ESTIMATION OF DRUG USERS AND INJECTING DRUG USERS IN MALAYSIA

A study by the Ministry of Health (MOH), Malaysia
In collaboration with Universiti Utara Malaysia (UUM)
With Technical and Financial Support of World Health Organization (WHO)
ACKNOWLEDGEMENTS

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<td></td>
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1.0 INTRODUCTION

1.1 Malaysian Drug Scenario

As other developing countries, Malaysia is also facing a plethora of social problems resulting from economic, developmental and societal growth. One of them is drug addiction, which has long being recognized as a serious problem at an epidemic proportion since the early 1970’s. Despite strict laws and penalties for drug use and trafficking, illicit drug use is high and continues to rise. The drug problem that was then considered as a social problem was redefined as a security problem in 1983, where specific laws were formulated to curb the epidemic. However, the number of drug users identified each year still increases.

The National Drugs Agency (NDA) was set up in 1988 to coordinate all anti-drug activities, which among others is to identify, treat and rehabilitate drug users and addicts in the country. As of the year 2002, Malaysia has recorded a total of 423,574 drug addicts, with 31,893 individuals identified as addicted to psychoactive substances (Table 1). The national prevalence rate is at 9 drug addicts per 1,000 population with a range between 1:1000 (Sarawak) and 19:1000 for Penang (Tables 2 & 3).

1.2 Drug Treatment and Rehabilitation Program in Malaysia

Drug treatment and rehabilitation is under the purview of the National Drugs Agency and The Prison Department, Ministry of Home Affairs. The strategy of the Malaysian government is basically to eliminate drug dependence by reducing the supply and the demand of the illicit substances. In the effort to reduce the demand for drugs, drug users and addicts were apprehended every month and put to treatment and rehabilitation under the Drug Addiction Act 283 (Treatment and
Rehabilitation) (1983) (Amendment 1998). This includes the Serenti drug treatment and rehabilitation program, the aftercare and supervision program. At present, there are 28 Serenti Drug Rehabilitation centers (DRC) in the country, providing rehabilitation service for about 9,939 drug users from various categories of addiction ranging from hardcore to new users. A total of 36,542 were placed in the non-institutional aftercare or the supervision program. Besides this, there are also drug addicts undergoing rehabilitation in the prison system (16,541), and about 930 persons who are addicted to drugs receiving treatment at clinics, hospitals and private treatment centers (Table 4). Relapse rate are presently derived from the number of recurring drug users and addicts captured every month by the police, which ranges between 43.9% to 62.1% (Table 1).

<table>
<thead>
<tr>
<th>Year</th>
<th>New drug users</th>
<th>Relapsed drug users</th>
<th>Total Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>1988</td>
<td>10,424</td>
<td>41.1%</td>
<td>14,781</td>
</tr>
<tr>
<td>1989</td>
<td>7,631</td>
<td>37.9%</td>
<td>12,487</td>
</tr>
<tr>
<td>1990</td>
<td>7,389</td>
<td>38.3%</td>
<td>11,921</td>
</tr>
<tr>
<td>1991</td>
<td>8,083</td>
<td>39.7%</td>
<td>12,258</td>
</tr>
<tr>
<td>1992</td>
<td>8,283</td>
<td>38.3%</td>
<td>13,268</td>
</tr>
<tr>
<td>1993</td>
<td>10,383</td>
<td>40.8%</td>
<td>15,074</td>
</tr>
<tr>
<td>1994</td>
<td>11,672</td>
<td>40.6%</td>
<td>17,084</td>
</tr>
<tr>
<td>1995</td>
<td>13,140</td>
<td>38.5%</td>
<td>20,964</td>
</tr>
<tr>
<td>1996</td>
<td>13,846</td>
<td>45.3%</td>
<td>16,752</td>
</tr>
<tr>
<td>1997</td>
<td>17,342</td>
<td>47.8%</td>
<td>18,942</td>
</tr>
<tr>
<td>1998</td>
<td>21,073</td>
<td>56.1%</td>
<td>16,515</td>
</tr>
<tr>
<td>1999</td>
<td>17,915</td>
<td>50.7%</td>
<td>17,444</td>
</tr>
<tr>
<td>2000</td>
<td>14,850</td>
<td>48.5%</td>
<td>15,743</td>
</tr>
<tr>
<td>2001</td>
<td>15,831</td>
<td>50.2%</td>
<td>15,725</td>
</tr>
<tr>
<td>2002</td>
<td>17,080</td>
<td>53.5%</td>
<td>14,813</td>
</tr>
</tbody>
</table>

1.3 National Drugs Information

There is a limited number of drug epidemiology studies in the country, much of it were conducted in the 70’s and 80’s to identify the number of drug addicts in the country. With the establishment of the National Drugs Agency (NDA) in 1988, all data concerning drug users and addicts are captured by the National Drugs Information (NADI). The recorded number of drug user are individuals who are apprehended based on police raids, voluntary and involuntary drug test in schools, work place, immigration check points and road blocks. Data are also provided by police (anti-narcotic division), Department of Immigration, Department of Prison, the Ministry of Education and schools, human resource departments from various organizations, hospitals and government and private rehabilitation centers. Data from NADI is the official statistics of the drug situation in the country.

Table 2: Drug users and addicts registered by National Drug Information, National Drug Agency (1988-2001)

<table>
<thead>
<tr>
<th>State</th>
<th>Total Addicts</th>
<th>Total Population ('000)</th>
<th>Ratio of Drug Addict to Population (1:1 000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johor</td>
<td>24,965</td>
<td>2,783.8</td>
<td>9</td>
</tr>
<tr>
<td>Kedah</td>
<td>15,605</td>
<td>1,689.6</td>
<td>9</td>
</tr>
<tr>
<td>Kelantan</td>
<td>15,297</td>
<td>1,344.9</td>
<td>11</td>
</tr>
<tr>
<td>Melaka</td>
<td>7,304</td>
<td>648.5</td>
<td>11</td>
</tr>
<tr>
<td>Negeri Sembilan</td>
<td>11,348</td>
<td>878.5</td>
<td>13</td>
</tr>
<tr>
<td>Pahang</td>
<td>13,537</td>
<td>1,319.3</td>
<td>10</td>
</tr>
<tr>
<td>Perak</td>
<td>26,941</td>
<td>2,157.7</td>
<td>12</td>
</tr>
<tr>
<td>Perlis</td>
<td>2,256</td>
<td>209.1</td>
<td>11</td>
</tr>
<tr>
<td>Pulau Pinang</td>
<td>26,941</td>
<td>1,337.4</td>
<td>20</td>
</tr>
<tr>
<td>Sabah</td>
<td>8,422</td>
<td>2,716.8</td>
<td>3</td>
</tr>
<tr>
<td>Sarawak</td>
<td>2,144</td>
<td>2,119.0</td>
<td>1</td>
</tr>
<tr>
<td>Selangor</td>
<td>27,488</td>
<td>4,270.0</td>
<td>6</td>
</tr>
<tr>
<td>Terengganu</td>
<td>10,092</td>
<td>919.3</td>
<td>11</td>
</tr>
<tr>
<td>WPKL</td>
<td>30,783</td>
<td>1,401.4</td>
<td>22</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>223,123</strong></td>
<td><strong>23,795.3</strong></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

*Source: NADI, NDA, 2002*
1.4 Recommendation of Consensus Meeting on HIV Epidemiology 2000

The Consensus Report on STI, HIV and Aids Epidemiology (2001) concluded that Malaysia is a country with a concentrated HIV epidemic that is based on the current WHO/UNAIDS classification. The HIV prevalence has been less than 1 percent among the general population, and consistently higher than 5 percent among the IDU in the past 10 years. The report also concluded that the HIV epidemic among the IDU seems to be still progressing, where in recent estimation, IDU accounts for the biggest part of the current HIV infections.

The Consensus Report recommended that small expert working groups should be developed to gather, review, evaluate and then to use the available data to estimate HIV prevalence and the specific size of the population and sub-population, one of it is the IDUs. Thus, this study answers to one of the recommendations made by the Consensus Report on STI, HIV and Aids (2001).

Table 3: Number of drug users and addicts registered in 2002

<table>
<thead>
<tr>
<th>State</th>
<th>New Cases</th>
<th>Relapse Cases</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johor</td>
<td>1,383</td>
<td>1,079</td>
<td>2,462</td>
</tr>
<tr>
<td>Kedah</td>
<td>2,508</td>
<td>1,457</td>
<td>3,965</td>
</tr>
<tr>
<td>Kelantan</td>
<td>1,645</td>
<td>1,180</td>
<td>2,825</td>
</tr>
<tr>
<td>Melaka</td>
<td>151</td>
<td>373</td>
<td>524</td>
</tr>
<tr>
<td>Negeri Sembilan</td>
<td>648</td>
<td>547</td>
<td>1,195</td>
</tr>
<tr>
<td>Pulau Pinang</td>
<td>2,597</td>
<td>3,617</td>
<td>6,214</td>
</tr>
<tr>
<td>Pahang</td>
<td>830</td>
<td>584</td>
<td>1,414</td>
</tr>
<tr>
<td>Perak</td>
<td>1,438</td>
<td>1,505</td>
<td>2,943</td>
</tr>
<tr>
<td>Perlis</td>
<td>288</td>
<td>117</td>
<td>405</td>
</tr>
<tr>
<td>Sabah</td>
<td>1,765</td>
<td>280</td>
<td>2,045</td>
</tr>
<tr>
<td>Sarawak</td>
<td>284</td>
<td>22</td>
<td>306</td>
</tr>
<tr>
<td>Selangor</td>
<td>1,775</td>
<td>1,923</td>
<td>3,698</td>
</tr>
<tr>
<td>Terengganu</td>
<td>561</td>
<td>498</td>
<td>1,059</td>
</tr>
<tr>
<td>WP K. Lumpur</td>
<td>1,073</td>
<td>1,607</td>
<td>2,680</td>
</tr>
<tr>
<td>WP Labuan</td>
<td>134</td>
<td>24</td>
<td>158</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17,080</strong></td>
<td><strong>14,813</strong></td>
<td><strong>31,893</strong></td>
</tr>
</tbody>
</table>

*Source: NADI, NDA, 2002*
Table 4: Number of drug users and addicts undergoing treatment and rehabilitation program at the end of year 2002

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serenti</td>
<td>9,939</td>
<td>15.54</td>
</tr>
<tr>
<td>Aftercare</td>
<td>24</td>
<td>0.04</td>
</tr>
<tr>
<td>Supervision</td>
<td>36,542</td>
<td>57.12</td>
</tr>
<tr>
<td>Private Centers</td>
<td>930</td>
<td>1.45</td>
</tr>
<tr>
<td>Prison</td>
<td>16,541</td>
<td>25.85</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>63,976</td>
<td>100</td>
</tr>
</tbody>
</table>


1.5 Rationale of the study

The first AIDS case in Malaysia was reported in December 1986. Since then, the cumulative HIV infections are 44,208 cases, 6,024 of which are AIDS cases. Most of the HIV cases were males (81.5%), Malays (72.3%) and a staggering 79% of reported cases of infections are from the injecting drug users in the year 2001.

