimate of an average labor requirement of 31 days per hectare for rainfed wheat and 65 for irrigated, and using the estimates of 1,167,000 ha of irrigated land cultivated with wheat in 2012 plus 1,345,000 ha rainfed. This is less than the 787,000 FTEs reported in the Wheat Review (2013: p. 51), which estimates labor inputs of between 60-80 days per hectare for irrigated wheat and 45 to 50 person days per hectare for rainfed wheat.

landholdings is accepted as perhaps having some degree of factual accuracy (which is far from certain), the vast bulk of people actually engaged in cultivation and earning returns through wages or sharecropping are not well-off, let alone sizable landholders.¹²

Table 1: ESTIMATED EMPLOYMENT ASSOCIATED WITH OPIUM POPPY CULTIVATION (2013)

	LOW ESTIMATE	HIGH ESTIMATE
Cultivation ¹³	376,200	376,200
Trade in Opium / Opiates	7,500	15,600
Transport (Opium, Heroin/Morphine, Precursors)	3,000	4,200
Processing	1,100	14,300
Money Laundering	100	300
Trade in Herbicides, Diesel for Tubewells for Poppy	8,100	11,800
Construction of Deep Tubewells for Poppy	900	1,200
TOTAL	396,900	423,600

Source: Statistical Appendix. Estimates do not include security protection for opium trade, transport, processing, etc.

1.17 A comparison between opium and wheat, Afghanistan’s dominant staple crop, whose cultivation takes up by far the largest portion of the country’s arable land, sheds further light on opium’s role in the agricultural sector (see Table 2). Cultivated on only a tiny fraction of the area devoted to wheat, opium poppy nevertheless provided close to half the number of FTE jobs provided by wheat in terms of on-farm employment in 2012, a figure that probably rose to above 60% in 2013 when poppy cultivation markedly expanded and estimated FTEs reached 376,000. Poppy is estimated to be nearly eight times as labor-intensive a crop as wheat (5½ times in the case of irrigated wheat and 11 times as labor-intensive as rainfed wheat), and therefore its employment impact per hectare cultivated is far greater. And although the estimated farm-gate value of wheat is considerably higher than that of opium, virtually all opium production is marketed whereas most wheat (probably 70-80%) is cultivated for own-consumption by rural households, generating no cash income. This also means that the rough equivalence of estimated farm-gate value per FTE job for the two crops is a reflection of the much greater labor-intensity of opium production, and that the cash generation per FTE for wheat is negligible as compared to opium.

1.18 Although opium dwarfs any individual licit horticultural crop, a comparison between opium and Afghanistan’s production of horticultural crops as a whole may be illuminating. Comparative data for 2013 are presented in Table 3. In general, and not surprisingly, horticulture overall is much more comparable to opium than is wheat, but nevertheless there are considerable gaps between the two; moreover, the aggregate estimates mask great variation across individual horticultural crops. In 2013 horticulture is estimated to have been cultivated on 70% more land than opium poppy, but due to being only half as labor-intensive as poppy, horticulture employed 15% less on-farm labor. Although the estimates are subject to uncertainty, they suggest that the processed / export value of opiates in 2013 was something like twice as great as that of horticulture. And the gross “value” generated per rural on-farm FTE is roughly 75% higher than that for horticulture. However, the gap is smaller, or may well vanish, for some individual horticulture crops. Grapes for example are estimated in the Horticulture

¹² There are also issues of causation with regard to any simplistic correlation between the amount of land cultivated per household and opium poppy cultivation. Since poppy cultivation provides access to land for land-poor and landless households, there could be expected to be a positive ex-post correlation between amount of land cultivated per household and opium, but with the causation being quite different—households with less or no land (typically poorer and certainly not among the most well-off) augmenting the amount of land they farm by sharecropping or renting some land, which they cultivate with poppy.

¹³ Point estimate for full-time equivalent (FTE) on-farm jobs for opium poppy cultivation, based on 160 days per hectare for preparation, clearing, and weeding, plus 200 days per hectare for harvesting, along with the assumption that on average 200 days constitutes one FTE (see Statistical Appendix).

Sector Review to have provided 90,000 FTE in on-farm jobs in 2012, a farm gate value of US\$ 120-240 million per year,¹⁴ and a gross value per rural on-farm labor-year of US\$ 1,333-2,666.¹⁵ Pomegranates are estimated to have provided 8,000 FTE on-farm jobs in 2012, with a farm-gate value of US\$ 70 million and average gross value per rural on-farm laborer of US\$ 8,750, significant higher than opium.¹⁶

Table 2: COMPARISON OF OPIUM POPPY AND WHEAT (2012)

	OPIUM	WHEAT
Cultivation (hectares)	154,000	2,512,000
Production (metric tons)	3,700	5,076,430
Direct employment (FTE person-years))	277,200	586,300
Gross-farm-gate value (US \$ million)	700	1,500 ¹⁷
Estimated border value (opiates)	2,000	n/a
Labor-intensity (FTEs / hectare)	1.8	0.23
Revenue/labor (US\$ farm-gate / FTE)	2,500	2,600

Source: UNODC for opium figures; employment on opium poppy cultivation based on 360 person-days per hectare, with 200 days equals one Full-Time-Equivalent (FTE). Wheat Paper for ASR for wheat area, person-days per hectare for wheat (calculated separately for irrigated and rain-fed) calculated in the Statistical Appendix.

Table 3: COMPARISON OF OPIUM AND HORTICULTURE (2013)

	OPIUM	HORTICULTURE
Cultivation (hectares)	209,000	360,000
Production (metric tons)	5,500	n/a
Direct employment (FTE person-years))	376,200	309,000 ¹⁸
Gross-farm-gate value (US\$ million)	950	n/a
Estimated border value (opiates for opium)	3,100	1,500 ¹⁹
Estimated export value	3,000 ²⁰	450
Labor-intensity (FTEs / hectare)	1.8	0.9
Farm revenue/labor (US\$ farm-gate / FTEs)	2,600	n/a
Revenue/labor (US\$ border value / FTEs)	8,400	4,900

Source: UNODC for opium figures; FTEs from Statistical Appendix. Horticulture Review for horticulture. FTEs and derived data for horticulture are adjusted to reflect a consistent assumption of 200 person-days = 1 FTE (Horticulture Review used 320).

¹⁴ The Horticultural Sector Review (Table 10, p. 39) suggests a farm gate value of US\$ 1.2-2.4 billion, but based on the figures reported in Table 10, but with total cultivated area of 60,000 ha, an average yield of 10 metric tons per ha, and a typical farm-gate price of US\$ 200-400 per metric ton, the total farm-gate value would be US\$ 120-240 million.

¹⁵ Based on 60,000 ha of land under cultivation (Horticultural Sector Review, page 39), a labor requirement of 300 person days per hectare (p. 50), a total farm gate value of US\$ 120-240 million (corrected), and 200 person-days per FTE (corrected for consistency with wheat and opium FTE calculations, see footnote 17).

¹⁶ Based on 8,000 ha of land under cultivation (Horticultural Sector Review, page 84), a labor requirement of 200 person days per hectare (page 91) and a total farm gate value of US\$ 70 million (page 84)

¹⁷ Based on estimate of \$1.8 billion value of wheat based on urban prices in Afghanistan, less 15 percent to derive estimated farm-gate value. However, unlike in the case of opium, most wheat is produced for own-consumption and hence is not monetized.

¹⁸ Based on Horticulture Sector Review but recalculated on the basis of an FTE of 200 days to be consistent with the opium and wheat FTEs estimate. (The Horticulture Review original estimate was based on an FTE of 320 days. Estimated labor-intensity and revenue/labor figures in this table are also based on this adjusted FTEs figure, and result in somewhat higher total estimated FTEs in horticulture, and somewhat lower revenue per worker etc.

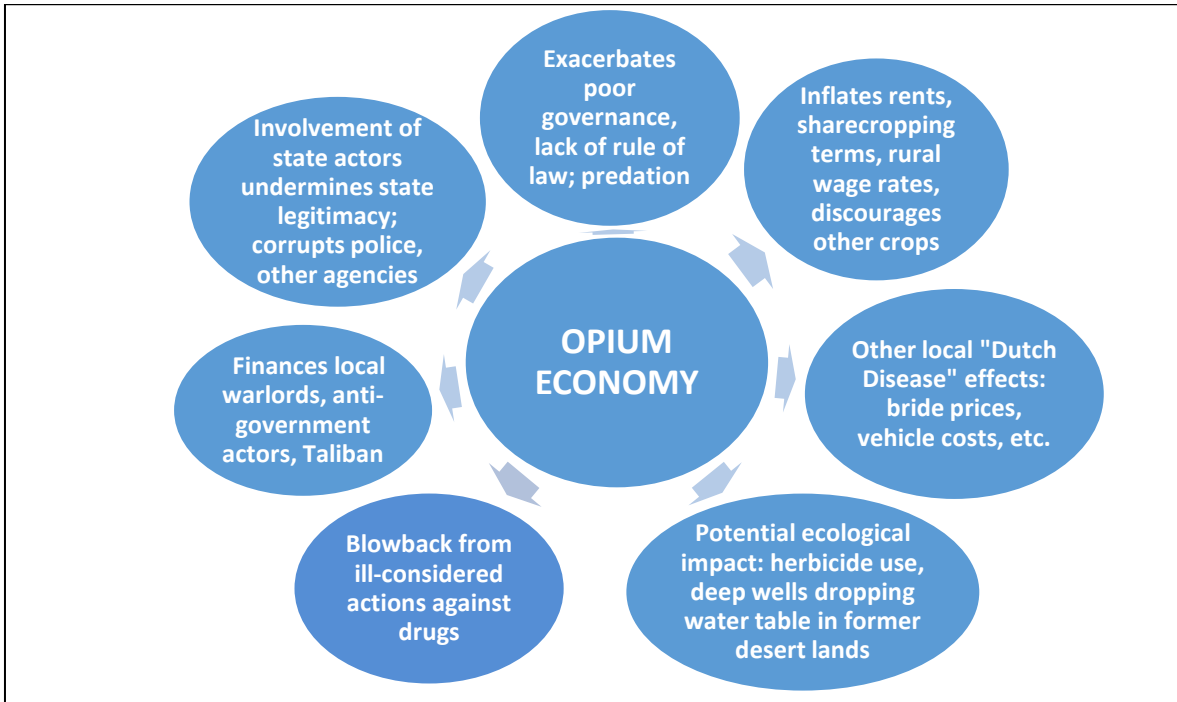
¹⁹ Estimated gross revenue of \$1,347 million plus a very crude estimate for additional costs to border (please note that the price estimate on which revenue is based is already something close to the border price); see Horticulture Sector Review.

²⁰ Assuming a small amount, estimated roughly at 5%, for domestic consumption within Afghanistan.

Drawbacks and Problematic Implications

1.19 Set against the very real economic benefits of the opium economy are some major disadvantages it brings for Afghanistan. From a medium- to longer-term development perspective, these problems far outweigh the advantages described above. The main problematic aspects are summarized in Figure 4 and are elaborated upon below.

Figure 4: SOME PROBLEMATIC IMPLICATIONS OF THE OPIUM ECONOMY



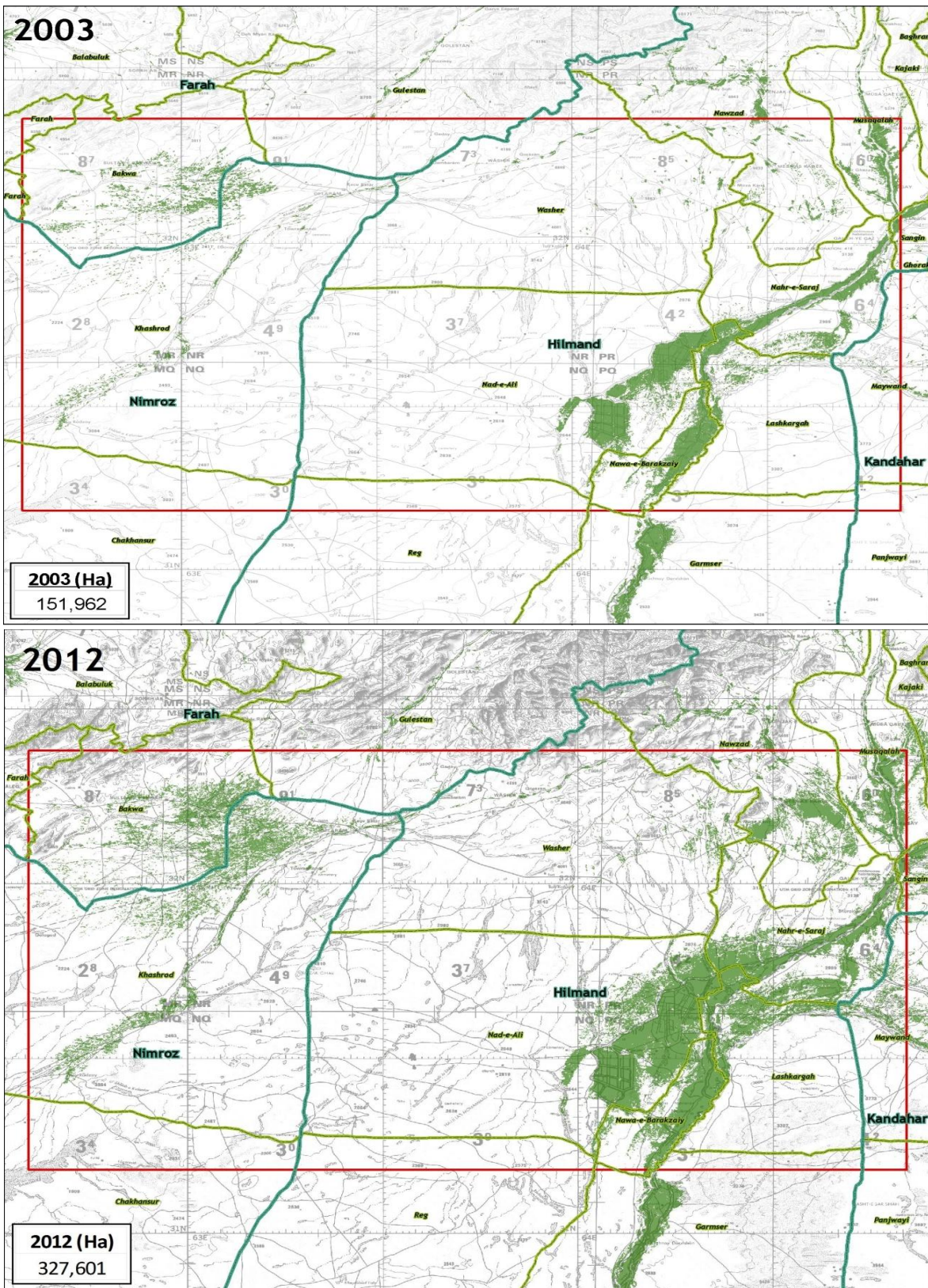
Source: Authors.

1.20 From an *agronomic perspective*, as is the case with most crops, repeated mono-cropping of opium poppy is problematic, worsening soil quality, reducing yields for poppy as well as other crops, and increasing the risk of various diseases that affect poppy. Households with larger landholdings may be able to engage in appropriate crop rotation practices whereby opium poppy synergizes with other crops (and periodic opium bans also may help in this regard). For land-poor let alone landless households, however, good crop rotation practices frequently are not an option, driving them toward repeated mono-cropping and associated agronomic problems. The rapid expansion of cultivation into former desert areas of south and southwest Afghanistan over the last decade (see Figure 5), where the crop is irrigated by wells ranging from 60-150 meters deep, is already believed to have driven down the water table.²¹ There are further health and environmental concerns with regard to the widespread use of herbicide, typically paraquat, on the poppy crop in the southwest region.²²

²¹ Fieldwork suggests that in the desert areas north of the Boghra canal in Helmand, tubewells ranged from 65-90 meters in depth (Mansfield, "From Bad they made it worse: The concentration of opium poppy in areas of conflict in Helmand and Nangarhar" (AREU, Kabul, p. 75, June 2014). This is in contrast to Bakwa on the Farah- Nimroz - Helmand border, where wells were typically 100-150 meters deep (Mansfield, forthcoming)

²² For detailed information on the use and spread of herbicides in opium poppy cultivation, see Mansfield, "From Bad they made it Worse" (AREU, Kabul, pp. 76-78, June 2014).

Figure 5: AGRICULTURAL LAND IN PART OF SOUTHWEST AFGHANISTAN, 2003 AND 2012



Source: ALCIS.

1.21 From a **broader economic perspective**, the classic “Dutch Disease”²³ implications that would be expected from reliance on a high-value primary commodity like opium have been far outweighed at the macro level in recent years by the enormous inflows of international military expenditures and aid. However, there are significant localized Dutch Disease-like effects in the areas and regions where opium poppy is heavily cultivated. In particular, opium gets capitalized into land prices, rental rates, and sharecropping arrangements, so that it becomes difficult, unattractive, and indeed financially unviable to acquire agricultural land for any purpose that does not include substantial opium poppy cultivation. Such price distortions can extend to social expenditures such as bride prices and funeral costs etc., which may be higher in major opium-producing areas than in other rural localities. Basically, opium where it is flourishing may tend to “crowd out” other competing economic activities to some extent, although opium may also be complementary to other activities in the diversified livelihoods portfolios of many rural households.

1.22 From a medium- to longer-term developmental perspective, as the near-monopoly producer of illicit opiates Afghanistan is hostage to the vagaries of international demand which although increasing is likely to grow slowly in the future. In particular, substitution of chemically-manufactured drugs as well as abuse of licit opioids (originally intended to serve as pain-killers but highly addictive and vulnerable to abuse) has already been occurring in western consumer nations and may increase in the future.²⁴ Moreover, Afghanistan is a high-cost producer of opium and opiates in the world, and if there is movement toward liberalization and a regulatory regime for opiates, Afghanistan would not be able to compete with other producers of legal opiates (see Chapter IV). Given its high global market share, Afghan production little prospect to grow faster than world demand for illicit opiates (and to the extent that it may do so in the short run, collapse of prices is likely to more than offset volume increases). Thus over the longer term, the opium economy cannot serve as a leading sector in stimulating (or even maintaining) Afghanistan’s overall economic growth, even aside from all of the other problems and disadvantages it carries for the country.

1.23 More serious than these adverse agronomic and economic effects are the problematic implications of the opium economy for governance and undermining rule of law, as well as its potential for instilling or exacerbating conflicts over the drug revenues. However, it appears that violent conflict over drugs per se is fairly limited in Afghanistan and much less damaging than the “drug wars” seen in some Latin American countries. This suggests that drug flows, processing, etc. may currently be reasonably well-managed, with some degree of cooperation among the various elements involved, and also that there is at least a degree of integration with government at various levels, avoiding violently conflictual and damaging confrontations with law enforcement agencies.²⁵

1.24 Even if the drug industry is not in itself a significant source of conflict in Afghanistan, it does generate large amounts of funds that benefit a variety of political power-holders and other politically

²³ The “Dutch Disease” refers to the macroeconomic distortions induced by heavy reliance on primary products exports (traditionally applied mainly to mineral resources); the real exchange rate appreciates, the price of non-tradables rises relative to tradables, and economic incentives are skewed away from the latter and from other exports. Opium mimics many of the properties of high-value primary exports and therefore Dutch Disease-like economic impacts can be expected.

²⁴ In these respects opium bears some resemblance to many licit agricultural commodities that are subject to fairly low global demand growth, exacerbated by substitution of other (including manufactured) products that further dampens demand, and for which the vast bulk of revenues and profits accrues to downstream processing and wholesale / retail sales stages of the value chain.

²⁵ An early analysis of government involvement in the drug industry, which suggested that the Ministry of Interior and Afghan police had become essentially the “regulator” of drug flows, was presented in Shaw, Mark, “Drug Trafficking and the Development of Organized Crime in Post-Taliban Afghanistan”, in Buddenberg, Doris and William A. Byrd (editors), *Afghanistan’s Drug Industry: Structure, Functioning, Dynamics, and Implications for Counter-Narcotics Policy* (UNODC and World Bank, 2006), Chapter 7, pp. 189-214.

connected actors in Afghanistan, some of whom are in conflict with the government and many more of whom have a vested interest in maintaining a situation of weak state presence and poor governance. But any simplistic linking of the drug industry with the Taliban (and the associated implicit or explicit assumption that success against the former would be very damaging to the latter) is way off the mark. Although farmers cultivating opium poppy in Taliban-controlled areas do make some payments to them, neither are these payments very large and nor are the Taliban greatly dependent on them, given their access to other resources.²⁶ Moreover, drug money funding interests that are part of, or associated with the Afghan government is if anything more substantial than the amounts funding the Taliban. And in addition, numerous local and regional power-holders, who are not necessarily part of the Taliban but whose interests are not aligned with the central government (although there may be some linkages), are involved with and benefit from the drug industry. In this context, drug money may fund local and regional conflicts from time to time. Overall the nexus between the opium economy, different political interests, and conflict presents a complex picture, not amenable to simple generalizations such as equating the drug industry with the Taliban.

1.25 Drug-related corruption is unquestionably a major issue, which undermines institutions, rule of law, and perceptions of the credibility of government institutions and the political system. While it is virtually impossible to come up with a meaningful quantitative assessment, by all indications drug-related corruption is very serious and pervasive. Clearly there are pay-offs to government officials to look the other way, to security forces as a means of avoiding counter-narcotics law enforcement measures, and to various local power-holders. Farmers may pay “protection money” to police and other forces to avoid or minimize eradication of their poppy fields, and in some areas may find themselves paying members of the Afghan National Police, the Afghan Local Police and members of the Taliban to protect their crop.

1.26 From an international perspective, heavy reliance on the opium economy carries major disadvantages for Afghanistan, not least the international opprobrium associated with being a major global producer of illicit narcotics. Although due to other geopolitical considerations and the major international intervention in Afghanistan the country has not fallen into designated “pariah” status, this could be a greater risk in the future as the international engagement ebbs and could lead to further reductions in the amount of foreign aid that the country receives.²⁷ From a regional perspective, neighboring countries are concerned about flows of opiates from Afghanistan, and drugs (along with a perceived threat of terrorism) constitute an obstacle to greater opening up of borders to flows of trade, people, vehicles, etc. Even the attraction of substantial foreign counter-narcotics funding to Afghanistan due to the country being a large producer of illicit drugs does not to any significant degree offset the

²⁶ Fieldwork in the south and southwestern region suggests that payments range from one to two khord of opium per jerib of opium cultivated (the equivalent of 0.5625-1.25 kg per hectare)—much less than the 10% traditional “ushr” on the final crop reported by UNODC (See David Mansfield “Briefing Paper7: Taxation in Southern Afghanistan” (Unpublished Paper for UK Foreign and Commonwealth Office, March 2013). In Nangarhar, payments made to the different anti-government elements present varied from village to village and were not always based on the amount of opium produced or payable in opium (see Mansfield, “From Bad they Made it Worse”, pp. 18-19).

²⁷ The US government outlines a series of measures that major drug producing or transit nations need to comply with. These commitments form part of the architecture of the USG’s bilateral relationships, under which a country’s performance against drug control objectives is codified in law and is subject to an annual review process in which each country is reported on and assessed. Failure to comply can bring a number of different sanctions imposed by the US Congress, which may include suspension of aid, imposition of stricter trade controls, and a requirement for US missions at International Financial Institutions such as the World Bank and International Monetary Fund to vote against the provision of loans, grants or financial support (US Department of State, 2013, 2-3). The US laws governing foreign assistance include section 489 of the Foreign Assistance Act; section 804 of the Narcotics Control Trade Act of 1974; section 591 of the Kenneth M. Ludden Foreign Operations, Export Financing and Related Appropriations Act; and section 706 of the Foreign Relations Authorization Act of 2003.

disadvantages of such status, and moreover CN funding comes with heavy policy baggage and induces further distortions.

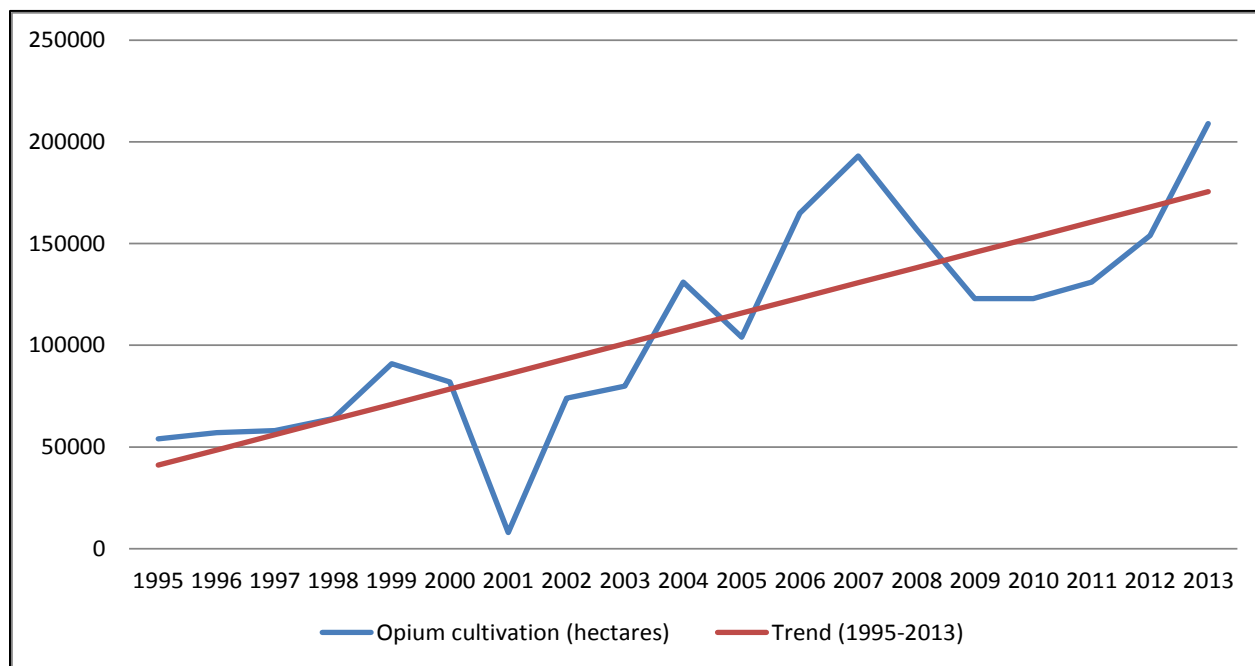
1.27 A final, potentially very serious set of risks and problems associated with Afghanistan’s opium economy stems not from the opium economy itself but instead from ill-considered, counterproductive counter-narcotics actions which are considered from time to time and could be implemented, not least as a “knee-jerk” reaction to the rising opium cultivation and production seen in 2013 and expected for 2014 and beyond. Extreme policy options, considered but fortunately rejected in the past, may come back onto the table if as expected opium cultivation and production continue to increase in coming years. Notable examples include aerial chemical spraying of poppy fields and massive eradication of the standing poppy crop, both of which would be counterproductive and indeed worse in their impacts than the opium poppy cultivation problem they would be intended to resolve. Lessons from experience with counter-narcotics efforts in Afghanistan—including examples of counterproductive outcomes and adverse side effects—are discussed in Chapter IV of this study.

Evolution and Fluctuations over Time

1.28 While the general features, patterns, and comparisons presented in the previous section are important, Afghanistan’s opium economy is quintessentially characterized by major fluctuations over time, great regional and local diversity, and regional / local fluctuations over time as well (see Chapter II). Amidst this diversity and fluctuations, some underlying trends are evident as well.

1.29 Both the total area cultivated with opium poppy and the estimated production of opium have been subject to severe year to year fluctuations. As can be seen from Figure 6, opium poppy cultivation since 1995 has exhibited a generally rising trend amidst wide fluctuations, resulting in near-quadrupling of the cultivated area over the 18-year period from 1995 to 2013.

Figure 6: OPIUM CULTIVATION TREND AND FLUCTUATIONS (HECTARES)

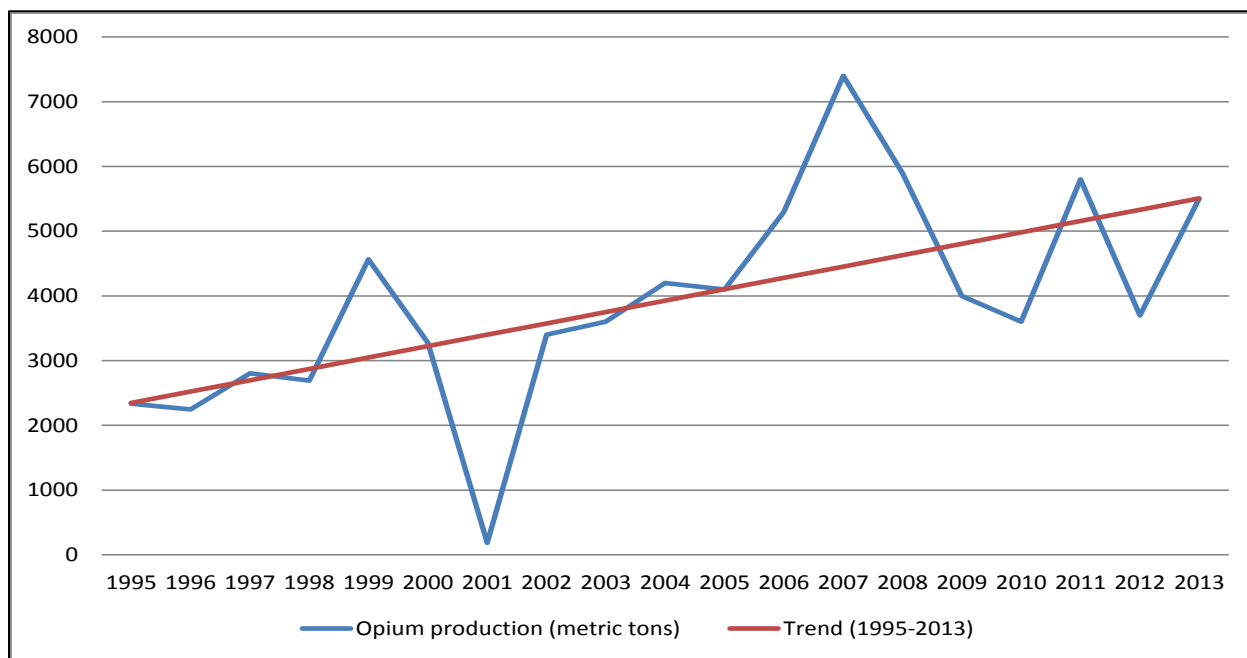


Source: UNODC, Afghanistan Opium Survey, various years. Cultivation estimates were first reported in 1994, but there are much more serious doubts about the reliability of the 1994 figures than those for subsequent years, so 1994 is excluded from the analysis (see Statistical Appendix).

1.30 The Taliban government’s highly effective ban on opium poppy cultivation resulted in a major trough in 2001 when cultivation fell to very low levels, with hardly any occurring in the main Taliban-controlled areas. However, there were serious doubts about whether this ban could have been sustainable even if the Taliban had stayed in power.²⁸ Cultivation rapidly recovered during 2002-2004, and subsequently rose to a new peak in 2007, reflecting at least in part worsening insecurity as well as the lingering stimulative effects of the extraordinarily high opium prices seen in 2001 and for a few years subsequently. Subsequently there was a substantial decline attributable to several factors, particularly the shift in the terms of trade between wheat and opium poppy in 2007 and 2008 and the progressive roll-out of national and international forces to the south and east during 2009-2011. Even after this substantial decline, the area cultivated with poppy was still well over double the level of the 1990s. Most recently, 2012 and especially 2013 saw a resumption of sizable increases in the aggregate area devoted to opium poppy cultivation, moving it back above the longer-term trend line.

1.31 The peaks and troughs of estimated total opium production in Afghanistan coincide with those for the aggregate area cultivated with poppy, although there are differences in the amplitudes of fluctuations (Figure 7). The underlying trend of opium production has been upward, which is not surprising in view of the expanding trend for cultivation. However, the long-term trend growth of production has been significantly slower than that of cultivation, resulting in an increase of in the neighborhood of 140% for opium output between 1995 and 2013, as opposed to more than double that increase for cultivation.

Figure 7: OPIUM PRODUCTION TREND AND FLUCTUATIONS (METRIC TONS)



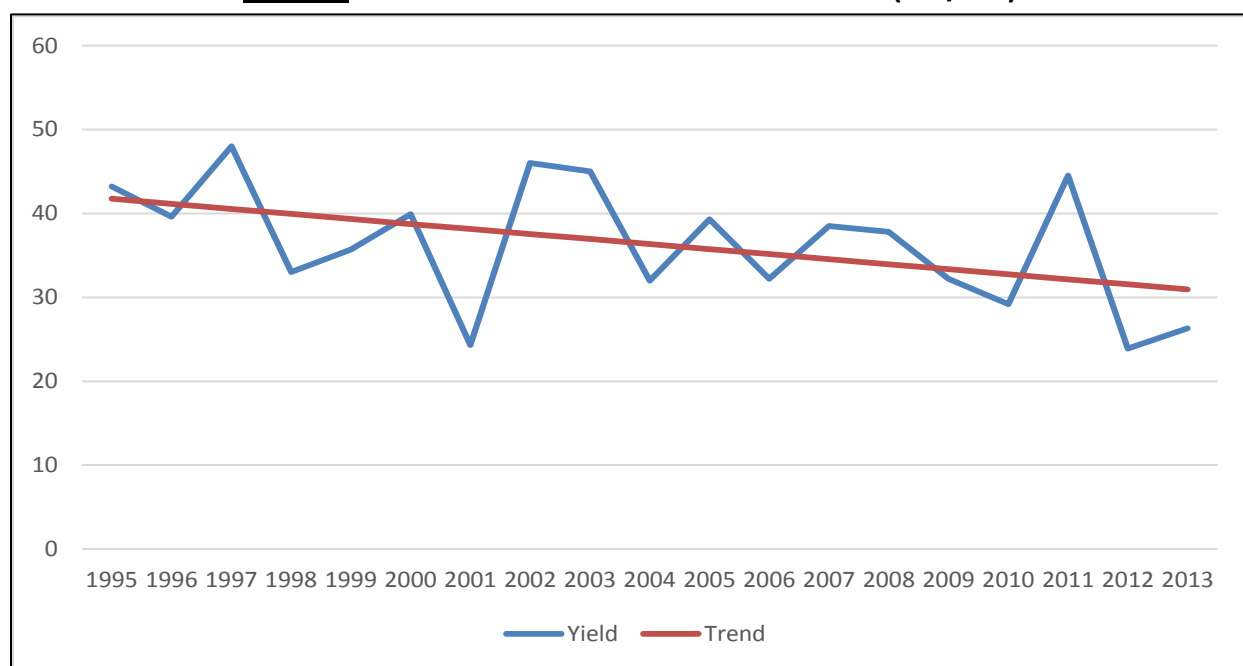
Source: UNODC, Afghanistan Opium Survey, various years. 1994 is excluded for the same reasons as in Figure 6.

1.32 The cultivation and production trends taken together suggest that there has been a long-term downward trend in the average yield of opium per hectare, partly masked by year-to-year fluctuations, and indeed this is the case according to UNODC estimates of opium yields (see Figure 8). The UNODC

²⁸ It has been argued that the 2000/01 opium ban weakened the Taliban’s support among its rural constituency in key parts of the country, and indeed may have been a contributing factor to their surprisingly quick defeat following the international military intervention in late 2001.

yield estimates (and correspondingly, estimated opium production as well since the latter is calculated as cultivation multiplied by average yield) are much less reliable than the estimates of the total poppy cultivated area. The methodology has changed and estimates for some years have been revised downward following a review in 2012.²⁹ Nevertheless, there are plausible factors at work that would generate a trend of declining yields. Lower yields could have resulted from: (1) bringing lower-quality land with poorer water resources under cultivation with opium poppy; and (2) disease brought about by repeated mono-cropping of poppy (in violation of standard, effective crop-rotation practices), resulting in decline in soil quality. The increasing concentration of opium poppy cultivation in the former desert areas in the southwest region since 2008, combined with the reduction in cultivation in well-irrigated parts of the command control area of Helmand Province along with an effective opium ban in centrally located parts of Nangarhar Province, suggests that the share of lower-yielding land in total cultivated area for opium poppy has increased. Moreover, there has been an increasing incidence of disease, affecting the opium crop in 2010, 2012 and most recently in 2013.³⁰

Figure 8: ESTIMATED OPIUM YIELDS AND TREND (KG / HA)



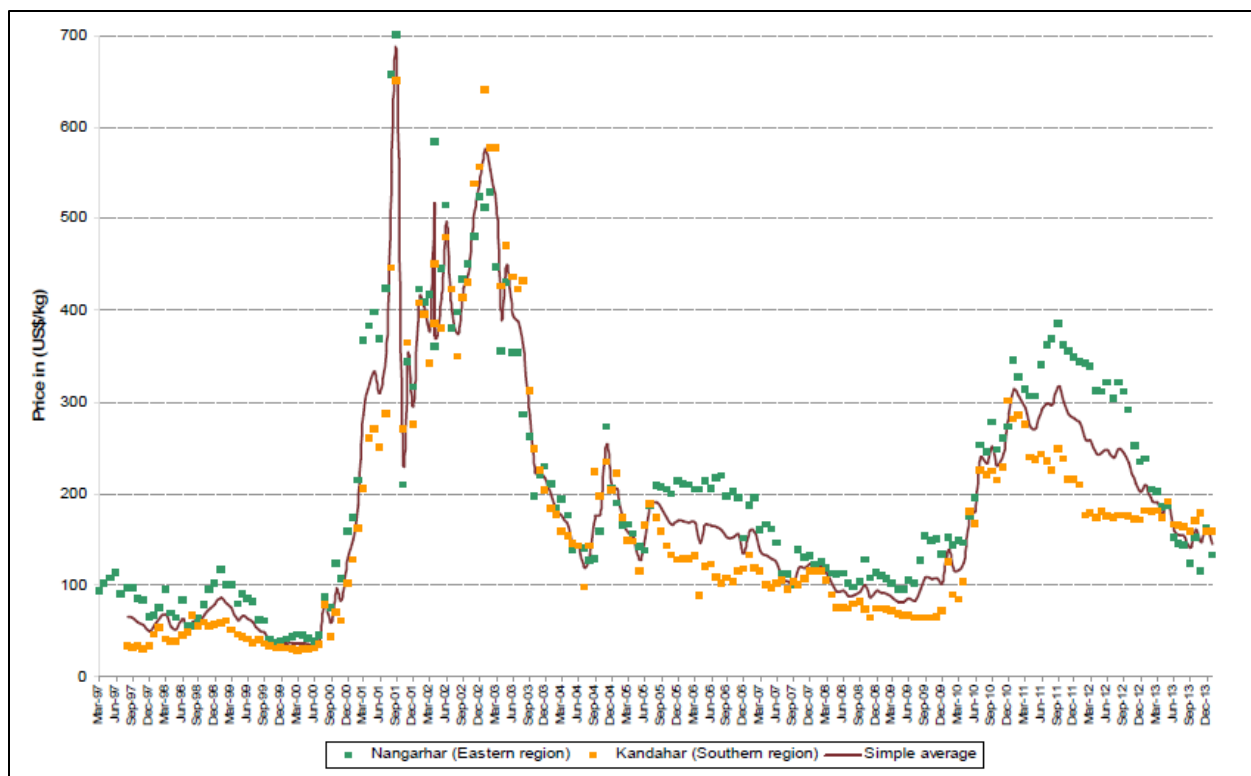
Source: UNODC Afghanistan Opium Survey (various years); see Statistical Annex, Table A4, p. 8. Unrevised figures are shown for 1995-2005 and revised figures subsequently published by UNODC for 2006-2013 (no revisions were made for the earlier years)..

²⁹ Concerns over the quality of yield estimates prompted a review by external experts in 2011 (UNODC/MCN *Afghanistan Opium Survey 2011*, pp. 94-97), and subsequently the yield estimates for 2006 to 2009 were revised. Prior to the introduction of the capsule measurement method in 2008, yields were based on farmers’ estimates prior to harvest and according to UNODC “...reflected farmers' expected opium yield rather than the actual opium yield, which was unknown at the time of the survey. Data were also subject to the bias of farmers” (UNODC/MCN, *Afghanistan Opium Survey 2008*, November 2008, UNODC/MCN, Kabul, p. 143).

³⁰ Recent research in the former desert areas north of the Boghra canal point to yields of between 11.25 kg and 22.5 kg per hectare, compared to reports of 33 kg/ha in well irrigated parts of central Helmand (David Mansfield 'From the ground up: Where does the population of rural Helmand stand after over a decade of 'state building?'' Unpublished paper or the British Embassy, Kabul, May 2014) The UNODC yield survey was “limited to low-risk areas” (UNODC/MCN 2013, p. 38) and did not cover the former desert areas where anti-government elements dominate.

1.33 Turning to estimated price data (prices are significant in their own right, and also required to roughly calculate financial aggregates for the opium economy), Figure 9 presents the longest time series readily available, consisting of prices of “dry” opium reported by traders in Kandahar and Nangarhar from 1997 to 2013.³¹ While price estimates for illicit goods like opium do present issues as compared with price data for legal goods, the broad movements shown in the figure are unquestionable. Opium prices have been buffeted on numerous occasions by a range of shocks both from abroad and from domestic sources. Local markets for opium are functioning for the most part, and there are at least some linkages across them.³² Although opium markets in Afghanistan are far from “perfect”, they certainly exhibit flexibility, at least a degree of competition, and nothing like rigid cartel-based pricing behavior.

Figure 9: OPIUM PRICES, 1997-2013



Source: Reproduced from UNODC and Afghan Ministry of Counter-Narcotics, *Afghanistan Drug Price Monitoring Monthly Report*, January 2014. Data refer to price of “dry” opium as reported by opium traders.

1.34 Opium prices in the 1990s were relatively low, lower than anytime subsequently, reflecting opium’s status as a *de facto* legal commodity under the Taliban regime of the time. There was no price premium for illegality (and associated insecurity) of opium production, no need to make large pay-offs, and little or no opportunity for security forces to extort large sums of money at the farm level. The Taliban ban on opium poppy cultivation not surprisingly generated an enormous (on the order of 1,000%) spike in opium prices in 2001. More surprisingly, extraordinarily high prices persisted until early 2003 before falling to levels still more than twice those of the 1990s (reflecting *inter alia* a significant

³¹ While not exactly the farm-gate price, these traders’ reported prices appear to be a reasonable proxy for the farm-gate price.

³² On opium price trends and questions of market integration, see Byrd, William A. and Olivier Jonglez, “Prices and Market Interactions in the Opium Economy”, in Buddenberg, Doris and William A. Byrd (editors), *Afghanistan’s Drug Industry: Structure, Functioning, Dynamics, and Implications for Counter-Narcotics Policy* (UNODC and World Bank, 2006), Chapter 5, pp. 117-154. This analysis would need to be updated to reflect price data from more recent years.

premium due to opium no longer being treated as a legal commodity), providing a significant financial boost to the rural economy). Prices exhibited a gradually declining trend overall during 2004-2009, before rising again from 2010 to the beginning of 2012, reaching a peak of only around half the 2001 spike. The most recent years have seen fairly large price declines, leaving opium prices in late 2013 in the neighborhood of levels seen in 2004-2009 and still well above 1990s levels.

1.35 It is tempting but far too simplistic to view opium price trends solely in the light of the changing strength and effectiveness of counter-narcotics measures (most notably opium bans implemented at different times in various provinces) or variations in short-run supply due to crop failure. The enormous spike in prices in 2001 clearly was brought about by the highly effective Taliban ban. However, the reason for the more recent price increases, after a poor harvest in 2010, is less obvious, particularly following a number of consecutive years of high levels of production and claims by UNODC of the accumulation of significant inventories of opium.³³ It is even less apparent why a similar fall in yields and downturn in production in 2012 was accompanied by a substantial drop in prices, which continued into 2013—despite a further bout of disease and particularly low yields in the former desert areas in the southwest of the country.

1.36 Lack of reliable data on the demand for illicit opiates and insufficient information on the market behavior of the different actors in the opium economy beyond the farm level, both within Afghanistan³⁴ and beyond its borders, inevitably render any overall conclusions on these price trends speculative. However, it seems clear that farmers respond not just to current prices and market conditions but also based on their expectations of future developments on the counter-narcotics front. In Helmand Province, for example, research points to the impact that both counter-insurgency and counter-narcotics efforts had on farmers' expectations about diminished future levels of cultivation, as well as the reduced mobility of opium traders in the central area of Helmand between 2009 and 2012.³⁵ With the subsequent departure of large numbers of international military forces, it is possible that confidence about future cultivation (and hence higher supply) has returned, and consequently even the particularly low yields of 2012 and 2013 were not accompanied by a rise in the farm-gate price.³⁶

1.37 In conclusion, this chapter has laid out the broad aggregate patterns and trends and key economic linkages of Afghanistan's opium economy, highlighting its multiple positive as well as negative implications for the agriculture sector and for the economy as a whole. From a longer-term perspective, the opium economy has been on an expanding trend since the mid-1990s in terms of both cultivated area and opium production. Average yields appear to have been modestly declining, most probably reflecting a shift in the composition of poppy cultivation toward lower-yielding former desert areas reliant on tubewells for water, as well as incidence of crop disease, apparently as a result of monocropping opium poppy and failure to engage in sensible crop rotation practices. Opium prices are considerably higher than they were in the 1990s, reflecting not least the crop's *de facto* legal status at that time, whereas more recently prices incorporate a "security premium" reflecting the risk of law enforcement actions, the need for payments to corrupt officials and power-holders, etc. While the price

³³ UNODC made a number of claims about high levels of opium inventories, arguing that total production in Afghanistan far outstripped the global demand for illicit opiates which they estimated at around 4,000 metric tons per year (for example see UNODC/MCN, *Afghanistan Opium Survey 2008*, November, UNODC/MCN, Kabul, p. 2). According to UNODC's estimates, between 2004 and 2009 production in Afghanistan never went below 4,000 metric tons and exceeded 6,000 metric tons in 2006, 2007, 2008 and 2009.

³⁴ Among the exceptions to this general lack of information is Pain, Adam, "Opium Trading Systems in Helmand and Ghor Provinces", in Buddenberg, Doris and William A. Byrd, editors, *Afghanistan's Drug Industry: Structure, Functioning, Dynamics, and Implications for Counter-Narcotics Policy* (UNODC and the World Bank, 2006), Chapter 4, pp. 77-115).

³⁵ Mansfield, Alcis and OSDR, "Managing Concurrent and Repeated Risks" (AREU, Kabul, 2011).

³⁶ In fact prices in Helmand in 2013 were as low as US\$ 120-140 per kg, the lowest they had been since 2010.

of opium is far from the only consideration in farmers' decisions on whether to cultivate poppy and if so how much (see Chapter III), the high-price environment since 2001 has been generally conducive to expansion of cultivation.

II. REGIONAL AND LOCAL DIVERSITY, FLUCTUATIONS, AND TRENDS

2.01 Spatial diversity is the hallmark of Afghanistan’s opium economy, and the local and regional context in which opium poppy cultivation arises, evolves, and is stopped (sometimes on a sustained basis, more often only temporarily) cannot be ignored. This chapter first reviews provincial diversity, fluctuations, and trends based on estimates of opium poppy cultivation at the provincial level. Then local diversity and geographical factors are explored based on evidence from field research.

Provincial Variation

2.02 Patterns and trends of poppy cultivation in some of the more important opium-producing provinces provide a picture of diversity and fluctuations at the regional level and the changing relative importance of different provinces in contributing to aggregate opium poppy cultivation. Provincial data are more suspect than national aggregates in many respects, and there are substantial differences between the UNODC provincial cultivation data used in this paper and US government provincial statistics (see Statistical Appendix).³⁷ Nevertheless, the cultivation estimates at provincial level are more reliable than other data (e.g. on opium production at provincial level let alone opium revenues etc.), which are not used in this study.

