

## Appendix II Costs involved in *Poppy for Medicine* projects

### 1. Raw materials and morphine produced by *Poppy for Medicine* project communities

For the purposes of this Case Study, such morphine processing factory would be shared by ten project communities, with each project community operating twenty small farms measuring two *jeribs*, or 0.37 hectares in size.<sup>1</sup>

Area of land under poppy cultivation by 1 project community of 20 farms	7.4 ha
Area of land under poppy cultivation by 10 project communities of 20 farms	74 ha
Raw poppy materials yield per project community	296 kg
Raw poppy materials yield from 10 project communities	2,960 kg
Quantity of morphine sulphate extracted from raw materials of 1 project community	29.6 kg
Quantity of morphine sulphate extracted from raw materials of 10 project communities	296 kg

### 2. Cost of producing raw poppy materials

As outlined in the *Poppy for Medicine* project model, during the harvest period each farmer's daily harvest would be weighed and kept in a specially named and labelled container. With a base price of USD 130 per kilogram, the price ultimately paid to each farmer for his or her harvest will be calculated according to the morphine content of his or her raw poppy materials.<sup>2</sup> Covering cultivation costs of approximately USD 65 per kg of raw poppy material, this farm gate price – higher than the current price on the illegal market – would leave farming families with an average net income of approximately USD 1,000 per farm.

Yield of raw poppy materials per 2 <i>jerib</i> farm	14.8 kg
Farmers' cultivation costs: agricultural supplies, equipment depreciation, seasonal harvesters <sup>3</sup>	USD 65/kg
Purchase price paid to farmer by project community for raw poppy materials	USD 130/kg
Farmers' net income per farm	USD 962

<sup>1</sup> In Afghanistan, a *jerib* is a standard land area unit corresponding to 0.185 hectares, or 1,850 square metres. According to the United Nations Office for Drugs and Crime, the average Afghan poppy farm is two *jeribs*, or 0.37 hectares in size.

<sup>2</sup> See The Senlis Council, 'Poppy for Medicine: Licensing poppy cultivation for the production of essential medicines: an integrated counter-narcotics, development, and counter-insurgency model for Afghanistan', London, June 2007, p.47.

<sup>3</sup> According to the UNODC Afghanistan Opium Survey 2007, seasonal poppy harvesters currently receive approximately USD 7.6 per day.

### 3. Cost of producing 1 kilo of morphine sulphate

It would cost approximately USD 2,600 to produce morphine tablets containing a total of 1 kilogram of morphine sulphate.<sup>4</sup> This includes the purchase price of ten kilos of raw poppy materials, as well as the costs of materials other than raw poppy materials, labour costs, depreciation of equipment, and all relevant operational costs. This price also includes the costs associated with transportation and security throughout the harvest and medicine production process.

Quantity of raw poppy materials needed to produce 1 kg of morphine sulphate	10 kg
Cost of 10 kg of raw poppy materials	USD 1,300
Cost of morphine extraction, tableting, packaging, non-poppy materials, labour, equipment depreciation, operational costs	USD 1,000
Transport and security costs	USD 300
<b>Total cost of producing 1 kg of morphine</b>	<b>USD 2,600</b>

### 4. Costs and Benefits to Afghan government

After the costs associated with labelling the morphine medicines for domestic use or export and trading fees, the Afghan government would generate USD 300 per kilo of morphine content in tax revenues and profits.

Price paid to project communities per kg of morphine sulphate	USD 2,900
Labelling and trading costs per kg of morphine sulphate	USD 100
Morphine trading fee per kg of morphine sulphate	USD 300
<b>Export price for 1 kg of Afghan-made morphine</b>	<b>USD 3,300</b>

<sup>4</sup> This figure of USD 2,600 is the cost of producing 100,000 finished morphine tablets, each containing 10 mg of morphine. In total, these 100,000 tablets would contain one kilogram of pure morphine sulphate. Although processing morphine into tablets of different strengths and/or into sustained release tablets is a possibility, it is assumed here for the clarity of the presentation that only one kind of medicine is manufactured.

<b>Value Chain: USD per kilo of morphine</b>					
	<b>Production costs</b>		<b>Net Profit</b>		<b>Value</b>
<b>Farmer</b>	<b>Total cultivation costs:</b> (Agricultural supplies, equipment depreciation, seasonal harvesters)	650	<b>Net Income:</b> (compensation of family labour and farming net profit)	650	<b>1,300</b>
<b>Project community</b>	<b>Total production costs:</b> (Other materials, storage, security, transportation, morphine extraction and purification, production and packaging of tablets, equipment depreciation, power)	1,300	<b>Net profits:</b> (Channelled to the fund for economic diversification)	300	<u>+1,600</u> <b>2,900</b>
<b>Afghan government</b>	<b>Total trading cost:</b> (labelling and trading costs)	100	<b>Taxes &amp; Profits:</b>	300	<u>+400</u> <b>3,300</b>
<b>Export and retail agent</b>	<b>Total retailing costs:</b> (Insurance, freight, tariffs, duties, storage, and distribution costs)	1,700	<b>Non-profit:</b>	0	<u>+1,700</u> <b>5,000</b>