Table 5 shows the percentage of IDUs from the total recorded HIV/AIDS cases in the country, which has risen from 60% in 1990 to a peak of 82% in 1994 with an average (1990-2001) of 76%.

Various intervention programs have been outlined for this population, ranging from education, treatment, rehabilitation and harm reduction approaches. However, there are no estimates on the number of IDUs in the country. Statistics from NDA showed that IDUs primarily use heroin and morphine, and there are 31,893 heroin and morphine users among the apprehended drug users in 2002, of which 13.62 percent are injecting drug users (approximately 4,342 persons). An estimate of the IDU population will enable a more meaningful intervention, treatment and rehabilitation policies and strategies. Further more, this study will also describe the populations that are exposed to HIV and AIDS.
1.6 Limitation of the study

There are a few limitations to this study. First, it is limited by its budget, thus will also limit its scope and method.

Secondly, to estimate the number of IDUs in the country, this study has to rely on the current institutional data provided by NADI. These data are also limited by its data collection methodology.

Table 5: Cumulative number of HIV/Aids cases due to injecting drug users 1990-2001

<table>
<thead>
<tr>
<th>Year</th>
<th># Cases</th>
<th>% of Total HIV/AIDS Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>470</td>
<td>60%</td>
</tr>
<tr>
<td>1991</td>
<td>1153</td>
<td>64%</td>
</tr>
<tr>
<td>1992</td>
<td>1892</td>
<td>75%</td>
</tr>
<tr>
<td>1993</td>
<td>1970</td>
<td>78%</td>
</tr>
<tr>
<td>1994</td>
<td>2777</td>
<td>82%</td>
</tr>
<tr>
<td>1995</td>
<td>3187</td>
<td>70%</td>
</tr>
<tr>
<td>1996</td>
<td>3800</td>
<td>82%</td>
</tr>
<tr>
<td>1997</td>
<td>3014</td>
<td>77%</td>
</tr>
<tr>
<td>1998</td>
<td>3592</td>
<td>77%</td>
</tr>
<tr>
<td>1999</td>
<td>3374</td>
<td>72%</td>
</tr>
<tr>
<td>2000</td>
<td>3815</td>
<td>75%</td>
</tr>
<tr>
<td>2001</td>
<td>4724</td>
<td>79%</td>
</tr>
<tr>
<td>2002</td>
<td>5173</td>
<td>74%</td>
</tr>
<tr>
<td>Total</td>
<td>39,092</td>
<td>76%</td>
</tr>
</tbody>
</table>

Source: Section of AIDS/STD, Ministry of Health Malaysia, 2003
Third, this study employs the multiplier method, thus limited by its scope and estimation method.

Finally, the collection of field data is constrained by the Drug Addiction Act 283 that was enforced since 1983 (Amendment 1998), and the Dangerous Drug Act (1952). These Acts can be a source of limitation due to the following constraints; (i) the anxiety among the respondents that the interviewers may report them to the police, and may be apprehended under the Drug Addiction Act 283 (Treatment and Rehabilitation); and (ii) about 70% of drug users are Malays and they are quite sensitive concerning information that is labeled as “negative” such as addiction, HIV and others (Mahmood, Md Shuaib & Lasimon, 1999). However, this limitation is overcome by employing recovering drug users to conduct fieldwork together with the researchers where respondents would feel more secured and at ease to respond to our questions.

1.7 Definitions of concepts

The followings are definitions of concepts used in this study:

a. Drug users: A person who use, misuse or abuse any type of psychoactive substance (drugs) and who are physically and psychologically dependent on the substance.

b. Recovering drug users: A drug user who is drug free for at least one year.

c. Injecting drug users: A drug addict who with purpose and intent intravenously injects the psychoactive substances into his/her body with the aid of syringe and needle to gain the effect of the drug.
d. Key informant: A person who is able to provide reliable information on the situation of drug use and estimate numbers of DU/IDU in a specific district/village/area. This is operationally defined in Table 11.

e. Respondent: Those who are defined in a, b, c and d above.

f. Non-respondent: Those who are other than the above.
2.0 METHODOLOGY

To estimate the number of IDUs in a country, Pisani (2002) suggested several methods of estimation such as census and enumeration, population survey, capture-recapture and multiplier methods. For this study, we choose the multiplier method.

2.1 Rationale for using Multiplier Method

Multiplier methods generally rely on having information from two sources that overlap in a known way: the first is usually an institution or service with which the population to be estimated is in contact, and the second is the population at risk itself. In this study, data from NADI, National Drugs Agency will be the main reference data representing institutional services.

Estimates are derived by multiplying the number of people who attend the institution or service over a certain period by the inverse of the proportion of the population who say they attended over the same period. The multiplier method for estimation, especially for specific population is one of the most commonly used, but rarely recorded in scientific literatures (Pisani, 2002). Pisani also argued that the greatest difficulty in using multiplier methods correctly is finding data for institutions and populations that correspond with one another. In order to use institutional and survey data together to estimate the size of a population, all members of the population have to have a chance of being included in both the survey and in the institutional data (for example because they have access to that service).

One key issue in using multiplier method successfully is the need to have clear, consistent definitions between different data sources. Firstly, the population
definitions must be clear. In principle, it ought to be possible to use the proportion of drug users imprisoned together with the number of drug users in prison to arrive at an estimate of the number of drug users in a city or country.

For example, let us say that 45 percent of respondents in a survey of drug users recruited on the streets and at treatment centers say they have been in prison in the last year in a given city. Over the previous year, the prison service in the city has released 1,234 individuals who had been implicated on drug-related offences. A simple estimate would assume that those 1,234 individuals represented 45 percent of drug users in the city, and that the true number of drug users was therefore in the region of 1,234 / 0.45, or around 2,760. But this estimate relies on the assumption that “drug users in prison” is synonymous with “prisoner incarcerated on drug charges”. It assumes, that is, that all drug users in prison were imprisoned for drug-related offences, and that all of those imprisoned for drug-related offences were drug users. In practice, this is unlikely to be true. Many of those classified as “drug users” by this definition may be people who are dealers but not users, while many people who are users and in prison but were imprisoned for theft and other criminal activities (which may or may not be related to generating money to support a drug habit), or who started using drugs while in prison, would not be captured. An estimate based on these unclear definitions would certainly be inaccurate. For our data concerning drug addicts in prisons, all these limitation are taken into account as stated in Table 6.

Secondly, the catchment area for the services or institutions must be clear, and should ideally be the same as that covered in the sub-population survey from which multipliers are derived. In other words, the populations must correspond geographically, as well as by definition. The number of people under supervision in an aftercare program in one specific area cannot be multiplied by the proportion of...
those who said they are involved with the aftercare program in another area, since service availability may differ very significantly between these two areas.

Because of the catchment area is an issue, multiplier methods based on service use are most commonly used at the local level. They have, however, sometimes been used at the national level. A notable example is a recent national-level estimate of the number of injecting drug users in Pakistan (Pisani, 2002). In this case specific estimates were made for four cities where behavioral surveys and treatment use data were available. Behavioral surveys asked about use of treatment in the last year, the proportion of users who had been in treatment was calculated for that city, and the appropriate multiplier was applied to the numbers in treatment in that city in the past year. The regional variations were examined and with the advice of key informants, multipliers were extrapolated and adjusted to apply to other parts of the country, where treatment data were available but where there was no specific population-based data about treatment use from which multipliers could be calculated. Finally, the four city estimates and the remaining regional estimates were summed up to produce a national estimate for the number of drug users in Pakistan.

2.2 General principles of multiplier method to be applied for Malaysia

There are four stages of general principles of multiplier method that will be used in the study.

2.2.1 Stage I: Data collection of IDUs

Data of IDUs are recorded under the current system for the year 2002, and they are collected from the National Drugs Information System (NADI), National Drugs Agency. These data also include those captured by the Prison Department (HQ...
and states) and the licensed private treatment and rehabilitation centers registered with NDA.

These sources are available at the national, state and most of the districts in the country. For data provided by NDA, the numbers of IDUs are ascertained from heroin and morphine addicts. NDA identified 733 IDUs (5.97%) from a total of 12,266 heroin users and 3,609 IDUs (39.76%) from 9,076 morphine users. From the total of 31,893 drug addicts apprehended in 2002, there are 4,342 (13.62%) IDUs.

Apart from the Serenti DRC and the supervision program under the auspices of NDA, the Prison Department has the next largest number of drug offenders, where recorded a total of 8,200 drug addicts and 4,729 drug addicts cum traffickers in the year 2002 (Table 6). From a total of 33,578 prisoners, the number of drug addicts is 12,929 (38.5%). The prison department estimated that the number of IDUs among the drug addicts is 13%, which makes a total of 1,681 IDUs in the prison system.