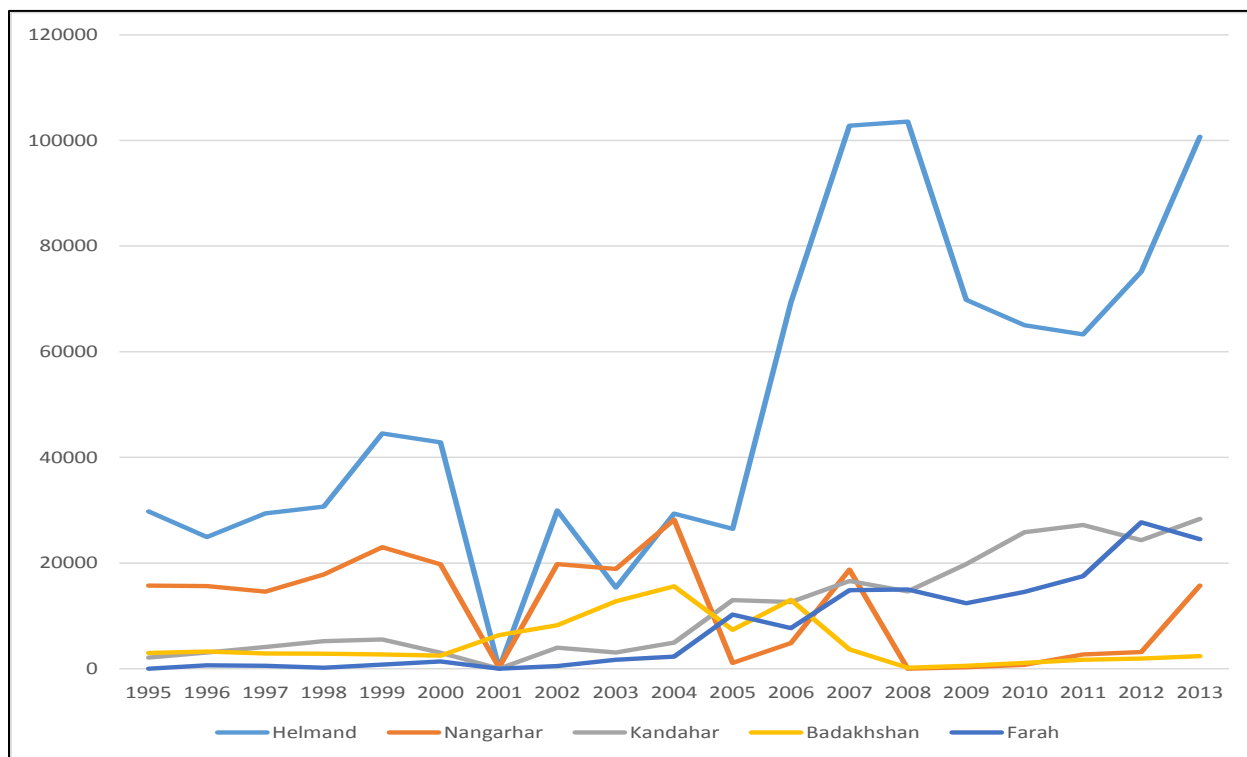
2.03 Figure 10 shows opium poppy cultivation estimates for five of the most significant opium-producing provinces during 1995-2013. Helmand Province has consistently cultivated the largest area of opium poppy, often by an enormous margin over the second-highest province, except in two years (2001 under the Taliban ban, and 2003 when cultivation in Helmand was nearly halved). The province has seen ups and downs, including never-seen-before records in 2007 and 2008 and a subsequent downturn reflecting the significant increase in the number of Afghan and international military forces in the province, the Helmand Food Zone initiative, and related counter-narcotics measures). However, other than in 2001, poppy cultivation has never fallen to anywhere close to zero in Helmand, unlike in some other important provinces. In 2012 and especially in 2013, poppy cultivation has again soared in Helmand, approaching levels seen only in 2007-2008, albeit with production now concentrated more in the former desert areas north of the Boghra canal and much lower levels of cultivation in the canal command area (see Figure 11 comparing 2005, 2008, and 2010).

2.04 In Nangarhar Province, opium poppy cultivation was effectively banned and fell to negligible levels on three occasions (in 2001 under the Taliban, in 2005, and during 2008-2010). Whereas it was by a wide margin the second-largest poppy cultivating province in the 1990s and also the second largest in 2002-2004, Nangarhar has since become just one of several significant opium-producing provinces (even in years without effective bans), far less important than Helmand. Even the sharp expansion of poppy cultivation in Nangarhar in 2013 left the province far below its previous highs and only the fourth-largest in Afghanistan. Nangarhar’s rich experience with opium bans and their differential impacts and variable sustainability in different localities within the province provides useful lessons not only for counter-narcotics but also which may be relevant for elements of agricultural strategy (see Chapter V).³⁸

³⁷ It is quite possible, for example, that some of the sharper fluctuations in the provincial cultivation statistics are partly spurious, reflecting underreporting of previous expansion of cultivation followed by “catch-up” when the opium survey engages in more complete coverage of the province concerned.

³⁸ For a detailed review of the opium ban in Nangarhar between 2008 and 2010 and how it has been sustained in some parts of the province and collapsed in others, see Mansfield, David, “All Bets are Off: Prospects for (B)reaching Agreements and Drug control in Helmand in the run up to Transition (AREU, Kabul, January 2013); and David Mansfield “From Bad they made it worse: The concentration of opium poppy in areas of conflict” (AREU, Kabul, June 2014).

Figure 10: POPPY CULTIVATION IN FIVE MAJOR OPIUM-PRODUCING PROVINCES (HECTARES)



Source: UNODC, Afghanistan Opium Survey, 2013 (Annex I, p. 99), and Afghanistan Opium Survey, 2007 (Annex II, pp. 154-162).

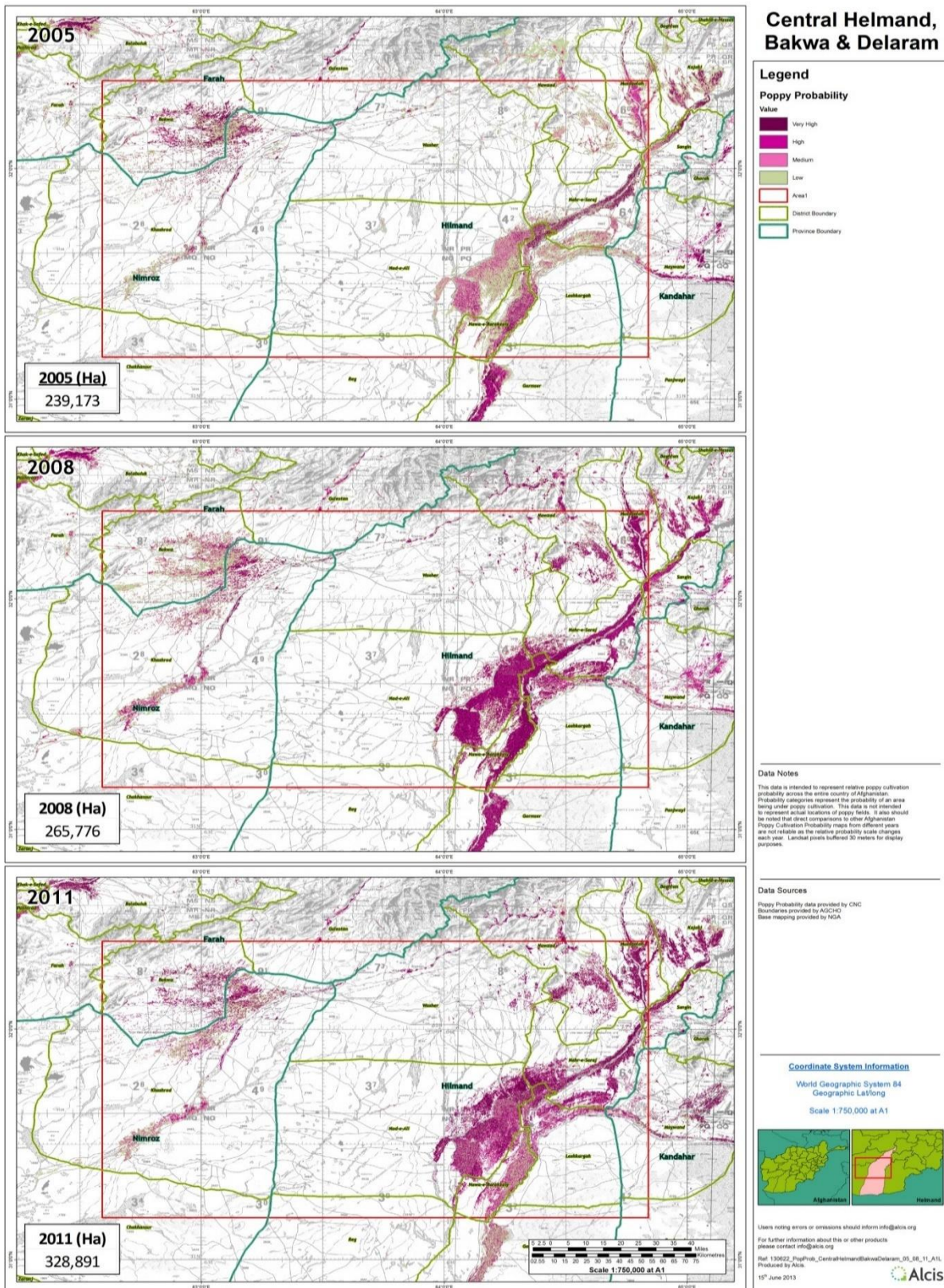
2.05 While UNODC and USG estimates disagree on the precise ranking of the provinces (see Statistical Appendix, Figure A3 for Kandahar), both Kandahar and Farah have seen pretty steady expansion of estimated opium poppy cultivation since the Taliban ban in 2001, and by 2013 were either the second- or third-largest in the country.³⁹ Both provinces have seen significant increases in the amount of former desert land brought under agricultural production, much of it cultivated with opium poppy. For example, in the former desert area of Bakwa, bordering Farah and Nimroz provinces, the amount of land under agricultural production has increased from 30,320 ha in 2004 to 58,727 ha in 2012 (see Figure 11). Fieldwork in this area reveals that around two-thirds of household land was dedicated to opium poppy in the 2012/13 growing season. Similar patterns of land settlement and concentrated opium production can be seen in the former desert areas of Gulistan and Balabuluk in Farah, as well as in Zahre, Maiwand and Spin Boldak in Kandahar.

2.06 Turning to Badakhshan Province, it was a relatively small but significant poppy cultivating province in the 1990s. Cultivation jumped in 2001, since Badakhshan was the only major opium-producing province not under Taliban control or subject to their ban, followed by continuing increases during 2002-2004 and then some ups and downs. Poppy cultivation was largely (though not completely) eliminated during 2008-2010 (another example of a reasonably successful ban), but since then has crept back up to levels closer to those of the 1990s.⁴⁰

³⁹ In 2013 UNODC estimated that cultivation in Kandahar stood at 28,335 ha, up from 24,213 ha in 2012, and that cultivation in Farah had fallen from 27,733 ha to 24,492 ha between 2012 and 2013. In contrast, the USG reported that cultivation had risen on Farah from 20,000 ha in 2012 to 25,500 ha in 2013 and fallen in Kandahar from 23,000 ha in 2012 to 19,500 in 2013.

⁴⁰ See Paul Fishstein, "Evolving Terrain: Opium poppy cultivation in Balkh and Badakhshan provinces in 2013" (AREU, February 2014).

Figure 11: POPPY CULTIVATION IN CENTRAL HELMAND, BAKWA, AND DELARAM



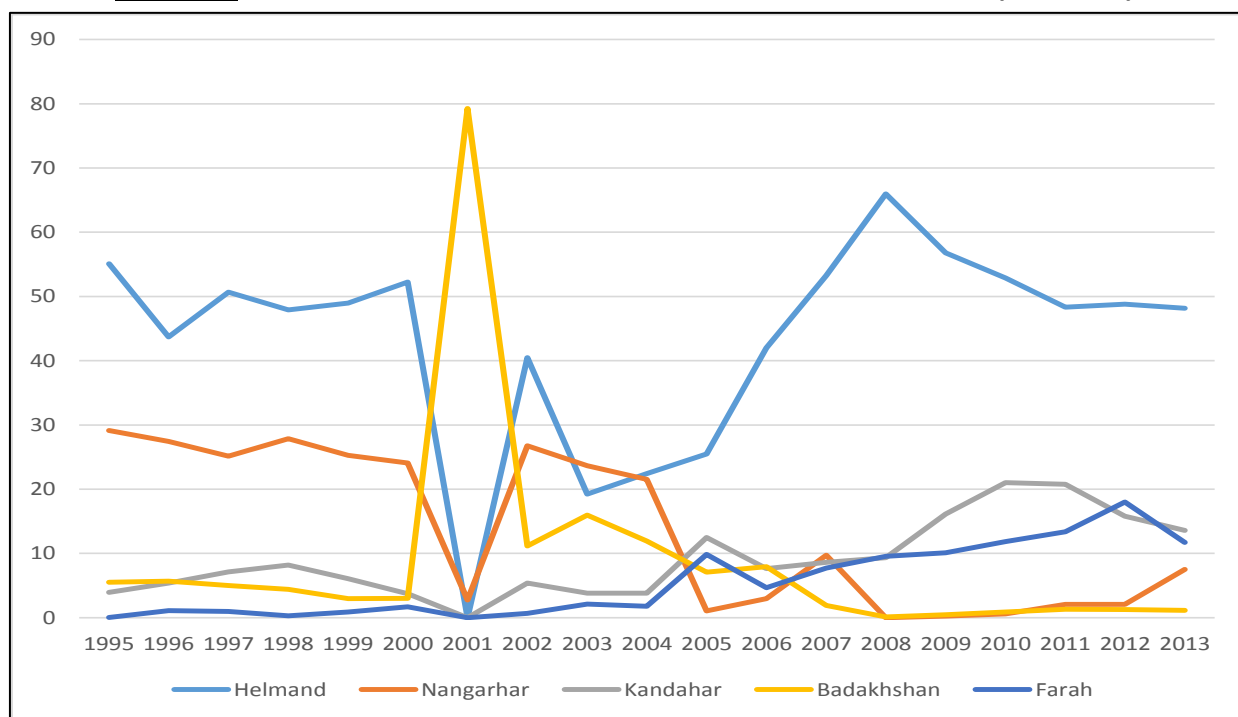
Source: Alcis.

2.07 More generally, the spread of opium poppy cultivation across provinces has changed drastically over time. Only a few provinces cultivated opium poppy in the mid-1990s, reportedly eight in 1995, but this number had risen to 22 by the year 2000. Although the number of poppy cultivating provinces was halved during the 2000-2001 Taliban ban, cultivation spread widely in subsequent years, and by 2004 virtually every province in the country was reported to be cultivating at least some opium poppy.⁴¹ Then the number of opium poppy cultivating provinces gradually declined, and by 2010 more than half of Afghanistan’s provinces were considered “poppy free”.⁴² Finally, in the past couple of years the number of provinces reportedly cultivating opium poppy has started to increase again.

2.08 All in all, even this cursory review of provincial trends demonstrates that the aggregate figures for opium poppy cultivation mask very important differences across provinces, divergent trends among provinces, and changes in the composition of some of the provinces accounting for significant shares of total national cultivation, within an overall pattern of Helmand Province serving as the dominant producer most of the time, especially in recent years.

2.09 Figure 12 complements Figure 10 by presenting the shares of the same five provinces in estimated total opium poppy cultivation in Afghanistan. It brings out the distinct changes in the “market shares” of some provinces that have occurred.

Figure 12: SHARE OF THE FIVE PROVINCES IN TOTAL CULTIVATION (PERCENT)



Source: UNODC, *Afghanistan Opium Survey, 2013* (Annex I, p. 99), and *Afghanistan Opium Survey, 2007* (Annex II, pp. 154-162).

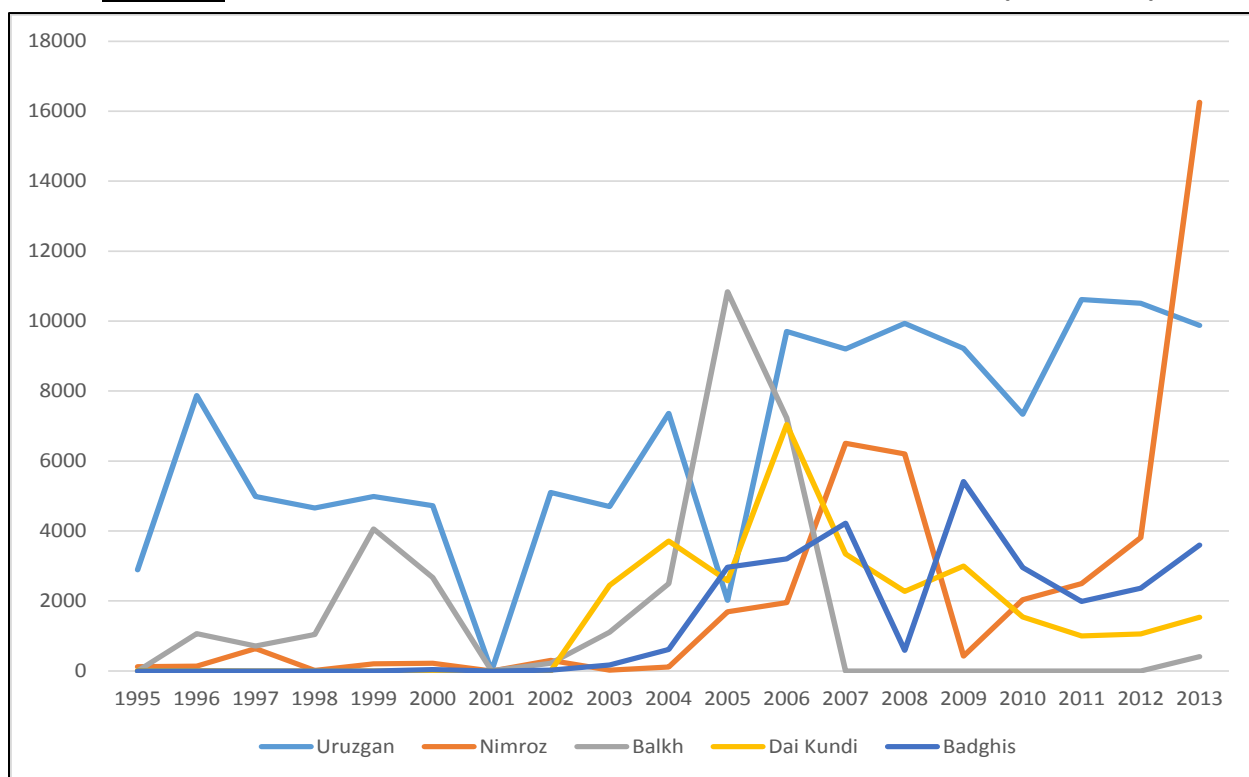
⁴¹ Figures on number of provinces cultivating opium poppy, as well as subsequent figures on numbers of “poppy free” provinces are all from UNODC. See Byrd, William, “Responding to Afghanistan’s Opium Economy Challenge: Lessons and Policy Implications from a Development Perspective”, *World Bank Policy Research Working Paper*, No. 4545 (March 2008) for a discussion of the spread of opium poppy cultivation in the earlier years (Table 1, Figure 1, and p. 7).

⁴² The term “poppy free” was introduced in 2007, when it was applied only to provinces with no poppy cultivation. Since 2008, provinces with less than 100 ha of opium poppy have been considered poppy free (UNODC / MCN, *Afghanistan Opium Survey 2013*, p. 103). However, the financial incentives for provinces associated with poppy-free status may have resulted in some underreporting of cultivation in marginal provinces. And moreover, it is quite possible that low levels of opium poppy cultivation in provinces that are not traditional opium producers or seen as large-scale producers may go unnoticed.

2.10 Badakhshan Province briefly accounted for 80% of total national opium poppy cultivation in 2001 during the Taliban ban, when the latter fell precipitously by more than 90% while cultivation in the province increased by over 150%. Helmand’s importance is further underlined, especially during 2007-2013 when the province consistently accounted for around half or more of total national cultivation.

2.11 Although it is beyond the scope of this paper to analyze provincial patterns and trends in much detail, Figure 13, showing estimated cultivation in five “second-tier” opium-producing provinces, provides a glimpse of the diversity, fluctuations, and changes at this level. While Uruzgan Province (to the north of Kandahar) has been pretty consistently among the more important second-tier provinces, as in most other provinces cultivation there was effectively banned by the Taliban regime in 2001, and also there was a sharp dip in 2005. Subsequently, the province has exhibited a reasonable degree of stability in cultivated area (at much higher levels) since 2006. Dai Kundi Province in central Afghanistan reportedly did not cultivate poppy before 2003, when it became a significant albeit relatively small opium-producing province. Cultivation peaked in 2006, followed by a steadily declining trend subsequently.

Figure 13: POPPY CULTIVATION IN FIVE “SECOND-TIER” PROVINCES (HECTARES)



Source: UNODC, Afghanistan Opium Survey, 2013 (Annex I, p. 99), and Afghanistan Opium Survey, 2007 (Annex II, pp. 154-162). Note: Balkh Province was officially designated as “poppy-free” during 2007-2012, which was defined as having cultivation of less than 100 hectares; for simplicity zero is used for Balkh during this period in constructing this figure.

2.12 Trends in some other provinces have exhibited more violent fluctuations. Balkh Province in northern Afghanistan was a small but significant poppy cultivating province in the 1990s, but cultivation shot up in the years immediately following the Taliban ban, reaching a peak in 2005. However, cultivation was then brought down quite rapidly, and during 2007-2012 Balkh was designated as a

“poppy-free” province,⁴³ before significant cultivation resumed in a small way in 2013. Poppy cultivation in Nimroz Province in the far west was insignificant before 2005, but then, after some ups and downs along the way, it suddenly became Afghanistan’s fourth largest opium poppy cultivating province in 2013, largely due to significant increases in cultivation in the district of Khash Rod.⁴⁴

Local Diversity

2.13 Taking the subnational analysis beyond the provincial opium cultivation estimates (e.g. trying to assess sub-national opium production, let alone value estimates), or trying to look at disaggregated district-level estimates of cultivation,⁴⁵ further multiplies the margins of error and uncertainties in the data, to the point where trying to conduct any meaningful quantitative analysis with this data would be dubious. However, it appears that the pattern of diversity across provinces also carries through to diversity across districts within a province, and even to a large extent to different localities within districts.⁴⁶

2.14 A picture of diversity at sub-provincial levels can be conveyed by comparative case studies, and also by drawing from the extensive, methodical fieldwork conducted over 18 years in selected major opium-producing provinces. Indeed, a number of rich data sources suggest that rural livelihoods strategies in Afghanistan are complex and diverse, and that they vary not only across the country but within the same province or even district; even within a single village, different households draw upon diverse income sources depending on their assets and capabilities, as well as on seasonal opportunities.⁴⁷

2.15 The distribution of assets in rural Afghanistan is closely related to geography. Provinces such as Nangarhar and Helmand have far better natural conditions than the more mountainous provinces of Ghor or Badakhshan. Nangarhar in particular, given its temperate climate and its close proximity to markets in both Kabul and Peshawar in Pakistan, offers households a large number of livelihoods options. Possibilities include, for example, cultivation of a range of agricultural crops including high-value horticulture and fruit production; sale of livestock and livestock products; transportation and trade of both agricultural and non-agricultural goods; skilled and semi-skilled employment in the construction industry (in Jalalabad, Kabul, and Peshawar); as well as income from smuggling licit and illicit goods. The range of livelihood options, and the number of opportunities in each sector, are much more limited for

⁴³ Doubts have been expressed about whether Balkh actually met the sub-100 hectares criterion for poppy-free status in the latter part of this period. See Fishstein, Paul, “A Little Bit Poppy-free and a Little Bit Eradicated: Opium poppy cultivation in Balkh and Badakhshan Provinces in 2011-2012” (AREU, May 2013).

⁴⁴ UNODC reports that opium poppy cultivation in Khash Rod increased from 2,536 ha in 2012 to 15,731 ha in 2013 and that this one district was responsible for 97% of total cultivation in the province in the latter year. The agricultural mask for this area shows a steady increase in the amount of land under cultivation between 2010 and 2013. The USG does not offer a breakdown of cultivation at the district level in Nimroz, but reported that cultivation increased from 13,500 ha to 14,500 ha between 2012 and 2013 and was already at 5,300 ha in 2010, when UNODC were reporting only 1,856 ha. Part of the discrepancy between the two estimates for this province may be due to the inclusion of Delarem in the figures for Nimroz by the USG since at least 2009, whereas UNODC considered it part of Farah Province. As of November 2012 when the last official boundary data was released by the Government of Afghanistan, Delarem only had a temporary boundary and was not classified as a district in its own right. Instead it was viewed as part of Khash Rod. So it would appear that the reason for the apparent extremely rapid expansion in the level of cultivation in Khash Rod reported by UNODC between 2012 and 2013 is the merging of data for these two districts, whereas previously they had been reported separately. If they had been reported as merged under Khash Rod in 2012, cultivation in the district would have been 11,435 ha in that year.

⁴⁵ UNODC publishes estimates of poppy cultivation by district in its annual Opium Surveys, but they are billed as “indicative”.

⁴⁶ In other words, Afghanistan’s opium economy demonstrates “fractal” features in that the diversity across provinces is largely matched by the degree of diversity across districts within a province, and also at least to some extent by diversity across localities within a particular district, along with great diversity among rural households as well (see Chapter III).

⁴⁷ See for example the body of work produced by AREU under the Water, Opium and Livestock project (2006-2009) and the Natural Resources Management project (2011- 2014).

the inhabitants of Ghor province, who find themselves cut off by snow for up to five months of the year and for whom livestock and remittances from Iran form the bedrock of their livelihoods strategies.

2.16 However, it would be wrong to assume that even in relatively resource-wealthy provinces, a wide range of livelihood options is available for all. Even in Nangarhar there are considerable differences in the assets households have at their disposal, and consequently in the nature and composition of their livelihoods strategies, across different parts of the province (see Box 1).

Box 1: GEOGRAPHICAL DIFFERENCES IN ASSETS AND LIVELIHOODS IN NANGARHAR

The livelihoods options, and correspondingly the strategies, of rural households vary widely across different geographical areas within Nangarhar Province. Take the case of a landowner in the district of Kama with a large amount of well-irrigated land and a shop in the local bazaar managed by one of his sons, while his other son collects a government salary.

The livelihood options are very different for a landless farmer in Rodat district, where the prevailing drought has reduced the farmer's already limited yield from the land he sharecrops, and where his four children under five years of age and his sick wife can offer no real assistance on the farm.

The comparison would be even starker in an area like Upper Achin, in the Spinghar piedmont bordering Pakistan, where as many as 30 family members, owning only one jerib (one-fifth hectare) of land, might try to earn sufficient income to meet their basic needs through a combination of wage labor opportunities. These might include working in Gorroko bazaar in Dur Baba; transporting licit goods across the Pakistan border by mule; foraging for wood in the mountains to sell as fuel in Jalalabad; working in the marble mines near Asadkhel; and cultivating opium poppy on their limited landholdings.

Indeed, from the perspective of assets, the remote southern districts such as Achin appear to have more in common with the northern districts of Helmand than they do with the better-off districts of Surkhrud and Behsud in their own Nangarhar province.

2.17 In Helmand it is not necessary to travel to the more mountainous districts of the province to see how resource endowments and geography are so intimately entwined. There are stark differences between the canal irrigated areas of the central districts, like Nad e Ali, Nawa Barakzai and Marjah, and neighboring areas within the very same districts that consist of former desert lands. While the canal irrigated areas mostly have a plentiful supply of water and can grow crops during the winter, spring, and summer growing seasons, the same cannot be said of the former desert areas. In the late 1990s and in the early years of the Karzai administration, this desert land was taken over without any legal authorization by political-military actors including those linked with former Governor Sher Mohammed Akhunzada (2002-2008). The commanders who initially appropriated the desert land took significant amounts of land for themselves before distributing some of it to their extended families and subordinates. Over time this land has been commoditized and sold, some of it having been sold a number of times since it was initially taken.

2.18 While the increase in the availability of land that this process of settlement has brought about has been welcomed by many farmers, particularly given the low price of land in these areas compared to prices for well-irrigated land in the canal command area, the benefits have been unevenly distributed and relatively short-lived. Not being formally under the canal system, this land requires irrigation by water pumps, shallow wells or tubewells. The fixed costs required to initially bring this land under cultivation, as well as to build a household compound to reside in, and the costs of diesel each year, have meant that these areas are heavily dependent on high-value cash crop cultivation, most notably opium poppy.

2.19 Once farmers in these former desert lands in central Helmand were compelled to abandon opium poppy cultivation under the Helmand Food Zone initiative, they dramatically reduced the amount of land devoted to agricultural production (of any kind) in these areas during the winter growing season, and there have been few crops cultivated at all during the summer season (see the further discussion in

Chapter VI). The result is that two villages adjacent to each other have quite different livelihood options, and quite different responses to efforts to ban opium poppy, depending on whether they have access to canal irrigation or not.

2.20 While geography is an important factor in determining the different livelihood options available in an area, ultimately it is the portfolio of assets and capabilities within each household that determines which particular opportunities are available to them. For example, rural households in Afghanistan typically are large and may contain a number of families. While national statistics suggest that the median size of rural households was 7.4 persons in 2012,⁴⁸ it is certainly not uncommon to find 12-14 family members living within the same compound. Moreover, in areas where it is traditional for the extended family to reside together, household sizes can often exceed 20 members. It is not unusual to find 20-35 household members in poorer districts of Nangarhar.

2.21 Throughout Afghanistan dependency ratios are high, and there is a tendency for poverty to increase as the percentage of household members able to work diminishes. The very poor are the least likely to have a household member available for productive work. Typically it is the males of the household that migrate in search of work. However, there has to be a sufficient number of them that one male household member can be left at home to ensure the security of the family. In a family of eight it is not uncommon to find only one member of the household working full time, either on the land or generating cash income through daily wage labor. A household with a number of men who are able to find non-farm income can increase its income significantly. Households in close proximity to labor markets can send members there daily, incurring minimum transport, accommodation, and food costs (especially important on days when they do not find work). On the other hand, those located at a greater distance from labor markets will migrate seasonally in search of wage labor so as to minimize their overhead costs.

2.22 The size of landholdings also varies considerably by region and of course by socio-economic group. For example, a particularly wealthy landowner in parts of Kandahar province may own as much as 300 jeribs (60 hectares) of land. His equivalent in the province of Nangarhar is more likely to own nearer to 30 jeribs (six hectares). For the very poor, the most common land tenure arrangement is sharecropping. The most comprehensive survey undertaken in Afghanistan to date, covering 11,757 households and 85,577 individuals, found that one-quarter of those interviewed were landless.

2.23 Clearly, agricultural production is a key component of rural livelihood strategies. While poorer households may limit vegetable cultivation to a small number of crops for household consumption, the relatively resource-wealthy are more likely to produce a range of high-value vegetable and fruit crops for both consumption and sale. Landholdings of this latter group may be sufficient for them not only to produce sufficient wheat for household consumption but also have a small surplus for sale. This differs markedly from the situation faced by households with small landholdings and large numbers of household members.

2.24 Livestock can represent an important asset and source of income for the rural population. Typically, wealthier socio-economic groups are more likely to own livestock and to have larger herds of animals of greater value. Ultimately this provides a guarantee against food insecurity, a source of revenue, and in some areas a means of accessing credit. This is true of all types of livestock, but particularly oxen and dairy cows. The sale of dairy products, such as milk, yoghurt, and cheese, by households in close proximity to urban areas can provide significant income. The very poor generally own few livestock, with the exception of poultry.

⁴⁸ The 2011/2012 NRVA takes an “implied” average household size of 7.4 persons (CSO, 2014, p. 12).

2.25 Off-farm and non-farm income also comprise an integral part of rural livelihood strategies for the vast majority of rural households.⁴⁹ For the relatively resource-wealthy, non-farm incomes are not only higher than for other socio-economic groups but also they are more secure and diverse, including drawing on government salaries (based on patronage connections), transport, and working in the retail trade. In contrast, the resource-poor are more dependent on relatively low-paid and insecure wage labor opportunities. Even in areas with the greatest proportion of land dedicated to opium poppy, off-farm and non-farm income opportunities provide valuable sources of cash income. However, much of this is insecure wage labor that is often derived from working as hired labor during the opium harvest. In accessing off-farm and non-farm income opportunities, including cross border migration, households draw upon extended family and tribal networks where they can.

2.26 It is in this context, where households in different areas and from different socio-economic groups draw on different assets and income streams, that opium poppy cultivation has become an important component of rural livelihood strategies. Just as decisions on allocation of household assets to, for example, high-value fruit growing or non-farm income earning opportunities are informed by the assets a household has at its disposal and the opportunity costs of that investment, so too are decisions on the scale and nature of a household's engagement in opium poppy cultivation. Thus opium poppy cultivation cannot be dissociated from the rural wider livelihoods milieu which, coming back to the theme of this section, is heavily influenced by geography.

⁴⁹ "Off-farm income typically refers to wage or exchange labor on other farms (i.e. within agriculture) while non-farm income refers to non-agricultural income sources." (Ellis, 1989).

III. MICROECONOMICS OF OPIUM AT THE HOUSEHOLD LEVEL

3.01 Underlying the macro patterns and trends and the regional and local diversity discussed earlier are household decisions—on whether or not to cultivate opium poppy, how much to cultivate, and more generally how to manage their assets (including especially land and labor) given livelihood opportunities, constraints, risks, and uncertainties they face. Building on Chapter III, this chapter focuses on household decision-making with regard to opium. It argues based on evidence and analysis from extensive fieldwork that simple models of pure profit maximization, or simplistic comparisons of gross returns to opium and wheat, can be grossly misleading. The chapter first discusses different models of household decision-making and then the multiple ways in which households engage in the opium economy from the perspective of enhancing their access to important assets for their livelihoods.

Different Models of Household Decision-Making on Opium

3.02 Within the drug control community there has often been a tendency to see Afghanistan through a bifurcated lens of “opium poppy growing households” versus “non-opium poppy growing households”. Too often this analysis focuses on estimates of the gross financial returns to opium poppy per unit of land. Hence drug control analysts and commentators typically refer to the gross returns per hectare derived from opium poppy cultivation (see Statistical Appendix). In turn, these aggregate figures are often compared with the aggregate returns to wheat cultivation, and reference is made to the much higher profitability derived from opium poppy cultivation.

3.03 This kind of analysis does not place opium poppy in the context of the wider household economy and rural livelihoods strategies. It does not take into account the different rural actors involved in opium poppy cultivation and how the aggregate returns for a unit of land are distributed between them; how these returns vary considerably depending on the different inputs that each group contributes to opium production; and how the final returns to their inputs will be a function of the other assets at the disposal of these different actors. Perhaps most important of all, analysis by the drug control community neglects the other assets that households gain access to as a consequence of their engagement in opium poppy cultivation. An illustrative example is presented in Box 2.

Box 2: ILLUSTRATIVE EXAMPLE OF A FARMER’S DECISION-MAKING

An example illustrates the multiple interacting objectives that underlay decisions on opium poppy cultivation. It is quite possible for a land-poor farmer to cultivate opium poppy as a means of accessing both land—and thereby water—as well as credit, to achieve the outcome of food security, while at the same time wishing to produce opium to pay for his son's wedding. Such a marriage in itself could achieve a range of other outcomes, which might include fulfilling his son's wishes, securing lineage, and possibly establishing familial bonds with a relatively wealthy and influential family in the community. Marriage to a more prosperous family may in turn secure access to other assets in the future, including land, non-interest bearing credit (known as *qarze hasana*), or perhaps to gain the kind of patronage that might support another son getting a job or even ensure the family's protection from an ongoing or potential conflict with a neighbor.

For this farmer, the high price of opium is almost irrelevant and not a major factor in his decision making. He may have sold most of his share of the opium crop in advance the previous year so that he could meet the bride price and secure his son's future wife. He might have also sold what little residual opium he might have had left in the spring prior to this year's harvest, so that he could meet his wheat deficit and feed his family. As a result, once the crop was finally harvested, he would have little or no opium to actually sell on the open market.

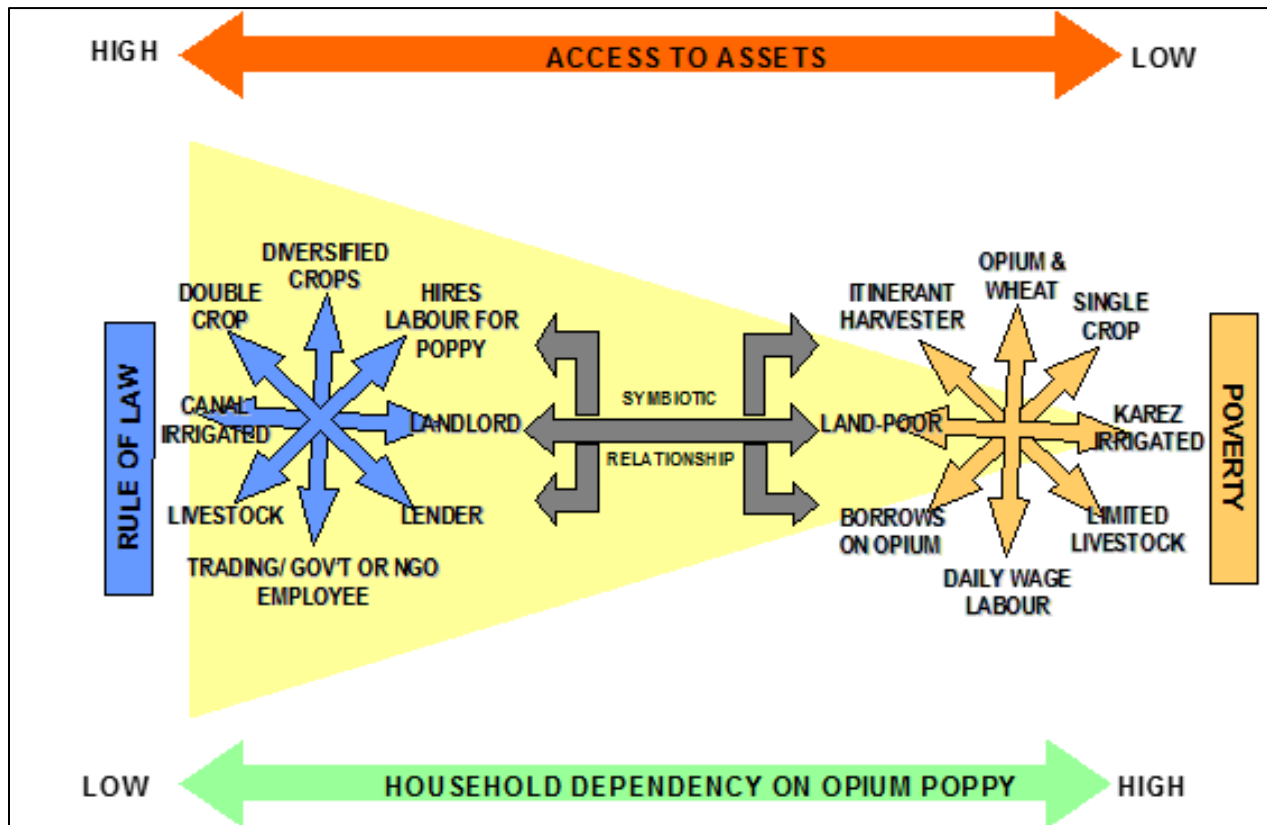
For this farmer, a high price of opium at the beginning of the season would only be important because it would mean there might be more land available under sharecropping arrangements that year, particularly from the influential landowners in the village who had established good relations with the local security commander, and possibly anti-government elements, as a way of insuring themselves against crop destruction. The farmer's familiarity with how to cultivate opium poppy would mean that he had an increased probability of getting this land and, due to the landlord's relationship with local powerbrokers, a greater probability of obtaining a yield than other farmers who had not built these kind of alliances.

3.04 Over the last ten years, development analysts and policy makers have come to a better understanding of how opium poppy cultivation fits in the wider socio-economic, political, and environmental context in which household decisions are made in rural Afghanistan. This work represents a shift away from the narrow model where households simply respond to market price signals at will, toward one in which access to assets and decisions regarding them are seen as a function of complex social and political processes as well as economic variables.

3.05 This more informed model of household decision making in rural Afghanistan suggests that opium poppy cultivation is both contingent and contextual—a function of where, who, and when—and therefore highly dependent on local factors. Indeed, it shows that opium poppy cultivation is dependent on the specific assets that an individual household has at its disposal and is not simply a function of the prevailing price of opium in the local bazaar. Moreover, it recognizes that as the range of legal livelihood strategies available to households are a function of the assets and capabilities that they can draw upon, so too is a household’s dependency on opium production.

3.06 There is an inverse relationship between household access to assets and dependency on opium poppy cultivation, summarized in Figure 14. While representing a simplified depiction of households at the two extreme ends of a spectrum, this diagram illustrates both the diversity in assets that different households have at their disposal and, in turn, the diversity in their dependency in opium poppy cultivation as a means of meeting their basic needs. It also highlights the symbiotic relationships that can exist between the different asset groups involved in opium poppy cultivation and the role that opium plays as a means of exchange between them.

Figure 14: RURAL HOUSEHOLD ASSETS AND DEPENDENCY ON OPIUM POPPY CULTIVATION



Source: Mansfield, David, “Responding to the Challenge of Diversity in Opium Poppy Cultivation”, in Buddenberg, Doris and William A. Byrd (editors), *Afghanistan’s Drug Industry: Structure, Functioning, Dynamics, and Implications for Counter-Narcotics Policy* (UNODC and The World Bank, 2006), Chapter 3, pp. 47-76 (Figure 3.3, p. 55).

3.07 On the right-hand side of the diagram are households with limited access to assets and whose dependency on opium poppy cultivation to meet their basic needs is most acute. These are households in areas where opium poppy cultivation has been at its most concentrated and where poverty is not just income related but also represents poverty of opportunity. Households at this end of the asset / dependency spectrum are typically found in the most inaccessible areas, where labor and agricultural commodity markets are constrained by limited infrastructure and limited purchasing power; where land holdings are typically small and access to irrigation is problematic, and where population densities per unit of agricultural land are particularly high. In these areas, legal livelihood options are severely restricted and opium poppy cultivation is largely supplemented by off-farm and non-farm daily wage labor opportunities, many of them associated directly or indirectly with opium production.

3.08 At the other end of the spectrum are households with greater access to assets and low dependency on opium poppy cultivation as a means of meeting their basic needs. Here it is the absence of rule of law that has encouraged opium poppy cultivation. These households are typically found in the more fertile river basins in close proximity to the provincial center. Facilitated by better access to physical infrastructure, as well as a modicum of decent governance and security, they have access to functioning labor and commodity markets. These households typically are relatively land-rich and may have the opportunity to double crop. For this group, opium poppy cultivation would be combined with greater diversity of on-farm, off-farm, and non-farm income opportunities to raise household income and reduce uncertainty and vulnerability to shocks. Opium sales, while still a significant proportion of total cash income, are pooled with income derived from the sale of other agricultural products and livestock. Non-farm incomes are not only higher but also more secure and diverse, including in some cases government salaries, and possibly income from transport and retail trade.

3.09 However, it is not merely the dependency on opium poppy cultivation that differs according to a household's access to assets—the financial returns to the crop also vary. For the resource-rich, opium poppy can generate a relatively high income. Access to cheap labor through favorable (for them) land tenure arrangements involving sharecropping ensures that landowners accrue a disproportionate share of the final opium crop. Those with sufficient financial assets can further increase their profits by purchasing opium through the provision of advance payments (at low prices, and with very high implicit rates of interest) on the crop prior to its harvest. Finally, by being able to retain their opium crop and to sell it some months after the harvest when prices have risen, households that are least dependent on opium as their sole source of income are most able to benefit from it.

3.10 The income that the resource-rich derive from opium is in sharp contrast to the earnings of the resource-poor. Their circumstances require poor households to provide relatively low-paid labor through unfavorable sharecropping arrangements; they are compelled to sell their opium at low prices prior to the harvest to access credit for basic expenses; and it is the poor that are most dependent on opium poppy cultivation due to limited other on-farm, off-farm, and non-farm income opportunities.

From Maximizing On-farm Income to Enhancing Access to Assets: Multiple Roles of Opium

3.11 Fieldwork over almost two decades has highlighted the multi-functional roles of opium in households' rural livelihood strategies, providing access to land, credit, and an important source of off-farm income for households with insufficient land to satisfy their basic needs. Even the by-products of opium poppy have been found to have a high use-value.⁵⁰ Consequently, in contrast to relatively asset-

⁵⁰ By-products include seed, capsules, and stalks. The stalks would appear to have the highest use-value as these provide an important source of household fuel in a country where firewood is becoming increasingly scarce. Anecdotal evidence suggests that one hectare of opium poppy can provide fuel for a household of 20 people until the onset of winter (*Afghanistan Annual Opium Poppy Survey 1998*, Islamabad, UNDCP, 1998, p. 32).

rich households, for the resource-poor the income that households accrue from their work on opium poppy is only one motivation for its cultivation. Understanding the multi-functional roles of opium poppy cultivation within rural livelihoods strategies and how this differs by socio-economic groups is critical to developing appropriate agricultural, rural development, and drug control policies.

3.12 **Access to on-farm income:** It is clear that the on-farm income earned from cultivating opium poppy can be significant; however, high economic returns are not available to all. Indeed, the returns to opium poppy cultivation can be so marginal in some areas that the opportunity cost of production is simply too high to justify its production. For example, in many parts of Ghor province in central Afghanistan, limited and intermittent irrigation supply, the incidence of frost, and poor plant husbandry have resulted in low opium yields. Food security concerns for both household members and livestock, and the importance of remittances from family members working in Iran, have led to a reluctance among many households to allocate land and labor to a potentially low yielding opium poppy crop once the terms of trade between opium poppy and wheat began to shift in favor of the latter in 2007 and 2008. Similarly, in the main Kunduz river basin, particularly high ground water (the nemesis of opium poppy cultivation), combined with good rice, wheat, and vegetable yields, has made opium poppy an unattractive option for most farmers in the area. Other areas such as Ghazni have no history of opium poppy cultivation. It is argued that rice production, the amount of livestock, low population densities and most importantly remittances from the Gulf have deterred households from shifting into opium production in this province.

3.13 Even in areas where opium poppy has been concentrated, returns vary considerably by economic group and location. For those who obtain land under a sharecropping arrangement and accrue only a small proportion of the final crop, opium production makes an important contribution to the household economy but does not offer the level of returns typically cited in the drugs literature, which rarely differentiates between the different asset groups involved. For example, in central Helmand the net returns per hectare for those sharecropping opium poppy in 2013 ranged from a loss of US\$ 686 per hectare for those who covered the costs of production, (including hired labor) and got a low yield in the former desert areas north of the Boghra canal, to US\$ 2,350 per hectare for those sharecropping in the canal area, who did not suffer crop failure and paid none of the costs of production (see Statistical Appendix).

3.14 The picture is, however, different for those who own land and cultivate it using family labor. In the former desert lands, with yields as low the equivalent of 16.8 kg per hectare, net returns for this group of farmer would have been US\$ 835 per hectare in 2013, compared to US\$ 4,980 across the other side of the canal in the well-irrigated areas. For those with the land and capital to have a number of sharecroppers, and to provide advance payments against the future opium crop, as well as the contacts and perhaps the vehicles to engage in trading of opium, moving opium between regional and border markets, there is even greater potential for increasing the cash income derived from opium.⁵¹

3.15 **Access to off-farm income:** Current estimates indicate that opium poppy requires weeding as many as three times and needs as much as 200 labor days per hectare during harvesting. This provides an important off-farm income opportunity for the rural population, which in many cases has few

⁵¹ These figures stand in contrast to the average net returns of US\$3,600 per hectare cited by UNODC (UNODC/MCN, *Afghanistan Opium Survey 2013*, December 2013, UNODC/MCN, p. 10), which appears to be derived by taking the average yield and multiplying it by the average farm-gate price at harvest time and subtracting a gross figure for production costs as reported by farmers. It is not clear whether the production costs reported by farmers are actual costs or a percentage of the gross value (UNODC/MCN, *Afghanistan Opium Poppy Survey 2012*, p. 62). Earlier calculations of net returns on opium poppy (and wheat) were based on both farmers' and surveyors' estimates of the proportion of gross income allocated to costs, ranging from 13% to 40% in 2011 (UNODC/MCN, *Afghanistan Opium Survey 2011*, December 2011, Kabul, pp. 73 -74).

attractive alternatives. For example, in Nangarhar province almost 85% of the reported cases of hired labor in agriculture were for opium poppy cultivation. During the weeding season the labor force might be more localized, drawn mainly from within the province, and could also include young boys working either within the village or in neighboring villages, who would be paid around US\$ 5.00 per day. However, in the harvest season laborers are paid at much higher rates and as a result are willing to travel greater distances, even coming from Pakistan to take advantage of these income opportunities.

3.16 The staggered nature of the opium poppy season, varying by altitude even within a single province, extends labor opportunities for those willing and able to travel from areas as diverse as southern Helmand to central Ghor or Badakhshan. The staggered harvest season in different provinces and localities alone represents a period of up to ten weeks of paid work. Indeed, the labor requirements are such that it is estimated that the employment generated by opium poppy cultivation in Nangarhar in 2004 represented the equivalent of 9.8 million labor days, of which 3.4 million labor days were daily wage labor opportunities, valued at approximately US\$11.7 million at the time.⁵²

3.17 For some farmers, the off-farm income derived from opium poppy can actually exceed what they might earn from the opium they obtain from farming their own land. Clearly this is the case for those who neither own land nor have access to land under other land tenure arrangements, and whose only option is work on poppy fields as wage laborers. This is also the case for households that do own land but for a variety of reasons do not cultivate opium poppy on it. Members of such households may still work as itinerant labourers during the opium poppy harvest, for example those from provinces such as Ghor and Kunduz. Households that sharecrop land and have more than one male family member, so at least one of them is able to travel and work during the weeding and harvesting season in other areas, also can take advantage of wage labor opportunities associated with opium. Peak-season wages are so lucrative that this group of households is more likely to cultivate varieties of opium poppy that give what is considered to be poor-quality opium, and therefore carry a lower price, because it could be harvested earlier, allowing family members also to work as itinerant harvesters in neighboring villages, districts, and provinces.

3.18 **Access to credit:** Previous fieldwork and analysis have revealed that credit is an integral part of households' rural livelihoods strategies in Afghanistan.⁵³ In opium growing areas seasonal credit, known as *salaam*, has typically been obtained as an advance on a fixed amount of agricultural production. While *salaam* sometimes includes providing advance payments on other agricultural products, such as wheat or black cumin, opium typically has been favored by lenders. Although many households that cultivate opium poppy in Afghanistan utilize this system to some extent, resource-poor households have been found to sell their entire crop prior to the harvest in return for an advance payment. Traditionally the price paid as an advance is half the current market price of opium on the day the agreement is reached. The borrower is expected to submit the agreed amount of opium that the advance has been provided against promptly at harvest time. For the resource-poor, this system allows some of the value of the standing crop to be realized before the opium harvest, facilitating purchase of food, clothes, and agricultural inputs (including labor for the opium harvest). For the resource-rich, provision of advances on the future crop allows opium to be purchased at half the current price, and this can subsequently be sold post-harvest when prices have risen.

⁵² Mansfield, David, *Pariah or Poverty? The Opium Ban in the Province of Nangarhar in the 2004–05 Growing Season and Its Impact on Rural Livelihood Strategies* (GTZ Project for Alternative Livelihoods in Eastern Afghanistan: Internal Document No. 11, 2005).

⁵³ See UNDCP Strategic Study #3: *The Role of Opium as a Source of Informal Credit: A Preliminary Report* (January 1999). See also Mohammad Ehsan Zia et al, "Rural Finance in Afghanistan and the Challenge of the Opium Economy: Report on a Two-Day Workshop, Kabul, Afghanistan, December 13-14, 2004" (World Bank, Report No. 33275, July 2005).

3.19 The *salaam* system came under considerable stress following the imposition of the Taliban prohibition against opium poppy cultivation in the 2000/01 growing season and during subsequent attempts to reduce poppy cultivation in certain provinces. There was growing reluctance in some areas to provide advance payments against the opium crop during periods of concerted counter-narcotics activities. Nevertheless, households that cultivated poppy usually were still considered more “creditworthy” than those that did not. For example, in much of Nangarhar province in the 2005/06 growing season, households that cultivated opium poppy could obtain a range of different commodities, including food items, medicine, and clothes, on credit, while those that refrained from poppy cultivation were refused on the basis that they had no “collateral”. More recently, *salaam* has re-emerged in the southern districts of Nangarhar, allowing households that cultivate opium poppy again to obtain loans, including for agricultural inputs and in some cases capital expenditures such as the sinking of a tubewell.⁵⁴

3.20 **Access to land:** Opium poppy cultivation has provided access to land for households that own no land, as well as increasing access to land for households with insufficient landholdings to meet their basic needs. This is primarily due to the significant labor demands of the crop and the financial advantage that those with relatively large landholdings can gain from making some of their land available to other farmers through sharecropping or leasing arrangements. Were the relatively land wealthy to cultivate other crops (typically with much lower labor requirements) instead of opium poppy, the land would no longer be available to sharecroppers or for lease but would be farmed using the family labor of the landowner, with at most only very few wage labour inputs.

3.21 For landowners looking to cultivate opium poppy on their land through a sharecropping arrangement, preference is often given to those households that have experience with cultivating the crop. In many areas tenant farmers who are willing to cultivate opium poppy will also be given preference, as they will typically pay higher rates of rent.⁵⁵ Demonstrated ability to cultivate opium poppy hence offers the land-poor the opportunity to gain access to land and thereby increase their on-farm income. It also means they can improve their direct entitlement to food crops given that they will typically cultivate a variety of crops, and not just opium poppy, as part of their land tenure arrangement.⁵⁶

3.22 Where landowners have abandoned opium poppy (namely, due to effective imposition of an opium ban in their locality or province), the land-poor have been found to migrate to other areas to produce opium. For example, increasing levels of cultivation in the province of Balkh in 2005 were reported to be a direct result of a growing number of migrants from Nangarhar province who left in search of both land and off-farm income in the wake of the sharp reduction in opium poppy cultivation in their home districts due to the effective poppy cultivation ban in the Nangarhar.

3.23 Opium production has also opened up large areas of former desert land to land-poor rural households for agricultural production. For example, in Helmand the rapid expansion of land under

⁵⁴ As one farmer in Khogiani in Nangarhar commented: “Poppy is Sayed [honorable, respected]; it has lots of benefits. When we go to Jalalabad shopkeepers [they] now show respect, they offer loans and they help load our cars” (see Mansfield, “From Bad they made it worse” AREU, Kabul, June 2014).

⁵⁵ For example, in the late 1990s in Laghman province in eastern Afghanistan, the influx of farmers from the district of Khogiani in neighboring Nangarhar province resulted in an increase in the rental price of land. These farmers typically complained of insufficient landholdings in Khogiani district and came to the districts of Qarghai and Mehtarlam in Laghman on a seasonal basis. In some cases they offered Laghmani landowners up-front cash payments, repayable when the rental agreement came to an end, to gain preferential access to the land. Similar trends in leasing land and rates of rent have also been seen in other provinces such as Ghor and Balkh.

⁵⁶ For instance, any household that sharecrops 1 Qulba of land (30 Jeribs) in Surkhrud district in Nangarhar is entitled to cultivate 1 Jerib of land with clover, for the sharecropper’s animals alone.

cultivation in the former desert lands north of the Boghra canal, much of it under poppy, is a direct result of the imposition of a ban on opium production in the canal command area and the continued high price of opium (see Chapter VI). For the land-poor, the ban on opium poppy cultivation and the shift to less labor-intensive crops in the canal command area of central Helmand meant that they were no longer required by those who own the land. Landowners could now farm their own land with family labor, and those without land, who had relied on widespread opium poppy cultivation as a way of obtaining land and a place to live, found themselves dispossessed. Absent sufficient jobs and development assistance (and with landless households the least likely to receive what assistance was available), these farmers had little choice but to settle new land to the north in former desert areas, build a home there, and bring the area under agricultural production. Buoyed by the relatively high price of opium (see Chapter I and Figure 9)—a result of its illegality and recent counter-narcotics efforts, these farmers have been able to either purchase the land and technology required to bring it under cultivation or have used their skills as opium producers to gain access to land through sharecropping arrangements

3.24 *Improving food security:* The relationship between the prices of agricultural commodities and levels of cultivation in Afghanistan is far from simple. For example, field research has indicated that during drought years, households determined how much land to allocate to wheat cultivation based on estimates of water availability rather than the market price of wheat.⁵⁷ Other fieldwork suggests that despite relatively high opium prices, households will favor wheat cultivation if they fear they will not be able to purchase wheat on the open market.⁵⁸ In-depth research in Nangarhar suggests that while opium poppy has been cultivated in a wide range of areas and by varied socio-economic groups, it tends to be concentrated in areas with limited access to irrigated land, high population densities, and limited off-farm and non-farm income opportunities.⁵⁹

3.25 In many of these areas cultivation of other crops is a limited option. With such small land holdings and such a high number of persons per jerib of land, cultivating wheat exclusively would lead to food shortages. In such conditions households need cash crops to meet their basic needs. Yet vegetables and fruit (and indeed wheat) production are vulnerable to crop failure as a result of water shortages, exacerbated by the poor transportation endemic in these areas, and access to markets is very limited. Livestock has typically been sold due to drought and increases in costs of wheat straw. As a result, households are left with very few obvious sources of income.

3.26 In these circumstances, intensive levels of opium poppy cultivation do not necessarily determine lower levels of cultivation of licit crops, but instead are an outcome of the lack of diversification in on-farm, off-farm and non-farm income opportunities in the first place. The attraction of opium poppy in these areas lies in its role as a low-risk crop in a high-risk environment rather than as a possible strategy for maximizing financial returns. While some crops (particularly as part of mixed cropping systems and combined with non-farm income opportunities) can compete financially with poppy particularly when opium prices are relatively low, none can offer the same more qualitative attributes including relative drought resistance, a non-perishable product, an almost guaranteed market, and traders who offer

⁵⁷ Hale, A., (2002), Afghanistan Food aid impact assessment, Washington: Chemonics International Inc.

⁵⁸ Phillips has indicated that “the rural cultivator in Afghanistan will balance the amount of land sown with poppy with household food requirements. When basic foodstuffs such as wheat and flour can be easily purchased for reasonable prices the farmer may opt to dedicate a greater proportion of land to poppy cultivation. However, when wheat becomes too expensive or too difficult to purchase the farmer will reduce the amount of land planted with poppy and increase wheat cultivation, until the balance of the two corresponds with household food and cash requirements.” (UNDCP, “Afghanistan: Assessment Strategy and Programming Mission to Afghanistan, May-July 1995”).

⁵⁹ PAL, Internal Document No. 2: “Diversity and Dilemma: Understanding Rural Livelihoods and Addressing the Causes of Opium Poppy Cultivation in Nangarhar and Laghman, Eastern Afghanistan” (by David Mansfield, December 2004).

advance payments against the future harvest. These characteristics make opium poppy cultivation more persistent and less price-responsive, particularly among the poor, than might be expected. Indeed, the dramatic increases in opium poppy cultivation reported in 2003/04 occurred at a time of significant reductions in the farm-gate price of opium, with prices halving between the times of planting in the 2002/03 and 2003/04 season.

3.27 The returns to wheat do not have to compete with those for opium to shift the balance between wheat and poppy cultivation. Under current conditions in Afghanistan, most households are more concerned about food security than about profit. Where markets do not function smoothly due to a shortfall in domestic wheat production and/or restrictions imposed on traditional importing of wheat from Pakistan and other neighboring countries, Afghan rural households have few options other than to cultivate wheat on their own land to guarantee food supplies, and they have been found to do so at times, even to the detriment of opium poppy cultivation.

3.28 **Facilitating investments in land:** In the mid-1990s, opium poppy was described as a crop that needed considerable weeding. The reality was that the land needed weeding and that poppy provided the financial means (and motivation) with which to pay for agricultural inputs, including weeding and fertilizer. For example, in provinces such as Helmand and Nangarhar, opium poppy is ideally (where households have sufficient land) rotated on a given piece of land on a 2-3 year basis. In the first year opium poppy is cultivated during the winter months. The land is weeded intensively and fertilized. This is often paid for using credit obtained against the future opium crop. In the summer, maize is cultivated on the same plot of land. The following winter wheat is cultivated and given a cursory weeding, with less fertilizer applied. The land is then left fallow during the summer. If the household has sufficient land it is also left fallow during the winter; if not, opium poppy again is cultivated.

3.29 In some areas of Afghanistan, the cultivation of opium poppy has become almost a prerequisite for agricultural production, providing the necessary resources for investing in the productive capacity of the land. For instance, in the canal area of Helmand, the poor quality of soils has meant that use of fertilizer has been an essential prerequisite for engaging in agricultural production.⁶⁰ Yet for the poor, obtaining fertilizer requires credit, and to obtain credit requires opium poppy cultivation. Consequently, under this cropping system, opium poppy cultivation should be assessed based on its role in providing access to resources for investing in the land on a longer-term basis, and not simply based on the potential annual financial returns per unit of land from one year's cultivation.

3.30 In other parts of Afghanistan, opium has financed investments in land that have further increased returns to other crops. For instance, in the upper valleys of Khustak and Wadooj Bala in Badakhshan Province, investments in land have also included bunding.⁶¹ Reports suggest that this has protected opium poppy (and other crops) against frost and has helped maximize the returns on water. Opium yields were reported to have risen by 20%, and intercropping with potato further increased returns per unit of land. However, the cost of bunding was significant, requiring 20 person-days, at approximately US\$ 2-3 per day, compared to only two person-days for preparing land in the usual way. The resource-poor were found to be aware of the benefits from bunding but considered the labor costs beyond their financial means and would not increase their current level of debt to pay for it.

3.31 **Maximizing returns on water:** Opium also offers high returns per unit of water—the scarce physical resource in Afghanistan. The crop is often described as drought resistant, but while it is

⁶⁰ Frydoon Shairzai, Ghulam Farouq and Richard Scott, *Farm Economic Survey of the Helmand Valley, 1975* (USAID/DP, Kabul, p. 108).

⁶¹ Bunding involves the heaping of earth in ridges to improve water infiltration and prevent soil erosion. In Badakhshan, farmers typically use bunding in areas of higher altitude so as to minimize crop damage due to frost.

possible to obtain a yield in relatively dry conditions, productivity is considerably lower than when the crop is irrigated with the right amounts of water at the right times.⁶² In Nangarhar Province, opium poppy typically has been cultivated at its most concentrated in areas where access to irrigated land is acutely limited. For example, households in areas of the province that can only obtain a single crop each year, and therefore have around half the effective cultivable land area of those that can double-crop, have been found to cultivate opium poppy in the most concentrated way, along with those that use tubewells for irrigation. For households in areas with only a single crop, opium poppy cultivation also provides access to income smoothing loans and maximizes returns on relatively small units of land.

3.32 Particularly high densities of opium poppy cultivation on land irrigated by tubewells is attributed to the sheer cost of their installation (often taking on debt to finance installation) and also the high recurrent costs. This is not limited to Nangarhar but is also found in Helmand, Farah, and Kandahar provinces. The cost of installation of a tubewell—including digging the well, pipes, a water pump, and a generator to run the pump—is currently estimated at US\$ 3,235 and US\$ 4,810 in Helmand and Bakwa, respectively. The estimated cost of establishing a solar powered tubewell in Bakwa (these are still relatively rare in Afghanistan) is US\$ 9,680. Recurrent costs include repairs to the generator and water pump (these in fact need regular replacement), and diesel (the equivalent of 400-600 liters per hectare) at a cost of 60 Afs (over \$1) per liter in 2013. Those who used tubewells for opium poppy cultivation were unanimous in their view that few crops could provide the access to credit required for installation or rent of a tubewell, or the financial returns to pay back the debts incurred. Evidence of this can be seen in the reductions in the level of agricultural production in tubewell irrigated areas in a number of provinces, including both Helmand and Nangarhar, following the imposition of a ban on opium poppy cultivation.

3.33 Given the diversity across Afghan rural households in terms of assets and dependency on opium, and the different motivations and circumstances that influence poppy cultivation, developing a better understanding of the different types of involvement of the various socio-economic groups engaged in opium poppy cultivation, and of the multiple benefits they derive, is critical. This will help identify entry points for developing an effective strategy for the gradual but sustainable elimination of the crop over time. It is also essential for understanding how different asset groups will respond to different interventions, particularly shocks such as a rapid reduction in opium poppy cultivation.

⁶² Shuljgin suggests that the average quantity of water used for irrigation in the Soviet Union for poppy was 800 cubic meters per hectare. See “Cultivation of the opium poppy and the oil poppy in the Soviet Union” (*United Nations Bulletin on Narcotics*, 1969, Volume 1, pp. 1-8).

IV. COUNTER-NARCOTICS INSTRUMENTS, EXPERIENCE, AND LESSONS

4.01 Counter-narcotics is a very important topic characterized by complexity, rich experience dominated by failures much more than by successes, sensitive political agendas, much misunderstanding, and repeated, often poorly informed policy debates. It is beyond the scope of this study to address this topic in depth, even just in Afghanistan let alone globally. However, counter-narcotics efforts in Afghanistan have, given variations in their implementation across different parts of the country and over time, and under widely varying local conditions which have very much affected outcomes, provided their own rich experience and lessons. Here the focus is on the experience and lessons that are in particular relevant for agriculture sector strategy, policies, and investments.

4.02 This chapter first briefly reviews the toolbox of different counter-narcotics instruments typically applied against illicit narcotics production, along with their strengths and weaknesses in the light of Afghan experience. Then a couple of radical solutions that have been proposed in some quarters—ranging from chemical spraying of poppy fields using aircraft at one extreme to licensing opium production for medicinal use at the other—are discussed, demonstrating that they would not only be ineffective in the current Afghan context but also counterproductive and damaging. Alternative livelihoods interventions more specifically are then reviewed. The final section of the chapter distills some lessons from counter-narcotics experience that are relevant for the agriculture sector strategy.

Standard Counter-Narcotics Instruments, Strengths and Weaknesses

4.03 Counter-narcotics instruments can be divided into supply-side interventions, demand-side measures, and interdiction against trading, processing, and trafficking. These definitions differ depending on context (global versus specific country), and in the case of Afghanistan may be divided into (1) supply-side actions against opium poppy cultivation at farm level (opium bans, eradication of poppy fields); (2) targeted “alternative livelihoods” projects and other, broader development interventions providing support for farmers to shift from opium to licit economic activities; (3) law enforcement actions and interdiction against drug trading, processing, trafficking within the country, precursor chemicals essential for processing opium into heroin, and against drug-related money flows; (4) demand reduction and management within the country (something which has become increasingly important with growing and high rates of problem drug use in Afghanistan);⁶³ and (5) communications and education. Experience in Afghanistan suggests that the various counter-narcotics instruments have different strengths and weaknesses, and moreover that no single one of them can work on its own.

4.04 ***Eradication of the standing poppy crop in the field***, though tempting because it appears to strike at the most visible manifestation of the opium economy, is not an effective let alone sustainable means of reducing opium poppy cultivation. Moreover, eradication can alienate the rural population in areas where farmers are dependent on opium for their livelihoods and do not have viable alternatives. The anger that farmers feel toward the state when their crop is destroyed can be exacerbated by perceptions of corrupt implementation of eradication in terms of who is targeted and who is protected from eradication. For the most part, farmers tend to be the least criminal and poorest, most vulnerable segment of the drug industry, and eradication by targeting them raises a number of policy and practical

⁶³ See Byrd, William A., “Responding to Afghanistan’s Opium Economy Challenge: Lessons and Policy Implications from a Development Perspective”, World Bank *Policy Research Working Paper*, No. 4545 (March 2008), pp. 16-21. The categorization here differs somewhat from conventional definitions commonly applied when analyzing drug control at the global level, where typically all counter-narcotics interventions in drug producing countries (against cultivation, processing, trade etc. as well as alternative livelihoods) are labeled as supply-side actions, interventions against international and downstream trade and trafficking of drugs are labeled as interdiction, and interventions to reduce demand and mitigate harms associated with problem drug use are considered demand-side measures.

issues. There is no evidence that the number of hectares of poppy fields eradicated in itself affects the area of opium poppy cultivation even in the short run.⁶⁴ And finally, in a situation like that faced in Afghanistan, eradication can undermine respect for and trust in the government, and even turn affected rural households to embrace or at least passively support anti-government elements including the Taliban, particularly when conducted in areas where farmers do not have viable alternatives.

4.05 The predominant and the only successful mechanism for reducing opium cultivation and production in Afghanistan (at least in certain places and over certain time periods) has been **effective opium bans**—whereby farmers are persuaded and coerced to not plant opium poppy in the first place. While some eradication may be necessary to establish the credibility of a ban and of the threat of eradication backing it up, this accounts for a negligible proportion of the reductions achieved in the poppy cultivated area and is often undertaken early in the cropping season in areas of strategic importance; once a ban has been effectively established, very little if any eradication may be required on a continuing basis. The experience with opium bans in the notable example of Nangarhar Province is discussed in greater detail in Chapter V, but the most important success factor is clearly whether the area concerned already has in place the conditions for development and flourishing of licit economic activities and associated incomes when opium is excluded from the livelihoods portfolio of rural households. If these conditions are not in place, opium bans become increasingly problematic over time and generate similar kinds of adverse fall-out as outright eradication.

4.06 So-called **“alternative livelihoods” interventions**— involve various kinds of agricultural projects to promote crop substitution or other licit alternatives to opium. Clearly this category of interventions has the strong rationale of striving to support rural households to move away from dependence on opium poppy cultivation. The key questions relate to the effectiveness of alternative livelihoods programs, the time-frame required for what is essentially rural development to achieve substantial enough progress. These issues are explored in a subsequent section of this chapter.

4.07 **Interdiction measures** have the attractive feature that they target the more deeply criminal elements of the drug industry, and from a cost-effectiveness angle they have the potential to have a much greater disruptive effect and more limited direct adverse side effects than eradication, bans, or other law enforcement measures directed against farmers. Actions to hinder the inflow of precursor chemicals for processing opium into morphine and heroin (amounting to some 6,700-9,700 metric tons per year according to rough estimates based on 2013 opium production—see Statistical Appendix) also are sometimes seen as potentially very effective. So clearly interdiction against drugs transport, processing labs, precursors, etc., as well as development of the justice system to take on serious drugs cases, forms a desirable component of a multi-faceted counter-narcotics strategy.

4.08 However, interdiction is far from a panacea and carries problems of its own. Trading routes and processing facilities are quite “footloose” and can adjust and recover quickly to attacks on them. Detaining and arresting drug traders also tends to have only temporary benefits as there is no shortage replacements. Making law enforcement stick can be highly problematic if there is a weak and corrupt justice system, although in Afghanistan some progress has been made in establishing specialized

⁶⁴ While data on eradication are prone to very serious errors and biases (particularly since there are incentives throughout the system to over-report as well as major difficulties in trying to “verify” eradication), the available evidence on UNODC-verified eradication during 2005-2013 (reported in the UNODC annual *Afghanistan Opium Survey*) suggests that the association between eradication and opium poppy cultivation at the aggregate level is if anything positive. The correlation between level of eradication and level of opium poppy cultivation in the current or subsequent year, and the correlation between the change in the level of eradication and change in opium poppy cultivation in the current or subsequent year, are all highly positive. This should not be taken to imply the opposite conclusion, i.e. that more eradication somehow “causes” greater opium poppy cultivation; what may be happening is that eradication ends up “chasing” poppy cultivation, for various possible reasons.

counter-narcotics courts. And finally, the strong political connections and lucrative financial benefits of the drug industry in Afghanistan for the political system render it extremely difficult to go after the higher levels in the industry.

4.09 **Anti-money laundering efforts** against the drug industry would appear to have unexploited potential. Much attention and hand-wringing have been devoted to the *hawala* (informal financial transfer) system due to its lack of public record-keeping and potential for anonymous movement of drug money as well as other illegal funds. However, drug money clearly also passes through formal-sector banks in neighboring countries like Pakistan and the United Arab Emirates, so an obvious unexploited opportunity is to prioritize much more “following the money” beyond Afghanistan’s borders. Like all the other individual counter-narcotics instruments this is no panacea, since money is the most footloose commodity of all and will adjust to anti-money laundering efforts. However, given the limited resort to this instrument so far, at least at the margin it would make it more difficult and costly for the more significant actors in the drug industry to do business and protect their proceeds, particularly in other countries where drug money passes through and often is held in formal-sector banks.

4.10 **Demand-side interventions** within Afghanistan have been relatively neglected in the past as compared with other instruments, and since the vast bulk of opiates produced in Afghanistan are exported would not even if successful make a significant dent in total demand for Afghan opiates. However, high problem drug use is increasingly seen for the very serious problem that it is for the country, and interventions to reduce demand and mitigate the damaging effects of problem drug use are receiving more attention than in the past. Given the prevalence of drug use in Afghanistan there is a need to integrate drug demand reduction efforts into both health care provision and the education sector.⁶⁵

4.11 **Communication and education** are potentially important and cut across the other counter-narcotics instruments. Examples include communicating clearly to farmers about opium bans where they are being imposed; more general communications about the illegality (and religious unacceptability) of engagement in the opium economy; education about livelihoods opportunities; communication and education about the dangers of problem drug use; etc. There are however clear challenges associated with such an approach and how messages are tailored (or not) to the particular area in which they are being disseminated (see Box 3).

4.12 Overall, this brief review shows that none of the various conventional counter-narcotics instruments by themselves provides a recipe for reducing opium cultivation and production. Moreover, some of them carry serious risks and have adverse side effects, leading to counterproductive outcomes. Development interventions (including alternative livelihoods projects) require a longer time-frame to achieve progress but are key to sustainability of cultivation reductions. Thus it is the combination of different instruments, and having a substantially longer time horizon than the 1-2 years typically applied in trying to measure counter-narcotics progress, that has the potential to make a difference.

⁶⁵ Past efforts to integrate drug reduction efforts into education and health sector included CN mainstreaming in the Education Quality Improvement Program and the Health Sector Emergency and Reconstruction Development Project (see World Bank, “Treating the Opium Problem in World Bank Operations in Afghanistan: A Guideline Note”, Annex 3 and 4, 2008).

Box 3: ISSUES ASSOCIATED WITH COUNTER-NARCOTICS MESSAGING

While communication and messaging potentially can play a significant role in counter-narcotics strategy, there are many pitfalls, and poor communication easily can backfire.

For example, informing farmers that their crop will be destroyed in areas where the insurgency dominates and where access is impossible will reinforce farmers' perception of a weak state. Similarly, discussing the amount of development funds spent in a province or telling farmers that there are a range of viable alternatives to opium poppy, functioning markets, and agricultural support in areas where these do not exist, will intensify the perception of neglect that some communities feel and fuel the narrative of government corruption. Where there are better services and growing economic opportunities, counter-narcotics messaging can reinforce the social compact between the state and rural communities, but in areas where these are not in place and where eradication thereby becomes the primary theme of the information campaign, counter-narcotics messaging can reinforce the image of a state that exposes the rural population to shocks and undermines their livelihoods.

There is scope for reframing counter-narcotics messaging so that it has greater resonance with the rural population. Rightly or wrongly, in rural Afghanistan counter-narcotics is typically seen as a foreign agenda driven by the interests of the international community. It is not viewed as an altruistic act but seen primarily as a policy designed to tackle the problem of drug use in western countries. In particular, counter-narcotics efforts are not seen to address the priorities of the farming population, such as employment, security, and anti-corruption. Repositioning counter-narcotics messaging so it directly addresses these three themes would have more impact. For example when arresting a government official involved in drugs trafficking, the impact on corruption could be emphasized rather than counter-narcotics objectives.

The Temptation of Radical but Unworkable Solutions

4.13 From time to time more radical solutions to resolve Afghanistan's opium problem have been proposed, ranging from aerial chemical spraying of poppy fields at one extreme of the counter-narcotics spectrum to licensing opium production for the licit global market for pain medications at the other extreme. Such proposals tend to come up particularly in the face of adverse short-term developments such as large increases in cultivation, which more conventional counter-narcotics measures seem unable to mitigate (particularly from a completely unrealistic short-run perspective). Thus they may again enter policy debates currently, when opium cultivation and production are expanding rapidly. This section briefly considers aerial spraying and licensing and, outlines why each in its own way would be infeasible in Afghanistan and would have counterproductive and damaging impacts, certainly in the case of aerial spraying worse than the original opium problem they are intended to resolve.

4.14 It appears that neither aerial nor ground-based chemical spraying has been resorted to at all in Afghanistan (despite some rumors to the contrary), although it was on the policy agenda at certain times, most notably between 2005 and 2008.⁶⁶ The Afghan government, including President Karzai and a number of cabinet ministers, have consistently opposed spraying.⁶⁷ It is likely that the Afghan Parliament also would reject such a plan, and there are outspoken critics among the major European donors as well as some international organizations. Nevertheless, aerial spraying is occasionally put forward as an option and this could happen again, as a "knee-jerk" reaction to large increases in opium cultivation and production, combined with the withdrawal of international forces and shrinking reach of Afghan National Security Forces—which may make aerial spraying superficially seem like a convenient technological fix to an intractable problem.

⁶⁶ The long and extensive experience with aerial spraying in Colombia has sometimes been used as a justification for considering this option in Afghanistan, although several years ago the Colombian government itself decided to de-emphasize spraying and instead prioritize manual eradication of coca bushes. Aside from major differences in the underlying conditions in the two countries and in the drug crops concerned (opium is an annual crop and coca is a perennial bush), the Colombian experience with aerial spraying is controversial. It is beyond the scope of this study to discuss the Colombian debate, but suffice it to say that despite some three decades of experience, coca cultivation remains substantial in Colombia, and taking into account increases in coca cultivation in neighboring countries, the total supply of coca from Latin America may have been only minimally affected.

⁶⁷ See Neumann, R., *The Other War: Winning and Losing in Afghanistan* (Washington DC: Potomac, 2009), p. 148.

4.15 However, aerial spraying of poppy fields in Afghanistan is inherently very problematic, and it makes no sense to introduce it, for the following reasons:

4.16 From a technical perspective, opium poppy is a “footloose” annual crop (not a perennial like the coca bush which requires several years to reach maturation and hence harvesting can be shifted elsewhere only with a significant multi-year lag). So spraying, like manual and mechanical eradication, would lead to shifts of cultivation elsewhere—the so-called “balloon effect”—and repeated spraying in different parts of the country at different times would be required in order to sustain any cultivation reductions achieved. This is even less likely to work well let alone be sustainable than aerial spraying of coca bushes, the degree of effectiveness of which has been much debated.

4.17 Unlike in other countries where cultivation of illicit drug crops tends to occur in remote, unpopulated or very lightly populated areas, opium poppy cultivation in Afghanistan occurs in close proximity to other crops, human habitation, livestock, etc. Thus it would be impossible to conduct aerial spraying without also impacting more generally on the rural milieu. The spray would be harmful to other crops in addition to opium poppy and hence would have adverse side effects on agriculture. Moreover, even if the spray is harmless to humans and livestock, adverse perceptions would arise among the rural population, and in a situation like Afghanistan where infant and child mortality remains high, sicknesses frequent, and livestock deaths common, all would be blamed on aerial spraying irrespective of the objective facts.⁶⁸

4.18 Moreover, while aerial spraying is sometimes seen as an advantageous option in situations where security is problematic for any ground-based actions, slow and low-flying aircraft carrying out spraying would be vulnerable to small-arms fire, giving rise to security incidents and potentially severely limiting the effectiveness of spraying.

4.19 In view of Afghanistan’s experience during the Soviet occupation, when “scorched earth” tactics were employed against agriculture in rural areas perceived to be supporting the resistance and there was occasional use of airborne chemical weapons against rural areas, as well as the considerations noted above, the public relations damage from aerial spraying would be extremely great for both the Afghan government and the international community. Spraying would certainly be used by the Taliban to expand recruitment and support among the rural population and would risk further undermining efforts at rural development. Thus overall, this option does not deserve serious consideration.

4.20 At the opposite extreme of the counter-narcotics spectrum, and indeed moving in a direction contrary to the current international prohibitory approach and criminalization of the opium economy, proposals have been made from time to time for Afghanistan to engage in licensed production of opium for medicinal use.

4.21 The International Narcotics Control Board (INCB) is charged with the task of ensuring that a balance is kept between the global demand and supply of narcotics drugs for legitimate medical needs. In 2013 the INCB estimated that the global demand for opiate raw materials stood at 480 tons of morphine-rich opiates and 287 tons of thebaine-rich opiates.⁶⁹ In the same year, the INCB anticipated that 593 tons of the former and 348 tons of the latter would be produced, exceeding supply in both

⁶⁸ Indeed, whenever opium yields are lower due to poor weather or disease, farmers in Afghanistan often tend to attribute the problem to “spraying”. There are also sometimes rumors that a disease agent effective against the poppy plant has been released by international military forces to damage the opium harvest, although as noted earlier episodes of yield-reducing disease are much more likely to be the result of repeated mono-cropping of opium poppy and poor crop rotation practices.

⁶⁹ Morphine-rich opiate raw materials are used to produce morphine and morphine-based medications (such as codeine), whereas thebaine-rich opiate raw materials are used for other opiate medications such as oxycodone. It should be noted that the former could be processed into heroin whereas the latter could not.

categories. Thus currently, opium stocks for licit medicinal use are growing.⁷⁰ All the main global suppliers of licit opiates except for India (which produces raw opium using labor-intensive techniques similar to those in Afghanistan) produce Concentrate of Poppy Straw (CPS)—see Box 4.

4.22 It is widely recognized that there may be considerable untapped demand for opioids—synthetics and opiates—as pain medication. There are estimates that as much as 90% of pain relief medication is consumed by only 10% of the world's population, and that many in the developing world do not get access to analgesics at all. The global demand for opioids more than tripled between 1993 and 2012 and is expected to continue to grow, although the share of opiates in this growth is likely to decline due to faster growth in usage of synthetic opioids. Thus suggestions are sometimes put forward that Afghanistan should shift to licensed opium production for pain medication and that this would also respond to unmet global demand.

4.23 This idea does not survive a number of reality checks. In the first place, the institutional set-up, good governance, and security are not in place in Afghanistan to ensure minimal leakage from licit production into the illegal market. Moreover, all the incentives would be toward continuing to produce for the illicit heroin market; Afghanistan uses such a small proportion of its agricultural land currently to produce opium that there is no reason why cultivation could not increase sharply to cater to both licensed and illicit markets. Prices for licensed opium would be much lower than those on the illegal market, skewing incentives in favor of the latter and raising doubts about whether the former would be seen as profitable enough to engage in cultivation.

4.24 Even if somehow the problem of leakages and the risk of continuing large-scale opium poppy cultivation for the illicit market could be resolved, currently the international demand is not there for the raw opium that Afghanistan is producing. The supply from India, the only licensed producer at present, already exceeds the global demand for raw opium, and this is not the preferred product for pharmaceutical companies (see Box 4). Moreover, it seems doubtful that Afghanistan would be able to obtain status as a “traditional producer” of opium (even though that is certainly true from a historical perspective) and gain access to the licit market for raw opium; other producers would strongly oppose any such change.

4.25 Even if Afghanistan could gain access to the licit market, the high costs of production in the country would be a barrier. In any case the relatively low prices of licensed opiates would mean limited benefits for Afghanistan in terms of profitability and value added.

4.26 And finally, if a thought experiment is conducted and it is assumed that the global market not only for medicinal opiates but also for heroin and recreational use of opium is no longer criminalized but is subject to a regulated system, it seems extremely doubtful that Afghanistan could remain a significant producer of opium in a competitive global market. Australia, the global low-cost producer currently producing for the licensed medicinal market, would defend and expand its market share, other current producers such as Turkey, France, and Spain would do the same, and yet other countries with modern mechanized agriculture sectors might well enter the market. These competitors would have ample capacity to take over the market for heroin as well as morphine-based medicines through production of morphine-rich CPS. If somehow Afghanistan were to try to compete in production of CPS, very little employment would be generated—in Australia only something like 0.04 persons are employed per

⁷⁰ For example, in 2011 there was reportedly an inventory of 493 tons of morphine-rich opiate raw materials for licit medicinal purposes, which according to the INCB could cover expected global demand for 14 months, and it was expected that stocks would further increase and be enough to meet 15 months of expected global demand in 2014. The inventory of thebaine-rich raw materials reached 183 tons in 2012, enough to meet global demand for 8 months, with stocks expected to grow further.

hectare of cultivation at present, compared to an estimated 1.8 persons currently in Afghanistan, a difference of some 45 times.

Box 4: INTERNATIONAL PRODUCTION OF LICIT OPIATES

Australia (on the island of Tasmania), France, India, Spain, and Turkey are the five major exporters of licensed opiates, of which India is the sole exporter of raw opium. The other countries all produce Concentrate of Poppy Straw (CPS) which is defined as “all parts (except the seeds) of the opium poppy, after mowing” (*Single Convention on Narcotic Drugs 1961*, United Nations). CPS makes up the bulk of global supply of opiates, representing 95% of opiate raw material rich in morphine and 97% of opiate raw material rich in thebaine in 2013. It is the preferred method of production as it offers considerable economies of scale and great economies in labor requirements as compared to the extraction of raw opium. There are also fewer opportunities for diversion into the illicit market, and the final product has a higher value-to-weight ratio, thereby reducing transport costs and making it easier to secure. The extraction of alkaloids from CPS also involves less residual waste than is the case for raw opium, and therefore poses less challenges (and costs) associated with safe disposal and fewer environmental hazards.

Australia, France, and Spain have comparative advantage in the licit opiate industry, using improved seed and well-resourced agricultural extension. The development of new genetic breeds of opium poppy has provided increased alkaloid content, particularly of thebaine rich varieties for which there has been a rapid increase in demand, particularly in the United States.

Cultivation in these three countries takes full advantage of economies of scale using mechanized farming techniques. In Australia fields are large, averaging 36 hectares in the 2012/13 growing season (according to the Parliament of Victoria State, Australia). The economic potential of the opiate industry in Australia and its competitive advantage on the international market has prompted the country to approve the extension of licensing into the state of Victoria and possibly the northern territories. Australia is now a major producer of both morphine rich and thebaine rich varieties of CPS.

India and Turkey continue to cultivate opiates on small-scale farms. Although Turkey produces CPS, India still extracts raw opium and is considered to have a significant problem with leakage into the illicit market, making it quite possibly the fourth largest global producer of illicit opiates. Both countries are recognized as “traditional supplier countries” by the United Nations and given preferential access to the large market in the United States under the 80/20 rule. This rule dates back to 1981 and was designed to limit the number of nations involved in the licit opium trade and assure a flow of reasonably priced opium to meet U.S. medical needs. It stipulates that “at least 80% of licit opium imported into the United States must have as its original source India and Turkey; not more than 20% can have as its original source Australia, Hungary, Poland, France and the former Yugoslavia” (US General Accounting Office, 1997).

Information on costs of production is hard to come by as it is considered commercially sensitive. However, figures in 1999 suggested that production in Australia was considerably more competitive than in India and Turkey, producing 1 kg of morphine-equivalent for US\$ 56, around one-third the cost in India (\$160) and less than one-fourth the cost in Turkey (\$250). Production figures for 2013 suggest that Australia has far greater yields, producing the equivalent of 16 kg per ha of morphine equivalent compared to 5.7 kg per hectare in India.

Afghanistan would thus be at a great competitive disadvantage in the production of licit opiates. Small farms, labor-intensive technology and poor infrastructure mean that costs are high and there are no economies of scale. In 2013 Afghanistan produced on well-irrigated land (in the central canal command area of Helmand Province) an estimated 4.7 kg of morphine equivalent per hectare (based on a yield of 33 kg / ha of opium and a conversion ratio of 7 kg of opium to 1 kg of morphine-equivalent), with estimated production costs of US\$ 3,100 per hectare—or \$660 per kg of morphine-equivalent (see Statistical Appendix). Thus the current method of producing raw opium in Afghanistan is not competitive on the international market, and moreover risks high levels of diversion to illegal market that would not comply with standards set by the International Narcotics Control Board for controls to prevent diversion.

Alternative Livelihoods Interventions

4.27 The conventional counter-narcotics instruments that are most closely relevant for agriculture sector strategy are so-called “alternative livelihoods” interventions. These are programs specifically intended to encourage farmers to shift to non-opium poppy-based economic activities, and they are often tied to opium bans, eradication, and associated law enforcement efforts to reduce opium poppy cultivation. There is however confusion over terms, and it is clear that the concept of alternative

livelihoods is no longer what it originally set out to be. The idea behind moving away from the earlier more bounded rural development programs—known as “alternative development”—implemented in other drug producing areas as well as in Afghanistan during the 1990s, was to work within the development architecture that was being established in Afghanistan post-2001. It was believed that alternative development programs as previously understood were out of sync with wider development thinking, and in particular with how assistance was being structured in Afghanistan after the fall of the Taliban. Moreover, alternative development had become increasingly associated with crop substitution in the minds of many development practitioners and was seen to be unworkable. It was also a concept owned by drug control organizations, particularly UNODC, which were viewed as having rather limited development capacity and being ill-equipped for the post-2001 environment in Afghanistan.

4.28 With large sectoral national programs being designed and implemented and a multitude of national, international, and non-governmental organizations working across rural Afghanistan, there were no areas that drug control organizations like UNODC could set apart, call their own, and implement as programs tied to reductions in opium production. In fact, even the policy of conditionality—tying development assistance to reductions in cultivation—was rejected in the initial years after the fall of the Taliban by most of the major donors, including the US government, on the grounds that it would undermine efforts to build a social contract between the Afghan state and the rural population, one of the core objectives of the reconstruction effort.

4.29 The term “alternative livelihoods” was established to signify change, to move away from a model that was largely rejected by the development community. It was recognized that there was no single project or program that could address the multiple factors that have led to the expansion of opium poppy cultivation in Afghanistan, and that a more concerted and comprehensive effort was required. Consequently, counter-narcotics was made a cross-cutting issue under the Interim Afghanistan National Development Strategy (I-ANDS) of 2006, and the National Drug Control Strategy of 2003 called for counter-narcotics policy to be mainstreamed in national and provincial plans and strategies.⁷¹ Intimately linked with the concept of counter-narcotics mainstreaming, the intention of alternative livelihoods was to integrate efforts to address the causes of opium poppy cultivation into the wider policies and programs of international, national and non-government organizations working in rural Afghanistan.

4.30 There were moments when the development community in Afghanistan was heavily engaged in this debate, and efforts were made to integrate an understanding of drug crop cultivation and the multi-functional role it played in rural livelihood strategies into broader development planning. A number of National Priority Programs were reviewed at the design and monitoring stage to ensure that they maximized counter-narcotics outcomes (see Chapter VII).

4.31 Over time, however, alternative livelihoods came to be seen as synonymous with alternative development, and in some areas, for example with the provision of wheat seed in Helmand under the Food Zone initiative (see Chapter VI), even began to look like crop substitution. Conditionality was also introduced, despite there being little evidence that it was either possible or desirable to make development assistance contingent on reductions in opium poppy cultivation, given the number of

⁷¹ ‘...it is crucial that counter narcotics is fully integrated into the broader national development agenda as set out in the National Development Strategy and the Government Security Sector Reform programmes laid out in the National Security Policy’ (page 7) ‘The Government’s CN policy must occur within the context of a broader stabilisation process. CN policy must therefore be mainstreamed, that is included, and facilitated in both national and provincial plans and strategies.’ (page 15) Ministry of Counter-Narcotics. ‘National Drug Control Strategy: An Updated Five Year Strategy for Tackling the Illicit Drug Problem’. Kabul, January 2006. See also the discussion on mainstreaming in Chapter VII.

different development programs coexisting in a given area and their very different mandates, as well as the growing presence of anti-government and criminal elements in areas where opium poppy is grown.

4.32 The primary difference in approach between these more simplistic alternative livelihoods projects and mainstream development programs that are undertaken in poppy growing areas is over the pace of reduction in opium poppy cultivation and how low levels of production could be achieved and maintained. A crude characterization might distinguish between the design of many alternative livelihoods programs, which see cultivation as a function of weak and corrupt government institutions, and development programs that position drug crop cultivation within the wider development challenges facing Afghanistan, which include the vulnerability of many farmers in the areas where drug crop cultivation is currently concentrated.

4.33 Those who view cultivation as a result of the failings of government institutions often lament the lack of commitment state actors show to counter-narcotics efforts. It is a view shaped by the idea that counter-narcotics efforts are a useful tool in extending the writ of the state over rural areas. Those who see the drugs problem as being broadly an issue of the lack of strong leadership largely sit in national and international organizations charged with delivering on counter-narcotics objectives.

4.34 At perhaps the most basic level, the counter-narcotics community sees their task as finding advocates for drug control within the Afghan administration and encouraging them to engage in efforts to bring about rapid reductions in drug crop cultivation. This group sees widespread opium poppy cultivation as reflecting the poor performance Afghan civilian and security institutions as well as the wider state-building effort. The pressure to deliver dramatic reductions is intimately tied to the idea that a strong state does not have large-scale illicit drug crop cultivation and that an absence of opium poppy implies that there is strong leadership.

4.35 Within this overall approach that is focused on achieving large reductions in opium poppy cultivation in the short run (preferably elimination, at least in some provinces—hence the “poppy-free” initiative and associated incentives), alternative livelihoods interventions are seen as a supporting instrument toward this end. However, they are not so much intended to support sustainable development of non-opium based livelihoods which then obviate the necessity of cultivating opium poppy, but rather to provide a “carrot” to accompany the “stick” of opium bans and eradication. Box 5 provides further background on this counter-narcotics based approach to alternative livelihoods.

4.36 In this regard, efforts to ban opium production are also emblematic of a process of centralization that peripheral areas have been keen to avoid. It brings the security apparatus of the state, or its representatives, visibly into the rural areas where opium poppy is grown. By preventing cultivation it threatens the financial and political autonomy of the population and their leadership, rendering them dependent on the vagaries of markets for licit products (as opposed to the well-functioning market for illicit opium), or on the largesse of the state or foreign patrons. Thus engaging in efforts to ban drug crop cultivation in Afghanistan is a political process that pits those in power in direct conflict with the interests of the rural population and their representatives, the kind of act that has proven provocative and divisive through much of Afghan history. It is for these reasons that alternative livelihoods programs as currently designed and implemented—with their focus on achieving a reduction in poppy cultivation regardless of development outcomes and how they are distributed across different sections of the rural population, and closely linked with attempts to ban opium poppy cultivation across a wide area—have failed in localities where viable alternatives were not already in place.

Box 5: THE COUNTER-NARCOTICS APPROACH TO ALTERNATIVE LIVELIHOODS

For the proponents of a narrowly counter-narcotics based approach for alternative livelihoods programs, these interventions can be bounded and targeted at encouraging and supporting the political elite to act against drug crop production, and development resources are a mechanism for soliciting the support of national and provincial elites to deliver reductions in opium poppy cultivation in the countryside. This is an instrumentalist view of development shaped by the belief that those cultivating opium are relatively wealthy and will be largely unaffected by reductions in cultivation, even rapid reductions. It is this view that shapes the more contractual development programs seen in Afghanistan, where development assistance is made contingent on reductions in opium poppy cultivation and, more recently, the Good Performers' Initiative where development funds are distributed through the Governor's office to provinces that achieve a rapid reduction in cultivation or maintain "poppy-free status" (i.e. very low levels of cultivation, below 100 hectares). In this model development outcomes—in this case improvement in the lives and livelihoods of rural households and communities—are largely irrelevant, especially the longer-term development outcomes that experience has shown are the key for rural areas to move away from dependence on opium poppy cultivation on a sustainable basis.

Imposing a ban on opium poppy cultivation requires building a critical mass of those who are perceived to have sufficient influence and power to coerce the rural population into abandoning poppy. Sustaining such a ban requires maintaining a reasonable consensus of these elites through the provision of largesse and the threat that development assistance and political support will be withdrawn were there to be a resurgence in opium poppy cultivation. Coercion is a further critical component of this approach. Support is given for crop destruction at the provincial level in order to create what has come to be known as a "credible threat". To achieve this, and to bring about rapid reductions in cultivation, eradication needs to be comprehensive and not limited to specific areas or groups. Here we see a further departure from the call for more targeted crop destruction as advocated under the initial National Drugs Control Strategy.