2.2.2 Stage II: Estimation of the value of multiplier \( (m) \)

This stage includes three steps; ranking the states, interviews with key informants and interviews with drug addicts and injecting drug addicts.

a. All 14 states in Malaysia are listed and ranked into three categories (white, low grey and high grey) in accordance to the NDA Addiction Severity Classification (2002) (Table 7). From this table, we selected 7 states; 2 from the white area, and 5 from the grey area, where it is further subdivided as following; 3 from the low-grey and 2 more from the high-grey area.
Table 6: Number of drug offenders in prison as of 31 December 2002

<table>
<thead>
<tr>
<th>Type of Offence</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cases Under DDA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Addicts</td>
<td>2,950</td>
<td>4,213</td>
</tr>
<tr>
<td>Addicts cum Traffickers</td>
<td>4,059</td>
<td>4,620</td>
</tr>
<tr>
<td>Traffickers</td>
<td>1,368</td>
<td>1,491</td>
</tr>
<tr>
<td><strong>Total Cases</strong></td>
<td>8,377</td>
<td>10,324</td>
</tr>
<tr>
<td><strong>Cases Not Under DDA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Addicts</td>
<td>3,560</td>
<td>3,987</td>
</tr>
<tr>
<td>Addicts cum Traffickers</td>
<td>46</td>
<td>109</td>
</tr>
<tr>
<td>Traffickers</td>
<td>6</td>
<td>422</td>
</tr>
<tr>
<td><strong>Total Cases</strong></td>
<td>3,612</td>
<td>4,518</td>
</tr>
<tr>
<td><strong>Total Prisoners</strong></td>
<td>27,785</td>
<td>33,578</td>
</tr>
<tr>
<td><strong>Total Persons using drugs</strong></td>
<td>10,615 (38.20%)</td>
<td>12,929 (38.50%)</td>
</tr>
<tr>
<td><strong>Total charged with drug offences</strong></td>
<td>11,989 (43.15%)</td>
<td>14,842 (44.20%)</td>
</tr>
</tbody>
</table>

Source: Department of Prison Malaysia, Reported in NDA, 2002
Note: DDA – Dangerous Drug Act

b. All states and districts (Tables 8 - 9), which are selected for the sampling is based on the low and high Addiction Severity categorization. As mentioned above, the grey category is further sub-divided into 2; that is the low and high-grey category based on the median of the grey range (0.1 - 0.49). For low-grey category, the same principle applies, i.e. one each representing the low, medium and high area. For the high-grey category, one each represents the low and high area. Therefore, a total of 14 districts are selected for the sampling (Table 10).
Table 7: Drug Addiction Severity Classification (DASC) 2002

<table>
<thead>
<tr>
<th>No</th>
<th>State</th>
<th>%</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Sarawak</td>
<td>0.01</td>
<td>White</td>
</tr>
<tr>
<td>2.</td>
<td>Sabah</td>
<td>0.07</td>
<td>White</td>
</tr>
<tr>
<td>3.</td>
<td>Selangor</td>
<td>0.08</td>
<td>White</td>
</tr>
<tr>
<td>4.</td>
<td>Melaka</td>
<td>0.08</td>
<td>White</td>
</tr>
<tr>
<td>5.</td>
<td>Johor</td>
<td>0.09</td>
<td>White</td>
</tr>
<tr>
<td>6.</td>
<td>Pahang</td>
<td>0.10</td>
<td>Grey</td>
</tr>
<tr>
<td>7.</td>
<td>Terengganu</td>
<td>0.11</td>
<td>Grey</td>
</tr>
<tr>
<td>8.</td>
<td>Negeri Sembilan</td>
<td>0.13</td>
<td>Grey</td>
</tr>
<tr>
<td>9.</td>
<td>Perak</td>
<td>0.14</td>
<td>Grey</td>
</tr>
<tr>
<td>10.</td>
<td>Perlis</td>
<td>0.19</td>
<td>Grey</td>
</tr>
<tr>
<td>11.</td>
<td>WP Kuala Lumpur</td>
<td>0.19</td>
<td>Grey</td>
</tr>
<tr>
<td>12.</td>
<td>WP Labuan</td>
<td>0.20</td>
<td>Grey</td>
</tr>
<tr>
<td>13.</td>
<td>Kelantan</td>
<td>0.21</td>
<td>Grey</td>
</tr>
<tr>
<td>14.</td>
<td>Kedah</td>
<td>0.23</td>
<td>Grey</td>
</tr>
<tr>
<td>15.</td>
<td>Pulau Pinang</td>
<td>0.45</td>
<td>Grey</td>
</tr>
<tr>
<td></td>
<td>Malaysia</td>
<td>0.13</td>
<td>Grey</td>
</tr>
</tbody>
</table>

Note: The Number of district/category

| White area | 75 |
| Grey area  | 59 |
| Black area | 2  |

Categorization of area:
(Addiction within an area/district as compared to the area/district population)

White area: Less than 0.1% of the area population
Grey area: Between 0.1% - 0.49% of the area population
Black area: More than 0.50% of the area population

Estimation of DU and IDU sub-population, MALAYSIA 2003
Table 8: Districts Classified as White in 2002

<table>
<thead>
<tr>
<th>No.</th>
<th>District</th>
<th>State</th>
<th>%</th>
<th>No.</th>
<th>District</th>
<th>State</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Batu Pahat</td>
<td>Johor</td>
<td>0.05</td>
<td>39</td>
<td>Papar</td>
<td>Sabah</td>
<td>0.07</td>
</tr>
<tr>
<td>2</td>
<td>Kluang</td>
<td>Johor</td>
<td>0.04</td>
<td>40</td>
<td>K.Marudu</td>
<td>Sabah</td>
<td>0.03</td>
</tr>
<tr>
<td>3</td>
<td>Muar</td>
<td>Johor</td>
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<td>41</td>
<td>Pitas</td>
<td>Sabah</td>
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</tr>
<tr>
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<td>Pontian</td>
<td>Johor</td>
<td>0.09</td>
<td>42</td>
<td>K.Penyu</td>
<td>Sabah</td>
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</tr>
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<td>Sabah</td>
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<td>Sabah</td>
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<td>N.Sembilan</td>
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<td>47</td>
<td>Tongod</td>
<td>Sabah</td>
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</tr>
<tr>
<td>10</td>
<td>Jempul</td>
<td>N.Sembilan</td>
<td>0.07</td>
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<td>Kuching</td>
<td>Sarawak</td>
<td>0.01</td>
</tr>
<tr>
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<td>G. Highland</td>
<td>Pahang</td>
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<td></td>
</tr>
</tbody>
</table>

Source: National Drug Agency 2003
Table 9: Districts classified as Grey and Black in 2002

<table>
<thead>
<tr>
<th>No.</th>
<th>District</th>
<th>State</th>
<th>%</th>
<th>No.</th>
<th>District</th>
<th>State</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Johor Bahru</td>
<td>Johor</td>
<td>0.10</td>
<td>31.</td>
<td>Jerantut</td>
<td>Pahang</td>
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<td>Pekan</td>
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<td>Maran</td>
<td>Pahang</td>
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<td>Kinta</td>
<td>Perak</td>
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<tr>
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<td>Kubang Pasu</td>
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<td>Perak</td>
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<tr>
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<td>Kedah</td>
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<td>K.Kangsar</td>
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<td>12.</td>
<td>SIK</td>
<td>Kedah</td>
<td>0.23</td>
<td>42.</td>
<td>Perlis</td>
<td>Perlis</td>
<td>0.19</td>
</tr>
<tr>
<td>13.</td>
<td>Yan</td>
<td>Kedah</td>
<td>0.17</td>
<td>43.</td>
<td>Barat Daya</td>
<td>P.P.</td>
<td>0.32</td>
</tr>
<tr>
<td>14.</td>
<td>Pendang</td>
<td>Kedah</td>
<td>0.14</td>
<td>44.</td>
<td>S.P.Tengah</td>
<td>P.P.</td>
<td>0.19</td>
</tr>
<tr>
<td>15.</td>
<td>Bachok</td>
<td>Kelantan</td>
<td>0.16</td>
<td>45.</td>
<td>S.P.Selatan</td>
<td>P.P.</td>
<td>0.31</td>
</tr>
<tr>
<td>16.</td>
<td>Kota Bahru</td>
<td>Kelantan</td>
<td>0.35</td>
<td>46.</td>
<td>H. Langat</td>
<td>Selangor</td>
<td>0.16</td>
</tr>
<tr>
<td>17.</td>
<td>Machang</td>
<td>Kelantan</td>
<td>0.11</td>
<td>47.</td>
<td>Klang</td>
<td>Selangor</td>
<td>0.12</td>
</tr>
<tr>
<td>18.</td>
<td>Pasir Mas</td>
<td>Kelantan</td>
<td>0.18</td>
<td>48.</td>
<td>K.Selangor</td>
<td>Selangor</td>
<td>0.12</td>
</tr>
<tr>
<td>19.</td>
<td>Pasir Putih</td>
<td>Kelantan</td>
<td>0.17</td>
<td>49.</td>
<td>Sepang</td>
<td>Selangor</td>
<td>0.17</td>
</tr>
<tr>
<td>20.</td>
<td>Tanah Merah</td>
<td>Kelantan</td>
<td>0.10</td>
<td>50.</td>
<td>K.Terengganu</td>
<td>Terengganu</td>
<td>0.20</td>
</tr>
<tr>
<td>21.</td>
<td>Tumpat</td>
<td>Kelantan</td>
<td>0.11</td>
<td>51.</td>
<td>Dungun</td>
<td>Terengganu</td>
<td>0.13</td>
</tr>
<tr>
<td>22.</td>
<td>Gua Musang</td>
<td>Kelantan</td>
<td>0.15</td>
<td>52.</td>
<td>K.Lumpur</td>
<td>WP</td>
<td>0.19</td>
</tr>
<tr>
<td>23.</td>
<td>Kuala Krai</td>
<td>Kelantan</td>
<td>0.11</td>
<td>53.</td>
<td>Labuan</td>
<td>WP</td>
<td>0.20</td>
</tr>
<tr>
<td>24.</td>
<td>Alor Gajah</td>
<td>Melaka</td>
<td>0.10</td>
<td>54.</td>
<td>Kota Kinabalu</td>
<td>Sabah</td>
<td>0.22</td>
</tr>
<tr>
<td>25.</td>
<td>Jelebu</td>
<td>N.Sembilan</td>
<td>0.22</td>
<td>55.</td>
<td>Kudat</td>
<td>Sabah</td>
<td>0.10</td>
</tr>
<tr>
<td>26.</td>
<td>Kuala Pilah</td>
<td>N.Sembilan</td>
<td>0.11</td>
<td>56.</td>
<td>Beaufort</td>
<td>Sabah</td>
<td>0.11</td>
</tr>
<tr>
<td>27.</td>
<td>Rembau</td>
<td>N.Sembilan</td>
<td>0.22</td>
<td>57.</td>
<td>Sipitang</td>
<td>Sabah</td>
<td>0.13</td>
</tr>
<tr>
<td>28.</td>
<td>Seremban</td>
<td>N.Sembilan</td>
<td>0.15</td>
<td>58.</td>
<td>Kunak</td>
<td>Sabah</td>
<td>0.12</td>
</tr>
<tr>
<td>29.</td>
<td>Tampin</td>
<td>N.Sembilan</td>
<td>0.17</td>
<td>59.</td>
<td>Limbang</td>
<td>Sabah</td>
<td>0.12</td>
</tr>
<tr>
<td>30.</td>
<td>Bentong</td>
<td>Pahang</td>
<td>0.28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Black Area 2002**
1. S.P. Utara Pulau Pinang - 0.74%
2. Timur laut Pulau Pinang - 0.61%