This is a more proactive approach to drug control driven, in part, by the demand for greater progress toward counter-narcotics objectives, but also by the growing international presence in the provinces of Afghanistan after 2004. It is a model linked also to the geographical priorities of the US and UK and their lead roles in Nangarhar and Helmand respectively. It is also an approach that is intimately tied to our understanding of past drug control efforts and the role that politico-military actors, particularly the Taliban, have played in determining levels of production in Afghanistan.

This narrative of the strong leader has a real resonance in Afghanistan. It is not uncommon to hear rural Afghans lament the days of strong government and the stories they have heard about the draconian rule of Abdur Rahman Khan. As security has worsened since 2008 there are even nostalgic references among rural Pashtuns to the order imposed by the Taliban regime. However, the reality is quite different, and there is a history of rural Afghanistan resisting the center's attempts to impose control, particularly when it has involved taxation, conscription, or efforts to change the culture and traditions that are held dear. Resistance has often been accompanied by accusations that the Afghan leadership has fallen under the influence of foreign powers and their ideas.

We hear the same call for strong leadership in the discussion around opium production and its control. Stories of regional and local commanders encouraging, or even instructing, farmers to cultivate opium poppy, or at the opposite extreme banning opium production altogether, are common, creating the impression of centralized economic and political power in rural Afghanistan. However, opium production is both symptomatic of the dispersion of power as well as a major contributor to the autonomy of those in the periphery. As an illegal and easily lootable good, opium has offered both a source of revenue for the rural population, and a means to political power for local and regional elites.

Key Lessons from a Development Perspective

4.37 The most general lesson from counter-narcotics experience in Afghanistan and globally is that ***there are no "silver bullets" or simple solutions that will resolve Afghanistan's opium problem, let alone in a short period of time.*** The temptation to resort to such illusory "fixes" has been avoided so far but may return to policy debates, not least as part of panicked "knee-jerk" reactions to the ongoing expansion of opium poppy cultivation and prospects for more of the same in coming years. But it is clear that these radical solutions will not work and on the contrary will most likely make the situation worse than the original opium problem they are intended to resolve.

4.38 A second, critical lesson is that ***where counter-narcotics interventions have resulted in substantial shifts from opium poppy cultivation to wheat, the reductions in the former have turned out***

to be unsustainable. This pattern has held true whether the shift to wheat was part of deliberate policy (e.g. when improved wheat seeds and other inputs for wheat cultivation were provided to farmers as in the case of the Helmand Food Zone initiative—see Chapter VI), or whether it was due to the actions of farmers themselves in local situations where they had few if any alternatives to wheat cultivation (e.g. more remote parts of Nangarhar during the opium bans in that province—see Chapter V).

4.39 Moreover, **these shifts to wheat have been very harmful from an agriculture sector, rural development, and poverty perspective.** Although better-off households with sufficient land as well as other income-generating opportunities don't have problems making ends meet cultivating wheat after stopping poppy cultivation, this is not at all true for poorer households with limited or no landholdings. And the shift to wheat has often had damaging effects on the government's credibility and legitimacy in the eyes of the rural population, turning some of them to embrace (or at least tolerate) anti-government elements including in some places the Taliban insurgency.

4.40 Another extremely important part of this syndrome is **the displacement of land-poor and landless households in areas that have shifted from opium to wheat.** No longer able to access land through sharecropping etc. arrangements involving opium poppy cultivation, and no longer able to take advantage of wage labor opportunities associated with poppy, these households have found themselves in a desperate situation requiring desperate measures, often including out-migration. In the case of the Helmand Food Zone initiative, this has in turn resulted in massive expansion of cultivated land and population in former desert areas most notably north of the Boghra canal, where households have become even more dependent on opium poppy cultivation than before, and moreover now have claims or access to some land (even if low-quality) and are adopting agricultural practices (deep wells, mono-cropping of opium, herbicide use) that are likely to be damaging to the environment (see Chapter VI). Under the Nangarhar opium bans, displacement has taken different but nevertheless also damaging forms, including outmigration to other poppy growing provinces where migrants have leased or sharecropped land or acted as skilled laborers during the harvest (see Chapter V).

4.41 **In sum, shifting from opium poppy to wheat does not work from all but the most myopic, shortest-term perspectives** (i.e. unsustainable reduction in opium poppy area for a single year, or one or two more years with increasing hardships and tensions). On the contrary it is extremely damaging from the perspectives of agricultural development (wrong crop to be leading Afghanistan's agricultural development over the longer term, not the most effective use of Afghanistan's scarce water resources etc.); poverty (land-poor and landless farmers can never achieve income or even food self-sufficiency if they shift to wheat); and counter-narcotics (displacement of poppy cultivation to other provinces, or even worse bringing new land under cultivation where poppy cultivation becomes further entrenched among an alienated population with strong anti-government views).

4.42 Finally, it should be emphasized that **these very stark lessons from counter-narcotics experience with wheat substitution apply with almost equal force to shifts from other labor-intensive cash crops to wheat, and irrespective of whether or not opium is part of the picture.**

4.43 On a more positive note, Afghanistan's experience has demonstrated that **opium bans can work and have proven sustainable, provided that the economic and other conditions necessary for this are in place.** Adjustment may be difficult initially, especially in the first year of a ban, but within 2-3 years the move away from opium has typically been accomplished, especially when supported by significant investments, with the local economy again showing signs of thriving on the basis of widespread horticultural development and increasing non-farm activities. The most notable example has been the centrally located parts of Nangarhar Province, endowed with well-irrigated land, reasonable person-land ratios, a modicum of government presence and decent security, and proximity to good markets for agricultural products and labor (see Chapter V). There are also other examples including in the southern

region, such as parts of the central canal command area of Helmand and some of the districts adjacent to Kandahar city.

4.44 On the other hand, ***where suitable conditions for flourishing livelihoods without opium are not in place, opium bans fail and have harmful effects.*** They will not work at all or won't last very long even if they are effective, and the longer they remain in place the more the damage they will cause—loss of access to land and impoverishment of poorer households, distress sales of assets, incurrence of debt, and other extreme responses at the household level, a serious downturn more widely in the local rural economy, increasing disenchantment with the government offering entry points to anti-government elements, and outmigration and often opium poppy cultivation elsewhere.

4.45 ***The conditions for opium bans to work and to be sustainable are area- and locality-specific,*** with considerable variation within provinces and also often within districts. Therefore, and not surprisingly, the effectiveness and longevity of province-wide opium bans has been variable within provinces. This calls for rethinking using the province as strictly the unit for imposing opium bans and for measuring progress and providing associated incentives (such as the Good Performers' Initiative). The experience in Nangarhar in the 2009/10 growing season shows that there are dangers in pressing for a reduction in cultivation on the margins, for example in the southern district of Sherzad, in order to achieve poppy free status, provoking rural unrest and weakening the population's perception of the coercive power of the state across a much wider area.

4.46 ***For rural development interventions to both have a development effect and support reductions in opium poppy cultivation, they need to be take a multi-faceted area-based approach,*** not implemented as isolated projects focused primarily on supporting the achievement of short-run counter-narcotics objectives (namely, quick reductions in the poppy cultivated area).

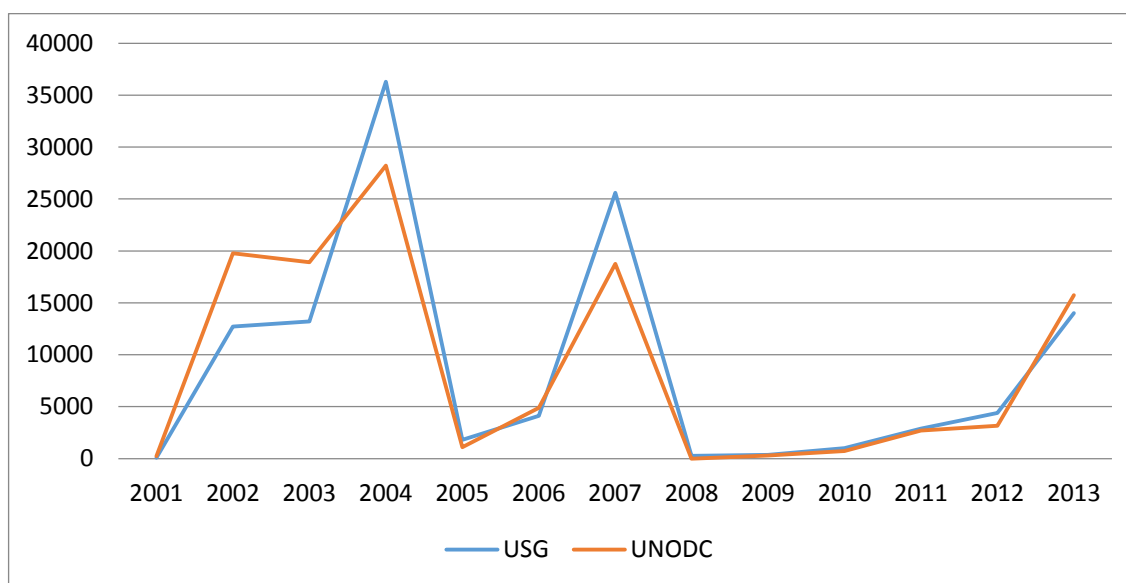
4.47 Overall, ***while sustained reductions in opium poppy cultivation can be achieved in a relatively short period of time in localities where conditions are already conducive for this to occur, reducing let alone eliminating many rural areas' dependency on opium poppy cultivation will require a very long time***—more like a decade or longer rather than 2-3 years.

V. OPIUM BANS IN NANGARHAR PROVINCE: EXPERIENCE AND LESSONS

5.01 The only policy action that has had very substantial and clearly demonstrated impacts on opium poppy cultivation in Afghanistan has been opium bans. The only effective national opium ban in Afghanistan was the one imposed by the Taliban in 2000/2001, which was highly successful and reduced cultivation by more than 90% (see Figure 6) but would have been extremely difficult to sustain on a nationwide basis had the Taliban remained in power. Since 2001, there have been a limited number of cases of opium bans being successfully imposed in provinces where cultivation had been concentrated, most notably in Nangarhar Province. This chapter reviews the experience with opium bans in Nangarhar, which provides some insights into success factors and what determines whether bans are sustainable.

5.02 Nangarhar Province in the eastern region of Afghanistan is of particular interest as it is an area where opium poppy cultivation had been entrenched over many years (except briefly during the Taliban's nationwide ban in 2000/2001) but where successful bans have been imposed on more than one occasion. Following concerted efforts by the provincial authorities in the 2004/05 growing season, there was a sharp reduction in the level of cultivation from approximately 28,000 ha in 2004 to 1,800 ha in 2005 (see Figure 15). This was followed by an increase to a still modest level of 4,800 ha in 2006, and then a rebound to around 19,000 ha in 2007. There was a second effort to ban opium poppy cultivation at the provincial level in 2008, imposed by then-Governor Gul Aga Shirzai. This lasted until 2010 when small amounts of opium poppy began to reappear in the upper parts of the southern districts of Nangarhar. Poppy cultivation was modestly higher in the following two years, and then in 2013 there was a dramatic increase to 15,719 hectares, up from 3,151 hectares in 2012. Further increases in opium poppy cultivation are anticipated in 2014.

Figure 15: OPIUM POPPY CULTIVATION IN NANGARHAR PROVINCE, 2001-2013 (HA)



Source: UNODC Opium Surveys and USG.

Positive Experience in Better-off Areas

5.03 Nangarhar's experience of enforcing province-wide bans on opium poppy cultivation shows how different communities respond to a ban on cultivation and how sustained reduction in cultivation can be achieved in areas where rural communities can realize broader development goals. These consist not

only of improved household risk management through the diversification of on-farm, off-farm and non-farm income, but also the improved provision of public goods to communities in a way that strengthens their social compact with the state.

5.04 For instance, even with the dramatic uptick in cultivation in 2007, and more recently in 2013, the population in the lower-lying districts along the Kabul River have not returned to widespread opium poppy cultivation, most notably the districts of Behsud, Surkhrod, and Kama, but also in the lower parts of Shinwar, Rodat and Bati Kot. These are all well-irrigated areas with good access to agricultural commodity and labor markets in Jalalabad and Kabul. Since 2005 these areas have changed dramatically, and many households have experienced a pronounced increase in income earning opportunities, despite the loss of opium production.

5.05 While the initial response to the ban in 2005 in these areas was often to replace opium poppy with a combination of wheat and another cash crop (such as onions in Surhkurd and green beans in Kama), farmers have adapted to growing demand from the rapidly expanding urban centers of Jalalabad and Kabul, and now cultivate a wide range of annual and perennial horticultural crops, cultivating as many as five crops on a single unit of land. Improvements in infrastructure, particularly the Kabul to Torkham road, have aided the movement of goods and have allowed the rural population to take advantage of price differentials, and increasing numbers of farmers are selling licit crops directly in these markets rather than at the farm-gate.

5.06 The population in these areas also has access to a wide range of non-farm income opportunities, including trade, construction, and salaried employment in government offices in Jalalabad. The rural population has also exploited the wage differentials in Jalalabad and Kabul, resulting in significant labor migration to Kabul during the summer months. In fact, by abandoning opium poppy cultivation—an especially labor-intensive crop—family members have been freed up to find work elsewhere. For households with a number of male members of working age, this has led to a significant increase in household income, especially when combined with on-farm income from the complex cropping systems that have emerged in the lower-lying areas.

5.07 It is important to recognize as well that these lower-lying areas are places where the state has a history of direct rule and where drug crop cultivation has not been at the forefront of the livelihood portfolios of the rural population. There are other economic opportunities that farmers can draw upon in these areas, and in the context of a significant international effort and their privileged position—a function of location, history, resource endowments, and the close bond between local and sub-national elites in these area—increased public and private sector investment has resulted in welfare gains for the rural population despite their abandoning opium production.

5.08 Experience shows that a ban on cultivation in these areas does have a short-term impact, but it is neither experienced by a large proportion of the population, nor is it severe enough to provoke widespread unrest and rural rebellion. There are too many other advantages associated with the current political order, a belief that further benefits will accrue if stability is maintained, and significant risks associated with revolt given the population's physical proximity to the state's security institutions, as well as local elites' domination of both physical resources and patronage networks.

5.09 In fact, a ban on opium poppy cultivation in this kind of terrain can reinforce political order and aid state-building by removing a "lootable" commodity that is often a source of finance for political rivals. Moreover, it can eliminate the rent on opium production extracted by competitors to the current political order without antagonizing large sections of the rural population. This in turn can further strengthen relationships of patronage and resource flows between state, periphery, and the rural

population, which supports the development of more hierarchical societal structures and consolidates the power of local leaders who have already been co-opted by the state.

Experience in More Remote, Poorly Resourced Areas

5.10 There has been a sharply contrasting experience in the more distant border areas of the southern districts of Nangarhar. It is in these areas that opium poppy cultivation returned in abundance in 2007, following the initial ban by then-Governor Haji Din Mohammed in 2005, and began to reemerge once again in 2010 following the subsequent ban by Gul Aga Shirzai in 2008. Opium poppy is now grown widely across these southern districts and by 2013 only a small number of fields of wheat and clover could be seen (see Figure 16 for an example).

Figure 16: MAHMAND VALLEY IN UPPER ACHIN DISTRICT, SPRING 2013



Note: Lighter green areas are opium poppy.

Source: Alcis.

5.11 These are areas where landholdings are small, population densities are high, transport is expensive, and local markets are thin (and more robust markets very far away). In these areas opium poppy cultivation is much more embedded in the livelihoods of the rural population. It is the cornerstone of the economy and provides a range of different functions that cannot easily be replaced. The typical response to a ban on opium poppy cultivation in these areas has been to cultivate wheat in the winter followed by maize in the summer, especially after marijuana cultivation was also banned by Governor Gul Aga Shirzai. Outmigration has also occurred, and large numbers of males from these districts have joined the Afghan National Security Forces (ANSF).

5.12 Table 4 shows a range of different patterns of crop production that have been found in these upper districts over the last few years.⁷² The period covers years when a ban on both opium poppy and marijuana was imposed from 2008 to 2009 (Cropping Pattern 1); the return of marijuana production in the summer of 2010 (Cropping Pattern 2); the subsequent return of opium poppy cultivation in 2011 and 2012, with a summer crop of marijuana⁷³ (Cropping Pattern 3); and extensive opium poppy cultivation in 2013 both with (Cropping Pattern 4) and without marijuana (Cropping Pattern 5).

5.13 When these rather stylized patterns of crop production are imposed on the average size of landholdings and number of household members for upper Achin,⁷⁴ we can see the degree of disparity between gross income⁷⁵ derived from a cropping system based on a winter crop of wheat and a summer crop of maize (Cropping Pattern 1) and a system where even a small amount of marijuana is grown (Cropping Pattern 2) and especially when marijuana and opium poppy return (Cropping Pattern 3). Cropping Pattern 6 illustrates a range of non-farm income that some households in the southern districts have also drawn on as part of their overall livelihood portfolio.

5.14 As can be seen from Table 4, the cultivation of wheat and maize offers a gross income of only 25.5 Pakistani Rupees per person per day; even with a supplement of one family member earning a non-farm income, gross income per capita would still be well below US\$ 1.00 per day, unless that family member is working in the Afghan National Army (ANA) for example. The introduction of marijuana during the summer season offers some respite, adding on average an extra US\$ 0.40 gross income per person per day, but this still leaves a household below US\$ 1.00 gross income per person per day. Only with the monocropping of opium poppy (Cropping Pattern 4) and some marijuana cultivation in the summer can this average household in upper Achin earn a gross income of more than US\$ 2.00 per person per day through agricultural production alone. To earn an equivalent income without monocropping opium poppy in the winter, households would still need to cultivate opium poppy and/or marijuana and have a family member earning a non-farm income, or have a family member in the Afghan National Army.

5.15 It is evident from this analysis that a ban on opium poppy cultivation in these areas inflicts immediate and dramatic losses to the welfare of the vast majority of the rural population. There are not the same opportunities in annual and perennial horticultural production as can be found in the lower-lying districts. Instead, households are compelled to pursue activities that undermine their future earning capacity—such as selling long-term productive assets—or expose family members to greater hazards, including joining the ANSF. The prospects of even sizable development investments offering

⁷² It is important to note that this analysis is based on agricultural prices received by farmers in the 2011/12 growing seasons. Hence the gross incomes shown are relatively high due to opium prices of 23,000 Pakistani Rupees per seer and hashish prices of as much as 22,000 PR per kg for Grade 1, 10,000 PR per kg for Grade 2, and 7,000 PR per kg for Grade 3. In 2013 opium prices fell to between 12,000 to 15,000 PR per seer and hashish prices to between 13,000 and 17,000 PR per kg for Grade 1, 5,000-6,000 PR per kg for Grade 2, and as low as 2,500-3,000 PR per kg for Grade 3. If these reductions in opium and hashish prices are factored into the calculations, gross incomes fall to US\$ 0.49 per person per day for Cropping Pattern 2, US\$ 105.13 for Cropping Pattern 3, US\$ 130.4 per person per day for Cropping Pattern 4—a reduction of as much as US\$ 0.80 per person per day compared to 2012 prices—and US\$ 106.32 for Cropping Pattern 5. These reductions illustrate just how vulnerable household incomes in these areas are to variations in the price of drug crops.

⁷³ None of those cultivating marijuana in upper Achin in 2012 and 2013 cultivated more than one jerib. Many could not cultivate all of their land during the summer months due to water shortages, and all cultivated some maize, largely for the purpose of feeding their livestock

⁷⁴ The average landholding in upper Achin was 3.2 jeribs (0.64 hectare) and the average household size was 10.2 people.

⁷⁵ Ideally net income would be calculated for each of the different cropping systems presented in this table; however, time and data constraints prevented the further development of this analysis so gross income is used for these comparisons.

respite from the impact of an opium ban are severely limited by the location, terrain, and limited resources (most notably water) of these areas.

5.16 The political terrain in these areas also is hostile to the imposition of drug crop bans. The highly contested nature of political leadership in these areas means that local elites risk their political position if they are seen to support a ban on opium poppy cultivation for more than a single season, even more so if the elites are seen to be benefitting from the patronage of sub-national, national or international actors. In these circumstances, the rural elite faces immediate opprobrium from the local population; disaffection can soon become violent and more widespread when the state can no longer maintain the appearance of order. The fact that an opium ban is presented as an international priority—something imposed from outside—offers elites the political space to distance themselves from a ban, and renege on their commitments when political survival demands it.

5.17 The wider and changing political environment and economy makes maintaining a ban all the more challenging in these areas given how susceptible the population is to exogenous shocks, particularly after a ban has been imposed. Other economic shocks such as rising food prices have had a significant effect on the population, as have natural disasters such as drought or crop failure. Elections have further disrupted the political coalitions that supported the imposition of a ban, prompting the formation of new alliances as political rivals within the local and sub-national elite seek to gain support from a disaffected population. This all points to the demonstrated experience that opium bans in these more remote southern districts on the border with Pakistan are doomed to fail, not because of the impact a ban might have on farm-gate prices, or due to corruption and the insurgency, but because the bargains on which these bans are built are inherently unstable, constrained by state-societal relations, local configurations of power, the resource endowments of the population and their high dependence on opium poppy cultivation, and the sheer number of disparate and competing institutions involved.

5.18 In sum, in these areas bans on opium poppy cultivation have proven counterproductive. Bans have fuelled instability precisely because they expose the rural population to significant economic shocks; they have destabilized the political order due to the fluid and fragile nature of local leadership and the perceived failure of the local elite to deliver improvements in welfare and state patronage; and finally such bans have damaged the bond between the state and remote rural populations, fueling violence and rural rebellion. The harmful impact is precisely because the ban presents an image of a state and a local leadership that does not care about the welfare of the population but prioritizes its own interests and those of foreign benefactors. Evidence strongly suggests that in this kind of terrain—where the state does not have a history of presence or at least strong relations with local elites, where there is a history of resistance against the government, and where there is very high economic dependency on opium poppy cultivation—an opium ban should not be considered.

Table 4: CROPPING PATTERNS AND INCOMES IN UPPER ACHIN DISTRICT, NANGARHAR PROVINCE (2011/2012)

Box 1							Box 2						
Cropping 1							Cropping Pattern 2						
	Wheat	Maize					Wheat	Maize	Hashish				
Jeribs	3.2	3.2					3.2	2.2		1			
Yield/jerib	90	65					90	65	4	6	3		
Price (PR)	200	180					200	180	22000	10000	7000		
Sub total (PR)	57,600	37,440					57,600	25,740	88,000	60,000	21,000		
Gross income (PR)	95,040						252,340						
Gross income/day	260.38						691.34						
Gross income/capita/day	25.53						67.78						
Box 3							Box 4						
Cropping Pattern 3							Cropping Pattern 4						
	Poppy	Wheat	Maize	Hashish			Poppy	Wheat	Maize		Hashish		
Jeribs	2.2	1	2.2		1		3.2	0	2.2		1		
Yield/jerib	8	90	65	4	6	3	8	90	65	4	6	3	
Price (PR)	23,000	200	180	22,000	10,000	7,000	23,000	200	180	22,000	10,000	7,000	
Sub total (PR)	404,800	18,000	25,740	88,000	60,000	21,000	588,800	0	25,740	88,000	60,000	21,000	
Gross income (PR)	617,540						783,540						
Gross income/day	1,691.89						2,146.69						
Gross income/capita/day	165.87						210.44						

Box 5							Box 6						
Cropping Pattern 5							Non-Farm Income						
	Poppy	Wheat	Maize				ANA	Teacher	Driver (own car)	ANP (local)	Driver (others)	Labour (Jalalabad 4 months)	Shop
Jeribs	3.2	0	3.2				1	1	1	1	1	1	1
Yield/jerib	8	90	65				23,733.94	10,954.13	600	14,605.5	400	500	15,000
Price (PR)	23,000	200	180				12	12	365	12	365	121.67	12
Sub Total (PR)	588,800	0	37,440				284,807.3	131,449.5	219,000	175,266.1	146,000	60,833.33	180,000
Gross income	626,240						284,807.3	131,449.5	219,000	175,266.1	14,6000	60,833.33	180,000
Gross income/day	1,715.73						780.29	360.14	600	480.18	400	166.67	493.15
Gross income/capita/day	168.21						76.50	35.31	58.82	47.08	39.22	16.34	48.35

VI. THE HELMAND FOOD ZONE INITIATIVE: EXPERIENCE AND LESSONS

6.01 The Helmand Food Zone initiative, started in the 2008/09 growing season and continuing to this day, is considered a flagship intervention to reduce opium poppy cultivation in parts of Helmand Province. As such, it provides rich experience and lessons both for counter-narcotics strategy and for agriculture sector strategy. This chapter focuses on the impact of the Helmand Food Zone initiative on different geographical areas and different socio-economic groups.

Overall Parameters and Experience

6.02 Although the food zone's borders changed over time, it was basically intended to encompass the irrigated canal command area including the entire district of Lashkar Gah and the most fertile parts of Nad e Ali, Nawa Barakzai, Garmsir and Nahre Seraj districts. In later years it was expanded to include the river irrigated parts of Musa Qala, Marjah, Khanishin Sangin, and Nawzad districts.

6.03 There are challenges comparing annual levels of cultivation within what appears to have been a constantly changing boundary, and problems of attribution with regard to the reasons for the fall in cultivation. However, it is clear that opium poppy cultivation in the Food Zone has fallen significantly since the program began in the autumn of 2008. The US government reported that in the area that was common to each year of the Food Zone initiative since it began, cultivation fell from 32,889 ha in 2008 to 6,142 ha in 2013.⁷⁶ Figure 17 shows estimates of opium poppy cultivation by UNODC and USG, for Helmand Province as a whole as well as the estimates available for the Helmand Food Zone.

6.04 In Helmand Province as whole, levels of opium poppy cultivation have rebounded in the most recent couple of years. After falling from 94,500 ha in 2008 before the Food Zone program began to 61,500 ha in 2011, the poppy cultivated area rose back up to 95,500 ha by 2013.⁷⁷ This resurgence in cultivation in the province occurred outside the canal command area of the central districts, in the newly settled former desert lands to the north of the Boghra canal. This area saw a dramatic increase in the number of people settling in the area, the amount of agricultural land, and the concentration of opium poppy cultivation, following the imposition of the opium ban in the canal command areas in the 2008/09 growing season.

6.05 Explanations for the fall in cultivation in the Food Zone are confused by contrasting definitions of what the Helmand Food Zone program consisted of; how it, and reductions in levels of cultivation, were related to exogenous factors; and the different interventions implemented in Helmand at the time.

6.06 A minimalist interpretation of the Helmand Food Zone would consider only the original design of the program, under which the Afghan government, with support from the international community, provided wheat seed and fertilizer to a population of 30,000-50,000 farmers within a specified geographical area. These agricultural inputs were intended to reduce the adverse impact of a ban on opium poppy cultivation on the welfare of the rural population and to support farmers to maintain a level of food security.⁷⁸ This initial design envisaged the opium ban being imposed through a counter-

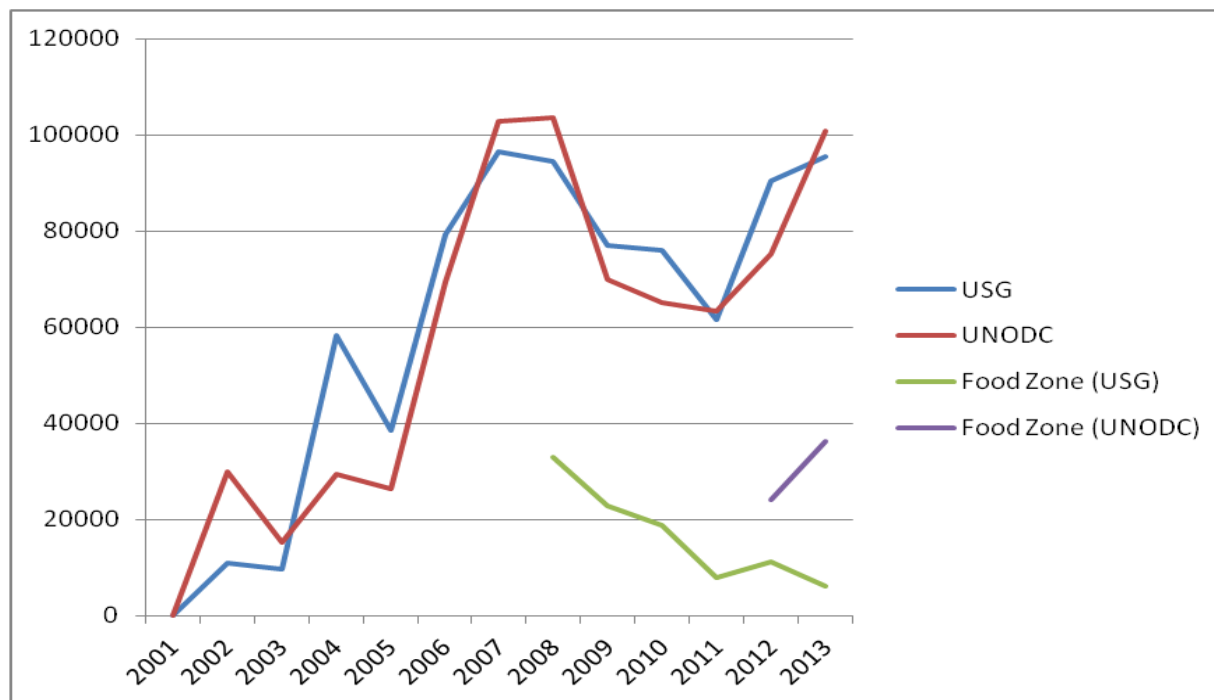
⁷⁶ The area for which the USG estimated cultivation was approximately the boundaries of the Food Zone in 2009. UNODC did not produce separate estimates for the Food Zone until 2012 and 2013. In contrast to the USG figures, UNODC reported rising levels of opium poppy cultivation in the Food Zone between 2012 and 2013, with cultivation rising from 24,241 ha in 2012 to 36,244 in 2013 (UNODC/MCN, *Afghanistan Opium Risk Assessment 2013*, UNODC/MCN: Kabul Page 26).

⁷⁷ UNODC reports a similar recovery, with cultivation having reached 103,693 ha in 2008, subsequently declining to a low of 63,307 ha in 2011, and then returning to 100,693 ha in 2013.

⁷⁸ In the 2008/09 growing season, wheat seed and fertilizer were distributed to 33,000 farmers, in 2009/10 to 39,640 farmers, and in 2010/11 to 48,200 farmers (Mansfield et al, "Managing Concurrent and Repeated Risks", p. 19).

narcotics information campaign persuading farmers not to cultivate, threatening communities with destruction of their crop, and then followed up in the spring with a campaign of targeted eradication.

Figure 17: CHANGES IN OPIUM POPPY CULTIVATION IN HELMAND, 2008-2012 (HECTARES)



Source: UNODC and US government estimates.

6.07 However, a broader interpretation of the results of the Helmand Food Zone would not just consider the impact of these three interventions—provision of agricultural inputs, counter-narcotics messaging, and eradication— but would also include the wider economic, social, and political processes that occurred during that period and affected levels of opium poppy cultivation. Most importantly, it would factor in the dramatic shift in the terms of trade between opium poppy and wheat that occurred between October 2007 and April 2009, and how this impacted on farmers’ concerns over food security both within the Food Zone and outside it.⁷⁹ Second, it would also take into account the large inflow of international military forces and ANSF since 2009 and 2010, particularly with the various military operations (*Panjai Palang*, *Khanjar*, and *Moshtarak*) in central Helmand and the major expansion of security infrastructure and personnel until the end of the “surge” in the summer of 2012. Third, it would include the dramatic increase in the amount of development assistance (not just counter-narcotics labelled support) that flowed into the province during this period. Finally, this broader interpretation would also recognize the wider process of market penetration that increased the rural population’s exposure to improved technologies over the last decade, particularly mechanized transport.

6.08 As with the experience of the opium ban in in Nangarhar (see Chapter V), pressure to reduce poppy cultivation in the Food Zone was met with quite different responses depending on location, socio-economic group, and economic opportunities available. Table 5 presents a typology of the different

⁷⁹ For example, Cranfield University estimated that while opium poppy cultivation decreased in the Food Zone by 37% between 2008 and 2009 and increased in the area outside the Food Zone by 8%. Both areas saw a doubling of the amount of land under wheat. In the Food Zone this reduction took place at the expense of opium poppy cultivation. Outside the Food Zone the 98% increase in wheat cultivation occurred by bringing new land under cultivation. For a more detailed review of the Helmand Food Zone experience see Mansfield, Alcis and OSDR, “Managing Concurrent and Repeated Risks” (AREU, Kabul, 2011).

agro-economic zones within central Helmand and the kinds of responses that have occurred. A more detailed explanation is provided in the following sections of this chapter.

Zone 1: Well-irrigated Canal Command Area in Proximity to Urban Centers

6.09 The first agro-economic zone consists of irrigated land in the central canal command area of central Helmand located near the urban centers of Lashkar Gah and Gereshk and other districts centers. In these areas there are visible signs of crop diversification, infrastructural improvements, and economic growth. Here the combination of security, public sector service provision, physical and social infrastructure, improved economic opportunities in the agricultural sector, and most importantly opportunities in non-farm activities, established the conditions by which farmers experienced improvements in their overall wellbeing and saw a reason to engage with the state. Many farmers in this area argue that they now look to the market for agricultural goods, wage labor opportunities, and services as the way to earn a living, rather than relying on opium production as they did in the past.

6.10 In many cases in central Helmand, this transition to less opium-dependent livelihoods was supported by the money earned from illicit opium production itself. For example, those who were in the fortunate position of having generated inventories of opium during the “good years”—aided by land ownership, sizeable plots, and perhaps only a small number of household members who were unable to work—sold their opium at the inflated prices that followed the harvest of 2010, when prices rose to almost US\$ 300 per kg.⁸⁰ This provided funds for start-up costs to buy a shop, a motor vehicle or a zarang,⁸¹ and to begin trading goods and services and thereby replace some of the income they had previously earned from opium.

6.11 Reducing opium poppy cultivation also freed up family labor to staff the family shop, drive the family’s vehicle, or go to the bazaar and find employment. This off-farm and non-farm income played a critical role in improving the overall welfare of households in the absence of opium. Owning a shop; having a family member in the Afghan Local Police; a son with a car, a zarang, or even working in the construction industry in Lashkar Gah—all provided valuable injections of cash into the household economy. To a family in this area, the benefits of non-farm income were not simply monetary. For example, those with a family member working in the bazaar referred to their increased consumption of food items such as meat and fruit—items that once were luxuries, eaten only when a family member needed to travel to the market, incurring transport costs, possibly having to pay bribes, and risking physical harm, particularly in the peak of the conflict.

6.12 Greater market exposure also led to changes in agricultural production and a significant shift in the crops that farmers have grown following the reductions in opium poppy cultivation, improvements in security, and the significant investments in rural infrastructure that central Helmand has seen since 2008. The initial response to the implementation of the ban on opium poppy in the fall of 2008 was often to replace poppy with wheat, largely due to the significant rise in wheat prices and concerns over food security at the time. Responses evolved, and by the 2009/10 growing season farmers in the environs of Lashkar Gah and Gereshk increasingly cultivated a wide range of horticultural crops, both annual and perennial. As time passed this kind of mixed cropping system became more prevalent, seen not just in places like Bolan, Qala Bost, and Mohejerin—that were quick to diversify and meet the demands for agricultural produce from an expanding provincial capital—but also across a much wider geographical spread within the canal command area (See Figure 18 which depicts the Chanjir Dasht research site in this zone).

⁸⁰ In June 2010 prices had risen to 110,000 PR per man. At that time the exchange rate was 84 PR to US\$ 1.00.

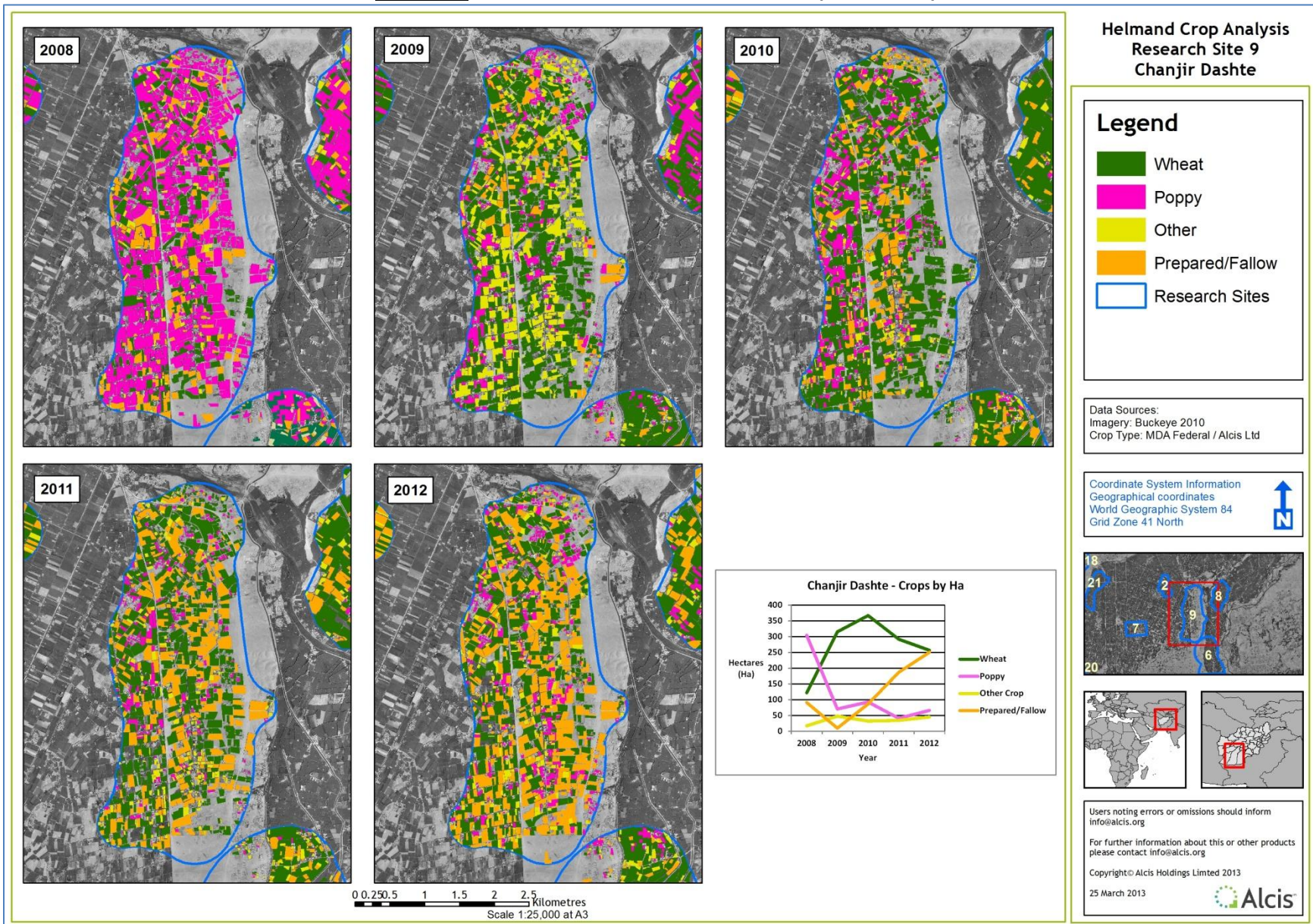
⁸¹ A zarang is a small three-wheeled motor vehicle for transportation and small amounts of freight in rural areas.

Table 5: CHARACTERISTICS OF DIFFERENT AGRO-ECOLOGICAL ZONES IN CENTRAL HELMAND PROVINCE

	Well irrigated canal command area in proximity to urban centers	Well irrigated canal command area but not in proximity to urban centers	Former desert areas in the area defined by the canal area but not receiving irrigation from the canal	Former desert areas north of the Boghra canal
Landholdings	5-10 jeribs (1-2 ha)	5-20 jeribs (1-4 ha)	5-10 jeribs (1-2 ha)	5-30 jeribs (1-6 ha)
Irrigation	Canal	Canal	Deep or shallow well or pump from drainage	Deep well
Cropping Pattern	High degree of crop diversification, including movement into off-season 'green' vegetables and perennials Alfalfa cultivation for livestock and sales to urban centers	Few signs of crop diversification; continued reliance on low risk low return crops (e.g. wheat, cotton, maize and mung bean) Alfalfa cultivation for livestock	Few signs of crop diversification; continued reliance on low-risk low-return crops (e.g. wheat, cotton, maize, mung bean) Alfalfa cultivation for livestock	Intensive opium poppy cultivation along with some wheat cultivation Alfalfa cultivation for livestock
Livestock	Dairy, cattle, and small ruminants	Dairy, cattle, and small ruminants	Limited numbers, largely small ruminants for consumption	Limited numbers, largely small ruminants for consumption
Non-farm income	Increase in non-farm income opportunities, particularly in trade and transport but also salaried employment in Lashkar Gah and Gereshk	Limited non-farm income opportunities. Trade and transport opportunities largely restricted to relatively wealthy ALP important source of local employment in rural areas Still some reliance on wage income from opium harvest in former desert lands and other parts of Helmand	Limited non-farm income opportunities. Trade and transport opportunities largely restricted to relatively wealthy ALP important source of local employment in rural areas Still some reliance on wage income from opium harvest in former desert lands and other parts of Helmand	Very few non-farm income opportunities; some trade in weekly markets or bazaars on Boghra canal
Opportunities for the land-poor and landless	Much fewer opportunities to sharecrop or lease land in the absence of opium poppy. Sharecropping arrangements 1/5 of	Much fewer opportunities to sharecrop or lease land in the absence of opium poppy Sharecropping arrangements 1/5 of	No opportunities to sharecrop or lease land in the absence of opium poppy and little demand to do so.	Many opportunities to sharecrop or lease land due to prevalence of opium poppy but smaller share of the final crop than when sharecropped in

	final crop as opposed to 1/3 when opium poppy was grown	final crop as opposed to 1/3 when opium poppy was grown		canal command area
Security	Improved since 2012; ANSF dominate with more limited role of Afghan Local Police (ALP) Since 2013 less complaints about predation of ALP	Improved since 2012 and further improvements with departure of international military forces Since 2013 less complaints about predation of ALP	Improved since 2012 Since 2013 less complaints about predation of ALP	Worsened in 2012 and 2013 with ANSF and NATO engagement in area Regular complaints about predation by ALP but now largely limited to actions within the canal command area
Development Assistance	Focus of heaviest investment; agricultural inputs as well as significant investments in physical and social infrastructure, including education and health	Some investment; agricultural inputs as well as physical and social infrastructure, including education and health	Limited investment, primarily agricultural inputs captured by rural elite	No development assistance
Poppy cultivation	None cultivated and little interest in returning to opium poppy cultivation	Small amounts cultivated (in particular behind walled compounds) Economic pressure to return to opium poppy cultivation	Economic pressure to return to opium poppy cultivation	Intensive poppy cultivation but small amounts of wheat being cultivated after two consecutive years of low opium yields
Example of area	Bolan, Qala Bost, Aqajan Kalay, Chanjir, Loy Bagh	Shin Kalay, Koshal Kalay, Marjah	Dashte Aynak, Dashte Shersherak,	Shurawak, Dashte Shin Kalay, Dashte Loy Manda, Dashte Koshal Kalay, Dashte Ab Pashak

Figure 18: CHANJIR DASHTE RESEARCH SITE (2008-2012)



6.13 As the footprint of international military forces and the ANSF extended into the rural areas along the Boghra canal in 2010 and 2011, and with it the ban on opium poppy cultivation, many farmers adapted to the change in circumstances. Whereas in the first year that a ban on opium was effectively imposed in an area, opium poppy was typically replaced by a low-return, low-risk cropping system that consisted of wheat in the fall, cotton, melon, and water melon in the spring, and maize and mung bean in the summer, subsequently a wide range of perennials began to appear in areas much farther away from Lashkar Gah. Farmers also invested in improved production techniques supported by donor-assisted programs and drawing on their own ingenuity. For example, there was rapid expansion in the number of polytunnels which could be seen across the canal command area in 2013, whereas in 2011 there had been some reluctance to invest in polytunnels for fear of intimidation by the Taliban (see Figure 19 which depicts the situation in this regard in Bolan in 2012). Farmers across central Helmand also adopted other new technologies as they became affordable—such as water pumps, generators, solar panels, and mobile phones—exploiting them not only to improve their quality of life but also their agricultural productivity.

Figure 19: POLY TUNNELS IN BOLAN, HELMAND CANAL COMMAND AREA (2012)



Source: Alcis.

6.14 Greater care has been given to crops that farmers have been growing for many years and hence are already familiar with, improving the yields and economic returns on traditional crops like melon, water melon, and even wheat. Such was the expansion in wheat production—and the improvements in security on the main highways—that people trading wheat in the bazaars of Lashkar Gah and Gereshk reported that as much as two-thirds of the wheat grain that they purchased in Helmand was sold to traders in provinces such as Kandahar, Kabul, or Ghazni. Those trading fruits and vegetables in the cities made similar claims, and reported that traders from Kabul and Ghazni were regular buyers in Helmand, whereas a few years ago security had significantly hampered trade both within Helmand and with other provinces.

6.15 The farmers who have seen improvements in their welfare over the last few years—combining complex and remunerative cropping systems with non-farm income from perhaps one, two, or even

three family members—have seen their capital grow; they have taken advantage of the increasing number of private schools and universities in Lashkar Gah and supplemented their children's education in public schools with the growing number of private courses that have become available. These farmers can still afford to get their sons married despite the high bride prices that persist even in the absence of opium poppy cultivation across much of the canal command area. They can also meet the high costs of private healthcare where they feel that the public system is deficient, sending family members to private medical practitioners in Lashkar Gah, Kandahar, and Quetta (in Pakistan). These are communities that have seen direct benefits from the investments in central Helmand and see little reason to return to opium poppy cultivation.

Zone 2: Well-irrigated Localities in the Canal Command Area but not Close to Urban Centers

6.16 There are, however, households that have well-irrigated land but have not seen the same welfare gains as those in the first agro-economic zone. This second zone is located in western Nad e Ali and across much of Marjah, a greater distance from the agricultural and labor markets of Lashkar Gah and Gereshk and the associated multiplier effect of the significant development investments that have been made in those cities. In this second zone there is not the same evidence of a move into annual and perennial horticulture that can be seen closer to the urban centers; nor are there the same opportunities for non-farm incomes. In this zone—where improved security has been accompanied by a ban on opium production but not matched by increasing economic opportunities—there is growing anger toward the government, and farmers express a nostalgia for the Taliban. Crops such as wheat, maize, cotton and mung bean persist (see Figure 20 depicting the Doh Bandi research site) despite falling prices, highlighting the absence of markets for higher-value production in these areas. Incomes have fallen dramatically as Table 6 shows.

Table 6: ILLUSTRATIVE GROSS INCOME ON 15 JERIBS IN ZONE 2 (PAKISTAN RUPEES)

	Jeribs	Yield	Price	Landowner	Tenant ⁸²	Sharecropper ⁸³
Wheat	8	190	150	228,000	156,000	45,600
Alfalfa	1	NA	NA	0	0	0
Cotton	6	170	220	224,400	224,400	44,880
Maize	4	180	105	75,600	75,600	15,120
Mungbean	4	160	260	166,400	166,400	33,280
Total Gross Income ⁸⁴				694,400	622,400	138,880
Total Gross income/person/day ⁸⁵				190.25	170.52	38.05

Source: Authors' calculations.

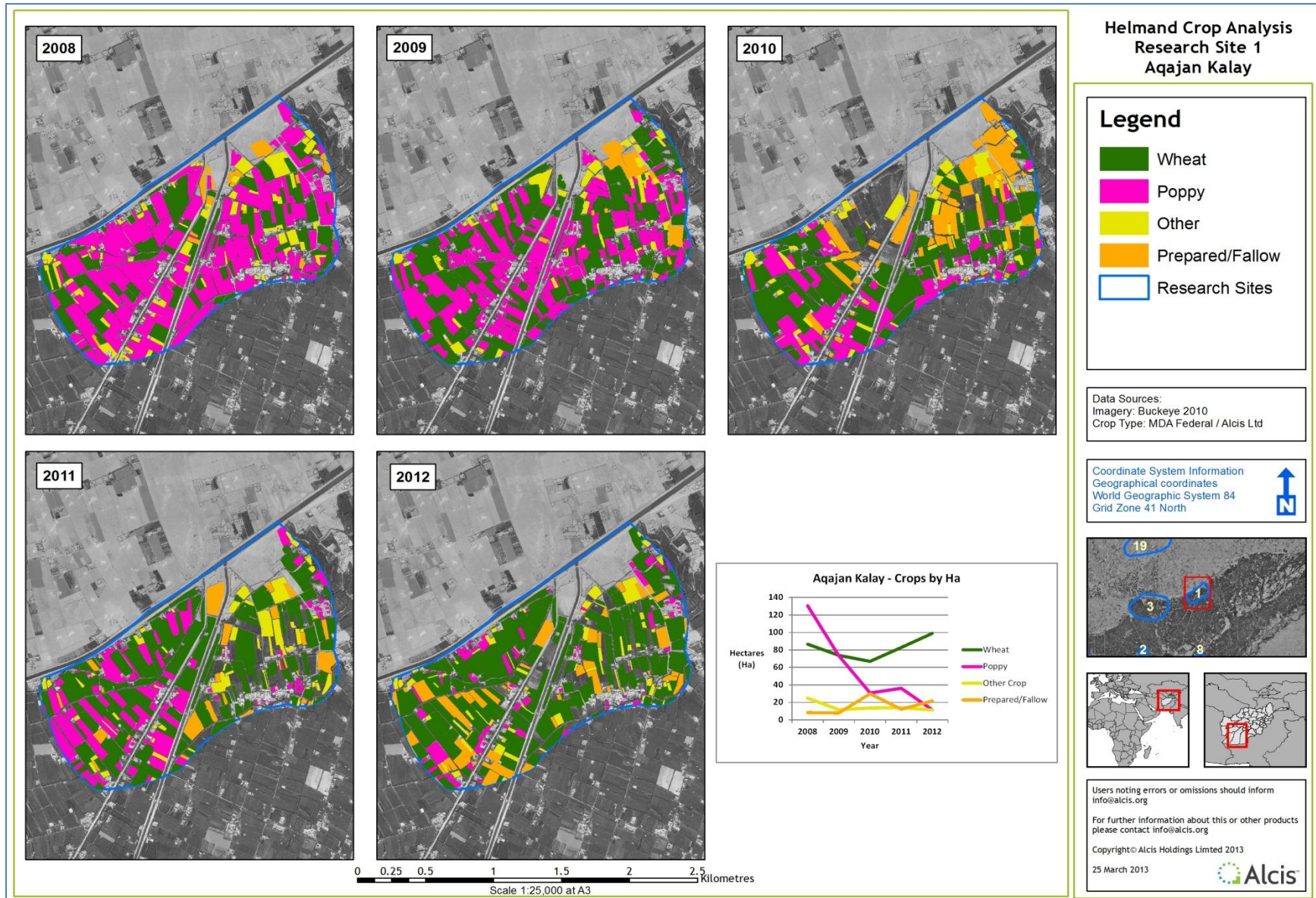
⁸² Tenant farmers in Marjah typically were paid 60-70 man of wheat per jerib in the 2012/13 growing season.

⁸³ Sharecropper receives one fifth of the final crop.

⁸⁴ This is simplified data for illustrative purposes; in reality farmers would look to retain sufficient wheat, maize, and mung bean for family consumption, make contributions to the local mullah (around 3% of the total crop), and keep some crop for seed for the subsequent season. It is also important to note that very few farmers in the canal command area would cultivate as much as 15 jeribs of land.

⁸⁵ This assumes a household of ten members, of which typically 2-3 are fully working members.

Figure 20: CHANGES IN CULTIVATION PATTERNS IN DOH BANDI, HELMAND (2008-2012)



6.17 Moreover, opium poppy maintains a foothold in the livelihoods even of those who appear to have abandoned the crop in recent years. First, farmers continue to test the water each year, cultivating small amounts of opium poppy and seeing how the government responds. Second, small amounts of opium poppy persist inside the compound walls of some farmers, in their gardens where fruits and vegetables are produced for household consumption.⁸⁶ Third, family members work on the opium crop of others, during the harvest in Bakwa in Farah, in Khanishin in Helmand, or in the former desert area north of the Boghra canal. This is also the zone where many of those who have migrated to the former desert areas north of the Boghra canal either had small amounts of land or were landless, leasing or sharecropping land until opium poppy was banned. The risk of a return to opium poppy cultivation in this zone is high, and low levels of cultivation only persist due to the coercive power of the state, in particular the efforts of the Afghan Local Police (ALP).

Zone 3: Former Desert Areas in the Canal Command Area but not Receiving Canal Irrigation

6.18 The third agro-economic zone is largely populated by households that have some (but limited) landholdings in non-irrigated parts of central Helmand (former uncultivated desert areas), which are geographically very close to the irrigated land in the canal command area but not having any access to surface irrigation. This is a population that has experienced the most significant losses in welfare due to the imposition of the opium ban under the Helmand Food Zone initiative.

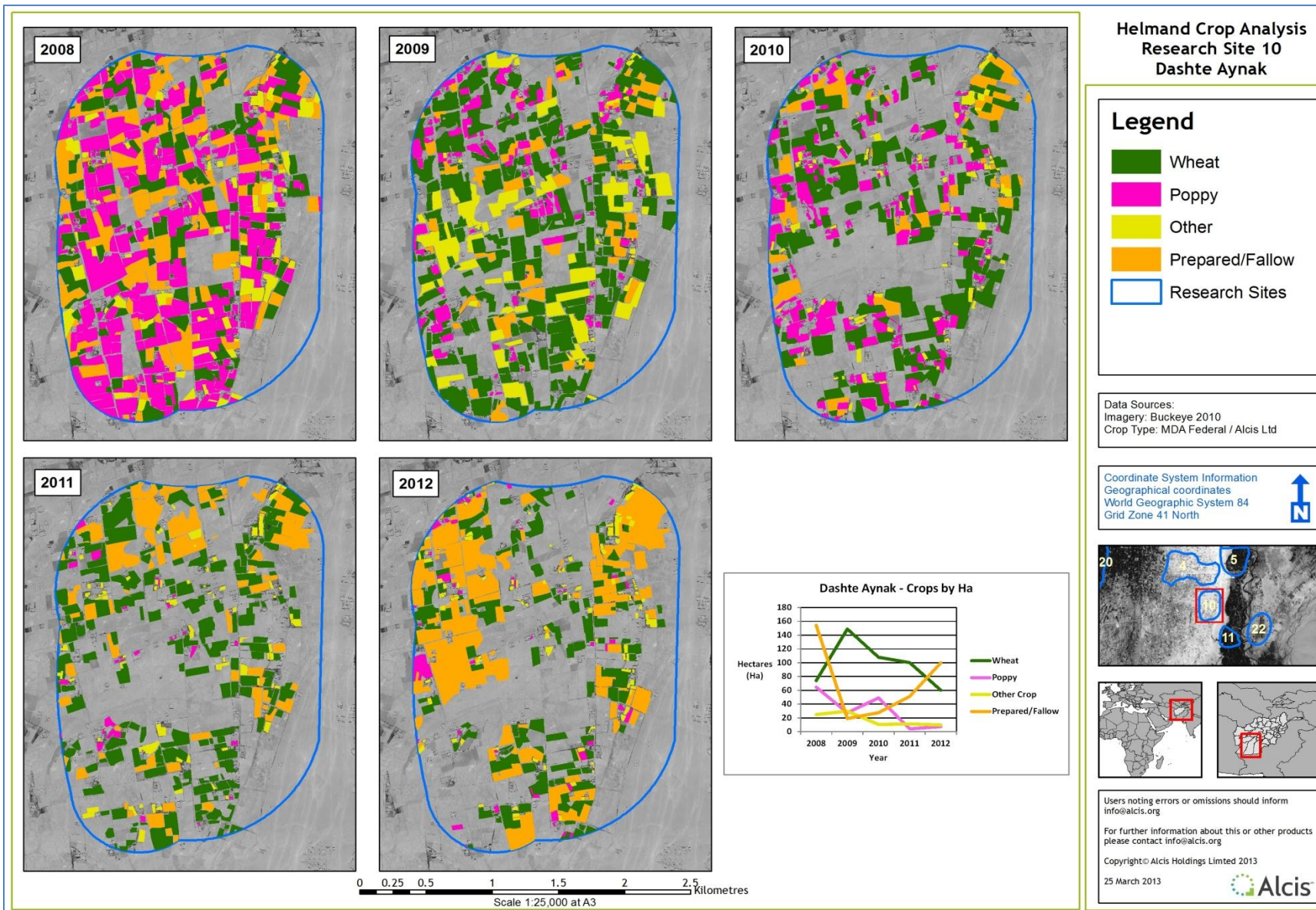
6.19 In the late 1990s and in the early years of the Karzai administration, this desert land was taken over without any legal authorization by political-military actors including those linked with former Governor Sher Mohammed Akhunzada (2002-2008). The commanders who initially appropriated the desert land took significant amounts of land for themselves before distributing some of it to their extended families and subordinates. Over time this land has been commoditized and sold, some of it having been sold a number of times since it was initially taken.

6.20 While the increase in the availability of land that this process of settlement has brought about has been welcomed by many farmers, particularly given the low price of land in these areas compared to prices for irrigated land in the canal command area, the benefits have been unevenly distributed and relatively short-lived. One of the primary challenges is that not being formally under the canal system means that this land requires irrigation by water pumps, shallow wells, or tubewells. The fixed costs required to initially bring this land under cultivation, as well as to build a household compound to reside in, and the costs of diesel each year, have meant that these areas are heavily dependent on high-value cash crop cultivation, most notably opium poppy.

6.21 Once farmers in these former desert lands in central Helmand were compelled to abandon opium poppy cultivation under the Helmand Food Zone initiative, they dramatically reduced the amount of land devoted to agricultural production (of any kind) in these areas during the winter growing season, and there have been few crops cultivated at all during the summer season. Figure 21 shows the changes in cropping patterns during 2008-2012 for Dasht-e-Aynak, a typical example of these former desert areas in central Helmand. Thus the Helmand Food Zone initiative did not in any way offset the major adverse effects of sharp reductions in opium poppy cultivation on this socio-economic group. It is in these areas that the population are most hostile to the Afghan state and those who are seen as its foreign backers.

⁸⁶ Cultivating opium poppy within a walled compound is considered much less risky in areas where there is an effective opium ban, since for a variety of reasons (including in particular that the women of the household are there and are in seclusion from strangers) it is considered that security forces are unlikely to go into household compounds for the purpose of poppy eradication.

Figure 21: CHANGES IN CULTIVATION PATTERNS IN DASHT-E-AYNAK, HELMAND PROVINCE (2008-2012)



Zone 4: Former Desert Areas North of the Boghra Canal

6.22 The fourth agro-economic zone in central Helmand is the area north of the Boghra canal. The growth in the amount of land under agriculture in this area has been dramatic (see Figure 22). In 2002 the land north of the Boghra canal and south of Highway One was just desert, containing a few scattered communities that had arrived in the late 1990s trying to escape the drought in Washir. By 2013 there were around 35,500 hectares of agricultural land in this area—not isolated areas but contiguous cultivated fields stretching to the outskirts of Camp Bastion/Leatherneck and home to as many as 160,000 people.⁸⁷

6.23 The rapid expansion of land under cultivation in the former desert lands north of the Boghra canal, much of it under poppy (Figure 22), is a direct result of the imposition of a ban on opium production in the canal command area and the continued high price of opium. For the land-poor, the ban on opium poppy cultivation and the shift to less labor-intensive crops in the canal command area of central Helmand meant that they were no longer required by those that owned the land. Landowners could now farm their own land with family labor, and those without land who had relied on widespread opium poppy cultivation as a way of obtaining land and a place to live found themselves dispossessed. Absent sufficient jobs and development assistance (and with landless households the least likely to receive what assistance was available), these farmers had little choice but to settle new land to the north in former desert areas, build a home there, and bring the area under agricultural production. Buoyed by the relatively high price of opium—a result of its illegality and recent counter-narcotics efforts, these farmers have been able to purchase the land and technology required to bring the land under cultivation, or have used their skills as opium producers to gain access to land through sharecropping arrangements.

6.24 Figure 23 depicts changes in cultivation patterns at a research site north of the Boghra canal (Sna Jama). Though missing data for two of the five years reviewed, the figure brings out starkly how much more land was put under cultivation after 2008, and how dominant mono-cropping of opium poppy was in this kind of area by 2012.

⁸⁷ This estimate is based on a population density of 0.9 persons per jerib of cultivated land. Mansfield, “From Bad they made it worse: The concentration of opium poppy in areas of conflict in Helmand and Nangarhar” (AREU, Kabul, p. 54, June 2014), .

Figure 22: AGRICULTURAL EXPANSION NORTH OF BOGHRA CANAL, HELMAND PROVINCE (2002-2012)

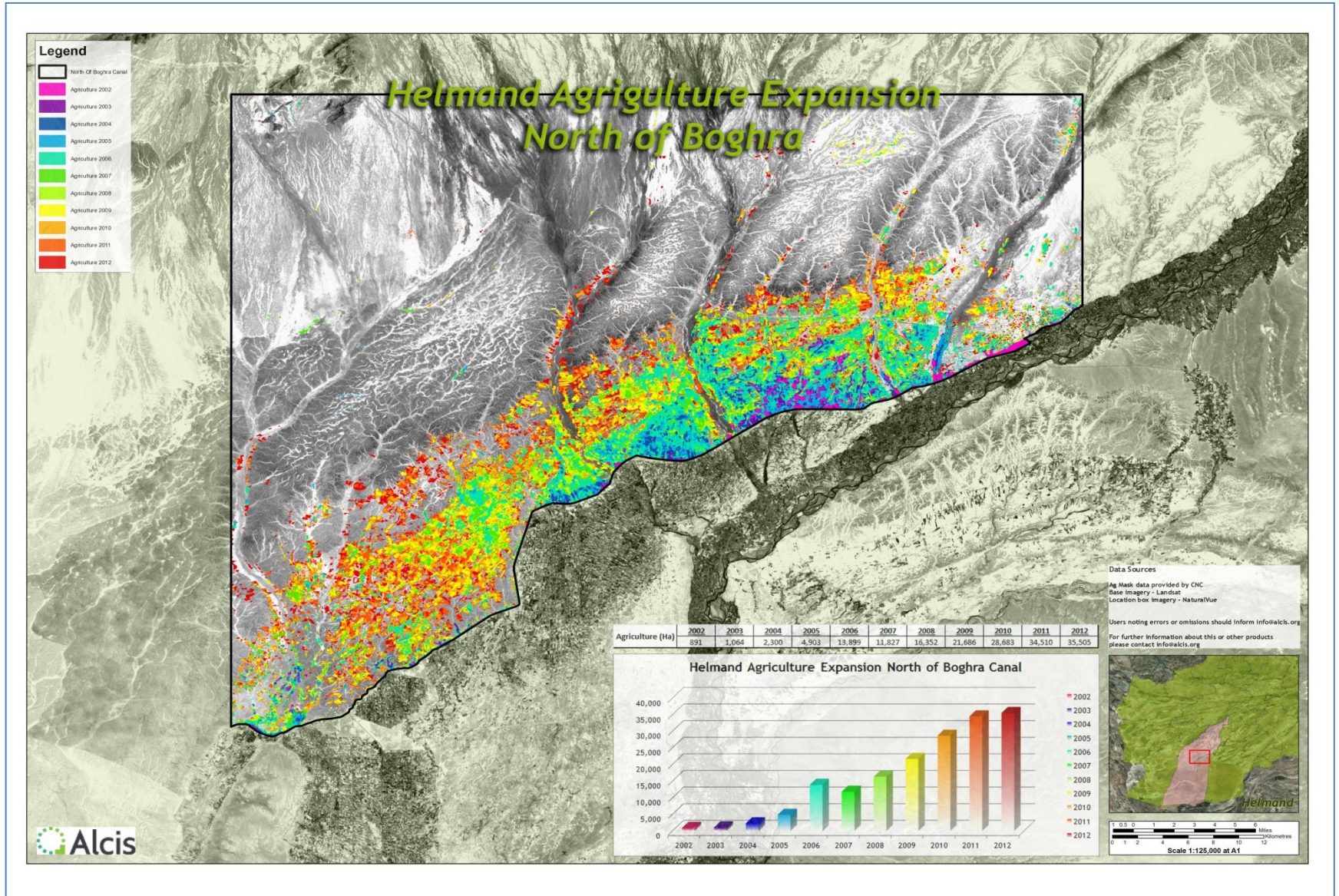
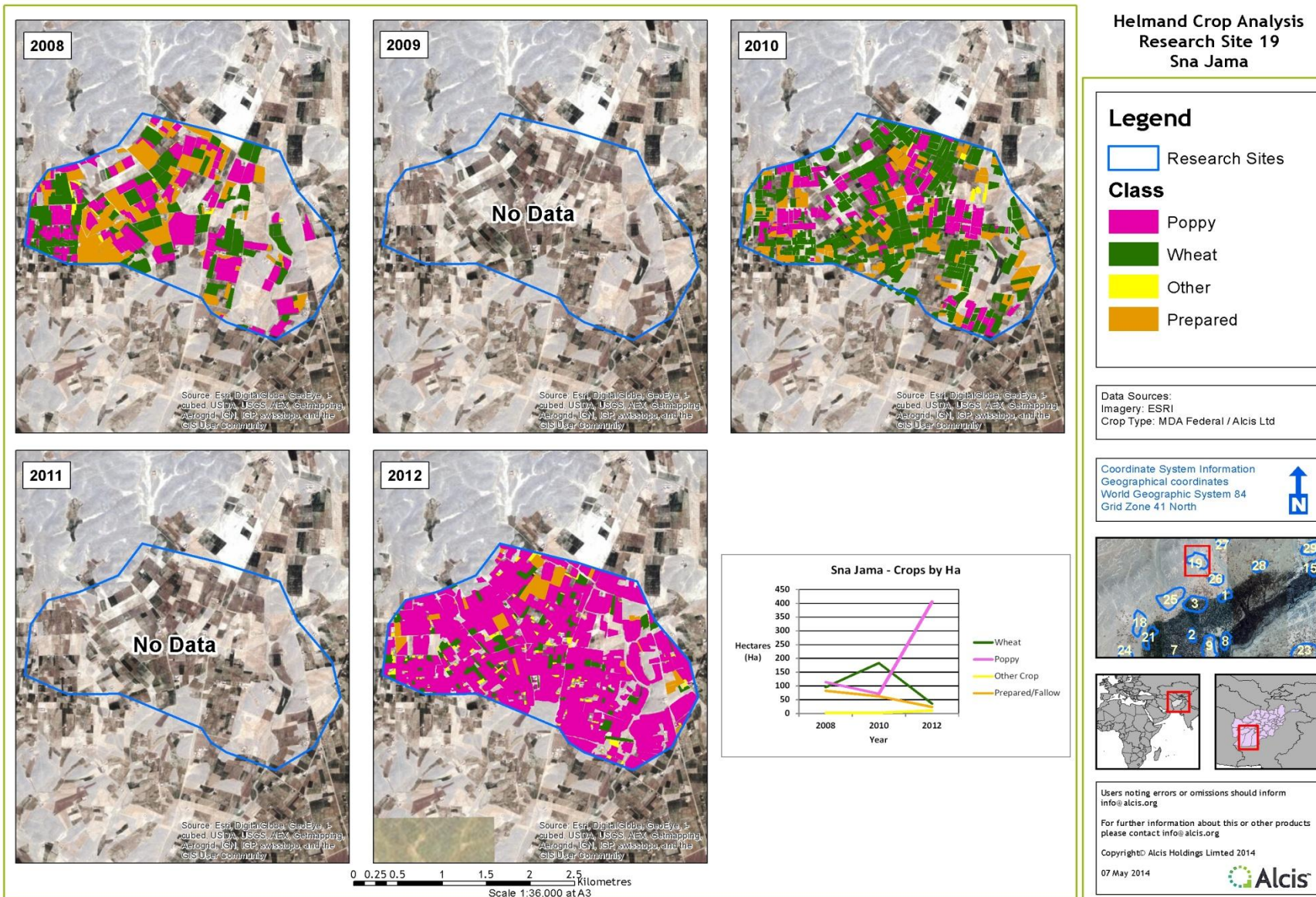


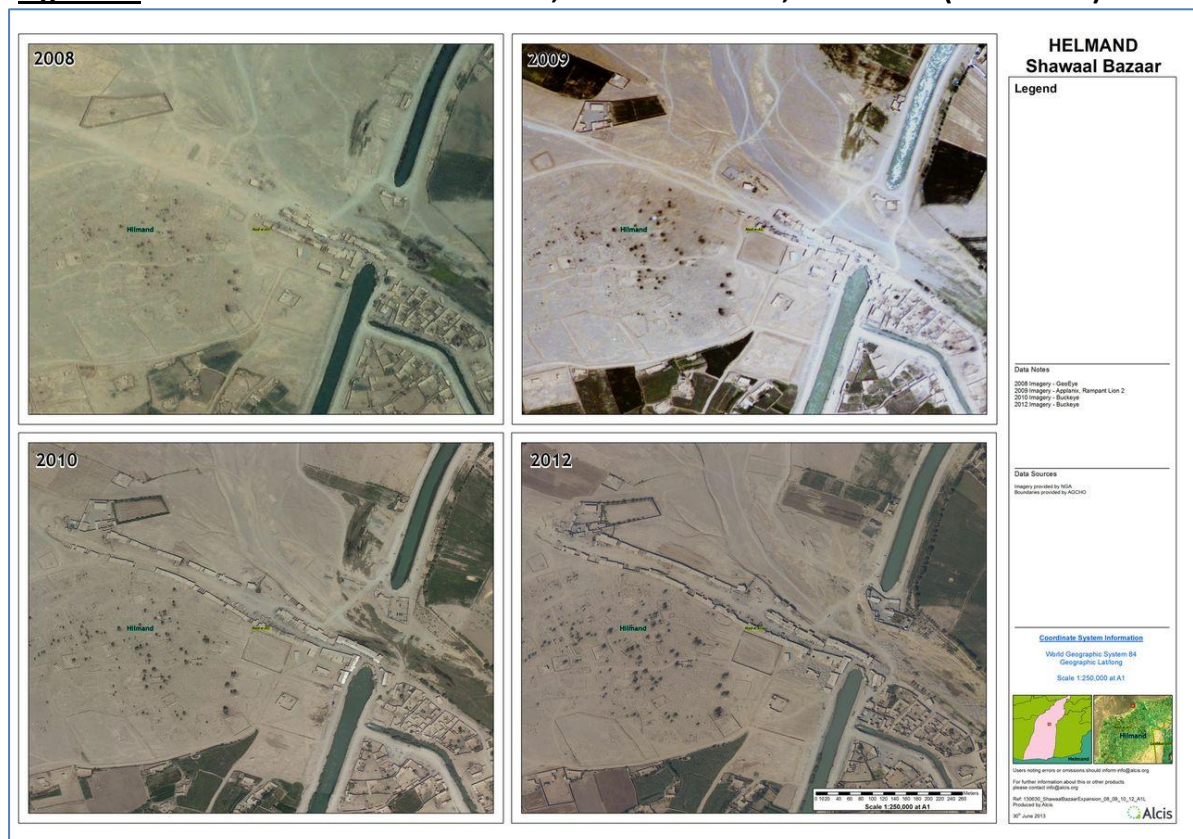
Figure 23: CHANGES IN CULTIVATION PATTERNS IN SNA JAMA, HELMAND PROVINCE (2008-2012)



6.25 While households living in the former desert land north of the Boghra canal have experienced dramatic reductions in income over the last two years due to poor opium yields, the last decade has actually been one where many saw their capital grow. Most came from the canal command area where they had no land and arrived in the desert with very few possessions. By 2013 most of these settlers had a home, some productive land, a motorbike, a generator, a solar panel for power, until very recently a relatively regular supply of dried meat, and fresh meat and fruit “once or twice a week”.

6.26 For those who came first and cleared the land it was hard work; they had no accommodation and had to clear and prepare the desert land for agricultural production. As time has passed life has become a bit easier. The bazaars that sat astride the Boghra canal grew (see Figure 24) in response to the increasing amounts of disposable income being earned in the former desert land, and a growing number of weekly markets began to emerge in the desert itself. Transport also became more available as all but a few households earned enough money to purchase a motorbike, or perhaps a car, so that they could travel to Lashkar Gah, Kandahar, or even Quetta in order to get treatment for the sick, or to buy agricultural inputs and consumer durables.

Figure 24: GROWTH OF NAWAL BAZAAR, BOGHRA CANAL, NAD-E-ALI (2008-2012)



Source: Alcis.

6.27 In addition, farmers took up new technologies as they became affordable, which made farming in such a harsh terrain more manageable. Once drilling equipment, as well as cheap Chinese and Pakistani generators and water pumps, became more available in the cities of Lashkar Gah and Gereshk, farmers abandoned less reliable shallow wells for deep tubewells, and now have a more consistent source of irrigation water. They also began to use herbicides on their opium crops in order to better manage weeds and limit the demand on family labor, and have adopted solar technology, mobile phones, and motorized transport.

6.28 An order has also been established to the rather atomized communities that initially sprang up in this former desert space. Familial and tribal links, patronage networks, and the Taliban offered a structure that appealed to many who had fled what they saw as the more intrusive and inequitable governance that they had found in the canal command area of Helmand under the Karzai regime. In the absence of a government that the farmers north of the Boghra canal considered legitimate and capable of delivering improvements in their lives, they looked only for a system that offered them physical security, a way of resolving disputes that was somehow considered “fair”, and to be left alone to earn a livelihood in whatever way they saw fit, including through cultivation of opium poppy.

6.29 Despite the opportunities that life north of the canal offers, and the improvements that have been seen since the desert was first settled, it remains a tough life, and many still complain about the summer heat, the lack of shade, and perhaps surprising to some, the fact that there is no schooling for their children. Since 2012, the life of those north of the Boghra canal has become even harder due to the repeated incidence of disease that affected their opium crop for two consecutive years.

6.30 While most likely a consequence of poor agricultural practice—the extensive monocropping of opium poppy that has taken place since the 2010, and failure to rotate crops or rest the land—farmers’ widespread view was that disease and lower yields were the result of a concerted campaign of crop destruction launched by the Americans. The anger directed toward the government for the loss in income that farmers have experienced due to the poor 2013 harvest is extreme. There is little evidence of anything but contempt for the government among the population in this area, ranging from people who simply offered abuse and questioned the character of those in government, to others that expressed frustration and anger for what they felt was the government’s relentless pursuit of them and the threat that the authorities posed to their way of life.

6.31 In response to the recent economic downturn, most farmers talk of cutting back on meat and fruit and of having trouble meeting the immediate costs of health care. Some resolved their financial difficulties by selling their opium stocks, others by marrying off their daughters. The situation for households sharecropping land was even more challenging than for landowners. While many of those that rented or sharecropped land had contemplated moving in the immediate aftermath of the harvest, few appeared to have found land elsewhere. Many questioned where they could go without a return to widespread opium poppy in the canal command area of central Helmand, other than further into the desert. In fact, despite the obvious problems this area faces, the population north of the Boghra canal keeps growing; even as late as the fall of 2013 farmers were still arriving. Most simply reassured themselves that “a low yield of opium poppy is still better than wheat”—the option they saw for themselves in the canal command area—and just hoped that opium yields would be better in 2013/14.

6.32 Without anywhere else to go, most farmers simply reduced the amount of opium poppy they cultivated and returned to a cropping system that included some wheat, a practice that they had pursued before the dramatic rise in opium prices in the spring of 2010. Some farmers even left land fallow, hoping that it would recover if rested, and that better yields could be obtained in subsequent growing seasons. Others leased their land out or gave it to farmers to cultivate on a sharecropping basis and let them carry the risk of poor opium yields.

6.33 These were all rational responses designed to address uncertainty over poor opium yields and low farm-gate prices, while ensuring a level of food security. Although some may celebrate what is likely to be a lower level of opium poppy cultivation in the former desert areas north of the Boghra canal in 2014, the fundamental problem remains: what to do with

a burgeoning population in the desert spaces of southern Afghanistan, who on the whole see their lives as having improved, not because of the interventions of the Afghan government and the western donor community but despite them.

VII. CURRENT TRENDS, PROSPECTS, AND RECOMMENDATIONS

7.01 The picture presented in this study of Afghanistan’s opium economy inevitably is far from comprehensive, but it conveys the difficulty and complexity of the challenges. Clearly, the opium economy will be a significant part of the scene in Afghanistan for a long time to come, and nothing that realistically could be done on either the agriculture sector side or in terms of counter-narcotics will be able to bring about fundamental changes in the short run. Indeed, successful international experience with eliminating opium poppy cultivation demonstrates that it has taken decades not years for countries in a much better situation than Afghanistan to rid themselves of much smaller drug crop cultivation problems than that faced by Afghanistan.

7.02 On the other hand, Afghanistan’s experience demonstrates that it is possible to make sustainable progress in eliminating opium poppy cultivation in regions and localities where conditions are conducive for this to happen, and that agricultural investments can play a role in encouraging reductions in Afghanistan’s dependency on opium while simultaneously delivering improvements in the rural population’s well-being. Thus the situation is far from hopeless. However, in the coming environment of declining funding overall for Afghanistan, in which the agriculture sector even if prioritized in relative terms is unlikely to receive more funding than in the past in absolute terms, and with counter-narcotics resources likely to be quite limited as well, it is extremely important that available resources be deployed to maximum effect from both agricultural and counter-narcotics perspectives, as well as in the interest of broader poverty alleviation objectives.

7.03 This final chapter of the study first briefly discusses recent developments and the outlook for Afghanistan’s opium economy, as the political, security, and economic transition unfolds in the country. It then introduces the concept of “mainstreaming” the counter-narcotics dimension in agriculture sector strategy, programs and investments; briefly explores past experience with mainstreaming initiatives; and derives some lessons from experience. Then the close interrelations between the opium economy and the other main components of the Agriculture Sector Review are reviewed, highlighting where and how links need to be made as well as implications for policies and investments in these different areas. The study concludes by putting forward some broad principles and approaches as well as more concrete recommendations for injecting opium-sensitivity into the agriculture sector strategy and vice versa.

2013 Developments and Near-term Prospects⁸⁸

7.04 UNODC’s opium survey for 2013 paints a dire picture on first glance: Estimated opium poppy cultivation expanded by 36% and, at 209,000 hectares, set a new record, exceeding slightly the previous record of 193,000 ha in 2007. While estimated opium production, at 5,500 metric tons, is only the fourth-highest year recorded (well below the 2007 peak level of 7,400 metric tons), it rose steeply—by almost 50%—from 2012. And despite a modest reduction in opium prices, the volume of drug money—most of which goes to drug traffickers, their sponsors and associates inside and outside the government, and to warlords and the Taliban insurgency—also has risen sharply.

7.05 However, the temptation to see these developments in alarmist terms must be resisted. While the growth and spread of the opium economy in 2013 is concerning, it does not represent a fundamental change in the situation, and poorly thought out and misguided

⁸⁸ For more background on trends and prospects of the opium economy during Afghanistan’s transition, see Mansfield, David and Paul Fishstein, “Eyes Wide Shut: Counter-Narcotics in Transition”, Afghanistan Research and Evaluation Unit Briefing Paper Series, September 2013. Also see Byrd, William. “Afghanistan’s Bumper Opium Crop: Don’t Panic”, *Foreign Policy AfPak Channel*, 27 November 2013.

reactions would cause more harm than good and could turn out to be more problematic and destabilizing than the rise in opium cultivation and production itself.

7.06 Part of the increase in 2013, which was predicted and should not have come as a major surprise, can be attributed to the large year-to-year fluctuations that have always been the norm for Afghanistan's opium economy, especially since 2012 was a year of low yields and production. This reflects the importance of weather and other factors for Afghan agriculture more broadly, with a climate characterized by low and variable precipitation and little in the way of water conservancy investments to stabilize water supplies. Moreover, the 2013 figures are not grossly out of line with longer-term trends in opium cultivation and production (see Figures 5 and 6, respectively). In fact, estimated opium production in 2013 was exactly in line with trend (as projected based on 1995-2012 data). Although the cultivated area was somewhat higher (about 20%) than the 1995-2012 trend, this difference is similar to annual fluctuations seen in earlier years and smaller than some of them.

7.07 What 2013 does underline, however, is the resumption of continuing growth of Afghanistan's opium economy following temporary and unsustainable reductions in poppy cultivation and opium production in the years following the 2007 peak. This is not surprising, as factors which supported those reductions have been dissipating.

7.08 First, the withdrawal of U.S. and other international military forces, especially from key opium-producing provinces like Helmand, Kandahar, and Nangarhar, has been weakening the overall security presence and associated pressure to reduce poppy cultivation. This has been particularly evident in more remote areas where the Afghan National Army is not able to maintain the level of activities carried out previously by international military forces. Even though international troops were not directly involved in the eradication of poppy fields, their presence provided a security umbrella for counter-narcotics activities and was also used by Afghan officials as a threat against local leaders and farmers to dissuade them from cultivating opium poppy.

7.09 Second, domestic political and other trends in Afghanistan have weakened the ability to contain, let alone curtail, the opium economy. The 2014-2015 election cycle understandably is distracting from drug issues and also leading to avoidance of politically sensitive counter-narcotics actions; in some provinces, the political equation that enabled governors to pursue efforts to coerce farmers not to plant poppy has broken down; there has been some recovery of opium yields from unusually low levels in 2012; and prices for opium remain relatively high despite modest reductions.

7.10 Third, concomitant with foreign troop withdrawals and reductions in international funding, the political leverage to press for counter-narcotics actions is declining. Moreover, the long time-frame required to achieve sustained reductions in opium poppy cultivation and reduce the deleterious effects of the opium economy in Afghanistan means that this agenda almost inevitably is being eclipsed by more pressing short-term priorities associated with managing transition. The drugs issue has become distinctly secondary on the list of political priorities for the United States and other international partners.

7.11 Fourth, there is a growing perception in rural areas that the scale of the development effort is being sharply reduced and will continue to decline due to lack of international funding. This is seen by farmers as evidence of the retrenchment of the Afghan state and a signal that assistance for livelihood diversification in support of reductions in opium poppy cultivation will not be forthcoming in the future.

7.12 These recent trends, which are expected to continue in the future, demonstrate that the counter-narcotics policies implemented during the past decade, reliant as they were on temporary factors and, as in the case of the Helmand Food Zone initiative discussed in

Chapter VI, endeavoring to a large extent to replace opium with wheat (a low-value, relatively low labor-intensity crop with no export prospects), were not sustainable. Moreover, the suppression of poppy cultivation in core growing areas, such as the canal area of central Helmand, precipitated a shift of displaced poorer farmers and poppy cultivation to new areas, leading to the further spread and entrenchment of opium.

7.13 Even though predictable and occurring for understandable reasons, the adverse impacts of recent developments should not be minimized, including:

- Continuing Afghanistan’s overall economic dependence on opium and associated problems;
- The resurgence of poppy cultivation in some provinces where it had been largely eliminated, and its spread to and entrenchment in new former desert areas (developed with tubewell irrigation that is financially viable only with opium);
- The associated erosion of governance and rule of law;
- Benefits and support that drug money provides to a variety of criminal and anti-state actors;
- The likely use of drug money for political financing, including in the current presidential and provincial council elections, as well as in the 2015 parliamentary elections;
- The local deals and settlements likely to be occurring between members of the Afghan National Security Forces and communities involved in drug crop cultivation; and
- Worrisomely high levels of problem drug use in Afghanistan.

7.14 However, there are also some mitigating factors that need to be kept in mind:

- Except briefly during the Taliban ban in 2000/2001, opium has been a large part of the economy in Afghanistan since the 1990s (in fact it is considerably smaller as a share of GDP now than in earlier years due to rapid growth of the rest of the Afghan economy), so recent developments are nothing new and are unlikely to prove destabilizing;
- Opium provides hundreds of millions of dollars annually in income for Afghanistan’s farmers, as well as injecting large amounts of money more generally into the economy, even as aid and international military expenditures are declining;
- There are fairly low levels of drug-related violence in Afghanistan, considering the size of the opium economy—it does occur, but nowhere near to the extent seen in Latin American “drug wars”; and
- Overall, drugs seem to have become, to a considerable extent, integrated in Afghanistan, and while this results in serious problems as noted earlier, it also means that the opium economy in and of itself is unlikely to be a critical factor derailing transition, but rather a longer-term problem for the country’s development.

7.15 In any case, as seen from the discussion in Chapter IV, knee-jerk reactions and ill thought-out actions against the illicit narcotics trade in Afghanistan will be counterproductive. Whether aerial spraying or massive eradication of the opium crop at one extreme, or attempts to institute licensed opium production for legal pharmaceuticals at the other extreme, there are no “silver bullets.” These options as well as other simplistic solutions are not implementable or sustainable, and will make the situation worse.

Mainstreaming: Rationale, History, Lessons, Options

7.16 The close linkages between the opium economy and the rest of Afghanistan’s agricultural sector, as well as more generally opium’s linkages with other aspects of Afghanistan’s development (state-building, security, governance, public health, etc.), have been evident to analysts and practitioners for some time, and have given rise to initiatives to

“mainstream” the counter-narcotics dimension in development programs. On the counter-narcotics side, there has been widespread recognition from global experience that fragmented, one-off “alternative livelihoods” projects have not led to sustained reductions in illicit narcotics cultivation (see Chapter IV). A review of the rationales for mainstreaming, the history of mainstreaming efforts, and lessons learned will help inform future policy thinking and programming in this regard.

7.17 The rationales for mainstreaming perhaps can best be understood by looking at the resulting risks and costs if linkages with the opium economy are ignored in developing an agriculture sector strategy and related policies and investments. The risks associated with neglecting the counter-narcotics dimension in agriculture sector strategy are three-fold:

- (1) The risk that ignoring the opium economy and not factoring it into sectoral and macro analysis leads to a distorted understanding of what is happening in the agricultural sector and in the wider economy, and hence potentially to inappropriate policy recommendations.
- (2) The risk that agriculture sector programs and investments inadvertently encourage or at least enable further expansion of opium poppy cultivation—exacerbating the upward trend that is already evident; this in turn would worsen drug-related problems for Afghanistan, and not least carry reputational risks for the Afghan government and international partners, potentially undermining the justification for continuing large aid flows to Afghanistan.
- (3) The risk that not factoring the opium economy into the equation results in agriculture sector programs and investments not achieving their intended objectives, reducing the expected economic returns, marginalizing sections of the rural population, or perhaps even becoming counterproductive from an agricultural development perspective.

7.18 In addition to these negative, risk-related considerations, there is also a much more positive dimension to mainstreaming, providing a further rationale:

- (4) Beyond the risks and risk mitigation, there are significant potential benefits from agriculture sector investments in terms of reducing rural households’ dependence on opium and thereby supporting longer-term counter-narcotics objectives; mainstreaming is necessary for realizing and maximizing these potential benefits.

7.19 In view of these considerations, concrete thinking and design work on mainstreaming started in earnest within a few years after the 2001 international intervention in Afghanistan. During 2003-2004 initial work conducted by the World Bank developed the concept of and justification for mainstreaming, and began to apply it to selected national development programs.⁸⁹ The rationale for mainstreaming articulated in this early work was as follows:

- Afghanistan’s National Drugs Control Strategy (NDCS) implies a multi-pronged approach involving governance, institutions, education, and economic development, to create over time a climate of mutual responsibility between state and citizens; economic growth will in the long run remove the necessity to engage in opium poppy cultivation; and judicial reform and law enforcement will progressively tackle criminal elements.

⁸⁹ This initial work is laid out in Ward, Christopher and William Byrd, “Afghanistan’s Opium Drug Economy” (World Bank *South Asia Region PREM Working Paper Series*, Report No. SASPR-5, December 2004), specifically in Annex 8 (“Mainstreaming” Counter-Narcotics Strategy [in] Development Operations”, pp. 114-126).

- In view of the sheer size of the opium problem, national development is consistent with reducing Afghanistan's dependence on the illicit drugs economy, and vice versa.
- Isolated "alternative livelihoods" project interventions are inadequate to deal with the problem of illicit narcotics cultivation in a situation like that faced by Afghanistan (see Chapter IV).
- Mainstreaming is therefore the most practical approach, and would address how various development activities would help address the opium problem in Afghanistan.

7.20 This initial work also reviewed a number of national development programs⁹⁰ from a counter-narcotics mainstreaming perspective, based on a simple methodology that identified the interfaces between the program concerned and the opium economy and possible contributions the program could make to the NDCS; explored a series of possible entry points for mainstreaming; and on the basis of the review ascertained the feasibility, benefits, costs, and risks of mainstreaming.

7.21 These early efforts provoked some wider interest in the Government of Afghanistan (e.g. in the Ministry of Rural Rehabilitation and Development) as well as in other multilateral agencies, most notably the Asian Development Bank and European Commission. These two organizations separately commissioned analytical work on mainstreaming.⁹¹

7.22 The culmination of this flurry of work on mainstreaming was the Operational Guideline issued by the World Bank in 2007, titled *Treating the Opium Problem in World Bank Operations in Afghanistan: Guideline Note* (transmitted to the World Bank Afghanistan Country Team by the Bank's Country Director for Afghanistan, Bhutan, and Maldives). This Guideline Note (without its Annexes)⁹² has been included as Annex 1 of this paper. In addition to providing some background on the opium economy, the variety of farmers involved, the linkages to development, and possible development responses to counterbalance the advantages of opium for the rural economy, the Guideline Note put forward a World Bank "working approach" to the opium problem, including:

- Factoring considerations of the opium problem into analysis and dialogue at all levels;
- Supporting and engaging in analytical work on the development dimensions of the drug problem in Afghanistan;
- Helping support development elements of the government's strategy through Bank-financed programs as appropriate; and
- Ensuring that the activities supported by the Bank do not inadvertently contribute in any way to the opium economy.

7.23 The Guideline Note instituted a counter-narcotics "screening process" for World Bank-supported activities in Afghanistan, to demonstrate to what extent the activity

⁹⁰ These included World Bank funded projects / activities supporting the following national development programs: Education (Education Quality Improvement Program, Policy Note on Skills Development); Health and Nutrition (Health Sector Emergency Reconstruction and Development Project); Livelihoods and Social Protection (Emergency National Solidarity Project, National Emergency Employment Program for Rural Access, Microfinance Investment and Support Facility for Afghanistan); and Natural Resources (Emergency Irrigation Rehabilitation Project). See Ward and Byrd, "Afghanistan's Opium Drug Economy", Annex 8, pp. 117-122. The methodology used is outlined in Box A1, p. 116.

⁹¹ See Mansfield, David, "Counter-Narcotics Mainstreaming in ADB's Activities in Afghanistan, 2002-2006 (January 2007) and "Development in a Drugs Environment: Mainstreaming and a Strategic Approach to 'Alternative Development'".

⁹² The four Annexes to the Guideline Note included illustrative mainstreaming reviews for (1) the Emergency Horticulture and Livestock Project; (2) the Emergency Irrigation Rehabilitation Project; (3) the Education Quality Improvement Project; and (4) the Health Sector Emergency Reconstruction and Development Project.

concerned (1) contributes to the governance agenda; (2) maximizes synergies to deliver broader livelihoods impacts at the community and household levels; (3) maximizes specific counter-narcotics impacts by geographical area coverage and by addressing poorer target groups, with components which strengthen and diversify legal livelihoods; (4) identifies risks and develops an approach to ensure that Bank support “does no harm” and does not create risks to the Bank’s reputation; and (5) contains a monitoring and reporting capability that can effectively track outcomes related to the opium economy. An eight-point checklist of questions was provided to inform the screening process, with the Operations Advisor for Afghanistan assigned responsibility for guiding task teams. The Guideline Note concluded that “‘Opium compliance’ will form one aspect of the review of readiness [of projects and other activities] for entry to the program” (see Annex 1).

7.24 Subsequently, though not directly associated with the earlier mainstreaming initiative, The UK Department for International Development (DFID) and the World Bank collaborated in preparing a major joint report *Afghanistan: Economic Incentives and Development Initiatives to Reduce Opium Production* (February 2008). This report embodied the principles of mainstreaming at the strategic and sector level, and put forward a proposed set of development programs and investments intended to support rural development and reduce Afghanistan’s dependency on opium poppy cultivation over time.

7.25 However, in the end the mainstreaming initiative did not really take off, and the initial progress made could not be sustained. Nor did the World Bank-DFID joint report have the intended impacts on rural development priorities and interventions. Part of the reason is that not too long thereafter, the “surge” of US and other international troops accompanied by a “tsunami” of aid came to dominate the landscape, and both agriculture / rural development and to some extent counter-narcotics tended to become subordinated to the dominant ethos of the counter-insurgency campaign, serving the latter’s generally short-term oriented objectives.⁹³

7.26 Moreover, following 2007 significant reductions in opium poppy cultivation were achieved and the number of “poppy-free” provinces was significantly increased, which may have led to some degree of complacency that systematic mainstreaming would not be required. However, recent trends confirm that to a large extent, the reductions in opium cultivation and productions achieved during 2008-2011 were temporary and unsustainable in many parts of the country.

7.27 Related, and combined with continuing rapid overall economic growth and burgeoning financial inflows of international military expenditures and aid, the relative importance of the opium economy in terms of macroeconomic aggregates has been shrinking—whether in terms of ratio to GDP, in relation to other financial inflows supporting the balance of payments, or relative to other sources of funding for corruption and patronage.

7.28 This in turn led to a perception in some quarters that the opium problem was, at least compared to other priorities, somewhat marginal, and hence that a serious effort at mainstreaming would not be justified. This kind of response at least superficially may have seemed more plausible when the opium economy (at border prices) shrank to the equivalent to 10-15% of GDP, as compared to 25-40% in the early post-2001 years.

7.29 In addition to these context- and period-specific factors, risk aversion and inertia in development agencies may also have played a role in the lack of progress with

⁹³ On a different but related topic, the distortionary and damaging effects of subordinating development aid to serve short-run stabilization objectives of the counter-insurgency campaign have been documented in Fishstein, Paul and Andrew Wilder, *Winning Hearts and Minds? Examining the Relationship between Aid and Security in Afghanistan* (Feinstein International Center, Tufts University, January 2012).

mainstreaming. This was juxtaposed with counter-narcotics agencies (both Afghan government and international partners) striving to carve out space and funding for “alternative livelihoods” projects not necessarily embodying a development orientation or longer-term sustainability perspective. The result has been a gap between development and counter-narcotics entities that could not easily be breached.

7.30 The initial design of counter-narcotics mainstreaming, with its focus on the level of individual projects and its emphasis on “screening”, may have given rise to a perception of mainstreaming as a kind of “safeguards” exercise, added to the numerous other safeguards program staff in development agencies already have to deal with, but without being convincingly justified at the level of sector strategy and nor at the macro level. Such a perception may well have discouraged operationalization of mainstreaming.

7.31 Finally, beyond the initial analytical work and project reviews in developing the mainstreaming concept, lack of expertise and resources for mainstreaming work on a continuing basis may have been a factor in its not being taken forward. Sector and project staff could not be expected to have the necessary familiarity with the opium economy and its linkages to development, so without outside expertise deployed it would have been very difficult for them to carry this forward on their own.

7.32 From a more positive perspective, lessons for the future from the experience with counter-narcotics mainstreaming in Afghanistan include the following:

7.33 It is essential that integration of the opium dimension in development initiatives occur first at the strategic level. In the absence of strategic integration of the opium economy in agriculture sector strategy and in other relevant sector strategies, trying to mainstream counter-narcotics at the level of individual programs and investments will inevitably be an uphill battle and will face resistance. Moreover, there also needs to be a clear understanding of the importance of the opium economy and its implications at the broader macro level, to inform and justify including it in sector strategies. This study is intended to provide an initial foundation and start in this regard.

7.34 Just as isolated counter-narcotics focused projects cannot address the opium problem, the same is true of individual development programs and projects. It is the synergistic combination of different interventions that will make a difference, which mainstreaming at the individual project level cannot easily capture. Thus there needs to be linkage of the opium dimension not so much to individual projects as to clusters of complementary interventions that can in combination both further agricultural development objectives and support progress on the counter-narcotics front. In this regard, integrating the opium dimension into development through an area-based approach rather than at the individual project level should be considered.