*Source: National Drug Agency 2003*
Table 10: Selection of States and District for sampling

<table>
<thead>
<tr>
<th>Category</th>
<th>Selection</th>
<th>State</th>
<th>District</th>
</tr>
</thead>
<tbody>
<tr>
<td>White &lt;0.1% of population</td>
<td>Choose 2 out of 5 states</td>
<td>Sarawak (0.01)</td>
<td>Kucing (0.01)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Melaka (0.08)</td>
<td>Miri (0.02)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M. Tengah (0.07)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Jasin (0.09)</td>
</tr>
<tr>
<td>Grey 0.1 – 0.49% of population</td>
<td>Low-grey (0.1 - 0.195) Choose 3 out of 6 states</td>
<td>Pahang (0.10)</td>
<td>Pekan (0.10)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Perak (0.14)</td>
<td>Maran (0.13)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WPKL (0.19)</td>
<td>Kinta (0.14)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>K.Kangsar (0.18)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sentul (Black) Brickfields (Grey)</td>
</tr>
<tr>
<td>High-Grey (0.2 – 0.49) Choose 2 out of 4 states</td>
<td>Kedah (0.23)</td>
<td>Kota Setar (0.22)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Penang (0.45)</td>
<td>Kubang Pasu (0.37)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SPS (0.31)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SPU (0.75)</td>
</tr>
</tbody>
</table>

c. At each district, researchers ascertain the estimated number of drug users and IDUs from local key informants. This number includes those who are in the government or private drug treatment and rehabilitation centers or programs for the year 2002. The questions used for the interviews are as in Appendix 1. The key informants are as stated in Table 11.

d. Researchers appointed recovering drug addicts in the area as field workers to interview the DUs/IDUs (as discussed in Pisani, 2002:19) and they work under the supervision of the researchers in order to have an estimation of the total number of DUs and IDUs in the district.
Table 11: Key Informants to be selected at district level

<table>
<thead>
<tr>
<th>Principle key informant</th>
<th>Estimated Number</th>
<th>Secondary key informants</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDA district officer</td>
<td>1</td>
<td>NDA Counselors or Chief clerk</td>
</tr>
<tr>
<td>District Health officer</td>
<td>1</td>
<td>Health officer</td>
</tr>
<tr>
<td>Narcotic Division head</td>
<td>1</td>
<td>Other division head or assistants</td>
</tr>
<tr>
<td>Pemadam other Drug-related NGO state officer</td>
<td>1</td>
<td>RELA</td>
</tr>
<tr>
<td>District officer (DO)</td>
<td>1</td>
<td>ADO, Chief Clerk</td>
</tr>
<tr>
<td>Chairman JKKK</td>
<td>1 – 5</td>
<td>Deputy or Committee member</td>
</tr>
<tr>
<td>Head of the village</td>
<td>1 – 5</td>
<td>Senior member or ex-head</td>
</tr>
</tbody>
</table>

Note: Secondary key informants will provide the estimate number of drug addicts for the district in the absence of the key informants

2.2.3 Stage III: The derivation of multiplier

This stage involves three steps:

i) Estimation of the percentage of IDUs recorded from Stage I.

The formula

$$ p_x = \frac{n}{N} \times 100 $$

where $n$ is the number of IDUs/DUs recorded from Stage I and $N$ is the total number of IDUs/DUs estimated in Stage II.

For white area:

$$ P_w = \frac{n_w}{N_w} \times 100 $$

For low-grey area:

$$ P_{lg} = \frac{n_{lg}}{N_{lg}} \times 100 $$

Estimation of DU and IDU sub-population, MALAYSIA 2003
Estimation of DU and IDU sub-population, MALAYSIA 2003

\[ N_{lg} \]

For High-grey

\[ P_{hg} = \frac{n_{hg} \times 100}{N_{hg}} \]

ii) Multiplier (m) is estimated for each district by the inverse of percentages (Pisani, 2002) of the formula used.

The formula

\[ M_x = \frac{100}{P_x} \]

For white area:

\[ M_w = \frac{100}{P_w} \]

For low-grey area:

\[ M_{lg} = \frac{100}{P_{lg}} \]

For high-grey area:

\[ M_{hg} = \frac{100}{P_{hg}} \]

iii) Total numbers of drug users estimates for each state are obtained by multiplying the recorded number of users in each state multiplied by the respective area multiplier.

2.2.4 Stage IV: Total National Estimation of Drug Users

The total national estimation of drug users is ascertained by the number of drug users captured by the NDA system multiply by the average multiplier of all the 14 states in the country. An upper and lower limit is provided by statistical and non-statistical means.
3.0 RESULTS

3.1 Key Informants

A total of 83 key informants responded to our survey, ranging from 8 to 14 in numbers from all six districts (please refer to Appendix 2). They have lived or worked in the districts for 11.58 years, holding various positions or post. Most of them are from NDA, DBKL, Ministry of Health, JKKK, some NGO, Police and Heads of villages.

We identified 79 (97.5%) key informants who said that they are aware of the drug situation in their district. Most of them declared that the number of drug users has decreased as compared to the previous year (2001). Heroin is identified as the drug of choice by drug addicts in their districts. On the average, the key informants identified a total of 1,017 DUs and 134 IDUs in the sampled districts, which mean that about 13.27% of the drug using population is estimated as IDUs. This is almost similar to NDA’s estimates (13.62%) for the year 2002. Also, about 53% said that some of these drug users were in Serenti DRC, NDA or Prison in the year 2002, and on the average they estimated, about 160 persons are in these institutions, which means, 15.8% of the 1,017 drug users estimated in these districts.

A total of 76% of the key informants are aware and have knowledge of the HIV and Aids situation among the DUs and IDUs, and they estimated about 40 persons have this disease among the IDUs, which is about 25% of the estimated of IDUs in their district.
3.2 Drug Addicts

In sum, 330 recovering drug addicts and drug addicts responded to our study, ranging between 42 to 56 from each district (Appendix 3); 106 persons are married (32.1%) and out of this, about 29% have children. All respondents interviewed are male, and 42.5% confirmed that they have girlfriends, with a small number (1.08%) said they have boyfriends (indicating possible homosexual activities). Also, 74% declared they do not use condoms during sexual intercourse.

On the average, they have used drugs for 7.2 years and lived in the district for 21.8 years. Most of them used heroin (53.6%) and ganja (22.15), others used heroin together with other drugs such as psychoactive pills and alcohol. About 19.8% said that they are in Serenti DRC, ADK, Prison and private treatment facilities in the years 2002.

A total of 113 (36.2%) confirmed that they injected drugs, and identified ganja and heroin as the drug of choice of most of the drug users in their district.

On the average, they identified that IDUs inject 2.65 times a day. About 47 out of 117 IDUs (40.2%) share their needles, 35 respondents (11.0%) declared they are HIV positive and 27 (8.9%) confirmed that they have Aids.

3.3 Multiplier for the Sampled Districts

A total of 14 districts were sampled for this estimation exercise. Table 12 indicates the number of DUs stated by NDA in each district, and the numbers identified by drug addicts and key informants. The multipliers for DUs and IDUs are derived from the formula stated in section 2.2.3 of this report. The range of multiplier
provided by the drug addicts in the district is from 0.6 (SPU) to 21.3 (Miri) and 0.6 (SPU) to 2.7 (Sentul) provided by the key informants (Table 13).