7.35 As noted earlier, mainstreaming the counter-narcotics dimension in agriculture and rural development is unlikely to work if it is primarily seen as a “safeguard” exercise, imposing yet another burden on already overburdened project staff, and running the risk of degenerating into a bureaucratic “checking the box” process. Although implementation of mainstreaming in the past did not reach the point where this danger actually materialized, fears in this regard may have been somewhat understandable in view of the way mainstreaming was presented. So any future initiative in this regard should move away from a safeguards-like approach (although that may be necessary sometimes, for example in the case of large irrigation projects), and instead emphasize positive synergies, bring different forms of expertise to bear, and take a practical, solutions-oriented approach.

7.36 Mainstreaming should not become a justification for excess caution and risk avoidance; Afghanistan is a challenging and risky environment for almost any kind of

internationally-supported program or investment, and informed risk-taking is essential, not risk avoidance. For example, the risk that newly-irrigated land will be allocated by Afghan farmers at least in part to opium poppy cultivation is very real, but that does not mean no irrigation projects should be undertaken. On the contrary, irrigation is an essential prerequisite for moving Afghanistan away from dependence on opium poppy cultivation over the longer term.

7.37 Finally, declining international financial assistance for Afghanistan means that effective utilization of the much more limited resources remaining will be critical—it will no longer be possible just to “throw money” at problems like illicit drug production. Mainstreaming thus will become all the more important as an instrument to enhance the effectiveness of development programs from both agriculture sector and counter-narcotics perspectives.

Key Linkages between Opium/Counter-Narcotics and Agriculture Sector Strategy

7.38 This section, benefiting from the availability of other papers prepared for the Agricultural Sector Review,⁹⁴ explores key linkages between the opium economy and the other main components of the agricultural sector, including wheat, horticulture, livestock, irrigation, and roads.⁹⁵ The papers for the wheat, horticulture, and livestock subsectors do not discuss the implications of strategies and programs in their spheres for the opium economy and counter-narcotics outcomes (nor vice versa). This study, and the discussion in this section in particular, is intended to help fill this gap. A detailed review of counter-narcotics issues in relation to the various agricultural subsectors is provided in Annex 2, based on which the following general themes emerge.

7.39 First, in line with the discussion in the previous section, there are both risks from not taking the opium dimension into account in formulating recommendations for these different components of agriculture sector strategy, and also some positive benefits that can be realized by factoring opium into the equation.

7.40 Second, and related, different subsectors carry different risks and potential benefits. In the case of wheat, the risks associated with expansion of wheat area include loss of opportunities and likely displacement of land-poor and landless farmers who had been cultivating more labor-intensive crops (particularly opium poppy) on a sharecropping basis and/or had provided wage labor for poppy cultivation, and their relocation to other, less favorable environments where they become even more dependent on poppy. Measures to increase wheat yields without expanding the wheat area are less dangerous, and may help poorer households achieve greater food self-sufficiency, but they may also enable landowners who have already achieved self-sufficiency to reduce the area of wheat on their land and instead potentially cultivate opium poppy among other crops. And the benefits of expanding wheat cultivation from both agricultural and counter-narcotics perspectives appear limited. Thus risk mitigation in the case of wheat would call for not supporting shifts from other crops to wheat, and for any efforts to increase wheat yields to be complemented by other initiatives rather than being seen as comprising a solution in their own right.

⁹⁴ These include *Benchmarking Wheat Production and Marketing in Afghanistan against Regional Producers: Competitiveness, Productivity Growth, and Future Prospects for the Sector* (Revised Draft, 19 October 2013); *Afghanistan Agriculture Sector Review: Livestock Sub-Sector Evaluation* (Draft, 12 January 2014); and *Afghanistan Agriculture Sector Review: Horticulture Sector Review* (Version 6, 13 March 2014). A fourth paper *Agriculture Sector Review: Agricultural Extension Services*, first draft, March 2014) has been consulted in the preparation of this study but is not included as a separate component here since extension is a cross-cutting topic applying to the other components.

⁹⁵ There are no papers prepared for the Agriculture Sector Review on the last two of these components (irrigation and roads), but they are both extremely important and are referred to in some of the existing papers.

7.41 The balance of risks and benefits is much more positive in the case of livestock and also to a slightly lesser extent for horticulture. Irrigation investments carry high risks but are essential for future agricultural development, and roads are similar but with somewhat lesser risks. For all agricultural subsectors, risks need to be managed and potential counter-narcotics opportunities exploited.

7.42 Third, it is the combination of interventions, not support provided to any individual subsector in isolation, which will make the difference—both for agricultural development and for counter-narcotics outcomes. For example, irrigation investments need to be combined in particular with support to horticulture development in order to achieve intended outcomes, and road investments similarly need to be complemented by support to other subsectors; otherwise the risk of adverse counter-narcotics outcomes may well more than offset the benefits.

7.43 Fourth, in this regard it must also be kept in mind that appropriate and sensibly applied counter-narcotics measures comprise an important element of the package of interventions. In particular, effective opium bans (not large-scale eradication but pressure / coercion for farmers not to plant poppy in the first place) in localities where conditions are present for the rural population to transition away from opium, will be necessary to stop and prevent opportunistic poppy cultivation by farmers who have viable alternatives but refuse to take them up. On the other hand, imposing such bans, and/or large-scale eradication of poppy fields, in areas where conditions are not yet in place (and in particular where the only alternative available is a wheat-dominated cropping system) would be highly counterproductive, as is amply demonstrated by Afghanistan's experience.

7.44 Fifth, a pro-poor approach, targeting land-poor and landless rural households where poverty in rural Afghanistan tends to be concentrated, makes the most sense in general from the perspectives of agricultural development, counter-narcotics outcomes, and poverty reduction. For example, livestock interventions targeted at poorer rural households can help reduce their dependency on the opium economy while also furthering agricultural development and alleviating poverty. Where pre-project analysis indicates that the main beneficiaries will be others—most notably sizable landowners—and it is nevertheless decided to take the intervention forward, it would be important to design in features and complementary interventions to balance the potential adverse poverty (and counter-narcotics) impacts.

7.45 Sixth, complementing support for the agriculture sector with non-agricultural interventions that promote non-farm income opportunities makes sense. The successful experiences of areas that have definitively moved away from dependence on opium poppy cultivation on a sustainable basis (e.g. the lower-lying parts of Nangarhar Province) demonstrate the importance of a range of non-farm income opportunities in enabling households not only to survive the transition away from opium but to thrive in a poppy-free environment.

7.46 Seventh, in all components of the agriculture sector strategy, monitoring and evaluation of counter-narcotics as well as agricultural outcomes comprises an essential component of learning and ultimate success. For example, land-use following expansion of irrigated area by means of sizable irrigation investments needs to be monitored, including not only whether there is cultivation of opium poppy but what other crops are being established, in particular wheat and other staples versus different horticultural crops. High-resolution commercial imagery can play a useful role in this regard, as exemplified by some of the Figures in this study. More comprehensive area-based evaluations also are called for as a means of assessing the results achieved by a group of interventions in a particular area or locality

7.47 Turning to the five components of agriculture sector strategy covered in Annex 2, key findings in summary include the following:

7.48 For **wheat**, as emphasized earlier the balance of risks and potential benefits is relatively unfavorable, so in general wheat should not be prioritized, although yield increasing interventions are less dangerous than shifting land from other (often more labor-intensive and more high-value) crops to wheat. The main risk associated with the latter is the loss of access to land, immiseration, and displacement of land-poor and landless rural households, many of whom may be forced to cultivate more poppy on their remaining land, or to move elsewhere and engage in opium poppy cultivation. This has occurred in the case of two past interventions favoring wheat—the Nangarhar opium bans as they played out in the more remote areas without better alternatives, and more recently the Helmand Food Zone initiative (see Chapters V and VI). Where substantial new land is being brought under cultivation, some of that land will likely be devoted to wheat cultivation (as part of households' livelihoods strategies to promote food self-sufficiency and minimize risks). However, the proportion of new irrigated land cultivated with wheat is likely to be relatively small, and if turns out to be very large, that would be a sign that the crop mix is suboptimal in relation to of Afghanistan's resource endowment characterized by scarce water and irrigated land but abundant rural labor supply.⁹⁶

7.49 For **horticulture**, there are risks associated with interventions but the potential benefits are very high in terms of both agricultural and counter-narcotics outcomes. One risk is that some horticultural crops can be cultivated as part of a cropping system including opium poppy (through good-practice crop rotation and/or where there are two growing seasons each year); hence their development may synergize with rather than compete with poppy. Another risk is the opposite one that targeted perennial and annual horticultural crops that compete with opium poppy are unable to do so successfully due to poppy's multiple roles and advantages as discussed in Chapter III, resulting in limited uptake of the targeted horticultural crops. Prioritizing development of perennial horticultural crops makes sense, since once in place these commit land over the entire year and for an extended period of time, and represent "sunk" investments that would be costly to shift back to opium poppy cultivation (unlike in the case of annual crops). Finally, with regard to annual horticultural crops as well as more generally, support and advice should be provided for cropping systems rather than only for individual crops.

7.50 For **livestock**, risks are low and potential benefits high, so this is the subsector where there is a high degree of consonance between agricultural development and counter-narcotics objectives. Targeting livestock interventions at poorer rural households which own little or no land and have very limited assets (or at least ensuring that these households benefit proportionally and are not in one way or another discriminated against) would help maximize both anti-poverty and counter-narcotics outcomes while also being consistent with the agriculture sector strategy as a whole. Dairy development can play an important role in rural areas close to cities (where there is strong market demand for dairy products), where there may be a risk of poppy coming back particularly in the South and East. There are also some specific synergies that could be exploited for livestock, for example intercropping of fodder crops with tree crops during the initial period when the latter are still growing.

7.51 For **irrigation**, both risks and benefits are high. The most obvious risk is that since opium poppy offers high returns on irrigated land, irrigation schemes could lead to

⁹⁶ Such an outcome could, for example, be the result of newly irrigated land being allocated in larger parcels and the concerned landowners opting for a less labor-intensive crop mix including sizable amounts of wheat, and/or lack of or inadequate interventions to promote suitable horticultural crops in the newly-irrigated area.

expanded poppy cultivation with high yields of opium as well as processed morphine and heroin. The two river basins considered of highest priority for the agriculture sector strategy (Panj-Amu Darya and Kabul river basins) have histories of significant opium poppy cultivation, and they potentially could return to or even exceed peak levels of cultivation seen in the past. But on the other hand, without alleviating the critical constraint of water and expanding the cultivated area, Afghanistan will not be able to make much progress in agricultural development nor in reducing dependency on opium poppy cultivation. Measures to mitigate risks and maximize potential benefits associated with irrigation include targeting a strong combination of interventions to promote horticulture and livestock as appropriate in newly irrigated areas; allocating newly irrigated land in small parcels to landless and land-poor farmers rather than better-off landowners;⁹⁷ and instituting mandatory counter-narcotics impact evaluations for irrigation projects.

7.52 For **roads**, there are risks that expanding the roads network facilitates transport of opium, opiates, and chemical precursors, but on the other hand roads form a crucial part of the rural infrastructure necessary for development of other cash crops as well as access to services (including not least security). Potential benefits can be maximized by implementing significant road projects in conjunction with other interventions to promote horticulture and livestock as well as non-farm income-generating opportunities. Counter-narcotics impact should be included as one of the criteria for determining which areas and which roads should be prioritized. To mitigate risks on the counter-narcotics front, road projects should not be implemented let alone prioritized in areas where due to remoteness, insecurity, poor land and water resources etc., more opium poppy cultivation almost inevitably will be stimulated, or at least enabled, by further development of roads.

Concluding Recommendations

7.53 Building on the information and analysis presented in this study, the earlier section on mainstreaming, and the previous section delineating key linkages between opium and the various components of the agriculture sector strategy, some general principles and broad approaches can be applied in developing agriculture sector strategy including a counter-narcotics lens:

7.54 First, ***it is essential to avoid designing and implementing the different components of agriculture sector strategy in isolation from each other.*** Horticulture, livestock, wheat and other staples, irrigation, roads and other critical agricultural infrastructure, and last but not least the opium economy—all need to be treated holistically, taking into account interactions and exploiting synergies across them. Failure to do so would jeopardize progress in each individual component as well as for the agriculture sector strategy as a whole, and also reduce benefits and increase risks from a counter-narcotics perspective.

7.55 Second, ***the agriculture sector strategy needs to be tailored geographically to work well in different regional and local contexts.*** No one package of interventions will work everywhere in Afghanistan. Among the factors which should influence the mix of agricultural interventions in a particular area or locality are the endowment of irrigated land and water resources as well as the person-land ratio; proximity and road connections to markets for agricultural products and labor; extent of government presence and degree of security; land tenure arrangements and farm sizes; climatic conditions and altitude etc.; and the existing skills and capabilities of the local population; among others.

⁹⁷ This will be a challenge to implement in Afghanistan's current environment, but nevertheless must be attempted, at least to ensure that the land is not entirely grabbed by better-off and politically connected farmers as well as power-holders.

7.56 Third, **investments in the agriculture sector need to be focused on rural areas where they will both deliver realistic outcomes and be practicable post-2014.** There is an urgent need to carefully consider what the geographical focus of the effort should be, and from there design agriculture sector programs and investments. Geographical priorities will need to be set in the context of the likely security situation post-2014 and what this means for delivering development interventions. Investments also need to occur where they have the most potential from an agriculture sector perspective and for supporting farmers to move away from dependence on opium poppy. This could mean for example prioritizing areas where opium poppy had been eliminated on a sustained basis but is at risk of coming back; these are typically more favorably located areas with a good resource base, where security conditions are relatively good and agricultural investments can be expected to pay off.

7.57 Fourth, as extensively argued in the previous section, **the opium dimension must be factored into decisions about broader agriculture sector strategy as well as specific programs and investments.** This is necessary to mitigate risks both of harm to agricultural development and of adverse effects on counter-narcotics outcomes, as well as to exploit potential benefits of agricultural investments from a counter-narcotics perspective. In addition to other justifications, such mainstreaming will become all the more important as international funding declines, to enhance the effectiveness of development programs from both agriculture sector and counter-narcotics perspectives.

7.58 Fifth, **look beyond simple models of crop substitution and do not assume that opium poppy can simply be replaced with high-value horticulture.** Investments in horticultural production—annual and perennial—can support the transition away from opium poppy particularly for those who own land, but need to be accompanied by interventions that offer alternatives to the land-poor and landless. Increased non-farm income has been a critical element in building resilience following opium bans in different parts of Afghanistan, and livestock development also has supported a shift in cropping patterns away from poppy, as well as improved incomes and a safety net for those with some livestock.

7.59 Sixth, **interventions targeting land-poor and landless rural households generally make the most sense** from both agricultural and counter-narcotics perspectives, as well as in terms of the broader objective of poverty alleviation. Letting sizable landowners access the lion's share of the benefits of agriculture sector interventions (whether by design or inadvertently) carries the risk of distorting factor inputs away from Afghanistan's resource endowment (i.e. in the direction of low labor-intensity and higher land-intensity of production); displacing land-poor and landless farmers who had been accessing land from larger landowners through sharecropping or rental arrangements; displacing agricultural wage laborers who had been hired by landowners during peak season; and encouraging outmigration to more remote desert areas and cultivation of opium poppy there.

7.60 In light of these general principles and approaches, specific recommendations include the following:

7.61 **Do not support interventions designed to expand the area of wheat cultivation by shifting land from other crops to wheat.** As has been amply demonstrated by Afghanistan's experience over the past decade and longer, substituting wheat for other, higher-value and more labor-intensive crops (most notably opium poppy) has been counterproductive and harmful, resulting in loss of livelihoods and displacement of land-poor and landless households (and frequently their relocation and becoming even more dependent on opium poppy cultivation elsewhere). Where the total cultivated area in the region or locality concerned is being increased (i.e. through significant irrigation expansion), some increase in

the area cultivated with wheat can be expected. But even in this case, wheat interventions should be combined with others and should receive lower priority than horticulture. Interventions supporting higher wheat yields make more sense than expansion of wheat cultivation and will promote greater wheat self-sufficiency among land-poor households (but only for those with access to some land, and to the support being provided). However, it must be recognized that for households with larger landholdings, higher wheat yields may lead to reduced cultivation of wheat (if the household concerned has already reached self-sufficiency), opening up the risk that some land will be shifted to opium poppy.

7.62 *Prioritize sensible livestock interventions targeted to the extent possible at poorer rural households.* Livestock development carries low counter-narcotics related risks and has high potential benefits in terms of reducing dependence on opium poppy cultivation, in combination with other interventions. In particular, livestock provide an income-generating asset and potential safety net which is of value especially to land-poor and landless rural households, and thereby provides support and greater resilience for such households to move away on a sustainable basis from producing opium.

7.63 *Prioritize perennial development within the horticulture sector,* since these crops commit land over the entire farming season and for an extended period of time of a number of years. Shifting such land back to poppy would be costly and would involve destruction of farmers' existing investments in perennials, unlike in the case of annual horticultural crops. Moreover, perennial horticultural crops offer high net returns and access both to advance payments prior to harvest and to market support when established. Downstream value chain development will be essential in order to fully realize the potential returns to perennial horticulture, particularly since many of the products will need to be exported.

7.64 *Give particular attention to investments in labor-intensive horticultural crops.* Perennial crops such as grapes, apricots, and pomegranates are relatively labor intensive and have the potential to provide good returns for the land-poor while making full use of household labor. Such crops also may create seasonal wage labor opportunities that may mitigate the risk of out-migration of poorer households if they are no longer cultivating opium poppy. Intercropping perennial crops with annual and fodder crops during the initial years (while they are still growing and before shade inhibits such a practice) will further increase the demand for labor. Downstream value added and agro-processing also will play a very important role in developing horticulture.

7.65 *Build on experiences in areas like central Helmand, where there has been high uptake of perennials.* This has occurred in conjunction with provision of investment capital, intercropping with fodder crops and annual horticulture in initial years while the perennials are still growing, and expansion in non-farm income opportunities. Develop links to the National Comprehensive Agricultural Production and Market Development Program, including Enterprise and Market Development (AREDP, CARD-F) and other relevant national programs which strive to diversify agricultural incomes and expand non-farm income opportunities in targeted areas

7.66 *Develop advice and support for cropping systems rather than focusing on single crops.* There has been good experience in a number of areas particularly around Jalalabad, Lashkar Gah, Kandahar, and other provincial capitals, where farmers have adopted complex cropping systems that include annuals, short-season and off-season crops, and intercropping these in order to both raise and regularize income and better manage risks of crop and market failure for any individual crop. This approach has competed successfully with poppy in these areas.

7.67 *Irrigation investments are of very high priority since water is the scarce physical resource in Afghanistan,* including both low precipitation and high variability of supply, as

well as its seasonal concentration. Where new land is being brought under cultivation through much-needed irrigation investments, the land tenure arrangements for this new arable land will be important determinants of success on both agricultural and counter-narcotics fronts. Given Afghanistan's current resource endowment which calls for development of labor-intensive cash crops, allocation of new irrigated land in smaller parcels to land-poor and landless households would make the most sense. Where existing cultivated land is being provided with irrigation water by a new public scheme, it will be important to ensure through complementary interventions etc. that not just the larger landowners benefit. It is recognized that land tenure arrangements are a highly sensitive matter in rural Afghanistan, but they must be factored into the equation, especially where substantial expansion of valuable irrigated land is involved.

7.68 *Strengthen the technical capacity of line ministries so that they can better understand the potential impact of their development programs on levels of opium poppy cultivation.* Currently many ministries assume that their investments in the agricultural sector will automatically reduce poppy cultivation and do not consider that they could potentially encourage such cultivation, or even lead to out-migration of population including to hard-to-reach areas where they become even more dependent on opium. Targeted training and capacity building will be required to change this mind-set and inject awareness of counter-narcotics implications into these agencies' plans and investments.

ANNEX 1

Treating the Opium Problem in World Bank Operations in Afghanistan

Guideline Note

A. Strategic Approach

The opium problem

Reducing opium production is one of the greatest challenges facing Afghanistan. Opium is central to the *macroeconomy*, contributing one third of GDP and significant support for aggregate demand and the balance of payments. In the *rural economy*, opium is a key livelihoods coping strategy for as many as 350,000 farm families, most of them poor. In the area of *security*, opium is fuelling warlordism and terrorism, and in *governance* the illegal economy is capturing or undermining state building efforts at all levels.

Government strategy

Government's strategy to reduce and ultimately eliminate opium from the Afghan economy comprises essentially three elements. The first is to *improve governance and the rule of law*, strengthening public institutions and mechanisms to control drugs, together with the development of responsible governance structures and the "social contract" at all levels from the community up. The second is to *raise the general level of economic activity and services*, improving living standards and providing social protection. The third is to *emphasize in development programs specific components that can have a significant impact on farmer behavior*, with a focus on poorer farmers, laborers and more vulnerable areas.

World Bank approach

With this background, the World Bank's working approach to the opium problem is:

- to factor considerations of the opium problem into analysis and dialogue at all levels, including the macroeconomic dimension
- to support and engage in analytical work on the development dimensions of the drug problem in Afghanistan and associated options for addressing it
- to help support the development elements of the Government's strategy through Bank-financed programs as appropriate
- to ensure that the activities supported by the Bank do not inadvertently contribute in any way to the opium economy

Screening

Under this approach, the Bank proposes to screen all its activities in Afghanistan, both operations and analytical and advisory work, to ensure that counter-narcotics aspects are treated consistently and in a way that can make the maximum contribution to the national effort against drugs. The screening process will demonstrate to what extent the operation or activity:

1. Contributes to the governance agenda
2. Maximizes synergies to deliver broad livelihoods impacts at the community and household level

3. Maximizes more specific counter-narcotics impacts by geographical area coverage and by addressing the poorer target groups, with components which strengthen and diversify legal livelihoods
4. Identifies risks and develops an approach to ensure that Bank support “does no harm” and does not create risks to the Bank’s reputation
5. Contains a monitoring and reporting capability that can effectively track outcomes related to the opium economy

B. Understanding the Role of Opium in Livelihood Strategies and Devising Appropriate Development Responses

Reasons for the “success” of poppy cultivation in Afghanistan

In Afghanistan’s current economic and political climate there are many advantages to cultivating opium poppy. It is a high-value, low-weight, durable commodity, for which there is strong demand. There are sufficient returns at each stage of the value chain and well-developed market linkages in terms of credit, purchase, transport, and processing, all of which function well and flexibly despite Afghanistan’s fractured infrastructure. Traders are willing to purchase at the farm gate for cash, often in advance of the harvest.

Opium poppy can be cultivated almost anywhere in the country, although it grows best in free draining sandy loam soils. It is so well suited to Afghanistan’s agro-climatic conditions that it produces higher than the global average yields of raw opium and morphine and maximizes returns to scarce irrigation water. This latter attribute and its marketability have proven crucial to farmers with small landholdings and large families, particularly in remote areas where opium poppy cultivation is becoming increasingly concentrated. For small marginal farmers there is no other crop under current conditions that can provide the same returns; when opium declines in those areas, the opportunities for farm income for such households will also decline, driving people off the land.

With these characteristics – and despite law enforcement efforts – opium poppy is a relatively low risk crop in many areas in what is generally a high risk environment – for both farmers and traders. The traditional credit system known as *salaam*, that provides an advance payment on an agreed amount of a future crop, has increasingly favored opium poppy cultivation over other crops. In areas in which opium poppy has become entrenched, access to credit has become dependent on a farmer’s willingness to cultivate this crop. This willingness and the possession of the requisite skills to cultivate opium poppy have increasingly determined sharecroppers’ access to land. The rental value of land also has become determined by potential opium yields rather than by wheat productivity.

Uneven distribution of the considerable benefits of opium production

The economic advantages associated with cultivating opium poppy differ according to the assets farmers have at their disposal. For the relatively few large landowners, opium poppy represents a high-value crop that can accrue even greater value if it is not sold immediately after the harvest season but later on, when prices rise. As larger farmers have other income streams and liquid assets, they can realize higher prices by selling later in the year. Moreover, landlords who make sharecropping arrangements for opium production can do even better: some inequitable sharecropping arrangements allow the landowner to take two thirds of the final opium yield, despite contributing only 20% of the total costs of production. Landlords may also make advance purchases of opium at rates considerably less than the harvest price,

generating further considerable profits on the opium crop. These profits can then be reinvested in further diversifying assets and income sources or in the opium trade itself – an ascending spiral of wealth accumulation for the larger landowner.

The position for the land-poor is quite different. For this group, opium poppy is not just a source of income. Opium poppy cultivation increases the opportunity to obtain land on a sharecropping or tenancy basis and draws on the labor supply of the household. It provides access to both cash income from opium poppy and, in the typical mixed cropping system practised in Afghanistan even among poppy growers, to the means of producing food crops for household consumption. Without opium poppy cultivation, the opportunity to access land diminishes considerably, as happened in the province of Nangarhar in 2004/05.

Opium poppy cultivation also creates a demand for itinerant labor to assist in the weeding and harvesting of the crop. Based on UNODC's estimate that 104,000 hectares of opium poppy were cultivated in the 2004/05 growing season, the crop would have generated approximately 36.4 million days of employment, of which one-third would have been daily wage labor opportunities. Where a household has more than one male able to follow the staggered weeding and harvesting seasons, the off-farm income generated from opium poppy can last up to five months and is typically higher than the on-farm income earned from cultivating the crop as a sharecropper.

Opium poppy also provides an important source of credit for the resource-poor. In areas where opium cultivation is entrenched, it defines the "creditworthiness" of the land-poor. Without it, access to basic food items, agricultural inputs, and funds for health care becomes severely constrained.

In addition to the above direct benefits, the cultivation and trade of opium has considerable multiplier effects in the rural economy. Some estimates even suggest that for every hectare of opium poppy cultivated, as many as 5-6 jobs are created in the rural non-farm economy.

Typology of opium farmers

For the purposes of this Guideline, rural households involved in the opium economy have been classified as (1) "better off" and not dependent; (2) less affluent but not dependent; and (3) poor and highly dependent. As a general rule, Class (1) "better off" farmers have more diversified livelihood strategies. They reside in areas in close proximity to provincial or district centers, they cultivate a variety of crops including high-value horticulture, and they have better access to land and irrigation, and to the commodity and labor markets. They are not dependent on opium for a decent living and could be considered to be "opportunistic producers", for whom application of the law is the primary instrument of drug control. More marginal farmers (Class 2) and the poor (Class 3, landless or with very small landholdings) are considered to be the target group for development programs that aim at contributing to the reduction of drug production. As such, poverty reduction and opium poppy reduction strategies are closely entwined. The characteristics of these three classes are summarized in Table 1.

Appropriate development responses

Opium poppy cultivating households are diverse and dynamic, and their decision as to how much land to dedicate to opium is influenced by a range of different factors – not just price. Policies and programs that treat opium poppy farmers as homogenous will not only be ineffective, they could prove counterproductive. It is necessary to work with the diversity that exists among opium poppy cultivators. Understanding the contribution of the different socio-economic groups involved in opium poppy cultivation and the multiple benefits (for example

social, economic, and political) they derive from their involvement are critical for identifying the entry points for developing effective strategies for the sustainable elimination of the crop in Afghanistan.

Table 1: Typology of Opium Producing Areas and Farmers within Them			
	Class 1 Not Dependent	Class 2 Dependent	Class 3 Highly Dependent
Access to markets/services/ Governance	<ul style="list-style-type: none"> • Close to district and provincial centers • Government can impose will with minimum reaction 	<ul style="list-style-type: none"> • Accessible but limited physical infrastructure 	<ul style="list-style-type: none"> • Remote • Government presence and service delivery limited • Government finds difficult to impose will beyond district center
Land cultivated (winter+summer)	<ul style="list-style-type: none"> • Larger cultivable land (>15 jeribs) 	<ul style="list-style-type: none"> • Medium sized (>7.5 <15 jeribs) 	<ul style="list-style-type: none"> • Small cultivable (<7.5 jeribs)
Irrigation	<ul style="list-style-type: none"> • Canal or main river 	<ul style="list-style-type: none"> • Canal and river but also karez and mountain spring 	<ul style="list-style-type: none"> • Karez and mountain spring
Land Tenure	<ul style="list-style-type: none"> • Landlord • Owner cultivator 	<ul style="list-style-type: none"> • Owner cultivator • Tenant 	<ul style="list-style-type: none"> • Owner cultivator • Sharecropper
No. of Crops	<ul style="list-style-type: none"> • Double Crop 	<ul style="list-style-type: none"> • Double Crop but limited in summer 	<ul style="list-style-type: none"> • Single Crop
Cropping	<ul style="list-style-type: none"> • Diversified • Poppy 30%-50%. • Wheat • Vegetables for sale • Fruits/nuts for sale 	<ul style="list-style-type: none"> • Poppy 50%+ • Wheat • Vegetables –some for sale • Fruits/nuts –some for sale 	<ul style="list-style-type: none"> • Poppy 70%+ • Wheat 20-30% • Vegetables solely for consumption
Population density	<ul style="list-style-type: none"> • 1 –1.5 per jerib 	<ul style="list-style-type: none"> • 2 –3 per jerib 	<ul style="list-style-type: none"> • 3.5 to 5 per jerib
Livestock	<ul style="list-style-type: none"> • Sale of dairy products and cattle 	<ul style="list-style-type: none"> • Some sale of dairy products 	<ul style="list-style-type: none"> • Goats/sheep • Dairy cow for milk products for household
Off farm	<ul style="list-style-type: none"> • Limited 	<ul style="list-style-type: none"> • Daily wage labor – poppy during harvest 	<ul style="list-style-type: none"> • Daily wage labor – mainly poppy throughout season
Non Farm	<ul style="list-style-type: none"> • Salaried (NGO, Govt), trade, transport 	<ul style="list-style-type: none"> • Construction • Semi Skilled 	<ul style="list-style-type: none"> • Limited
Credit	<ul style="list-style-type: none"> • Accumulated debt marginal • Variety of sources of credit • Gives loans 	<ul style="list-style-type: none"> • Some accumulated debts • Variety of sources 	<ul style="list-style-type: none"> • Accumulated debts significant as proportion of total income • Opium only source of loans
Opium Sales	<ul style="list-style-type: none"> • Some time after harvest 	<ul style="list-style-type: none"> • Pre harvest but some surplus 	<ul style="list-style-type: none"> • Pre harvest

Development programs that offer farmers real livelihoods alternatives would need to have as many characteristics as possible that “mimic” the attractions of the opium economy, particularly for smaller and poorer farmers and laborers (Classes 2 and 3), for whom choices are very limited at present. Programs need to avoid adopting a strategy of simply attempting to replace the relatively high level of income from opium as derived by the resource-rich (Class 1 farmers). Interventions are needed that improve the access of smaller farmers (Class 2 and 3) to those assets which they currently have access to only through their willingness to produce opium poppy. ***Improving access to credit, land, and off-farm and non-farm income opportunities to the poor should be a priority.*** Table 2 lists some of the development responses that should be emphasized to address the situation of these Class 2 and 3 farmers. For those farmers who are not economically reliant on opium poppy cultivation (i.e. Class 1 farmers), greater emphasis should be given to applying social and legal pressure.

Table 2: Development Responses to Counterbalance the Advantages of Opium for the Rural Economy

Asset	Advantages of the opium economy	Development responses
Land	<ul style="list-style-type: none"> • Preferential access to land for sharecroppers with experience of poppy cultivation • Only poppy can pay the high land rents: in areas where poppy is concentrated the rentable value of land is inflated to such a point that farmers cultivating legal crops would not be able to meet their rent • High returns per unit of land, preferred crop for those with limited land holdings. 	<ul style="list-style-type: none"> • Increase agricultural land under irrigation (winter and summer seasons) • Promote high-value horticulture and cottage level agro processing to provide value added • Increase income from livestock and by-products • Develop non-farm income opportunities, for example through skills development and development of market linkages
Water	<ul style="list-style-type: none"> • High return per unit of water, poppy particularly attractive in single crop areas • One of few crops to meet capital and recurrent costs of tubewells 	<ul style="list-style-type: none"> • Increase agricultural land under irrigation (summer and winter) • Integrated approach to improving value added in farming through water efficient techniques/technologies and high value added production packages
Credit	<ul style="list-style-type: none"> • Advance payment on future crop facilitates purchase of agricultural inputs • Those that cultivate opium poppy, particularly the resource poor, are considered 'creditworthy'. They can access credit, including consumption credit, and are able to repay both seasonal and outstanding loans 	<ul style="list-style-type: none"> • Advance payments on other crops (orchards, onions, cumin) sometimes available, promote market linkages • Contract growing, including provision of agricultural inputs • Improve credit opportunities for consumption and investment through MISFA
Labor	<ul style="list-style-type: none"> • Labor-intensive crop, significant labor opportunities created during weeding and harvesting periods • Maximizes use of unremunerated family labor, including women • Sharecroppers receive greater share of final crop when they cultivate opium than they do for legal crops • Food provided for those harvesting opium poppy 	<ul style="list-style-type: none"> • Develop labor- intensive agro processing opportunities such as in dried fruit • Raise opportunity cost of family labor through expanding potential income earning opportunities for women, including livestock, poultry, dairy, agro processing, etc • Develop non farm income opportunities • Cash For Work during periods of peak labor demand in areas where strong law enforcement against cultivation is occurring • Improve access to agricultural inputs for sharecroppers to allow greater share of larger final yield of legal crops .

In addition to the development responses that may directly offer income earning opportunities to poor farm families, much might be done to improve governance and so develop responsible reciprocity between rural communities and the state. The spread of efficient and responsive delivery of services like health and education, and the development of counterpart community structures like parent-teacher associations, increase respect for the Government's development capability, build responsible local community social capital, and open paths for dialogue on the drugs issue. In addition, specific programs like education, health, and the National Solidarity Program may offer multiple entry points for education and dialogue and for the building of trust and good governance. *The problem of opium is thus a consideration that may be factored in across a whole range of development activities in rural areas.*

Finally, institutional development at the broader level – for example strengthening the central and local administration or improving institutions and mechanisms in specific sectors bearing on the opium economy, such as financial services (e.g. anti-money laundering actions) – can support the Government strategy to improve governance and thereby control drugs. *Many aspects of governance and institutional development at the broader level can thus have an impact on the opium economy.*

C. Implementing counter-narcotics screening for Bank activities

This section sets out a checklist for screening Bank activities, assesses the benefits to be gained, and discusses institutional responsibilities for implementation.

The checklist

The following eight questions provide an analytic framework for screening Bank activities. The questions are designed to highlight how activities may contribute to the counter-narcotics effort, and also to underline any risks that need to be managed.

1. How does the activity touch the target population or areas? Review the activity description and assess the “interface” with the opium economy in terms of the target population, the causes of cultivation, the type of actions envisaged, and the targeting, timing, and geographical location in relation to opium production.
2. Does the activity promote governance and institution building? Do governance and institution building under the activity create the possibility at some stage of development of responsible interaction between the state and the population on the subject of drugs? Within the governance and institutional set up of the activity, is there scope to conduct dialogue or transmit information, provide education, and engage in communication about drugs? What measures could improve the impact on governance?
3. Is there an impact on the standard of living and on livelihoods in general? Does the activity contribute to improvements in living standards and incomes in drug producing areas or “vulnerable” areas? What measures could improve the impact on the standard of living? Is the activity coordinated with other development efforts to avoid overlap or gaps and to achieve a critical mass of impacts on livelihoods at the local level that would increase the attractiveness of licit activity over opium production?
4. Are there direct impacts on the target population? Are components of the activity likely to directly affect actual or potential drug producing households, and are these components adapted to maximize the chances of raising the opportunity cost of opium poppy cultivation and providing an alternative to opium? How can direct impacts be optimized? Is there a case for targeting

actual or “at risk” opium producing areas and households by selection of project areas growing or at risk of growing opium, or by modifying the components to address the production systems of those engaged in the opium economy – or who might be? Is such targeting desirable, and if so, is it feasible?

5. Is there a risk of harm? Is there a risk that the activity may promote drug production and how can that risk be managed? Could interventions be timed, targeted, and coordinated with other initiatives to reduce this risk?
6. Do monitoring, evaluation, and reporting capture outcomes? How would any agreed contribution of the activity to national drug control objectives be monitored and evaluated? How could an understanding of the movement from illicit to licit livelihoods be used to inform both operations and policy? How would any emerging risks be captured and reported?
7. Overall, does the activity contribute to Afghanistan’s counter narcotics effort? Overall, to what extent does the activity contribute to Afghanistan’s strategy to reduce and ultimately eliminate the opium problem?
8. Can more impact be obtained through the activity? What solutions could increase the contribution of the activity to Afghanistan’s fight against drugs? At what cost could those impacts be obtained, and what operational changes would be required?

Examples

For an illustration of the use of this checklist, see the four annexed examples:

Annex 1 summarizes the case of the *Emergency Horticulture and Livestock Project* which was approved by the Bank Board in May 2006. On the basis of the analysis, a set of guidelines for implementation was agreed with government, together with recommendations for the design of subsequent operations within the broader national program in the future.

In the case of the *Emergency Irrigation Rehabilitation Project* (Annex 2), a series of operational changes were made to the project, with government agreement, at the mid-term review in April, 2006. These included: (1) a survey of sites to assess whether opium poppy is grown and a dialogue with the communities on how the potential for increased opium cultivation will be managed; (2) a signed Memorandum of Understanding with the communities committing not to cultivate opium poppy; (3) piloting of high-value alternative crops; and (4) inclusion in the M&E system of poppy monitoring, in coordination with UNODC.

Two more summary analyses were conducted in 2004 for the *Education Quality Improvement Program* (EQUIP, Annex 3) and the *Health Sector Emergency Reconstruction and Development Project* (Annex 4). The recommendations have been discussed with the Government but so far have not been implemented.

Benefits

It is expected that the approach outlined above can contribute materially to Afghanistan’s efforts to combat drugs. In addition, development effectiveness should be increased by taking the opium economy into account, because of its strong links to Bank development goals of poverty reduction, governance building, and sustainability. Reputational risk will also be better managed. Finally, a lead from the Bank will provide a model that the Government and other donors can follow.

Institutional responsibilities, scope, and key stages

Within the region, the Operations Advisor for Afghanistan will be responsible for guiding teams in the completion of the checklist and in formulating appropriate changes to activities. Advice will be provided by SASPR as needed based on past and ongoing analytical work on the opium economy. It is expected that the checklist should be applied to all activities, both investment operations and analytical and advisory activities. For investment operations, an initial screening would normally be carried out upstream at concept review stage. Thereafter, the analysis and reporting would be conducted, as appropriate, through appraisal and supervision. “Opium compliance” will form one aspect of the review of readiness for entry to the program.

[Annexes that accompanied this Guideline Note are not included but are available separately.]

ANNEX 2

Counter-Narcotics Issues in Relation to Recommendations of ASR Background Papers					
CN Risks	Potential CN Benefits	Assumed change model	Current Level of CN linkages	Risks if CN dimension not adequately incorporated	Risk Mitigation
(i) Support to Wheat					
High	Low	<p>Raise yields per hectare and increase area of land under wheat cultivation.</p> <p>Yields would be raised through introduction of improved varieties, improving quality of inputs such as fertilizers, and reducing losses due to disease.</p> <p>Increased area under wheat would be achieved through investments in potential water resources to the scale of up to 750,000 ha, most notably in the Panj Amu Darya River Basin and Kabul River Basin (KRB), and the Hari Rod Murghab River Basin (HMRB).</p>	Low: No mention of opium poppy cultivation or how planned wheat interventions will address factors contributing to it.	<p>Does not consider the risk that improved wheat yields will lead to farmers allocating less land to wheat once they achieve household self-sufficiency in wheat, and thereby allocate more land to cash crops, including opium poppy.</p> <p>Experience in Southwest Afghanistan shows that where land-owning farmers increase the area allocated to wheat and other less labor-intensive crops, their needs for outside labor decline sharply (whether wage labor or through sharecropping); land-poor farmers in those areas find themselves unable to lease or sharecrop land under new cropping systems, and many of them relocate to former desert areas to cultivate opium poppy.</p> <p>Agricultural inputs, such as fertilizer, may also be used to improve yields of drug crops like opium poppy and cannabis.</p> <p>Increased land under irrigation also presents risk of higher levels of opium cultivation and yields (see iv below).</p>	<p>Proposed interventions are not differentiated geographically and do not discuss specific provinces or districts to be targeted. Adopt area based approach, coordinated with implementation of other relevant programs to build necessary synergies both for delivering development outcomes and for mitigating CN risks.</p> <p>Do not support interventions to increase the area of wheat cultivation by shifting land from other crops to wheat.</p> <p>Undertake wheat programs in conjunction with interventions targeted at the land-poor, to offset the risk of displacing people into former desert areas; in particular examine possibilities for coordinating with interventions aimed at increasing non-farm income opportunities, including through effective national programs.</p> <p>Link directly with investments in horticulture and livestock, recognizing that only a small proportion of additional land brought under cultivation through expanded irrigation is likely to be allocated to wheat production in many areas; instead it is more likely to be used for cash crops. Ensure that horticultural crops and livestock are developed at the same time, to mitigate risk of increases in opium poppy cultivation (see below).</p> <p>If working through cooperatives, CDCs, and</p>

Counter-Narcotics Issues in Relation to Recommendations of ASR Background Papers

CN Risks	Potential CN Benefits	Assumed change model	Current Level of CN linkages	Risks if CN dimension not adequately incorporated	Risk Mitigation
					<p>DDAs, consider developing mechanisms through them for raising awareness on CN and on the increasing social cost of opium production</p> <p>Conduct area based evaluations to look at development outcomes and impacts on poppy cultivation</p>
(ii) Support to Horticulture					
Medium	High	Expansion of area cultivated with a range of different annual and perennial horticultural crops, improvements in yields, and increases in incomes from horticultural crops.	Low: An assessment is offered that suggests opium poppy cultivation will decline to 20% of the current level (Horticultural Sector Review 2014 V6, page 140), but there is no indication given as to whether this is a realistic assessment or how such a massive reduction in poppy cultivation would be achieved.	<p>Unless understanding of opium poppy cultivation and its causes is integrated into program design and implementation, efforts to expand horticultural production may not succeed, as many of the main areas of production for perennial and annual crops identified are also poppy growing areas (for example, Kandahar - grapes, pomegranates, onion and cumin; Zabul - grapes, apricots, almonds and potato; Nangarhar - onion, potato, saffron).</p> <p>Moreover, some annual horticultural crops can be cultivated as part of a cropping system along with opium poppy (for example, in areas where the climate allows two crops to be cultivated each year) and hence would not deter opium poppy cultivation at all.</p>	<p>Prioritize perennial development, since these crops commit land over the entire year and for extended periods of time, offer high annual net returns, and access to advance payments prior to harvest and market support when established.</p> <p>Build on experiences in areas like central Helmand (e.g. Nad e Ali and Lashkar Gah) where there has been high uptake of perennials in conjunction with provision of investment capital, intercropping with fodder crops and annual horticulture in initial years while the perennials are still growing, and expansion in non-farm income opportunities. Link to National Comprehensive Agricultural Production and Market Development Program, Enterprise and Market Development (AREDP, CARD-F) and other national programs that seek to diversify agricultural incomes and expand non-farm income opportunities in targeted areas.</p> <p>With regard to annual horticultural crops, develop advice and support for crop systems rather than focusing on single crops. There has been good experience in a number of areas</p>

Counter-Narcotics Issues in Relation to Recommendations of ASR Background Papers

CN Risks	Potential CN Benefits	Assumed change model	Current Level of CN linkages	Risks if CN dimension not adequately incorporated	Risk Mitigation
					<p>particularly around Jalalabad, Lashkar Gah, Kandahar, and other provincial capitals, where farmers have adopted complex cropping systems that include annuals, short-season and off-season crops, and intercropping these so as to both raise and regularize income and better manage risks of crop and market failure for any individual crops. This approach has competed well with poppy.</p> <p>Integrate knowledge of opium poppy cultivation, the opportunities that other cropping systems offer in comparison, and CN themes to ensure agricultural extension advice is CN-relevant.</p> <p>Conduct area based evaluations to look at development outcomes and impacts on poppy cultivation</p>
(iii) Support to Livestock					
Low	High	<p>Increase livestock population which will: (i) increase household incomes; (ii) expand the demand for fodder crops thereby absorbing agricultural land that might otherwise have been cultivated with poppy; and also (iii) offer a ready source of cash, potentially mitigating the need for credit/ distress sales during the agricultural year</p>	<p>Low: No mention of opium poppy cultivation or how livestock interventions might link to causes of cultivation.</p>	<p>Opium poppy competes with wheat and other fodder crops, thereby increasing farmers' reliance on purchased feed and reducing the competitiveness of both livestock and poultry sectors.</p>	<p>Proposed interventions are not differentiated geographically and do not discuss specific provinces or districts to be targeted. Adopt area based approach coordinated with implementation of other relevant programs to build synergies for both delivering development and mitigating CN risks</p> <p>The dairy sector presents an opportunity for countering the potential resurgence of opium poppy cultivation in lower-altitude, more centrally located valleys, as the greatest potential for growth in dairy lies in peri-urban localities. These are areas where the risk of resurgence in poppy cultivation is significant, especially in the east and south. Thus dairy</p>

Counter-Narcotics Issues in Relation to Recommendations of ASR Background Papers

CN Risks	Potential CN Benefits	Assumed change model	Current Level of CN linkages	Risks if CN dimension not adequately incorporated	Risk Mitigation
					<p>development in these areas should be prioritized</p> <p>Build links with support to perennial horticultural to encourage intercropping of fodder in initial years of orchard growth</p> <p>Losses of livestock due to disease, drought, and/or rising feed costs have led to subsequent increases in levels of opium poppy cultivation in a number of provinces including Ghor, Badakhshan, and Nangarhar. Conversely, increases in the number of dairy livestock and small ruminants in these provinces, as well as in Helmand, have supported farmers to make the transition out of opium poppy cultivation. Support to small-holders through veterinary services, extension, and improved breeds will help maintain herds and reduce levels of opium poppy cultivation or at least prevent increases</p> <p>Conduct area based evaluations to look at development outcomes and impacts on poppy cultivation</p>
(iv) Irrigation					
High	High	Target of 750,000 ha of increased irrigated area, as follows: Panj-Amu Darya River Basin (PARB) - with potential for 450,000 ha of increased irrigated area, Kabul River Basin (KRB) - with potential for 250,000 ha, and Harirud-Murghab River Basin (HMRB) with	Low: The opium dimension is not incorporated in other papers when discussing the irrigation sector.	Opium poppy offers relatively high returns on irrigated land. There is potential for significant increases in opium poppy cultivation if irrigation schemes are implemented in areas where socio-economic and political conditions are not conducive to support diversification into licit crops and expansion of non-farm income generating activities	<p>Adopt area based approach coordinated with implementation of other relevant national programs to build synergies for delivering both development and CN outcomes</p> <p>Avoid implementing irrigation improvements in isolation and in areas where viable alternatives not in place or where other income generation programs are not in operation</p>

Counter-Narcotics Issues in Relation to Recommendations of ASR Background Papers

CN Risks	Potential CN Benefits	Assumed change model	Current Level of CN linkages	Risks if CN dimension not adequately incorporated	Risk Mitigation
		potential for 50,000 ha. Assessment of potential for new irrigated land in the Helmand River Basin (HRB) is not offered; and the Northern River Basin (NRB) is not seen as having any potential for expansion of irrigable land.		<p>The two river basins prioritized, (PARB and KRB) both have been significant opium producers in the past, and there is a risk that increases in the amount of irrigable land in these river basins could lead to increased opium poppy cultivation</p> <p>PARB: 2,585 ha of opium poppy (2013) and potential for at least 20,803 ha (highest past year); KRB: 18,962 ha (2013) and potential for at least 43,415 ha (highest past year); HMRB: 4,812 ha (2013) and potential for at least 12,925 ha (highest year); HRB: 182,523 ha (2013) and potential for at least 193,636 ha (highest past year); NRB: 568 ha (2013) and potential for at least 24,010 ha (highest past growing years)</p>	<p>Consider who will be settled in newly irrigated areas. If investments are to be made in HRB and new land brought under cultivation, examine possibilities of relocating those in former desert areas north of the Boghra canal (an area irrigated by deep wells and where opium poppy cultivation is concentrated)</p> <p>Include mandatory CN impact assessment as part of appraisal of irrigation schemes, especially major irrigation works in areas where there is a history of opium poppy cultivation</p> <p>Avoid tying irrigation or other development efforts with counter-narcotics conditionality which has a bad record in Afghanistan⁹⁸</p> <p>Conduct area based evaluations to look at development outcomes and impacts on poppy cultivation</p>
(v) Road Improvement					
Medium	High	<p>Improve access to agricultural and labor markets</p> <p>Increase direct wage labor opportunities for rural communities</p>	Low: Roads discussed in Horticultural Review in context of transportation (pp. 128-130) but does not recognize potential multiple uses of roads	If not coordinated and sequenced with investments in income generation, roads may be seen by local communities as a mechanism for their subjugation by ANSF, resulting in resentment and subsequent resistance against government	<p>Avoid implementing road improvement interventions in isolation in areas where viable alternatives are not in place or where other income generation programs are not in operation.</p> <p>Appropriate law enforcement checks on roads</p>

⁹⁸ See Mansfield, David (2002) "The Failure of Quid Pro Quo: Alternative Development in Afghanistan". Paper prepared for the International Conference on Alternative Development in Drug Control and Cooperation, Feldafing (January 7-12).

Counter-Narcotics Issues in Relation to Recommendations of ASR Background Papers

CN Risks	Potential CN Benefits	Assumed change model	Current Level of CN linkages	Risks if CN dimension not adequately incorporated	Risk Mitigation
		<p>Increase access to and provision of private and public services, including security, and thereby enhance the social compact with the state</p>	<p>and associated risks.</p>	<p>Road improvements make it easier to transport opium, its derivatives, and precursor chemicals for opium processing</p>	<p>from opium producing areas</p> <p>Include CN Impact Assessment along with other cross cutting issues as part of design and monitoring and evaluation of road projects</p> <p>Include CN impacts as one of criteria for prioritizing roads under the National Rural Access Program. Prioritize opium poppy growing areas where road improvements can be integrated with income generating national programs</p> <p>Include CN relevant indicators in monitoring and evaluation, such as crop and income diversification in proximity to roads and levels of opium poppy cultivation</p> <p>Conduct area based evaluations to look at development outcomes and impacts on poppy cultivation</p>

STATISTICAL APPENDIX

A: Opium Poppy Cultivation Estimates

National Data: There are two sources of data on the extent of opium poppy cultivation in Afghanistan, the United Nations Office on Drugs and Crime (UNODC) and the United States Government (USG). In the past there were wide discrepancies between the estimates of opium poppy cultivation by UNODC and USG, with a difference of over 80,000 hectares between the two surveys in 2004 (see Figure A1). Since 2005 the estimates of the two surveys have been more closely aligned, largely due to the improved use of high resolution imagery by UNODC and closer liaison between the technical experts responsible for the annual estimates in both UNODC and the USG.

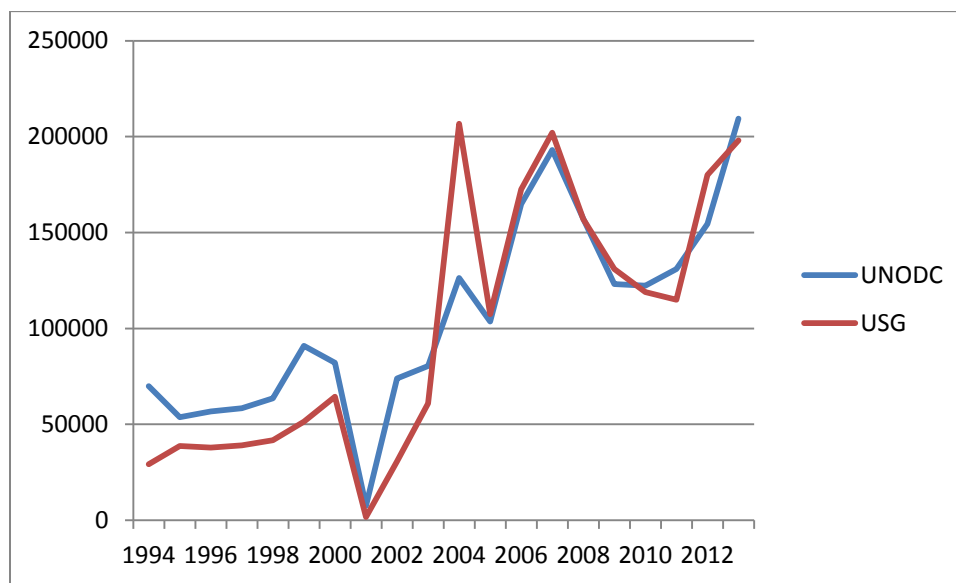


Figure A1: A comparison of National data on opium poppy cultivation, 1994-2013 (hectares)

Prior to 2002, the UNODC survey was entirely based in on a ground-based 'census', and while pioneering at the time, it had limitations. Based on an assessment of reports of where cultivation was located, surveyors were required to travel to what could be remote and insecure villages and visually estimate the amount of land under opium poppy cultivation. Incomplete information on the whereabouts of opium poppy, insecurity, wide scope for human error, inability to verify data, and the challenges of supervision in the field, were just some of the problems associated with the ground survey at the time.⁹⁹

Among the survey team itself, the 1994 survey estimate was seen as particularly problematic; it represented the first attempt at an estimate of opium poppy cultivation in the country as a whole, and the results were considered inflated.¹⁰⁰

⁹⁹ Between June 1997 and December 2000, David Mansfield managed the UNDCP Afghan Opium Poppy Survey in Afghanistan.

¹⁰⁰ Personal communication, poppy survey team: June 1997- December 1999. It is important to note that internally the 1994 survey was recognized by the Regional Office South West Asia of UNDCP as a pilot survey and only given 'restricted circulation' (UNDCP Afghanistan Opium Poppy Survey 1995, UNDCP: Islamabad, p. 2). The methodology of the 1995 survey built on the

In the 2001/02 growing season, UNODC introduced commercial satellite imagery for the major opium producing provinces of the south and east, combining it with a ground-based survey in many of the provinces in the center and north where cultivation was not as extensive. By 2002 the survey used remote sensing for much of the country, but there were still teething problems with the approach. With support from Cranfield University following the results of the 2004 survey, and with closer collaboration with USG, the UNODC and USG figures subsequently aligned more closely.

USG used remote sensing imagery even prior to 1994 and has the advantage of using significantly more images. In those areas parts of Afghanistan where there is significant interest, the USG using high-resolution imagery conducts a comprehensive review of all land under cultivation, classifying each field by a number of crop types, including opium poppy (see below).

Provincial data: While national data have become more aligned as between UNODC and USG, there are discrepancies at the provincial level (see Table A1). In some provinces these differences are large in absolute terms, for example in Kandahar, whereas in others there are sizable differences in relative but not necessarily in absolute terms. Part of the explanation for these discrepancies is the different methodological approaches adopted by the two surveys and how they calculate the full extent of the agricultural areas – the agricultural ‘mask’, how samples are selected, and the number of images collected. UNODC uses random sampling for image collection only for what are classified as ‘major opium producing provinces’. In provinces where cultivation is less widespread – ‘targeted provinces’ – remote sensing is tasked based on where cultivation is reported, which may be subject to omissions. Because of this different approach in ‘targeted provinces’, UNODC’s estimated level of cultivation in these provinces is considered ‘as a minimum estimate’ (UNODC/MCN 2013: 80).

In some provinces there is close alignment in the estimates over time, such as in Helmand where significant effort has been put into ensuring the veracity of the data (see Figure A2). In others the two surveys not only diverge on the amount of opium poppy estimated but also in the overall trends, the most notable example being Kandahar (see Figure A3). There are further differences due to shifts in provincial boundaries and disagreements over what areas belong to which provinces. For instance, the USG has included the area of Delarem in its estimates for Nimruz since at least 2009 whereas UNODC considered it part of Farah until 2013.¹⁰¹ The creation of new provinces and the movement of districts between provinces has created challenges for both surveys, leading to some inconsistencies over time.

lessons learned from the initial survey conducted in 1994 and therefore the results of the two surveys were not comparable (UNDCP Afghanistan Opium Poppy Survey 1995: ii).

¹⁰¹ As of November 2012, when the last official boundary data was released by the Government of Afghanistan, Delarem only had a temporary boundary and was not classified as a district in its own right. Instead it was viewed as part of Khash Rod in Nimroz.

Table A1: Comparison of UNODC and USG provincial poppy data, 2013

Province	UNODC (ha)	USG (ha)	Difference (ha)	UNODC est. as % of USG est.
Badakhshan	2374	5300	-2926	45
Badghis	3596	6000	-2404	60
Baghlan	141	0	141	100
Balkh	410	190	220	216
Bamian	0	0	0	100
Dai Kundi	1536	1000	536	154
Farah	24492	25500	-1008	96
Faryab	158	1700	-1542	9
Ghazni	0	0	0	100
Ghor	264	2000	-1736	13
Helmand	100693	95500	5193	105
Herat	952	335	617	284
jawzjan	0	0	0	100
Kabul	298	115	183	259
Kandahar	28335	19500	8835	145
Kapisa	582	415	167	140
Khost	0	0	0	100
Kunar	1127	1100	27	102
Kunduz	0	0	0	100
Laghman	1236	910	326	136
Logar	0	0	0	100
Nangarhar	15719	14000	1719	112
Nimroz	16252	14500	1752	112
Nuristan	0	0	0	100
Paktika	0	0	0	100
Paktya	0	0	0	100
Panshir	0	0	0	100
Parwan	0	0	0	100
Samangan	0	0	0	100
Sari Pul	0	0	0	100
Takhar	70	150	-80	47
Uruzgan	9880	9300	580	106
Wardak	0	0	0	100
Zabul	1335	870	465	153

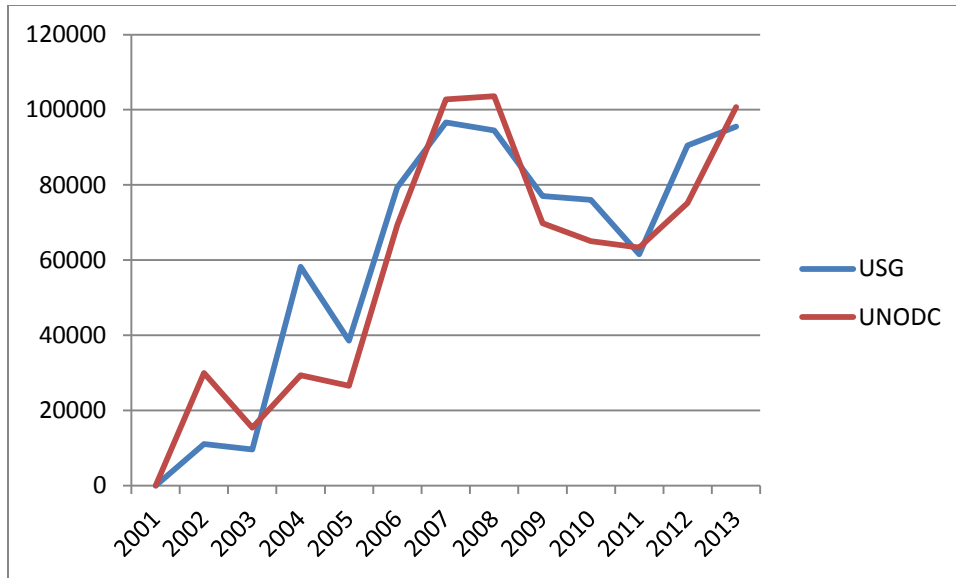


Figure A2: A comparison of estimates of opium poppy cultivation in Helmand, 2001-2013 (hectares)

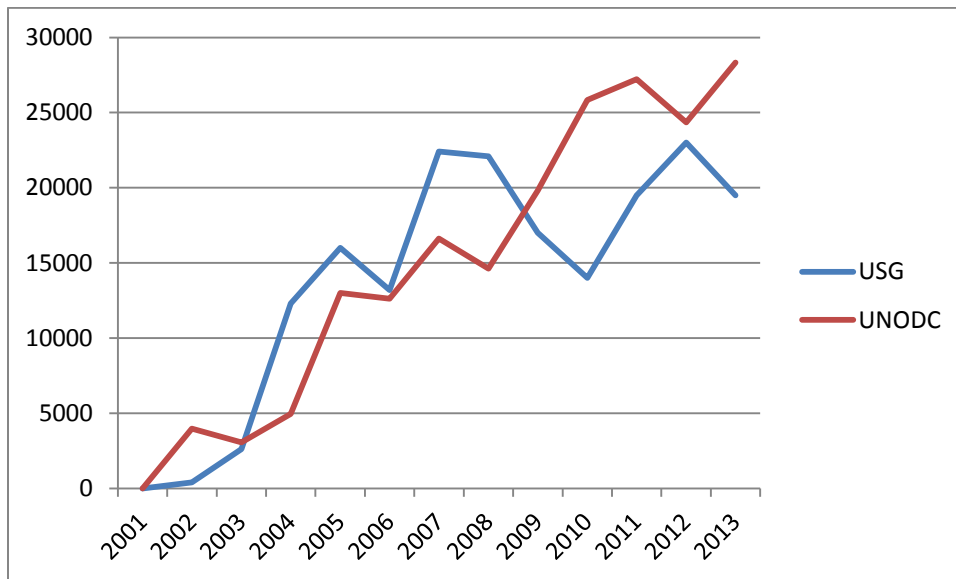


Figure A3: A comparison of estimates of opium poppy cultivation in Kandahar, 2001-2013 (hectares)

District data: At the district level there is much greater divergence in the estimates calculated by UNODC and USG than at the provincial level. UNODC publish their district level data but refer to it as 'indicative only' (UNODC/MCN, 2013: 81). USG typically does not release district level data due to concerns over the veracity of the data when disaggregated to this level.

These concerns make assessing changes in levels of cultivation at the district level problematic and severely limit the value of using district-level figures for assessing progress against opium poppy

cultivation, as in the case of 'conditionality' – where development assistance is made contingent on reductions in opium poppy cultivation.

To properly assess changes in cultivation at the district or community level, it is necessary to conduct a comprehensive review of the area being assessed and establish what crops are being cultivated. While resource intensive, this approach provides detailed data on the different crops cultivated in an area of interest, can support an assessment of the uptake of different legal crops (including orchards, wheat and annual horticultural crops), and thereby can offer both an assessment of how resilient any reduction in opium poppy cultivation might be and the impact of efforts to expand the cultivation of high-value horticultural crops. This kind of data, produced by USG and analyzed by Alcis Ltd, has been used as part of the assessment of the Helmand Food Zone and has provided invaluable data on changing cropping patterns over a five year period (see Figures A4 and A5 for images and trends for 2008-2012 in two Helmand research sites).¹⁰²

¹⁰² For more detail on how remote sensing imagery is used to assess both development impacts and counter narcotic effect see David Mansfield, Alcis and OSD, 'Managing Concurrent and Repeated Risks: Explaining the reductions in opium production in central Helmand between 2008 and 2011', AREU, Kabul.
<http://www.areu.org.af/Uploads/EditionPdfs/1122E%20Managing%20Concurrent%20and%20Repeated%20Risks%202011.pdf>

Figure A4: CHANGES IN CULTIVATION PATTERNS IN AQAJAN KALAY, HELMAND PROVINCE (2008-2012)

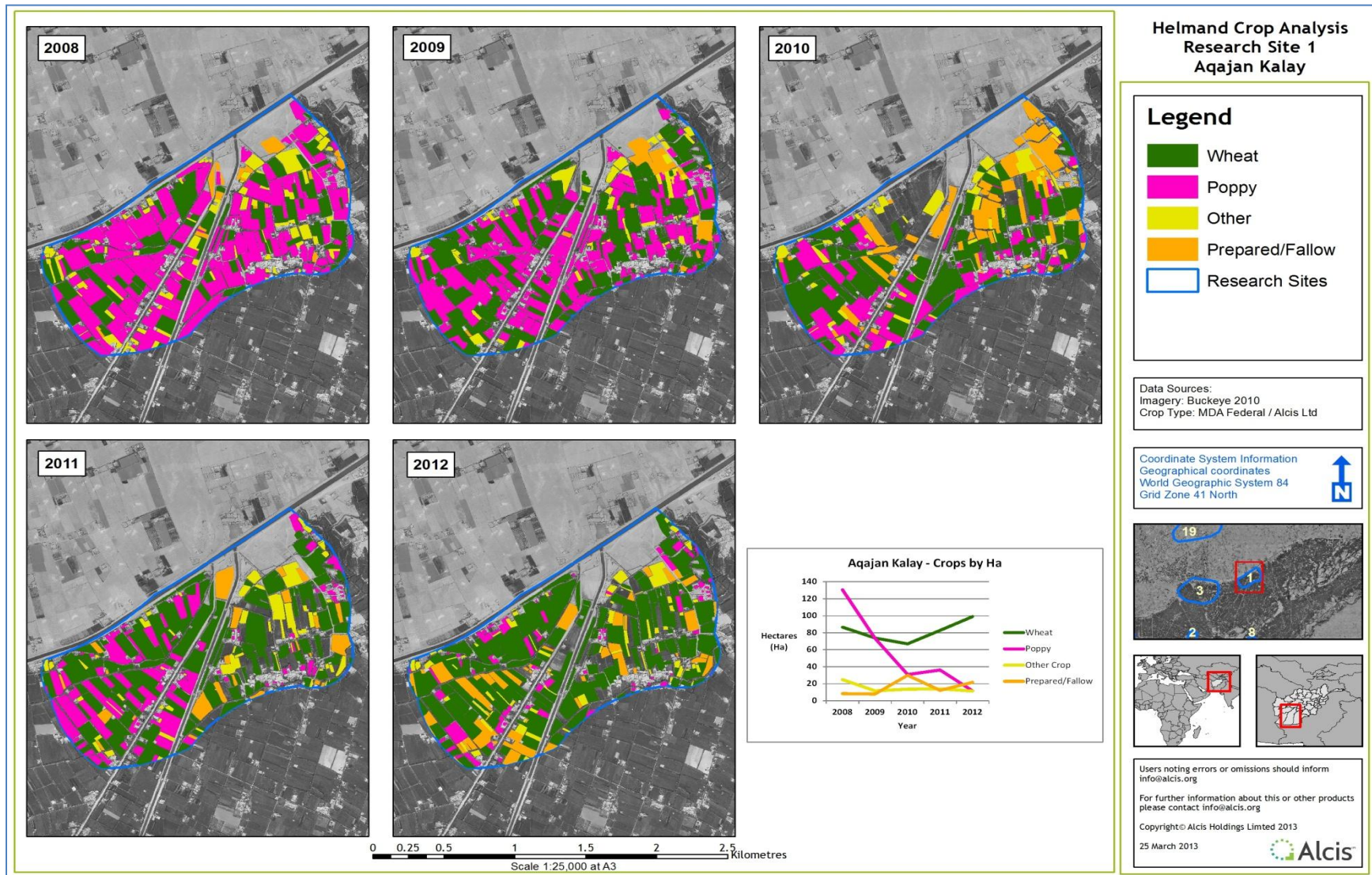


Figure A5: CHANGES IN CULTIVATION PATTERNS IN MARJAH, HELMAND PROVINCE (2008-2012)



B: Yield and Production Data

Estimates of opium yields (normally expressed in kilograms of opium per hectare) are important for calculating estimated opium production (cultivated area times average yield), but the quality of yield estimates does not match that of the estimates of area cultivated with opium poppy. Nevertheless, there have been some modest improvements over time, and following UNODC's recent release of revised yield estimates, there is reasonable congruence between the UNODC and USG yield estimates (see Figure A6).

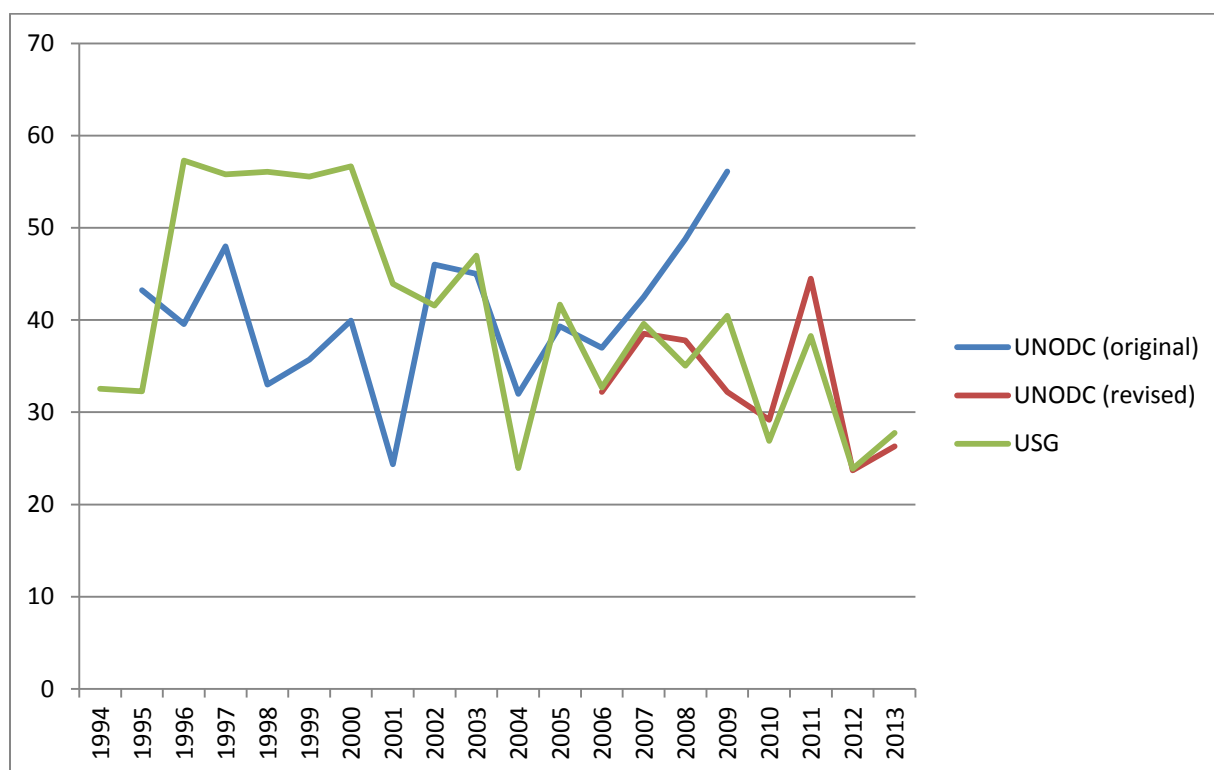


Figure A6: A comparison of estimated national average opium yield, 1994-2013 (kilograms/hectare)

Comparisons of UNODC yield data over time, and therefore of estimates of total production, are challenging due to the changes in the methodology used to estimate yields. For example, prior to the introduction of the capsule measurement method in 2004¹⁰³ – where the relationship between poppy capsules volume per square meter and dry opium yield is used to estimate opium production – the yields reported by UNODC were based on farmers' estimates prior to the harvest. According to UNODC these estimates 'reflected farmers' expected opium yield rather than the actual opium yield, which was unknown at the time of the survey.' They also reported that: '[yield] data were also subject to the bias of farmers' (UNODC/MCN, 2008: 143).¹⁰⁴

¹⁰³ UNODC/MCN, Afghanistan Opium Survey 2004, November 2004, p. 53.

¹⁰⁴ UNODC/MCN, Afghanistan Opium Survey 2008, November 2008, UNODC/MCN, Kabul, p. 143).

Between 2004 and 2007, yields appear to have been calculated using both the farmers' estimates and the capsule measurement method over a limited but expanding area within the country.¹⁰⁵ UNODC reported concurrence in the results of these two quite different methodologies (UNODC/MCN 2007: 60). In 2008, UNODC reported that they were relying solely on the capsule measurement method, but in 2011 growing concerns about the quality of yield estimates led to a review by external experts and the subsequent downward revision of yield figures for 2006-2009 (UNODC/MCN 2011:94-97).¹⁰⁶

In 2012 and 2013 UNODC reported that the yield survey was significantly reduced in comparison to previous years and 'because of the increasingly difficult security situation, only fields where it was possible to complete the survey without time pressure were visited, commenting that 'the survey is no longer statistically representative' (UNODC/MCN 2013: 88).¹⁰⁷ The exclusion of insecure areas where as UNODC acknowledges opium poppy is often concentrated, raises questions as to whether the current yield data are picking up the significant variations in yields that can be found within provinces, as well as the impact of disease in the former desert areas of Helmand (and to a lesser extent Farah), where opium poppy cultivation has been rapidly expanding.

Much less is known about the USG method for estimating opium yields. Typically it has used high-resolution remote sensing imagery to assess crop vigor and calculate yields. It is unclear if this methodology has changed over time.

¹⁰⁵ For example in 2004 capsule measurements were taken in only 138 fields, (UNODC/MCN 2004: 53) compared to 569 fields in 2008 (UNODC/MCN, Afghanistan Annual Survey 2008, UNODC/MCN, Kabul, p. 143).

¹⁰⁶ UNODC/MCN Afghanistan Annual Survey 2011, December 2011, UNODC/MCN, Kabul, pp. 94-97.

¹⁰⁷ UNODC/MCN Afghanistan Annual Survey 2013, December 2013, MCN/UNODC, Kabul, p. 88.

C: The number of farmers involved in opium poppy cultivation

Between 2003 and 2010, UNODC estimated the number of households that were involved in opium poppy cultivation each year, ranging from a low of 245,000 in 2009 to a high of 509,000 in 2007 (see Figure A7). At the time this was seen as an important metric by which to assess the importance of opium production to the Afghan economy and how it was changing over time. Using their estimate of the number of households involved in opium poppy cultivation in Afghanistan, UNODC also calculated the number of people involved in opium poppy cultivation each year, multiplying the estimated number of households by the average number of household members, as reported by the Central Statistics Office of Afghanistan. With an average of between 6.2 to 6.5 people per household, the number of people involved in opium poppy cultivation was reported to be as many as 3.3 million people, or 14.3 percent of the total population, in 2007 (UNODC 2007:7), falling to 6 percent in 2010.

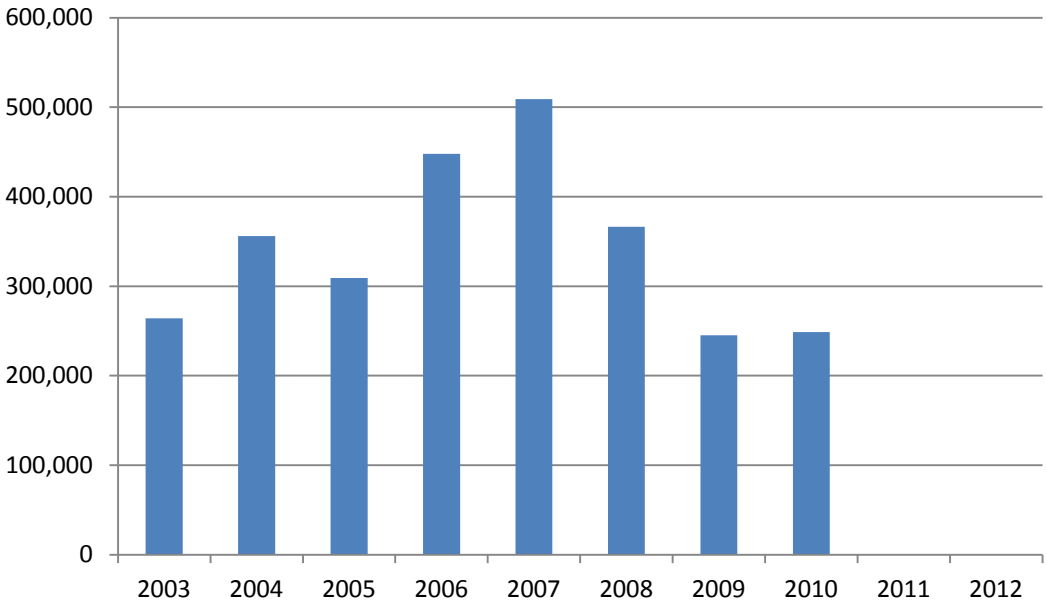


Figure A7: Number of households involved in opium poppy cultivation reported by UNODC, 2003-2012

There are, however, some major challenges with this particular metric. The most obvious is establishing a meaningful estimate of the number of households involved in opium poppy cultivation. Here the most serious issue is whether farmers are actually in a position to answer questions regarding the households in the village and their activities to the degree of integrity required. This problem is compounded when researchers are enquiring about sensitive or illegal subjects such as opium production, phenomena that change markedly over time, or practices that are somehow concealed, or which take place in private rather than public space.

Evidence from research conducted in Afghanistan over the last few decades suggests that there are significant challenges with regard to the knowledge of village members and the veracity of their responses about the farming practices of other households in the same village. For example, the

Swedish Committee for Afghanistan (1992:1)¹⁰⁸ referred to the methodological adjustments that it had made during the course of its national surveys in the early 1990s due to the problems it faced in this regard:

“[The Agricultural Survey of Afghanistan’s national surveys] are based on specific information that a farmer gives directly to the enumerator about his own, and no one else’s farming operations. This, we believe, is essential to quantitative data collection. If the respondent is asked questions about his village or district his answer in many cases is likely to be vague simply because the question is extremely difficult to answer with any degree of accuracy. From experience we have also found that generalised agricultural information resulting from group interviews or from village elders is of poor quality when compared to that derived from individual farmers speaking about their own farms.”

There are further concerns regarding the nature of the questions asked and whether phenomena are adequately defined or are understood in the same way by all those interviewed. In this particular case a critical issue is when asked about *‘the number of households involved in opium poppy cultivation in this village’*, do all respondents have the same understanding of who should be included in the response? For example, where there is a landowner that cultivates opium poppy but employs a sharecropper to work the land, would this be reported as one household or two? In some cases, particularly in the south and east, even if sharecroppers have worked in the village for many years, they would not be considered as being of ‘this village’ if they did not own land, and hence would not be included in the response.¹⁰⁹ There is also the added problem that laborers residing outside the village of enquiry but working there during the opium poppy harvest as itinerant laborers would not be included by those that actually live in the village as being of ‘this village’. Nor would these laborers be counted elsewhere if they came from a village that had no history of opium poppy cultivation, since they would not be covered by UNODC’s village survey.

Extrapolating the data to calculate the total number of persons involved in opium poppy cultivation introduces further problems. UNODC reports that 1.5 million people were involved in opium poppy cultivation in 2010, a fall of 1.8 million from 2007 when it estimated that 3.3 million people were involved. These figures were calculated on the basis of an assumed average household size of 6.5 people. However, the National Risk and Vulnerability Assessment – which serves as Afghanistan’s National Household Survey (CSO, 2008: xviii), suggests a national average of 7.3 persons per household, which would result in a markedly higher number for the estimated total number of people involved in opium poppy cultivation.¹¹⁰ Other data collected in the rural areas in which opium poppy is grown at its most concentrated consistently suggest significantly larger household sizes than the national average. For instance, the NRVA reported an average household size in Helmand province of 9 persons in 2005

¹⁰⁸ Swedish Committee for Afghanistan, “Farming Systems of Nad Ali District, Helmand Province,” in *Agricultural Survey of Afghanistan*, Report 15 (Peshawar: SCA, 1992), 1.

¹⁰⁹ David Mansfield’s own experience in the 1990s highlights the challenges with this line of enquiry. When questioned about how many households there were in a village, respondents typically only gave the number of people that owned land in the village. This was despite the fact that there were households residing in the village that did not own land but sharecropped the land of others, and had done so for over a decade. Discussions revealed that neither landowners nor the sharecroppers themselves believed that those who did not own land in the village belonged to that village.

¹¹⁰ The 2011/2012 NRVA takes an ‘implied’ average household size of 7.4 persons (CSO, 2014:12).

(CSO 2005: 88), while other surveys have consistently reported even higher figures of almost 13 household members.¹¹¹

Indeed, there are questions about how representative national data is of the areas in which opium poppy is actually cultivated. The level of insecurity tends to limit access for formal surveys in the parts of the country where opium poppy has become concentrated. There is the added challenge that some of these hard-to-reach areas, such as the former desert areas in the south, have experienced such a dramatic transformation over the last few years that many official data collection tools have found it hard to keep up. The Central Statistics Office village dataset, for example, does not acknowledge the degree to which the area north of the Boghra canal in Helmand – an area of intensive opium poppy cultivation – has developed, citing only a small number of ‘village clusters’ (see Figure A8) from which it selects its samples of villages to be surveyed. This is despite the enormous expansion in the number of household compounds that can be found in the area.¹¹² The same phenomenon can be seen in other former desert areas in the south and southwest of the country. This suggests that the population in other areas where opium poppy is concentrated, such as the former desert areas in Bakwa in Farah, as well as Zahre, north of Highway One, and Spin Boldak in Kandahar, are often underrepresented, if they are represented at all, in surveys like the NRVA.¹¹³

¹¹¹ For example, the UNDP Helmand Initiative Socio-Economic Survey of Helmand reported an average household size of 12.7 (2000: page1); the Swedish Committee for Afghanistan's report on the farming systems of Nad e Ali (1992:6) estimated an average household size of 13; and Mansfield's own work in Helmand over an extended period.

¹¹² Formal village names are misleading in many of these former desert areas as locally, people refer to 'every compound (qala) is a village (kalay)'. While households will support and group around a common mosque it is not possible to take the kind of social organisation and structures found in villages in the canal command area and impose them on communities residing in the former desert areas.

¹¹³ For example, in 2011 UNODC reported that it could not produce an estimate of the total number of poppy growing households in Afghanistan because the sampling frame for its village survey did not adequately cover the area north of the Boghra canal and therefore 'underestimated the number of opium growing households in Helmand' (UNODC/MCN, Afghanistan Opium Survey 2011, December 2011, UNODC/MVN, Kabul, p. 20)

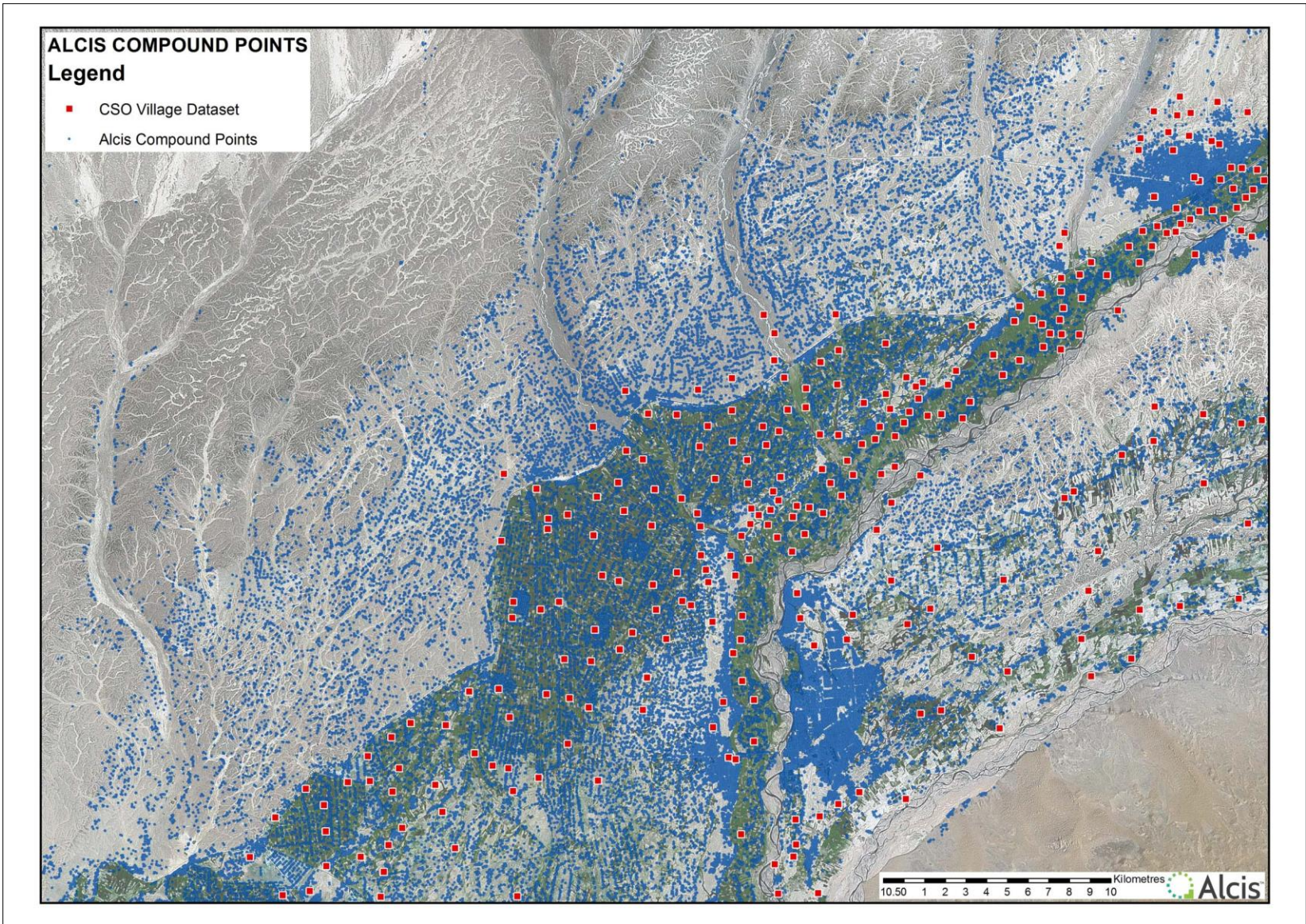


Figure A8: A comparison of the CSO village dataset north of the Boghra canal and household compounds identified using high resolution imagery

D: The reasons why farmers grow opium

Each year since 2006, UNODC has asked a sample of farmers the reasons why they cultivate opium poppy, as part of the village survey component of its annual opium poppy survey.¹¹⁴ The high price of opium has typically been recorded as the most popular response to this question, cited by 41 percent of respondents in 2006 (UNODC 2006: 73), 25 percent in 2007 (UNODC 2007: 99); 74 percent in 2008 (UNODC 2008:105); 61 percent in 2009 (UNODC 2009: 79); 41 percent in 2010 (UNODC/MCN 2010: 62); 59 percent in 2011 (UNODC 2011: 60); 44 percent in 2012 (UNODC/MCN 2013:54); and 72 percent of those interviewed in 2013 (UNODC/MCN 2013: 51). In fact, 'high price' has been the most frequent response every year of the survey with the exception of 2007 and 2008, when 'poverty alleviation' was the most popular response by farmers, cited by 29 percent and 92 percent of respondents respectively in those two years (UNODC 2006: 99; UNODC 2008:105).

In fact, the response to UNODC's survey in 2008 seems anomalous given the huge proportion of farmers citing 'poverty alleviation' as their reason for cultivating poppy compared with other years, where typically no more than 15 per cent of those interviewed gave this response. While on the surface the high frequency of this response could be a function of the economic circumstances in 2008, given that it was a year of lower than average precipitation in many parts of Afghanistan, there have been other dry years since, as well as other covariate shocks, including chronic violence and conflict, that have also had dramatic effects on farmers' welfare.

Closer analysis suggests that the reason for such a pronounced uptick in the number of farmers citing poverty alleviation as the reason for cultivating poppy in 2008 could be a methodological issue, a consequence of 2008 apparently being the only year where UNODC reported against multiple responses for cultivating opium poppy rather than just one. Therefore, while 92 percent of farmers reported that they cultivated opium for reasons of poverty alleviation in 2008, 66 percent referred to the 'high price of opium,' 50 percent to the 'possibility of obtaining a loan', 37 percent to the 'high demand for opium', 21 percent because they 'needed opium for personal consumption', and 8 percent claimed they were 'encouraged by an external influence' (UNODC 2008:105). Other less frequent responses were also recorded and reported in 2008.

The 2008 survey also includes a comparison of responses to the same question reported in the 2007 survey, highlighting that multiple responses were recorded during the annual survey of 2007 but were not documented in the final report for that year. For example, the 2008 survey reports that 85 percent of farmers said they cultivated opium poppy for reasons of 'poverty alleviation' in 2007 (UNODC 2008: 105), in contrast to the figures cited in the 2007 annual survey which reported that only 29 percent of farmers cultivated opium poppy due to poverty alleviation (UNODC 2007: 99). Further comparison shows that only 16 percent of farmers claimed that they cultivated opium to obtain a loan in the 2007 survey (UNODC 2007: 90) when only one answer was reported, but in the 2008 survey, where multiple answers are documented, as many as 48 percent of farmers interviewed in 2007 claimed they cultivated opium poppy in order to obtain a loan.

In 2009 the annual opium poppy survey reverted back to reporting only a single response from farmers. From then until the most recent survey (for 2013), almost none of the other reasons for cultivating opium poppy, mentioned so frequently by respondents in the 2008 survey and recorded in 2007, are

¹¹⁴ The 2005 Survey also reported the reasons farmers were cultivating opium poppy that year, but the question was originally one that asked 'the reasons for increasing cultivation of opium poppy' (UNODC/MCN :Afghanistan Opium Survey 2005, November 2005, UNODC/MCN Kabul, p. 62) rather than the reasons for cultivation per se. Since 2006 the question has remained unchanged.

cited by more than 15 percent of those interviewed each year,¹¹⁵ and the 'high price of opium' became by far the most frequent response reported each year, irrespective of whether opium prices had in fact risen or fallen.

The difference between what is reported in the 2007 and 2008 surveys, and the responses in the 2008 report, highlight the conceptual and methodological weaknesses of an approach that attempts to distil the complex and interconnected factors that inform household decision making into a single answer (Mansfield et al 2011: 8).¹¹⁶ At its most basic, recording and reporting only one response denies the multifunctional role that opium poppy plays in rural livelihood strategies. Moreover, none of the responses listed and tabulated by UNODC are actually mutually exclusive. The recording of only one answer, without any contextual background on those responding, also fails to recognize the fact that farmers with different assets may weigh the multiple reasons why they cultivate opium poppy in quite different ways.

For example, it is quite possible for a land-poor farmer to cultivate opium poppy as a means of accessing both land – and thereby water – as well as credit, to achieve the outcome of food security, while at the same time wishing to produce opium to pay for his son's wedding. Such a marriage would achieve a range of other outcomes, which might include fulfilling his son's wishes, securing lineage, and possibly establishing familial bonds with a relatively wealthy and influential family in the community. Marriage to a more prosperous family may in turn secure access to other assets in the future, including land, non-interest bearing credit (known as *qarze hasana*), or perhaps to gain the kind of patronage that might support another son getting a job or even ensure the family's protection from an ongoing or potential conflict with a neighbor.

For this individual farmer, the high price of opium is almost irrelevant. He may have sold most of his share of the opium crop in advance the previous year so that he could meet the bride price and secure his son's future wife. He might have also sold what little residual opium he had, in the spring prior to this year's harvest, so that he could cover his wheat deficit and feed his family. The result of these advance sales might well be that once the crop was finally harvested, he would have little or no opium to actually sell on the open market.

Therefore, for this farmer the relatively high price of opium at the beginning of the season would only be important in that there might be more land available under sharecropping arrangements that year, particularly from the influential landowners in the village who had established good relations with the local security commander, and possibly anti-government elements, as a way of insuring themselves against crop destruction. The farmer's familiarity with how to cultivate opium poppy would mean that he had an increased probability of getting this land, and due to the landlord's relationship with local powerbrokers, a greater probability of obtaining a yield than other farmers who had not built these kind of alliances. In this context, 'high price' may have featured as a response by this farmer as shorthand for 'it works', but its importance was rather minor compared to the other assets that opium ensured access to, some of which the farmer might not have even given to the enumerator during a short discussion, in his desire to avoid disclosing sensitive information on both opium production and the household's financial circumstances.

This points to a further problem beyond the conceptual problems associated with recording and reporting only a single answer to a direct question on the reasons for opium poppy cultivation: the clear challenges of asking direct questions of farmers about an illegal activity in the different kind of terrain in

¹¹⁵ With the exception of 'high income for little land' in 2012 which was cited by 20 percent of respondents.

¹¹⁶ Mansfield, Alcis and OSDR 'Managing Concurrent and Repeated Risks: Explaining the reductions in opium production in central Helmand between 2008 and 2011', AREU, Kabul.

which opium poppy is grown in Afghanistan. This more direct line of enquiry raises concerns over how security issues and the presence of armed actors (state, insurgents and others) not only impacts on the selection of respondents, but also how it affects respondents' answers. There is great potential for a bias in favor of more secure, peri-urban areas on the part of those conducting the survey, and also the likelihood of social desirability bias by respondents (Pinney 2010).¹¹⁷ While it can be argued that these challenges affect any fieldwork in Afghanistan, they are particularly salient when researchers are tasked with asking direct questions on sensitive issues, and if none of the contextual data is gathered about what shapes the decisions of farmers, which would provide a basis for recasting the conversation to make it less threatening, as well as information to support verification of findings.

In conclusion, both the approach and the findings reported by UNODC as to the reasons why farmers cultivate opium poppy are problematic. Reducing the myriad of factors that inform poppy cultivation to a single response is not just simplistic, it is potentially very distortionary. It ignores how the decision to cultivate is shaped by individual, household, and community assets, values and behavior. It overlooks the rules that govern how households access the factors of production, and neglects both the complex political environment in which opium poppy cultivation takes place, and the multiple and often competing institutional interests that are at play. Finally, distilling the reasons for cultivation into a single response ignores the multifunctional role that opium poppy plays in rural livelihoods and how these roles vary across different socio-economic groups and locations.

¹¹⁷ Pinney, A. (2010). DFID Afghanistan Data Quality Assessment of the Asia Foundation Surveys of the Afghan People 2006-2009, September 2010. Unpublished Report.

E: The economic returns to opium poppy

The economic returns to opium are typically presented in the UNODC annual survey, and cited by others, as gross returns, and compared with the gross returns on wheat. This is calculated by multiplying the price of opium by the average yield, and doing the same for wheat. The focus on gross returns presents a number of problems, not least because both estimates ignore the byproducts that are associated with each crop, but also because of the considerable differences in input costs as between cultivating opium poppy, an input-intensive crop, and wheat, a crop that is typically grown using only family labor. There is a further problem with the way that opium and wheat are presented as the only alternatives to each other and indeed as mutually exclusive, whereas there are a number of other cropping options, and moreover opium poppy and wheat are often grown on the same land over time as part of sensible crop rotation practices aimed at securing food security through a combination of direct and exchange entitlement.

Byproducts

Both opium and wheat have byproducts that can be either sold or used by the household. In the case of opium, there are two byproducts, poppy straw and seed; however, neither are included in UNODC's calculations of gross returns to opium poppy cultivation.

Poppy straw is typically used as fuel for households, representing a saving on the purchase of firewood, or on time spent gathering alternative fuels. The yield is such that it is estimated that a jerib (1/5 of a hectare) of opium poppy can provide fuel for a household for around six weeks, saving the average household around US\$ 1.00 per day (Mansfield 2007: 20). The straw can also be sold on the open market, generating income for the household.¹¹⁸

Poppy seed also can be either used or sold.¹¹⁹ It can be processed into cooking oil by small household presses, with the resultant waste, known as *khunjara*, fed to livestock, a tradition more common in the northeast. An alternative is to sell poppy seed to local traders¹²⁰ who sell it on to larger traders in the district bazaars and provincial centers, who in turn subsequently transport the seed to Pakistan¹²¹ for production into edible oils (Ahmad 2008).¹²² Given the amount of poppy seed produced each year and the small amounts of seed required for planting, there is a significant amount of seed available for sale or use.¹²³ In fact, as late as 2005 poppy seed was still a legal export and listed in official statistics.

With regard to the byproducts of wheat cultivation, Maletta (2004: 2) stated in his detailed assessment of Afghan wheat production that *'any attempt to analyze the wheat crop as an activity conducive only*

¹¹⁸ Opium poppy straw can be sold by the bag, known as a bar which is the equivalent of twelve kabuli seer (84kg). In the south it is estimated that one jerib can produce ten to fifteen bar of opium straw. In the province of Badakhshan the yield of poppy straw is lower at around 400kg per jerib (USAID, Alternative Development Program for North East Afghanistan (ADP/N), 'Economic analysis of economic returns to opium poppy, wheat and vegetables', Badakhshan 2007, January 2008, p. 18.