### Table 12: Multiplier for DU based on district sampled

<table>
<thead>
<tr>
<th>No</th>
<th>District</th>
<th>DU (NDA)</th>
<th>Drug Addicts</th>
<th>Key Informants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Calculated</td>
<td>Adjusted</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Multiplier</td>
<td>Multiplier</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Kubang Pasu</td>
<td>757</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
<td>2</td>
<td>Kota Setar</td>
<td>872</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>3</td>
<td>Seberang Perai (U)</td>
<td>1906</td>
<td>0.6</td>
<td>1.0</td>
</tr>
<tr>
<td>4</td>
<td>Seberang Perai (S)</td>
<td>403</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>5</td>
<td>Kuala Kangsar</td>
<td>285</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>6</td>
<td>Kinta</td>
<td>1044</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>7</td>
<td>Sentul</td>
<td>465</td>
<td>4.6</td>
<td>4.6</td>
</tr>
<tr>
<td>8</td>
<td>Brickfield</td>
<td>404</td>
<td>5.3</td>
<td>5.3</td>
</tr>
<tr>
<td>9</td>
<td>Melaka Tengah</td>
<td>281</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>10</td>
<td>Alor Gajah</td>
<td>139</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>11</td>
<td>Pekan</td>
<td>103</td>
<td>3.9</td>
<td>3.9</td>
</tr>
<tr>
<td>12</td>
<td>Maran</td>
<td>158</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>13</td>
<td>Kuching</td>
<td>54</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td>14</td>
<td>Miri</td>
<td>42</td>
<td>21.3</td>
<td>21.3</td>
</tr>
</tbody>
</table>

### Table 13: Multiplier for IDU based on district sampled

<table>
<thead>
<tr>
<th>No</th>
<th>District</th>
<th>IDU (NDA)</th>
<th>Drug Addicts</th>
<th>Key Informants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Calculated</td>
<td>Adjusted</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Multiplier</td>
<td>Multiplier</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Kubang Pasu</td>
<td>82</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td>2</td>
<td>Kota Setar</td>
<td>175</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
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<td>Seberang Perai (U)</td>
<td>602</td>
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<td>1.3</td>
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<tr>
<td>4</td>
<td>Seberang Perai (S)</td>
<td>29</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>5</td>
<td>Kuala Kangsar</td>
<td>19</td>
<td>2.8</td>
<td>2.8</td>
</tr>
<tr>
<td>6</td>
<td>Kinta</td>
<td>54</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>7</td>
<td>Sentul</td>
<td>13</td>
<td>4.6</td>
<td>4.6</td>
</tr>
<tr>
<td>8</td>
<td>Brickfield</td>
<td>12</td>
<td>8.3</td>
<td>8.3</td>
</tr>
<tr>
<td>9</td>
<td>Melaka Tengah</td>
<td>37</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>10</td>
<td>Alor Gajah</td>
<td>14</td>
<td>2.9</td>
<td>2.9</td>
</tr>
<tr>
<td>11</td>
<td>Pekan</td>
<td>35</td>
<td>3.6</td>
<td>3.6</td>
</tr>
<tr>
<td>12</td>
<td>Maran</td>
<td>31</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>13</td>
<td>Kuching</td>
<td>0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>14</td>
<td>Miri</td>
<td>2</td>
<td>14.9</td>
<td>14.9</td>
</tr>
</tbody>
</table>
Some adjustments on the multipliers are necessary. If the multiplier obtained from the estimates is less than 1.0, the researchers decided to use the population provided by NDA as the minimum number of DUs and IDUs in the area, therefore producing a multiplier of 1.0. This is because the number provided by NDA represent those captured from a particular area or district. This number may include those who stay in other area or districts but was captured in a different district. The estimates provided to us by our respondents is the number in that particular district, including those in the treatment and rehabilitation programs but does not include those who come from outside of their district or area.

Similar calculations were performed to ascertain the multiplier for IDU for each district. This is shown in Table 13. The range of multiplier provided by the drug addicts in the district is from 1.0 (Kuching) to 14.9 (Miri), and between 1.0 (Kuching) to 4.6 (Kinta) provided by the key informants. The adjusted multiplier is also performed based on the same principle as discussed above. The information for calculating the non-adjusted multipliers for DU and IDU are as presented in Tables 14 and 15 respectively.

**Table 14: Informations for calculating the multiplier for DU**

<table>
<thead>
<tr>
<th>No</th>
<th>Districts</th>
<th>DU NDA</th>
<th>No. of Respondent</th>
<th>Average Estimate</th>
<th>Percentage</th>
<th>Multiplier (not adjusted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kubang Pasu</td>
<td>757</td>
<td>17</td>
<td>5</td>
<td>1241</td>
<td>614</td>
</tr>
<tr>
<td>2</td>
<td>Kota Setar</td>
<td>872</td>
<td>25</td>
<td>6</td>
<td>1248</td>
<td>725</td>
</tr>
<tr>
<td>3</td>
<td>Seberang Perai (U)</td>
<td>1906</td>
<td>22</td>
<td>4</td>
<td>1212</td>
<td>1113</td>
</tr>
<tr>
<td>4</td>
<td>Seberang Perai (S)</td>
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<td>12</td>
<td>4</td>
<td>773</td>
<td>641</td>
</tr>
<tr>
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<td>Kuala Kangsar</td>
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<td>12</td>
<td>6</td>
<td>370</td>
<td>345</td>
</tr>
<tr>
<td>6</td>
<td>Kinta</td>
<td>1044</td>
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<td>5</td>
<td>1728</td>
<td>1056</td>
</tr>
<tr>
<td>7</td>
<td>Sentul</td>
<td>465</td>
<td>12</td>
<td>2</td>
<td>2167</td>
<td>1250</td>
</tr>
<tr>
<td>8</td>
<td>Brickfield</td>
<td>404</td>
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<td>4</td>
<td>2143</td>
<td>644</td>
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<td>9</td>
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<td>23</td>
<td>5</td>
<td>375</td>
<td>427</td>
</tr>
<tr>
<td>10</td>
<td>Alor Gajah</td>
<td>139</td>
<td>22</td>
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<td>202</td>
<td>228</td>
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<tr>
<td>11</td>
<td>Pekan</td>
<td>103</td>
<td>17</td>
<td>1</td>
<td>400</td>
<td>134</td>
</tr>
<tr>
<td>12</td>
<td>Maran</td>
<td>158</td>
<td>3</td>
<td>3</td>
<td>272</td>
<td>253</td>
</tr>
<tr>
<td>13</td>
<td>Kuching</td>
<td>54</td>
<td>7</td>
<td>3</td>
<td>143</td>
<td>63</td>
</tr>
<tr>
<td>14</td>
<td>Miri</td>
<td>42</td>
<td>17</td>
<td>3</td>
<td>888</td>
<td>92</td>
</tr>
</tbody>
</table>
3.4 Multiplier for all Districts

Subsequent to the identification of the multipliers for the sampled districts, the multipliers for other districts are derived based on their respective Drug Addiction Severity Classification (DASC) by NDA. This is done by referring the DASC of a particular district to the one nearest to the sampled district. For example, the (sampled) district Johor Bahru has a DASC of 0.10%, and this is comparable to Pekan district (0.10%). Thus, Johor Bahru will use the multiplier for Pekan that is 3.9 as estimated by the drug addicts and 1.3 estimated by key informants for the drug user group; and 3.6 as estimated by the drug addicts and 2.2 as estimated by key informants for the IDU group (see Tables 12 and 13). These multiplies are then adjusted accordingly as explained in 3.3 above.

Table 15: Informations for calculating the multiplier for IDU

<table>
<thead>
<tr>
<th>No.</th>
<th>Districts</th>
<th>IDU NDA</th>
<th>No. of Respondent</th>
<th>Average Estimate</th>
<th>Percentage</th>
<th>Multiplier (not adjusted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kubang Pasu</td>
<td>82</td>
<td>11</td>
<td>5</td>
<td>215</td>
<td>71</td>
</tr>
<tr>
<td>2</td>
<td>Kota Setar</td>
<td>175</td>
<td>16</td>
<td>5</td>
<td>288</td>
<td>223</td>
</tr>
<tr>
<td>3</td>
<td>Seberang Perai (U)</td>
<td>602</td>
<td>23</td>
<td>2</td>
<td>810</td>
<td>190</td>
</tr>
<tr>
<td>4</td>
<td>Seberang Perai (S)</td>
<td>29</td>
<td>3</td>
<td>2</td>
<td>58</td>
<td>124</td>
</tr>
<tr>
<td>5</td>
<td>Kuala Kangsar</td>
<td>19</td>
<td>4</td>
<td>3</td>
<td>53</td>
<td>27</td>
</tr>
<tr>
<td>6</td>
<td>Kinta</td>
<td>54</td>
<td>20</td>
<td>3</td>
<td>104</td>
<td>247</td>
</tr>
<tr>
<td>7</td>
<td>Sentul</td>
<td>13</td>
<td>2</td>
<td>1</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>8</td>
<td>Brickfield</td>
<td>12</td>
<td>2</td>
<td>2</td>
<td>100</td>
<td>38</td>
</tr>
<tr>
<td>9</td>
<td>Melaka Tengah</td>
<td>37</td>
<td>17</td>
<td>6</td>
<td>69</td>
<td>75</td>
</tr>
<tr>
<td>10</td>
<td>Alor Gajah</td>
<td>14</td>
<td>18</td>
<td>2</td>
<td>40</td>
<td>31</td>
</tr>
<tr>
<td>11</td>
<td>Pekan</td>
<td>35</td>
<td>33</td>
<td>3</td>
<td>125</td>
<td>77</td>
</tr>
<tr>
<td>12</td>
<td>Maran</td>
<td>31</td>
<td>19</td>
<td>3</td>
<td>41</td>
<td>44</td>
</tr>
<tr>
<td>13</td>
<td>Kuching</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>Miri</td>
<td>2</td>
<td>7</td>
<td>4</td>
<td>30</td>
<td>1</td>
</tr>
</tbody>
</table>
Appendix 4 calculates the multipliers for drug users in all the 14 states according its districts. All multipliers for these districts are calculated from the estimates given by drug addicts and key informants. The estimated number of DUs in the district is derived by multiplying the official numbers of DU provided by NDA with the multiplier, and the estimates for the state is also calculated from the official numbers provided by NDA with the average of the districts’ multipliers. Table 16 provides the multipliers and estimates for DUs for all the states.