¹¹⁹ In the south opium poppy seed sells for around 300 PR/man. A Man is a unit of weight typically used in the south and is the equivalent of 4.5 kg.

¹²⁰ In 2008 and 2009 there was a spate of very large seizures of poppy seed by ISAF. These were typically made in the bazaars of Helmand and Kandahar. The first seizure was made in Gereshk bazaar in November 2008; it was estimated at 18 metric tonnes of seed and was found in the 'new bazaar' stored amongst maize, mung bean and other dry crops.

¹²¹ In 2005, 976 metric tons of poppy seed were exported, down from 3,198 mt in 2003/04 (Central Statistics Office, Afghanistan Statistical Year Book (2009-09: 205).

¹²² Mohamed Ahmad 'Reducing edible oil imports' Dawn 24 November 2008.

¹²³ In the south, one hectare of poppy produces an estimated 60 to 75 man of seed (the equivalent of 270 to 337.5 kg) which in 2009 sold for 300 PR/man. Farmers estimate around 2.5 to 5 man (the equivalent of 11.25 kg to 22.5 kg) of seed is required to cultivate one hectare of opium. This leaves a residue of seed of between 55 to 72.5 man per hectare cultivated (the equivalent of 247.5 kg to 326.25 kg). If this is applied to the 209,000 ha of opium poppy cultivated in 2013 – and assuming the same level of cultivation in 2013/14 – there would be a potential surplus of 51,727 to 68,186 metric ton of poppy seed available for sale.

to the production of grain would be deeply flawed'. In practice, wheat straw plays an important role in the household economy. In particular, it serves as feed for livestock during the winter months, allowing households to retain their animals and sell them in the spring at higher prices than if they had to sell them in the previous fall.

As such, wheat straw is an important input into both livestock and its by-products (such as *ghee*, *krut* and wool),¹²⁴ thereby generating further economic value for the household. In turn, livestock manure is used as a fertilizer to improve the fertility of the land and mixed with wheat straw for use as household fuel. Wheat straw is also used in the production of mud bricks and in house construction (Maletta 2004). The yield of wheat straw is high, so much so that there is the potential for a unit of land to yield up to twice the weight of wheat straw as of wheat (Mansfield 2009: 48; Maletta 2004:13). The straw can also be sold on the open market. Prices vary depending on availability and season, but in the north during the winter, wheat straw can sell at a price that is commensurate with the value of wheat grain (USAID 2008: 21). Consequently, failure to include the value of wheat straw can result in the gross returns on wheat being significantly undervalued.

Inputs

There is a second, even more significant problem with the comparison of the economic returns to wheat and opium poppy presented by UNODC: It does not reflect the significant differences in input costs associated with the two crops. This is particularly problematic given the input-intensive nature of opium production. Farmers will, for example, prepare the land more thoroughly for opium production than they do for wheat, incurring higher costs for land preparation; use more fertilizer per unit of land; and spend money on diesel for a tubewell or hire the use of a pump when there is insufficient irrigation water, whereas they may not do so for wheat. Furthermore, while both opium and wheat (and all other crops) are subject to an agricultural tithe payable to the local mullah, opium production incurs additional costs in the form of payments to corrupt government officials to avoid eradication or payments to insurgents.

Most important is the large difference in labor requirements as between opium and wheat. The contrast in the labor demands of the two crops is particularly stark, with opium requiring an estimated 360 person-days per hectare (Mansfield and Pain 2008: 16), compared to an average of only 31 person-days days for rain-fed wheat and 64 days for irrigated wheat (Maletta 2004: 24).¹²⁵ While wheat can be largely managed by household labor (Maletta 2004),¹²⁶ opium cannot, with the majority of households having to hire what can be rather costly labor during the harvest season (Mansfield 1998; Mansfield 2004: 8), with daily wage rates for such labor on occasions reaching as high as US\$ 12 per person-day in 2013 in areas such as Bakwa in Farah and Khaniishin in Helmand.¹²⁷

¹²⁴ *Ghee* and *krut* refer to clarified butter and dried cream, respectively.

¹²⁵ Maletta's (2004: 28) estimates vary by region, and he argues that in the south only 55 person days are required for irrigated wheat due to widespread tractor use, compared to 75 person days in the central region around Kabul.

¹²⁶ In fact, few farmers produce so much wheat that they have to use hired help: most farmers produce relatively small outputs that can be harvested by family labor' (Maletta, Hector, 'The Grain and the Chaff: Crop residues and the cost of production of wheat in Afghanistan in a farming system perspective' Unpublished Paper, p. 48).

¹²⁷ Fieldwork in 1998 reported that 70% of those interviewed in the districts of Maiwand, Ghorak and Khakrez in the province of Kandahar and in Shinwar district in Nangarhar hired labor during the opium harvest (cited in Strategic Study #4: Access to Labour: The role of opium in the livelihood strategies of itinerant harvesters working in Helmand Province, Afghanistan by David Mansfield June 1999. UNODC). Fieldwork in Nangarhar in 2004 revealed that 80% of those interviewed reported that they hired labor during periods of peak agricultural activity, of which 96% hired labor to work on opium poppy. See 'Diversity and Dilemma: Understanding Rural Livelihoods and Addressing the Causes of Opium Poppy Cultivation in Nangarhar and Laghman, Eastern Afghanistan' (PAL – Internal Document No. 2, December 2005, p. 8).

In fact, to minimize the need for hired labor for opium poppy cultivation, farmers have pursued a number of strategies including staggered planting, cultivating different varieties of opium poppy with different maturation periods, engaging in reciprocal labor arrangements, and maximizing the use of household labor, including women and children. Wealthier households have been found to prefer to recruit labor under sharecropping arrangements, as well as offering advance payments on the future opium crop as a way of increasing their returns at the expense of farmers with limited land and capital. As Table A2 shows, such is the value of the byproducts of wheat, and the costs of inputs for opium production, that the net returns on wheat can be comparable with those of cultivating opium poppy, for example in 2008 (Mansfield 2009: 48). Prior to 2008 wheat was estimated to have generated higher net returns than opium poppy cultivation in a number of districts in the southern region of Afghanistan in 1994, 1997 and 1999 (UNDCP 1995; UNDCP 1997: 11).¹²⁸ However, it should be kept in mind that opium prices in the 1990s were considerably lower than they have been over the past decade and currently.

¹²⁸ See UNDCP, Afghanistan: Assessment Strategy and Programming Mission to Afghanistan, May-July 1995; and UNDCP, Afghanistan Annual Opium Poppy Survey 1997, (Islamabad, UNDCP, p. 11). Cited in Mansfield, David 2002 "The Economic Superiority of Illicit Drug Production: Myth and Reality - Opium Poppy Cultivation in Afghanistan" Paper prepared for the International Conference on Alternative Development in Drug Control and Cooperation, Faldafing (January 7-12).

TABLE A2: Estimated net returns on opium poppy and wheat in Helmand Province in the 2007/2008 growing season (Afs/Jerib)

OPIUM POPPY					WHEAT				
	Amount	Units	Cost	Total		Amount	Units	Cost	Total
<i>Inputs</i>									
Seed	4	Kg	0	0	Seed	30	Kg	0	0
Farmpower	2	Hours	500	1,000	Farmpower	1	Hour	500	500
Fertiliser (DAP)	2	Bag (50kg)	1,500	3,000	Fertiliser (DAP)	0.5	Bag (50kg)	1,500	750
Fertiliser (Urea)	2	Bag (50kg)	1,200	2,400	Fertiliser (Urea)	1.5	Bag (50kg)	1,200	1,800
Hired Labour during harvest	% of final yield	2.5 kg	3,150	7,875	Hired Labour	0	Person days	0	0
Food	20	Person days	50	1,000					
			0	0					
Sub Total				15,275					3,050
<i>Other costs</i>									
Payment to mullah	10% of final yield	1Kg	3,150	3,150	Ushr	10% of final yield	50 Kg	33.3	1,665
Payment to avoid eradication	1	Payment	6,000	6,000					
Sub Total				9,150					1,665
<i>Outputs</i>									
Opium gum	10	Kg	3150	31,500	Wheat Grain	500		33.3	16,650
Seed	490	Kg	10	4,900	Wheat Straw	1,000		10	10,000
Fuel (stalks)	42	Days	50	2,100					
Sub Total (Gross Returns)				38,500					26,650
Net Returns (family labour)				28,950					21,935
Net Returns (hired labour)				20,075					
Net Returns (family labour and bribe)				22,950					
Net Returns (hired labour and bribe)				14,075					

Socio-economic differentiation

A further issue with the data on the economic returns to opium poppy and wheat is the quite different benefits that different socio-economic groups involved in opium poppy cultivation gain from its cultivation. UNODC typically reports gross returns per hectare, derived by multiplying the average yield by the average farm-gate price at harvest time. The costs of production, as reported by farmers are then subcontracted from this gross figure to derive a net return per hectare. It is not clear whether the production costs reported by farmers are actual costs or a percentage of the gross value (UNODC/MCN, 2012: 62).¹²⁹ In 2013, UNODC reported a gross return of US\$ 4,500 per hectare and a net return of US\$3,600 per hectare (UNODC/MCN 2013: 10),¹³⁰ the equivalent of US\$ 900 and US\$ 720 per jerib, respectively.

As has already been discussed, net returns will vary depending on both the inputs and the outputs (including the byproducts) of the final crop. Table A3 and A4 show how much gross returns varied over a relatively short distance in central Helmand during the 2013 growing season, ranging from US\$ 900 to US\$1,424 per hectare – a function of the quite different yields obtained in the former desert areas north of the Boghra canal compared to those in the canal command area itself. These tables also show the different costs of production incurred by those farming in the former desert area where they are reliant on tube wells for irrigation, in contrast to those with land irrigated by the canal, where they do not have either the fixed cost associated with establishing a deep well, the costs of capital depletion, or the variable costs, including purchasing 80-120 liters of diesel for every jerib of land cultivated.

Most importantly, Tables A3 and A4 offer a calculation of the contrasting net returns obtained by the different socio-economic groups involved in opium poppy cultivation. It notes the different land tenure arrangements that exist, how these differ between the canal command area and the former desert areas north of the Boghra, and what this means in terms of the net returns on cultivation. It shows how markedly different net returns on opium poppy are, depending on whether farmers own their own land, whether they use family or hired labor, including during the harvest period, and according to the different sharecropping arrangements under which farmers gain access to land. At the extreme the net returns in 2013 to a landowner - who used no hired labor at all - varied from US\$ 167 per jerib in the former desert area to US\$ 997 in the canal command area. If hired labor was used during the harvest, both saw a fall in net returns; however the landowner in the former desert area actually incurred a loss of US\$34 for each jerib of opium poppy cultivated.

The losses are even more significant for landowners who met all the costs of production but employed a sharecropper who was given three quarters of the final crop. Under this arrangement the landowner made a net loss of US\$ 251 per jerib whereas the sharecropper actually made a net gain of US\$ 224 per jerib.

As indicated in the main report, not only do estimates of the gross (or even net) returns on opium poppy fail to capture the on-farm income that the different socio-economic groups involved in opium production actually derive from its sale, but it also ignores the different functions that opium plays in the wider household economy. For instance, for the sharecropper in a former desert area, opium not only provides an on-farm income with which to purchase food, but it also provides a place to live - something he had lost access to when opium was banned in the canal command area and landowners moved to less labor-intensive crops that they could manage with their own family labor. As the only crop valuable enough to cover the costs of establishing a tubewell as well as the running costs, opium production also cross-subsidizes the production of food crops, such as wheat, and a small amount of

¹²⁹ UNODC/MCN, Afghanistan Opium Poppy Survey 2012, April 2013, UNODC/MCN, Kabul, page 62

¹³⁰ UNODC/MCN, Afghanistan Opium Survey 2013, December 2013, UNODC/MCN, Kabul, page 10.

summer vegetable production, as well as providing drinking water for the household and their livestock. None of these in-kind benefits are included in any calculations of the returns on opium poppy, but they can be just as important in determining levels of cultivation as the on-farm income that farmers expect to earn from opium production.

TABLE A3: Net returns on opium poppy cultivation on one jerib of land irrigated by diesel power tubewell in the former desert areas north of the Boghra canal in 2013

A: Capital	Amount	Units	Cost (PR)	Total (PR)	Afs	USD	NOTES
Sink well	70	Meters	550	38500	21945	385	Wells typically dug 65 to 90 meters; 70 meters median response
Water Pump	1	Unit	80000	80000	45600	800	Needs replacing every 2-3 years
Generator	1	Unit	50000	50000	28500	500	Needs replacing every 2-3 years
Pipes	1	3-5"	55000	55000	31350	550	Needs replacing every 2-3 years
House	1	Unit	100,000	100000	57000	1000	It is part of the arrangement that landowner provides house and well
A: Total Start up Costs			285550	323500	184395	3235	
B: Inputs	Amount	Units	Cost (PR)	Total (PR)	Afs	USD	
Seed	4	Kg	111	444	253.08	4.44	Quality seed ranges from 500-750 PR/man
Farmpower	2	Hrs	2500	5000	2850	50	Plough land for poppy three times.
Manure	1	Trailer	35000	35000	19950	350	Manure applied in former desert land north of the Boghra due to fertility problems
Herbicide	0.5	litre per jerib	1000	500	285	5	If use herbicide don't need to hire labor for weeding
Diesel	80	litre per jerib	110	8800	5016	88	Typically 80-120 liters per jerib: first irrigation at planting then every 3-4 days from spring until flowering
Fertiliser (DAP)	2	Bag (50kg)	4800	9600	5472	96	DAP 50 kg at planting and 50 kg during weeding
Fertiliser (Urea)	2	Bag (50kg)	2200	4400	2508	44	Urea 50 kg during weeding and 50 kg at flowering
Hired Labor	0.25	opium yield	52500	13125	7481.25	131.25	one sharecropper per 0.5 jerib, weeding by family when use herbicide
Food for laborers	28	person days	250	7000	3990	70	3 good meals per day
B (i) Sub total: Ag inputs (hired labour)				83869	47805.3	838.69	
B: (ii) Sub total: Ag inputs (family labour)				63744	36334.08	637.4	
C: Capital depletion							
Water Pump	0.5		80000	40000	22800	400	Well irrigates up to 20 jeribs
Generator	0.5		50000	25000	14250	250	Well irrigates up to 20 jeribs
Pipes	0.5		55000	27500	15675	275	Well irrigates up to 20 jeribs
Total costs				92500	52725	925	
Per jerib				4625	2636.25	46.25	Well irrigates up to 20 jeribs

D: Outputs							
Opium	0.75	Man	70000	52500	29925	525	Yields as reported in Helmand May 2013 and December 2013
Straw	365	Days	100	36500	20805	365	Straw provides cooking fuel for household and for baking of bread. Both land owner and sharecropper take what they need.
Seed	7	Seer	66	462	263.34	4.62	Increasingly not collected and sold; only take what is needed by household
Sub total: Gross returns				89462	50993.34	894.62	
E: Post harvest payments to institutions							
Mullah	5%		52500	2625	1496.25	26.25	5% paid to mullah in dasht land typically paid by landowner or 4/5 sharecropper
Taliban	0.0	per jerib	70000	1750	997.5	17.5	'Tax' of 1 khord per jerib in 2013 due to low yield
Subtotal: post harvest payments				4375	2493.75	43.75	
NET RETURNS: IF NO HIRED LABOR							
Net returns to owner cultivator - Family Labor				16718	9529.26	167.18	Does not employ any labor at any stage, uses only family labor
NET RETURNS: IF USES HIRED LABOR							
Net returns to owner cultivator - hired labor during harvest				-3407	-1941.99	-34.07	Does not employ any sharecroppers only hired labor during harvest
Net returns to Sharecropper (1/4) and no costs				22365.5	12748.34	223.66	Landowner pays all the costs
Net returns to Landowner (3/4) and pays all costs				-25056.8	-14282.4	-250.57	Landowner pays all the costs
Net returns to Sharecropper (5/6) all costs				-13722.2	-7821.63	-137.22	Sharecropper pays all costs except capital costs
Net returns to Landowner (1/6) no costs except capital				10583.54	6032.62	105.84	Sharecropper pays all costs except capital costs
Net returns to Sharecropper (6/7) all costs				-11306.7	-6444.81	-113.07	Sharecropper pays all costs except capital costs
Net returns to Landowner (1/7) no costs except capital				7899.68	4502.82	78.10	Sharecropper pays all costs except capital costs

Table A4: Net returns on opium poppy cultivation on one jerib of land irrigated by canal in the canal command area of Helmand in 2013

A: Inputs	Amount	Units	Cost (PR)	Total (PR)	Afs	USD	
Seed	4	Kg	111	444	253.08	4.44	Quality seed ranges from 500-750 PR/man
Farmpower	2	Hrs	2500	5000	2850	50	Plough land for poppy three times.
Herbicide	0.5	liter per jerib	1000	500	285	5	If use herbicide don't need to hire labour for weeding
Fertilizer (DAP)	2	Bag (50kg)	4800	9600	5472	96	DAP 50 Kg at planting and 50 kg during weeding
Fertilizer (Urea)	2	Bag (50kg)	2200	4400	2508	44	Urea 50 Kg during weeding and 50 kg at flowering
Hired Labor	0.25	opium yield	52500	13125	7481.25	131.25	one sharecropper per 0.5 jerib, weeding by family when use herbicide
Food for laborers	28	person days	250	7000	3990	70	3 good meals per day
B (i) Sub total: Ag inputs (hired labour)				61994	35336.58	619.94	
B: (ii) Sub total: Ag inputs (family labour)				28744	16384.08	287.44	
D: Outputs							
Opium	1.5	Man	70000	105000	59850	1050	Yields as reported in Helmand May 2013 and December 2013
Straw	365	Days	100	36500	20805	365	Straw provides cooking fuel for household and for baking of bread. Both land owner and sharecropper take what they need.
Seed	14	Seer	66	924	526.68	9.24	Increasingly not collected and sold; only take what is needed by household
Sub total: Gross returns				142424	81181.68	1424.24	
C: Post harvest payments to institutions							
Mullah	10%		105000	10500	5985	105	10% paid to mullah in canal command area, typically paid by landowner or 4/5 sharecropper
Taliban	0.05	per jerib	70000	1750	997.5	17.5	Tax' of 2 khord per jerib in 2013 paid to ALP, Taliban or both
Subtotal: post harvest payments				14000	7980	140	
NET RETURNS: IF NO HIRED LABOR							
Net returns to owner cultivator - Family Labor				99680	56817.6	996.8	Does not employ any labor at any stage, uses only family labor
NET RETURNS: IF USES HIRED LABOR							

Net returns to owner cultivator - hired labor during harvest	66430	37865.1	664.3	Does not employ any sharecroppers only hired labor during harvest
Net returns to Sharecropper (1/3) and no costs	46999.92	26789.95	470.0	Landowner pays all the costs
Net returns to Landowner (2/3) and pays all costs	18005.84	10263.33	180.58	Landowner pays all the costs

Staples versus cash crops

Aside from these omissions and errors in the calculation of the economic returns to opium poppy and wheat, it is also important to recognize the different roles these crops play in the household economy and how this impacts on the allocation of both labor and land. Maletta (2004: 4) has outlined how small landholdings, low yields, and high population densities in Afghanistan preclude the majority of farmers from achieving (let alone surpassing) self-sufficiency in wheat and deriving any monetary value from its production. The result is that for the vast majority of farmers in Afghanistan, wheat is a staple and not a cash crop, and as such the presentation of the gross returns (or even the net returns) on the two crops is misleading.

For most farmers, an increase in the price of wheat does not result in a shift to commercial wheat production, even if the net returns on wheat production surpass those of opium. Instead, high wheat prices are seen by farmers as bringing about an increase in the cost of food that needs to be managed by the household. This is especially the case where there are concerns over wheat imports from neighboring countries such as Pakistan, and where violence and conflict make it difficult to travel and purchase wheat at the local market (Mansfield 2009; Mansfield et al 2011).

For farmers who own sufficient land to meet family food requirements, possibly with some land to spare for a potential surplus, an increase in wheat prices may result in an increase in wheat production. However, this will largely be at the margin, where households may forgo some of the land that they had cultivated with cash crops the previous year (including opium poppy) to produce extra wheat for family consumption (Mansfield et al 2011). It should be emphasized that this shift to wheat is not driven by the pursuit of profit and commercial production but rather by the need to hold down financial outlays for a staple food and to secure wheat supply (Phillips et al 1995).

For the vast majority of Afghan farmers, however, small landholdings and the large number of household members mean that they cannot meet their household food requirements even if they allocate all of their land to wheat. For these farmers there will always be a need for cash income to make up any food deficit, and to manage the risk of crop failure. Therefore, in response to increasing wheat prices these farmers will persist with cash crop production and where possible pursue wage labor opportunities so that they can meet the rising cost of wheat flour on the market. For farmers that do not own any land at all and gain access to land through sharecropping or tenancy arrangements, an increase in the wheat price may force them off the land altogether, if landowners look to ensure food security by substituting wheat for opium poppy and no longer require sharecroppers or tenant farmers to manage the land due to the lower labor inputs required for wheat production.¹³¹

The varying responses to an increase in the price of wheat from farmers with quite different landholdings reflects the inadequacy of the current comparison of the economic returns on opium and wheat. Not only does it portray a far too simplified model of farmers as economic actors having solely income maximizing objectives, choosing between two crops grown with quite different functions and inputs, but it also presents an image of farmers as homogenous, landed, shaped by the same aspirations and preferences, and in a position to respond to shifts in prices by simply reallocating inputs from one activity to another. This is clearly not the case in rural Afghanistan and distorts our understanding of those who are engaged in drug crop cultivation and how they respond to efforts to encourage them to abandon it.

¹³¹ Moreover, if sizable landowners are prevented from having opium poppy cultivated on their land (i.e. by an effective opium ban), they will manage to make ends meet cultivating wheat, but in the process they will eject sharecroppers who had been on their land cultivating opium poppy and instead engage in wheat cultivation entirely or largely with household labor.

Of course, a range of other crops are cultivated in the winter alongside opium poppy and wheat, including onion, spring onion, garlic, clover, spinach and squash, which rarely figure in comparisons with opium poppy. There are also crops that are planted in the spring, such as water melon, melon, cotton, eggplant, cucumber, tomato, pea, green bean and okra, all of which compete with opium poppy for both household land and labor, but only between February/March and May when opium is harvested, and not for the entire winter growing season.

Estimates have shown that the potential net returns on these cash crops have often been favorable. For example, research in Nangarhar in 2006 showed higher net returns for *gandana* (a type of leek), onion, okra and potato, squash, and tomato than for opium poppy (Mansfield 2006: 22). In Badakhshan, Johnson and Polovny (2007) reported higher net returns from tomato, eggplant, onion, cucumber, carrot, turnip, cauliflower, and okra than for opium in 2007. Moreover, unlike opium poppy many of these crops can be intercropped, and farmers have been found to have as many as five crops cultivated on the same unit of land at the same time.

Given the multitude of crops that compete with opium poppy for the factors of production in Afghanistan, and the fact that many can be grown alongside each other as a way of managing pests, labor inputs, and risks of crop failure, it remains unclear why we are still only presented with a comparison between the gross returns on wheat, a crop grown primarily for consumption, and opium, an input-intensive and labor-intensive cash crop. In addition to being misleading, such comparisons may further distort policy thinking, not least by giving an impression that the primary alternative to opium poppy is wheat, which could not be farther from the truth.

F: Estimates of employment and incomes for opium, related activities, and wheat

The following tables provide calculations of full-time-equivalent employment (FTEs) as well as incomes for opium, downstream and related activities, and wheat. These are based on the limited available data, and the assumptions used are made explicit in footnotes.

ESTIMATED EMPLOYMENT AND INCOME IN THE AFGHAN OPIUM INDUSTRY

A: CULTIVATION

	Days per hectare	Hectares grown	Total person days	FTE ⁱ	USD/day	Total Income		
Preparation, weeding, clearing	160	209,000	33,440,000	167,200	6.2 ⁱⁱ	1,036,640		
Harvesting ⁱⁱⁱ	200	209,000	41,800,000	209,000	9.8	2,048,200		
Total			75,240,000	376,200		3,084,840		

Direct linkages to other economic sectors
 Vehicle sales (tractor, car, motorbike); Agricultural inputs (fertilizer and herbicide); Engineering (renting of rigs for digging deep wells, as well as purchase of generators, diesel, water pumps, solar panels, and service by mechanics); General store (polythene sheeting and bags)

B: TRADE^{iv}

	Share of Trade (kg)		Number of Traders		Person days worked		Amount traded		FTE		Income ^v	
	Low (kg)	High (kg)	Low	High	Low	High	Low	High	Low	High	Low	High
Small traders^{vii}	1,350,000	2,600,000	6,750	13,000	607,500 ^{viii}	1,170,000	1,350,000	2,600,000	3,038 ^{ix}	5,850	5,400,000 ^x	13,858,000
Large Traders^{xi}	2,700,000 ^{xii}	4,550,000	1,350	2,275	270,000	455,000	2,700,000	4,550,000	1,350	2,275	10,800,000	24,251,500
Employees^{xiii}			2	3	540,000	1,365,000			2,700	6,825	27,000	68,250
Guards^{xiv}			0.20		54,000	91,000			270	455	2,700	4,550
Scales^{xv}			0.10		27,000	45,500			135	228	1,350	2,275
Sub Total (Trade)							4,050,000	7,150,000	7,493	15,633	16,231,050	38,184,575

Direct linkages to other economic sectors
 Vehicle sales (cars or motorbikes); real estate (rent or purchase of shop in bazaar); general stores (polythene sheeting and bags, metal containers, weights and scales, plastic and metal bowls, propane heater); Security sector (bribes, protection, weapons) ; diesel

C: TRANSPORT													
	Amount transported ^{xvi}		Number of Journeys		Number of days required ^{xvii}		No. of people involved per journey	Total person days		FTE		Income ^{xviii}	
	Low	High	Low	High	Low	High		Low	High	Low	High	Low	High
Opium^{xix}													
	4,500,000	6,500,000											
By car^{xx}	1,485,000	2,145,000	2,700	3,900	10,800	15,600	2	21,600	31,200	108	156	14,850,000	21,450,000
By Truck^{xxi}	1,350,000	1,950,000	675	975	2,700	3,900	4	10,800	15,600	54	78	13,500,000	19,500,000
By boat	297,000	429,000	1,485	2,145	5,940	8,580	2	11,880	17,160	59	86	5,940,000	8,580,000
By animal	252,000	364,000	3,360	4,853	13,440	19,413	1	13,440	19,413	67.2	97	5,040,000	7,280,000
Person and M/bike	1,116,000	1,612,000	55,800	80,600	223,200	322,400	1	223,200	322,400	1,116	1,612	22,320,000	32,240,000
Sub Total Opium	4,500,000	6,500,000								1,405	2,029	61,650,000	89,050,000
Morphine/ Heroin^{xxii}													
	428,143 ^{xxiii}	618,429											
By car^{xxiv}	141,287	204,081	257	371	1,028	1,484	2	2,055	2,968	10	15	2,825,743 ^{xxv}	4,081,629
By Truck	128,443	185,529	64	93	257	371	4	1,028	1,484	5	7	2,568,857	3,710,571
By boat	28,257	40,816	141	204	56	816	2	1,130	1,633	6	8	847,723	1,224,489
By animal	23,976	34,632	320	462	1,279	1,847	1	1,279	1,847	6	9	719,280	1,038,960
Person and M/bike	106,179	153,370	5,309	5,112	21,236	20,449	1	21,236	20,449	106	102	3,185,383	4,601,109
Sub total Heroin	428,143	618,429								134	142	10,146,986	14,656,757
Precursors^{xxvi}													
Acetic Anhydride^{xxvii}	899,100 ^{xxviii}	1,298,700	1,199	1,732	9,590 ^{xxix}	13,853	4	38,362	55,411	192	277	4,495,500 ^{xxx}	6,493,500
Calcium Oxide (Lime)	770,657 ^{xxxi}	1,113,171	1,028 ^{xxxii}	1,484	8,220	11,874	4	32,881	47,495	164	238	3,853,286	5,565,857
Ammonium Chloride	2,183,529 ^{xxxiii}	3,153,986	2,911	4,205	23,291	33,643	4	93,164	134,570	466	673	10,917,643	15,769,929
Sodium bicarbonate	2,183,529 ^{xxxiv}	3,153,986	2,911	4,205	23,291	33,643	4	93,164	134,570	466	673	10,917,643	15,769,929
Acetone	17,126 ^{xxxv}	24,737	25	33	183	264	4	731	1,056	4	5	85,629	123,686
Activated	642,214 ^{xxxvi}	927,643	856	1,237	6,850	9,895	4	27,401	39,579	137	198	3,211,071	4,638,214

Carbon													
Hydrochloric acid	16,269 ^{xxxvii}	23,500	22	31	174	251	4	694	1,003	4	5	81,347	117,501
Concentrated Ammonia solution	11,132 ^{xxxviii}	16,079	15	21	119	172	4	475	686	2.4	3	55,659	80,396
Sub Total: Precusors	6,723,555	9,711,802								1,434	2,072	33,617,777	48,559,011
Sub Total Transport										29,732	4,243	105,414,763	152,265,769
Direct linkages to other economic sectors	Vehicle sales (cars or motorbikes); Security sector (bribes, protection, weapons); diesel												
C: PROCESSING													
	Amount of opium to be processed^{xxxix}		Amount of heroin/morphine produced		Number of laboratories^{xlxi}		Number of employees^{xlii}		FTE		Income		
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	
Laboratories	2,970,000	4,290,000	424,286	612,857	177	1,021	1		177	1,021	16,971,429 ^{xlxiii}	61,285,714	
Cook ^{xliv}							1	2	177	2,043	12,728,571	30,642,857	
Labor ^{xlv}							5	12	884	12,257	8,839	122,571	
Sub Total									1,061	14,300	29,708,839	92,051,143	
Direct linkages to other economic sectors	Vehicle sales (cars or motorbikes); Security sector (bribes, protection, weapons); fuel: diesel and wood; engineering (for press); real estate (house to purchase or rent to use as laboratory); general store (metal and plastic bowls/tubs, sacks and cloth, stoves etc)												
D: MONEY LAUNDERING													
	Amount of money to be transferred^{xlvi}		Number of hawaladars required		Number of employees		FTE		Income				
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	
Hawaladar^{xlvii}	1,050,000,000	2,950,000,000	21 ^{xlviii}	59	2	4	42	236	525,000 ^{xlx}	1,475,000			
Guards	1		21	59	1	1	21	59	210 ^l	590			

INDIRECT EMPLOYMENT FROM THE AFGHAN OPIUM INDUSTRY - HERBICIDE, DIESEL AND TUBEWELLS

A: HERBICIDESⁱⁱ

	Opium Poppy (ha)	Area Where Herbicide Applied (Ha)		Total Amount of Herbicide Required (liters) ⁱⁱⁱ		Value (USD) ⁱⁱⁱ		Number of Traders ^{iv}		FTE		Income ^{iv}	
		Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
Helmand ^{vi}	100,693	50,347	100,693	125,866	251,733	743,755	3,661,564	72	420	144 ^{vii}	1,678	91,539	228,848
Farah ^{viii}	24,492	12,246	24,492	30,615	61,230	180,907	890,618	17	102	35	408	22,265	55,664
Kandahar	28,335	14,168	28,335	35,419	70,838	209,293	1,030,364	20	118	40	472	25,759	64,398
Uruzgan	9,880	4,940	9,880	12,350	24,700	72,977	359,273	7	41	14	165	8,982	22,455
Nimroz	16,252	8,126	16,252	20,315	40,630	120,043	590,982	12	68	23	271	14,775	36,936
Zabul	1,335	668	1,335	1,669	3,338	9,861	48,545	1	6	2	22	1,214	3,034
Sub Total				226,234	452,468	1,336,836	6,581,345	129	754	259	3,016	164,534	411,334

B: DIESEL

	Hectares	Diesel Required/ hectare ^{ix}		Value (USD) ^{ix}		Number of diesel traders ^{xi}		FTE		Income ^{xi}	
		Low	High	Low	High	Low	High	Low	High	Low	High
	175,639 ^{xiii}	70,255,600	105,383,400	75,273,857	112,910,786	1,952	1,464	7,806	8,782	2,128,958	2,395,077
Sub Total								7,806	8,782	2,128,958	2,395,077

C: DEEP WELLS

	Hectares	Jeribs	Number of deep wells required ^{xiv}		Number of wells per year since 2005		Cost (USD) ^{xv}		Number of barma wallahs ^{xvi}		FTE ^{xvii}		Income ^{xviii}	
			Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
	175,639 ^{xix}	878,195	43,910	58,546	5,489	7,318	9,563,544	26,580,035	183	244	915	1,220	239,508	399,180
Sub Total											915	1,220	239,508	399,180

ESTIMATED EMPLOYMENT AND INCOME IN THE AFGHAN WHEAT SUBSECTOR

A: CULTIVATION

	Days per hectare	Hectares	Yield (MT) ^{lxxx}	Total person days	Production (MT)	FTE	USD/day ^{lxxxi}	Income
Irrigated	65 ^{lxxxi}	1,167,000	2.99	75,586,590	3,489,330	377,933	5.9	2,229,804
Rainfed	31 ^{lxxxiii}	1,345,000	1.18	41,668,100	1,587,100	208,341	5.9	1,229,209
Sub Total		2,512,000		117,254,690	5,076,430	586,273		3,459,013

Direct linkages to other economic sectors Vehicle sales (tractor, car, motorbike); Agricultural inputs (fertiliser and herbicide).

B: TRADE

	Amount Traded (MT)	No of traders ^{lxxxiv}		Employees		FTE		Income	
		Low	High	Low	High	Low	High	Low	High
Wheat Grain ^{lxxxv}	2,538,215	51	1269	2	4	102	5,076	16,752,219 ^{lxxxvi}	25,382,150
Guards ^{lxxxvii}				5	127	5	127	51 ^{lxxxviii}	1,269
Scales ^{lxxxix}				5	127	5	127	51	1,269
Wheat Flour/Grain Imports	1,100,000	22	550	2	4	44	2,200	7,260,000	11,000,000
Guards				2	55	2	55	22	550
Scales				2	55	2	55	22	550
Sub Total	3,638,215					160	7,640	24,012,263	36,383,250

Direct linkages to other economic sectors Vehicle sales (cars or motorbikes); real estate (rent or purchase of shop in bazaar); general stores (bags, metal containers, weights and scales); diesel.

C: TRANSPORT													
	Amount transported		Number of Journeys ^{lxxx}		Number of days required		Number of people per journey ^{lxxxi}	Total person days		FTE		Income	
	Low	High	Low	High	Low	High		Low	High	Low	High	Low	High
Wheat Grain and Flour													
	3,638,215 ^{lxxxii}	3,638,215	90,955	181,911	363,822	727,643	4	1,455,286	2,910,572	7,276	14,553	109,146 ^{lxxxiii}	218,293
Sub Total Transport										7,276	14,553	109,146	218,293
Direct linkages to other economic sectors	Vehicle sales (trucks, cars); diesel												
C: MILLING													
	Number of Mills		Number of Employees		FTE		Income						
	Low	High	Low	High	Low	High	Low	High					
Small ^{lxxxiv}	30,000	30,000	2	2	45,000 ^{lxxxv}	45,000	57,109,838 ^{lxxxvi}	91,375,740					
Large ^{lxxxvii}	12	15	100	100	1,200	1,500	12,000 ^{lxxxviii}	15,000					
Sub Total					46,200	46,500	57,121,838	91,390,740					
Direct linkages to other economic sectors	Vehicle sales (trucks, cars or motorbikes); fuel; diesel and wood; General Store (sacks).												
D: BAKING													
	Amount of wheat flour to be baked (MT)		Number of Commercial Bakeries		FTE		Income ^{lxxxix}						
	Low	High	Low	High	Low	High	Low	High					

	1,819,108 ^{xc}	1,819,108	49,839 ^{xci}	49,839	199,354 ^{xcii}	199,354	2,990,314	2,990,314
Sub Total (Baking)					199,354	199,354	2,990,314 ^{xciii}	2,990,314
Direct linkages to other economic sectors	Real Estate (rent or purchase of shop in bazaar)							
TOTALS: FTE AND INCOME								
	LOW				HIGH			
FTE					831,988			
INCOME					87,692,574			
					134,441,610			

ⁱ Assume FTE is 200 days per year.

ⁱⁱ Assume wage labor rates as paid in 2013 (source: UNODC/MCN 2013: 53).

ⁱⁱⁱ Assume 360 persons days per hectare (source Mansfield, D., *The Economic Superiority of Illicit Drug Production: Myth and Reality - Opium Poppy Cultivation in Afghanistan*.

Paper prepared for the International Conference on Alternative Development in Drug Control and Cooperation, Feldafing January 7-12 2002..

);).

^{iv} UNODC estimate 4,500 -6,500 metric tons produced in 2013 (source: UNODC/MCN 2013).

^v Assume traders (small and large) income is equivalent of average mark-up on opium trade at USD 6-8 per kg minus costs of 1/3 of mark up (UNODC Afghanistan Drug Price Monitoring Monthly Report March 2014: 3).

^{vi} Assume small traders on average trade 200kg per annum (source: Adam Pain, 'Opium Trading Systems in Helmand and Ghor, AREU, Kabul, January 2006, p. 14; UNDCP Strategic Study 2: The Dynamics of the farmgate opium trade and the coping strategies of opium traders' by David Mansfield, UNDCP; Islamabad, October 1998: p. 8).

^{vii} Small traders are often seasonal and only work within their own district or neighboring area; may work out of existing shop or house, or act as 'motorbike trader'.

^{viii} Small traders are assumed to work for only 90 days full-time annum.

^{ix} Small traders are sole traders and do not employ anyone else.

^x Assume small traders trade 30-40% of total opium in Afghanistan in a given year (source: Pain 2006: 14; UNDCP/Mansfield 1998: 8).

^{xi} Assume large traders on average trade 2,000 kg per annum (source: Pain 2006: 14; UNDCP/Mansfield 1998: 8).

^{xii} Assume large traders typically trade 60-70% of total opium in Afghanistan.

^{xiii} Assume each large trader works full time and employs 2-3 people (FT) in each shop (Mansfield, fieldwork 1998, UNDCP).

^{xiv} Assume two chawkidars work full time for up to 10 shops, paid USD 10 per day (source: Mansfield, fieldwork 2010).

^{xv} Assume tarazoo dar works full time on weights and measures for up to 10 shops, paid USD 10 per day (source: Mansfield, fieldwork 2010).

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- ^{xvi} Assume a car can carry 300 - 800 kg (average 550 kg); a truck can carry 2,000 kg; boat 200 kg; animal 50-100 kg (average 75 kg); person (including on motorbike 20 kg) (source: MCN 2013: pp. 26, 28).
- ^{xvii} Assume each journey requires 4 person days regardless of mode of transport, including to laboratories or border as well as for waiting time.
- ^{xviii} Assume paid USD 10 per kg for transport of opium in bulk i.e. by car and truck (Source: MCN 2013: 16, 26); and paid USD 20 per kg for transport of opium by person (MCN 2013: 16, 26) and by boat (will be cross border).
- ^{xix} Assume all opium has to be transported.
- ^{xx} Assume 33 per cent of total opiates are transported by car; 30 percent by truck; 6.6 percent by boat (northern provinces); 5.6 percent by animal; and the rest by person or motorbike (based on seizure data cited in MCN 2013: 33-34).
- ^{xxi} Assume with truck two people driving and two loading, others load themselves.
- ^{xxii} Assume 2/3 of opium processed into morphine base or heroin (source: UNODC Addiction Crime and Insurgency 2009:67).
- ^{xxiii} Assume conversion rate of 7 kg of opium to 1 kg of morphine base and heroin (source: UNODC/MCN Afghan poppy survey 2013: 68).
- ^{xxiv} Assume 33 percent of total opiates are transported by car; 30 percent by truck; 6.6 percent by boat (northern provinces); 5.6 percent by animal; and the rest by person or motorbike (based on seizure data cited in MCN 2013: 33-34).
- ^{xxv} Assume paid USD 20 per kg for transport of morphine/heroin in bulk i.e. by car and truck (MCN 2013: 16; 26); and paid USD 30 per kg for transport of opiates by person (Source: MCN 2013: 16, 26) and by boat (will be cross border).
- ^{xxvi} UNODC cites 10,000 metric tons of precursors chemicals needed each year (Source: UNODC Addiction Crime and Insurgency 2009:67).
- ^{xxvii} Assume acetic anhydride and ammonium chloride transported in 500-1000 liter shipments, and an average of 750 liters (Source: MCN 2013: 35).
- ^{xxviii} Assume need 2.1 liters of AA per 1 kg of heroin produced.
- ^{xxix} Assume each journey requires 8 days from border crossing to final point of destination.
- ^{xxx} Assume paid USD 5 per kg or liter transported (source: Horticultural Survey, p. 125, states cost of transport from US\$ 29-103/mt in country).
- ^{xxxi} Assume 1.8 kg of lime per 1 kg of heroin produced.
- ^{xxxii} Assume lime and other precursors also transported in 750 kg shipments.
- ^{xxxiii} Assume 5.1 liters of ammonium chloride per 1 kg of heroin produced.
- ^{xxxiv} Assume 5.1 kg of sodium bicarbonate per 1 kg of heroin produced.
- ^{xxxv} Assume 40 ml of acetone per 1 kg of heroin produced.
- ^{xxxvi} Assume 1.5 kg of activated carbon per 1 kg of heroin produced.
- ^{xxxvii} Assume 38 ml of hydrochloric acid per 1 kg of heroin produced.
- ^{xxxviii} Assume 26 ml of concentrated ammonia solution per 1 kg of heroin produced.
- ^{xxxix} Assume two-thirds of opium processed into heroin (source: UNODC Addiction Crime and Insurgency 2009: 67)
- ^{xl} UNODC cite 'hundreds' but no further detail (source: UNODC Addiction Crime and Insurgency 2009: 61).
- ^{xli} Assume laboratory capacity of 10-20 kg per cycle with 5-10 cycles per month (Source: MCN 2013:47), which equates to 600 to 2400 kg of heroin per year.
- ^{xlii} Assume each lab employs 5 to 12 people (source: MCN 2013: 48; Mansfield, fieldwork, Achin 2009; anonymous fieldwork, Badakhshan 2005).
- ^{xliii} Assume lab owner gets paid between USD 40-100 per kg of opiate produced (Source: MCN 2013: 49).
- ^{xliiv} Assume cook gets paid USD 30-50 per kg of heroin (Source: MCN 2013: 49).
- ^{xliv} Assume laborers get paid USD 10 per day (MCN 2013: 48).
- ^{xlvi} UNODC states value of trade of USD 2.0 to USD 3.9 billion of which USD 0.95 billion is the value of the farm-gate trade (Source: UNODC/MCN 2013).
- ^{xlvii} Assume all drug funds other than farm-gate receipts are moved via hawaladar.
- ^{xlviii} Assume each hawaladar transfers USD 50 million per annum (source: Thompson 2011).
- ^{xlix} Assume hawaladar paid 5 percent commission for services on all money transferred (Source: Thompson 2011)
- ^l Assume guards paid USD 10 per day.
- ^{li} Fieldwork shows herbicide use on opium is prevalent in the southern provinces of Helmand, Farah, Nimroz but not in Balkh, Badakhshan and Nangarhar.

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- lii Assume 2.5 liters of herbicide per hectare (source: Mansfield, fieldwork 2012 and 2013, Helmand and Farah).
 - liii Assume paraqat is main herbicide used on poppy Iranian 650 PR/liter and Chinese 1600 PR/liter (source Mansfield, fieldwork 2012 and 2013, Helmand and Farah).
 - liiv Assume Herbicide seller sells 600 -1,750 liter per shop (Source Mansfield, fieldwork 2012 and 2013, Helmand and Farah).
 - lv Herbicide sellers report profit of 80 - 100 PR per liter with exchange rate USD 1.00 = 110, December 2013 (source: Mansfield, fieldwork 2012 and 2013, Helmand and Farah).
 - lvi All farmers cultivating opium poppy in Helmand in 2013 reported using Herbicide (Source: Mansfield, fieldwork, May and December 2013)
 - lvii Assume 2-4 employees per shop (Source Mansfield, fieldwork 2012 and 2013, Helmand and Farah).
 - lviii All farmers cultivating opium poppy in Bakwa in Farah in 2013 reported using herbicide (Source: Mansfield fieldwork, October 2013)
 - lix Assume in areas where no surface water and 400 to 600 liters required per hectare.
 - lx Cost of diesel 60 Afs/liter in 2013.
 - lxi Assume 30 percent of business to dasht, and sell 10-20,000 liters per month (Source: Mansfield fieldwork Helmand May 20130.
 - lxii Profit per barma wallah 10000-15,000 PR per month (Mansfield fieldnotes Helmand December 2013).
 - lxiii Extra 75, 639 ha of land under cultivation in 2012 compared to 2003 in Central Helmand, Bakwa and Delarem (Alcis Imagery).
 - lxiv Each deep well will irrigate 15-20 jeribs
 - lxv Assume each well between 60 meters and 100 meters at a cost of 400-500 PR per meter
 - lxvi Assume each barma wallah can drill maximum of 30 wells per year.
 - lxvii Each barma wallah has 5 employees
 - lxviii Profit per barma wallah 12,000-15,000 PR per month (source: Mansfield fieldnotes, Helmand December 2013).
 - lxix Extra 175, 639 ha of land under cultivation in 2012 compared to 2003 in Central Helmand, Bakwa and Delarem (Alcis Imagery).
 - lxx Assume yields as in World Bank (source: 'Benchmarking Wheat Study'2013, p. 2).
 - lxxi Assume wage labor rate of USD 5.9 per day for wheat (source: UNODC/MCN 2013: 53; World Bank Benchmarking Wheat Study 2013, p. 1)
 - lxxii Assume 65 days per hectare for irrigated wheat (Source: Maletta 'The Grain and the Chaff' 2004, p. 25).
 - lxxiii Assume 31 days per hectare for rainfed wheat (source: Maletta 'The Grain and the Chaff' 2004, p. 25).
 - lxxiv Assume traders trade from 2,000 MT to 50,000 MT per year (source: Mansfield, fieldwork Helmand and Kandahar traders 2010-2013)
 - lxxv Assume 5,050 MMT of wheat produced (source: 'Benchmarking Wheat Study'2013, p. 2) and 50% is baked at home and therefore not traded or transported (2013, p. 52)
 - lxxvi Assume wheat trader earns between USD 0.33 and USD 0.50 profit on each bag of wheat traded.
 - lxxvii Assume chawkidar works full time but for up to 10 shops.
 - lxxviii Assume chawkidar and Tarazoo Dar are paid USD 10 per day.
 - lxxix Assume tarazoodar works full time on weights and measures for up to 10 shops.
 - lxxx Assume each journey requires four person days and that wheat and wheat flour are transported in either 20 MT truck or 40 MT truck.
 - lxxxi Assume with truck two people driving and two loading, others load themselves.
 - lxxxii Assume all wheat traded is transported.
 - lxxxiii Assume driver and employees paid US 15 per day.
 - lxxxiv Assume 30,000 small mills (source: 'Benchmarking Wheat Study'2013, p. 52).
 - lxxxv Assume 1.5 FTE in each small scale mill (Source: 'Benchmarking Wheat Study'2013, p. 52).
 - lxxxvi Assume small mill owners get 10 percent of total amount of what they mill (Source: Mansfield, Fieldwork), and mill 90% of wheat produced in the country' (source: Persaud 2013: 5) and costs of milling for a small mill is 50 percent of payment.
 - lxxxvii Assume 12-15 large mills employing up to 100 people (source: 'Benchmarking Wheat Study' 2013, p. 52).
 - lxxxviii Assume employees in large mill get USD 10 per day.
 - lxxxix Wheat price ranges from USD 250 to USD 400 per MT (source: 'Benchmarking Wheat Study' 2013, p. 24).
 - xc Assume 50% of all wheat flour is baked commercially (source: 'Benchmarking Wheat Study' 2013, p. 52).
 - xcii Assume each bakery processes on average 100 kg per day (source: 'Benchmarking Wheat Study' 2013, p. 52)

^{xcii} Assume FTE four people per bakery (Source: 'Benchmarking Wheat Study' 2013, p. 52).

^{xciii} Assume baker and staff gets paid USD 15 per day.