Similarly, Appendix 5 calculates the multipliers and estimates for IDUs for all states according to its district. Table 17 provides the summarized multipliers and estimates for IDUs for all the states.

### Table 16: Multipliers for DU by State

<table>
<thead>
<tr>
<th>States</th>
<th>DU (ADK)</th>
<th>Drug Addicts</th>
<th>Key Informants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Multiplier</td>
<td>Estimates</td>
</tr>
<tr>
<td>Kedah</td>
<td>3965</td>
<td>1.89</td>
<td>5052</td>
</tr>
<tr>
<td>Penang</td>
<td>6617</td>
<td>1.50</td>
<td>7302</td>
</tr>
<tr>
<td>Perlis</td>
<td>405</td>
<td>1.30</td>
<td>405</td>
</tr>
<tr>
<td>Perak</td>
<td>2943</td>
<td>5.90</td>
<td>10252</td>
</tr>
<tr>
<td>Selangor</td>
<td>3698</td>
<td>8.05</td>
<td>10916</td>
</tr>
<tr>
<td>Kuala Lumpur</td>
<td>2680</td>
<td>4.95</td>
<td>10586</td>
</tr>
<tr>
<td>Negeri Sembilan</td>
<td>1195</td>
<td>1.76</td>
<td>1566</td>
</tr>
<tr>
<td>Melaka</td>
<td>524</td>
<td>1.33</td>
<td>552</td>
</tr>
<tr>
<td>Johor</td>
<td>2462</td>
<td>4.55</td>
<td>7427</td>
</tr>
<tr>
<td>Kelantan</td>
<td>2825</td>
<td>4.41</td>
<td>4558</td>
</tr>
<tr>
<td>Terengganu</td>
<td>1059</td>
<td>7.08</td>
<td>2213</td>
</tr>
<tr>
<td>Pahang</td>
<td>1414</td>
<td>5.54</td>
<td>2928</td>
</tr>
<tr>
<td>Sarawak</td>
<td>306</td>
<td>4.66</td>
<td>1140</td>
</tr>
<tr>
<td>Sabah</td>
<td>2037</td>
<td>6.86</td>
<td>6126</td>
</tr>
<tr>
<td><strong>Multiplier</strong></td>
<td></td>
<td><strong>4.27</strong></td>
<td></td>
</tr>
</tbody>
</table>

### 3.5 Multiplier and estimates for Malaysia

The national multipliers for DUs and IDUs are derived from the average multipliers for all the 14 states, which is as shown in Table 16, 17 and 18. For DUs, the
multipliers provided by drug addicts is 4.27 and 1.47 provided by the key informants. For IDUs, the multipliers provided by drug addicts is 3.82, and 1.96 provided by the key informants. The average national multiplies for DUs and IDUs are 2.87 and 2.89 respectively. At the same time, the statistical Lower Limit (LL) and the Upper Limit (UL) is calculated as indicated in Appendices 6 and 7.

<table>
<thead>
<tr>
<th>States</th>
<th>IDU (NDA)</th>
<th>Drug Addicts</th>
<th>Key Informants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Multiplier</td>
<td>Estimates</td>
</tr>
<tr>
<td>Kedah</td>
<td>841</td>
<td>2.36</td>
<td>1317</td>
</tr>
<tr>
<td>Penang</td>
<td>848</td>
<td>2.02</td>
<td>1151</td>
</tr>
<tr>
<td>Perlis</td>
<td>36</td>
<td>2.8</td>
<td>79</td>
</tr>
<tr>
<td>Perak</td>
<td>242</td>
<td>5.04</td>
<td>446</td>
</tr>
<tr>
<td>Selangor</td>
<td>219</td>
<td>6.3</td>
<td>641</td>
</tr>
<tr>
<td>Kuala Lumpur</td>
<td>144</td>
<td>5.52</td>
<td>569</td>
</tr>
<tr>
<td>Negeri Sembilan</td>
<td>61</td>
<td>2.19</td>
<td>100</td>
</tr>
<tr>
<td>Melaka</td>
<td>60</td>
<td>2.23</td>
<td>101</td>
</tr>
<tr>
<td>Johor</td>
<td>225</td>
<td>3.87</td>
<td>607</td>
</tr>
<tr>
<td>Kelantan</td>
<td>948</td>
<td>4.22</td>
<td>2129</td>
</tr>
<tr>
<td>Terengganu</td>
<td>502</td>
<td>5.66</td>
<td>1126</td>
</tr>
<tr>
<td>Pahang</td>
<td>238</td>
<td>3.34</td>
<td>426</td>
</tr>
<tr>
<td>Sarawak</td>
<td>3</td>
<td>2.89</td>
<td>25</td>
</tr>
<tr>
<td>Sabah</td>
<td>4</td>
<td>5.06</td>
<td>16</td>
</tr>
</tbody>
</table>

**Table 17: Multipliers for IDU by State**

<table>
<thead>
<tr>
<th>States</th>
<th>Du Addicts</th>
<th>Key Informants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Multiplier</td>
<td>Estimates</td>
</tr>
<tr>
<td>Kedah</td>
<td>3.82</td>
<td>1.96</td>
</tr>
</tbody>
</table>

**Table 18: Multipliers for DUs and IDUs by drug users, key informants and statistical calculation**

<table>
<thead>
<tr>
<th>Categories/Calculation</th>
<th>Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>DU</td>
<td></td>
</tr>
<tr>
<td>Key Informants (KI)</td>
<td>1.47</td>
</tr>
<tr>
<td>Drug Addicts (DA)</td>
<td>4.27</td>
</tr>
<tr>
<td>Average (DA + KI)</td>
<td>2.87</td>
</tr>
<tr>
<td>Statistical L.L.</td>
<td>2.54</td>
</tr>
<tr>
<td>Statistical U.L.</td>
<td>3.30</td>
</tr>
<tr>
<td>IDU</td>
<td></td>
</tr>
<tr>
<td>Key Informants (KI)</td>
<td>1.96</td>
</tr>
<tr>
<td>Drug Addicts (DA)</td>
<td>3.82</td>
</tr>
<tr>
<td>Average (DA + KI)</td>
<td>2.89</td>
</tr>
<tr>
<td>Statistical L.L.</td>
<td>2.56</td>
</tr>
<tr>
<td>Statistical U.L.</td>
<td>3.32</td>
</tr>
</tbody>
</table>

Estimation of DU and IDU sub-population, MALAYSIA 2003
3.6 Estimating the number of DUs and IDUs

A series of discussions with NDA officers on the number of drug users in the country concluded that for 1988 to 2002 data, a total of 423,574 drug users were captured by the NADI systems, and 166,363 drug users completed their treatment and rehabilitation program from the Serenti DRCs. On the average, 25% were recorded as successful, 73% relapsed and 2% died. If we assume that this figures remain constant for 15 years, then, the cumulative number will be as reflected in Table 19.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of drug users</th>
<th>Less 27 %</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>25,205</td>
<td>18,400</td>
<td>18,400</td>
</tr>
<tr>
<td>1989</td>
<td>20,118</td>
<td>14,686</td>
<td>33,086</td>
</tr>
<tr>
<td>1990</td>
<td>19,310</td>
<td>14,096</td>
<td>47,182</td>
</tr>
<tr>
<td>1991</td>
<td>20,341</td>
<td>14,849</td>
<td>62,031</td>
</tr>
<tr>
<td>1992</td>
<td>21,506</td>
<td>15,670</td>
<td>77,731</td>
</tr>
<tr>
<td>1993</td>
<td>25,457</td>
<td>18,583</td>
<td>96,314</td>
</tr>
<tr>
<td>1994</td>
<td>28,756</td>
<td>20,992</td>
<td>117,306</td>
</tr>
<tr>
<td>1995</td>
<td>34,104</td>
<td>24,896</td>
<td>142,202</td>
</tr>
<tr>
<td>1996</td>
<td>30,598</td>
<td>22,337</td>
<td>164,539</td>
</tr>
<tr>
<td>1997</td>
<td>36,284</td>
<td>26,487</td>
<td>191,026</td>
</tr>
<tr>
<td>1998</td>
<td>37,588</td>
<td>27,272</td>
<td>218,298</td>
</tr>
<tr>
<td>1999</td>
<td>35,359</td>
<td>25,812</td>
<td>244,110</td>
</tr>
<tr>
<td>2000</td>
<td>30,593</td>
<td>22,333</td>
<td>266,443</td>
</tr>
<tr>
<td>2001</td>
<td>31,556</td>
<td>23,036</td>
<td>289,479</td>
</tr>
<tr>
<td>2002</td>
<td>31,893</td>
<td>23,282</td>
<td>312,761</td>
</tr>
</tbody>
</table>

Therefore the cumulative number of drug users, assuming all other variables as constant for 1988 to 2002 is 312,761. The average multiplier for DU is 2.87, and the estimates for the number of DU in Malaysia for 2002 is 897,624.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of IDU</th>
<th>Total of DU</th>
<th>% of IDU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>4,207</td>
<td>21,506</td>
<td>19.56</td>
</tr>
<tr>
<td>1998</td>
<td>3,706</td>
<td>37,588</td>
<td>9.85</td>
</tr>
<tr>
<td>1995</td>
<td>2,756</td>
<td>35,359</td>
<td>7.79</td>
</tr>
<tr>
<td>2000</td>
<td>2,446</td>
<td>30,593</td>
<td>7.99</td>
</tr>
<tr>
<td>2001</td>
<td>6,170</td>
<td>31,556</td>
<td>19.55</td>
</tr>
<tr>
<td>2002</td>
<td>4,342</td>
<td>31,893</td>
<td>13.61</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
<td>13.05</td>
</tr>
</tbody>
</table>

For IDUs, the NDA statistics is as stated in Table 20. The average percentage of IDUs in relation to DUs for 6 years period is 13.05%. If we multiply this number with the cumulative DU for 2002 (312,761), there are a total of 40,815 IDUs in the country. The average multiplier for IDUs is 2.89 thus the estimates for IDUs in the country for 2002 is 117,955.

In conclusion, the summary for the estimates of DUs and IDUs in Malaysia is as stated in Table 21.

Table 21: Estimates of DU and IDUs in Malaysia for 2002.

<table>
<thead>
<tr>
<th>Source of multiplier</th>
<th>Adjusted population in 2002</th>
<th>Multiplier</th>
<th>Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>DUs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Key Informants (KI)</td>
<td>312,761</td>
<td>1.47</td>
<td>459,759</td>
</tr>
<tr>
<td>Drug Addicts (DA)</td>
<td></td>
<td>4.27</td>
<td>1,335,489</td>
</tr>
<tr>
<td>Average (DA + KI)</td>
<td></td>
<td>2.87</td>
<td>897,624</td>
</tr>
<tr>
<td>Statistical L.L.</td>
<td></td>
<td>2.54</td>
<td>794,413</td>
</tr>
<tr>
<td>Statistical U.L.</td>
<td></td>
<td>3.30</td>
<td>1,032,111</td>
</tr>
<tr>
<td>IDUs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Key Informants (KI)</td>
<td>40,815</td>
<td>1.96</td>
<td>79,997</td>
</tr>
<tr>
<td>Drug Addicts (DA)</td>
<td></td>
<td>3.82</td>
<td>155,913</td>
</tr>
<tr>
<td>Average (DA + KI)</td>
<td></td>
<td>2.89</td>
<td>117,955</td>
</tr>
<tr>
<td>Statistical L.L.</td>
<td></td>
<td>2.56</td>
<td>104,486</td>
</tr>
<tr>
<td>Statistical U.L.</td>
<td></td>
<td>3.32</td>
<td>135,506</td>
</tr>
</tbody>
</table>

This study suggests using the average multiplier to indicate the number of DUs and IDUs in the country for 2002, and the statistical lower and upper limit (at 95% confidence interval) to reflect the minimum and maximum range.
REFERENCES

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APPENDIX 1: QUESTIONNAIRE

Interview Guide for Key Informants:

1. How long have you stayed or worked in this district: (Berapa lamakah anda tinggal/bekerja di daerah ini?)

2. What is your present position/occupation: (Apakah pekerjaan/jawatan anda sekarang)

3. What is your department/NGO (Nama Jabatan atau NGO)

4. Are you aware of the current drug situation in this district (Adakah anda sedar tentang masalah dadah di daerah/kawasan ini?): ( )Yes ( )No

5. If NO, who, in your office is aware of it (Jika TIDAK, siapa yang tahu?) (NOTE: Change Key informant, continue the interview)

6. If YES, can you inform us of the areas with high concentration of drug addicts in this district (Jika YA, kawasan mana yang ramai penagih?):

7. How many drug addicts do you estimate to be in this area last year (Berapa ramaikah penagih dadah di kawasan ini pada tahun lalu) _______ dan di mana dapat data ini

8. What about this year (2003) Berapa ramai tahun ini _______________ increase (Meningkat) __________ or decrease (atau menurun) ________________

9. Among the drug addicts, any IDUs (Berapa di kalangan mereka menyuntik dadah)

10. Does this include those who are in Serenti, ADK or prison last year (Adakah bilangan ini termasuk yang berada di Serenti, ADK atau Penjara?) ( )Tidak ( )Ya (berapa ramai)

11. Do you know what type of drugs these IDU uses (Tahukah jenis dadah apa yang mereka (IDU) gunakan) ( )Heroin ( )morfin ( ) syabu ( ) ecstasy ( ) candu dll

12. Do you know anyone of them who are HIV+ or with AIDS? (Adakah di antara mereka yang HIV+ atau Aids?)

Interviewer may explore further but must stay within the scope.

Interviewer ___________________________________ Date ___________________________________

District: _____________________________________, Area: _________________________________

Estimation of DU and IDU sub-population, MALAYSIA 2003
Interview Guide for DU/IDUs

1. How long have you taken drugs (Berapa lama anda telah menggunakan dadah?) ______ years (Tahun)

2. How long have you stay in this district/area (Berpalaama anda tinggal di kawasan, daerah ini?)

3. What type of drugs do you usually use (Dadah jenis apa yang selalu anda gunakan)

4. Do you inject drugs (Anda suntik dadah?) ( )Yes ( )No

5. If NO can you estimate how many DU and IDUs in this area (Jika TIDAK, boleh anda anggarkan bilangan IDU di sini?)

6. Where are they (Di kawasan manakah mereka berada?)

7. If YES, what drugs do you use (Jika YA, dadah apa yang awak selalu gunakan and how much (dan banyak mana)

8. How frequent do you inject in a day (Berapa kali anda suntik sehari)

9. Where were you last year (Di manakah anda akhir tahun lalu) ( ) Serenti ( ) NDA ( ) Prison ( ) Private center ( ) Other area Tempat lain ( ) Here Di sini

10. How many IDUs are in this area (Berpalaama ramaikah anggaran penagih suntikan (IDU) di kawasan ini)

11. Do you share your needles with other IDUs (Adakah anda kongsi jarum suntikan dengan penagih lain? ( ) YA ( ) TIDAK

12. Have you tested for HIV+/Aids (Adakah anda HIV+ ( ) Yes ( ) No; atau Aids ( ) Yes ( ) No

13. Are you married Anda sudah berkahwin ( ) Yes ( ) No, Anda ada anak ( ) Yes ( ) No

14. If not married, do you have a girlfriend (Kalau belum kahwin, ada teman wanita): ( ) Yes ( ) No, Boyfriend (Teman laki-laki): ( ) Yes ( ) No

15. Do you use condom during intercourse? (Anda gunakan kondom semasa hubungan kelamin): ( ) Yes ( ) No

Your favourite pet______________________, your mother’s name__________________________

Where were you born___________________, your favourite food________________________________

Area:__________________ District:________________________ Date of interview_________________

Interviewer:______________________________________________________________

Estimation of DU and IDU sub-population, MALAYSIA 2003
APPENDIX 2: RESPONSE BY KEY INFORMANTS

2.1 States where respondents were interviewed

<table>
<thead>
<tr>
<th>State</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kedah</td>
<td>12</td>
<td>14.5</td>
</tr>
<tr>
<td>Kuala Lumpur</td>
<td>10</td>
<td>12.0</td>
</tr>
<tr>
<td>Melaka</td>
<td>14</td>
<td>16.9</td>
</tr>
<tr>
<td>Pahang</td>
<td>13</td>
<td>15.7</td>
</tr>
<tr>
<td>Perak</td>
<td>12</td>
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2.2 Districts where respondents were interviewed

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2.3 Number of years respondents lived or worked in this district

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Estimation of DU and IDU sub-population, MALAYSIA 2003
2.4 Present position/occupation

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<th>Percent</th>
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2.5 Present department / NGO

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2.6 Awareness towards the current drug situation in this district

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2.7 Areas with high concentration of drug addicts in the sampled district

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<td>Binjai</td>
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<td>Bukit Tangga</td>
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<td>Kampung Raja</td>
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<td>Simpang 4</td>
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<td>Tanjong Bendahara</td>
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- Kuala Kangsar: Felda Padang Rengas, Saut Kati, Kampung Mansur, Felda Lasah, Mukim Sayong, Sungai Siput, Pekan Kuala Kangsar, Kampung Rambai 7
- Kuala Lumpur: Tanjung Rambutan, Ulu Kinta, Manjoi, Kampung Pasir Putih, Gunung Hijau, Kampung Baru Bambu, Kampung Tualang, Bandar Kinta, Changkat Batu Gajah, Kampung Air Papan, Tanjung Tualang, Kampung Dato’ Ahmad Said
- Brickfields: Kawasan Setinggan, Kawasan makanat, mengikut ADK
- Sentul: Dang Wangi, Kampung Keramat, Kawasan perumahan
- Melaka: Bandar, Tanjung Kling, Batang 3
- Alor Gajah: Masjid Tanah, Kuala Sungai Besar, Merlimau
2.8 Estimated number of drug users and addicts in the district (2002)

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<td>Felda Chini</td>
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<td>Kuak Sayong</td>
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<td>Maran</td>
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<td>Felda Jengka 15, 16, 17,</td>
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<tr>
<td></td>
<td></td>
<td>18, 19, 2, 1, 8, 9, 12, 13</td>
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<td>Nereh, Ulu Jempol</td>
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<td>Petrajaya</td>
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2.9 The source of the data for the estimated number of DUs

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<tr>
<td><strong>Total</strong></td>
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2.10 Estimated number of drug users and addicts in the district (2003)

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2.11 Increase or decrease in the number of drug users and addicts in the district over 2 years period

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2.12 Estimated number of IDUs in the district

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</thead>
<tbody>
<tr>
<td>Mean</td>
<td>134.20</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>218.815</td>
</tr>
</tbody>
</table>

Note: The percentage of IDU among DU is 13.27%

2.13 The types of drugs often used by IDUs

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heroin</td>
<td>60</td>
<td>81.1</td>
</tr>
<tr>
<td>Morfin</td>
<td>4</td>
<td>5.4</td>
</tr>
<tr>
<td>Syabu</td>
<td>6</td>
<td>8.1</td>
</tr>
<tr>
<td>Others</td>
<td>4</td>
<td>5.4</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>100.0</td>
</tr>
</tbody>
</table>

2.14 Do you know anyone of them who are HIV+ or with Aids

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>18</td>
<td>24.0</td>
</tr>
<tr>
<td>Yes</td>
<td>57</td>
<td>76.0</td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td>100.0</td>
</tr>
</tbody>
</table>

2.15 Estimated number of HIV+ and AIDS

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>40.09</td>
<td></td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>78.007</td>
<td></td>
</tr>
</tbody>
</table>

Note: Percentage of HIV/Aids to IDU = 29.8%
Percentage of HIV/Aids to DU = 5.57%
APPENDIX 3: RESPONSE BY DRUG USERS

3.1 States where respondents were interviewed

<table>
<thead>
<tr>
<th>State</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kedah</td>
<td>45</td>
<td>13.6</td>
</tr>
<tr>
<td>Kuala Lumpur</td>
<td>48</td>
<td>14.5</td>
</tr>
<tr>
<td>Melaka</td>
<td>51</td>
<td>15.5</td>
</tr>
<tr>
<td>Pahang</td>
<td>56</td>
<td>17.0</td>
</tr>
<tr>
<td>Perak</td>
<td>46</td>
<td>13.9</td>
</tr>
<tr>
<td>Pulau Pinang</td>
<td>42</td>
<td>12.7</td>
</tr>
<tr>
<td>Sarawak</td>
<td>42</td>
<td>12.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>330</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

3.2 Districts where respondents were interviewed

<table>
<thead>
<tr>
<th>District</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alor Gajah</td>
<td>25</td>
<td>7.6</td>
</tr>
<tr>
<td>Brickfields</td>
<td>24</td>
<td>7.3</td>
</tr>
<tr>
<td>Kinta</td>
<td>31</td>
<td>9.4</td>
</tr>
<tr>
<td>Kota Setar</td>
<td>25</td>
<td>7.6</td>
</tr>
<tr>
<td>Kuala Kangsar</td>
<td>15</td>
<td>4.5</td>
</tr>
<tr>
<td>Kubang Pasu</td>
<td>20</td>
<td>6.1</td>
</tr>
<tr>
<td>Kuching</td>
<td>20</td>
<td>6.1</td>
</tr>
<tr>
<td>Maran</td>
<td>23</td>
<td>7.0</td>
</tr>
<tr>
<td>Melaka Tengah</td>
<td>26</td>
<td>7.9</td>
</tr>
<tr>
<td>Miri</td>
<td>22</td>
<td>6.7</td>
</tr>
<tr>
<td>Pekan</td>
<td>33</td>
<td>10.0</td>
</tr>
<tr>
<td>Seberang Perai (S)</td>
<td>19</td>
<td>5.8</td>
</tr>
<tr>
<td>Seberang Perai (U)</td>
<td>23</td>
<td>7.0</td>
</tr>
<tr>
<td>Sentul</td>
<td>24</td>
<td>7.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>330</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

3.3 Number of years respondents has used drugs

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>329</td>
</tr>
<tr>
<td>Mean</td>
<td>7.2371</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>7.79491</td>
</tr>
</tbody>
</table>

Estimation of DU and IDU sub-population, MALAYSIA 2003
### 3.4 Number of years respondents lived in district

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>328</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>21.8902</td>
<td></td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>13.37601</td>
<td></td>
</tr>
</tbody>
</table>

### 3.5 Type of drugs usually used by drug users

<table>
<thead>
<tr>
<th>Drug Combinations</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>1</td>
<td>.3</td>
</tr>
<tr>
<td>Codeine</td>
<td>5</td>
<td>1.5</td>
</tr>
<tr>
<td>Domikon</td>
<td>1</td>
<td>.3</td>
</tr>
<tr>
<td>Gam maru</td>
<td>1</td>
<td>.3</td>
</tr>
<tr>
<td>Ganja</td>
<td>73</td>
<td>22.1</td>
</tr>
<tr>
<td>Ganja, Heroin</td>
<td>3</td>
<td>.9</td>
</tr>
<tr>
<td>Ganja, Morfin</td>
<td>2</td>
<td>.6</td>
</tr>
<tr>
<td>Heroin</td>
<td>177</td>
<td>53.6</td>
</tr>
<tr>
<td>Heroin, Morfin</td>
<td>2</td>
<td>.6</td>
</tr>
<tr>
<td>Ice baby</td>
<td>4</td>
<td>1.2</td>
</tr>
<tr>
<td>Morfin</td>
<td>24</td>
<td>7.3</td>
</tr>
<tr>
<td>Pil bom</td>
<td>10</td>
<td>3.0</td>
</tr>
<tr>
<td>Pil esctacy</td>
<td>16</td>
<td>4.8</td>
</tr>
<tr>
<td>Syabu</td>
<td>11</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>330</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

### 3.6 Do drug users inject drugs

<table>
<thead>
<tr>
<th>Injection Status</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>199</td>
<td>63.8</td>
</tr>
<tr>
<td>Yes</td>
<td>113</td>
<td>36.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>312</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

### 3.7 Estimates of drug users

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>274</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>1380.37</td>
<td></td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>1812.14</td>
<td></td>
</tr>
</tbody>
</table>
### 3.8 Location of DU and IDUs in district

<table>
<thead>
<tr>
<th>No</th>
<th>Districts</th>
<th>Branch Name's</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kubang Pasu</td>
<td>Kuala Sanglang, Kodiang, Tunjang, Balai Pos, Jitra, Changlon, Malau, Kuala Reban, Kg. Lahad, Lubuk Kawah, Kg. Pelunjuk</td>
</tr>
<tr>
<td>2</td>
<td>Kota Setar</td>
<td>Kota Setar, Kuala Kedah, Seberang Nyonya, Jalan Langgar, Jalan Putra, Pekan Tanah Merah, Alor Setar, Tong Kayak, Simpang Kuala, Kebun Lima Ratus, Batu 3 Tandok, Alor Mengkudu, Mergong, Pokok Sena, Alor Malai, Terok Kecai, Batang Paip, Kg. Berjaya, Simpang 4 Kangkung, Taman Nuri, Lorong Seri, Lanchu Barat, Kg. Bukit Pinang, Jalan Lumpur</td>
</tr>
<tr>
<td>3</td>
<td>Seberang Perai Utara</td>
<td>Bagang Luar, Mak Mandin, Raja Uda, Kg. Baru, Perai, Kg. Benggali</td>
</tr>
</tbody>
</table>
| 4 | Seberang Perai Selatan | Kg. Perlis  
Bagang Dalam  
Bagang Lalang |
|---|---|---|
| 5 | Kuala Kangsar | Nibong Tebal  
Tanjung Pinang  
Sungai Chi  
Simpang Empat  
Bukit Tengah  
Bukit Minyak |
|   |   | Jalan Kem  
Kg. Beruntung  
Kg. Simia  
Kg. Thaili  
Sungai Siput  
Kg. Sayong  
Kg. Udang Kering  
Kg. Talang  
Kg. Likut  
Kg. Karak Sauk  
Hutan Kg. Menora  
Kg. Muhibah  
Kg. Kati  
Felda Lasah  
Kg. Padang Rengas |
| 6 | Kinta | Menglembu  
Kg. Kang Putuh  
Kg. Tambun  
Kg. Manjoi  
Sri Kinta  
Kg. Tok Chadang  
Kg. Pusing |
| 7 | Brickfields | Kg. Jinjing  
Jalan Ipoh  
Jalan Kepong  
Selayang  
Flat Kedai DBKL  
Ipoh Road Batu 2  
Bandar Baru Sentul  
Jalan Sentul Flat DBKL  
Bakar Batu |
| 8 | Sentul | Pantai Dalam  
Kg. Kerinchi  
Pagung Lido Jalan Sanbanthan |
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| 9 | Melaka Tengah | Kg. Padang Temu  
Kg. Bachang  
Plaza Hang Tuah  
Tanjung Keling  
Kg. Kelubung  
Kg. Bukit Rambai  
Batu Berendam  
Melaka Jaya  
Duyong  
Kg. Motaram  
Melaka Raya  
Taman Seri Golam |
| 10 | Alor Gajah | Pantai Belimbing  
During Tunggal  
Batu 13  
Kg. Melaka Pindah  
Kg. Bukit Darat  
Kuala Linggi  
Kuala Sungai Baru  
Kg. Nyalas  
Kg. Tanjung Rima  
Masjid Tanah  
Lubuk Cina  
Sungai Udang  
Kg. Lubok Kepong  
Simpang Empat  
Batu 12 Kg. Belimbing Dalam  
Batu 24 Kg. Permatang  
Kg. Baru  
Kg. Pulai Seberang |
| 11 | Pekan | Kg. Pahang  
Kuala Pahang  
Felda Chini  
Kg. Tanah Putih  
Kg. Nenasi  
Kg. Permatang Pauh  
Kg. Ketapang  
Kg. Pasir Panjang  
Kg. Sekukuh  
Bandar Pekan |
| 12 | Maran | Jengka 2 |
3.9 Drugs usually used by respondents

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ganja</td>
<td>212</td>
<td>64.2</td>
</tr>
<tr>
<td>Heroin</td>
<td>2</td>
<td>.6</td>
</tr>
<tr>
<td>Morfin</td>
<td>98</td>
<td>29.7</td>
</tr>
<tr>
<td>Syabu</td>
<td>15</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.9</td>
</tr>
<tr>
<td>Total</td>
<td>330</td>
<td>100.0</td>
</tr>
</tbody>
</table>

3.10 How much drugs (dose) usually used by IDU

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>105</td>
</tr>
<tr>
<td>Mean</td>
<td>2.43</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>1.480</td>
</tr>
</tbody>
</table>
3.11 How frequent IDU inject in a day

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>114</td>
</tr>
<tr>
<td>Mean</td>
<td>2.65</td>
<td></td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>1.602</td>
<td></td>
</tr>
</tbody>
</table>

3.12 Location of respondents in the year 2002

<table>
<thead>
<tr>
<th>Location</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serenti</td>
<td>27</td>
<td>8.5</td>
</tr>
<tr>
<td>ADK</td>
<td>11</td>
<td>3.4</td>
</tr>
<tr>
<td>Prison</td>
<td>18</td>
<td>5.6</td>
</tr>
<tr>
<td>Private Center</td>
<td>5</td>
<td>1.6</td>
</tr>
<tr>
<td>Other area</td>
<td>33</td>
<td>10.3</td>
</tr>
<tr>
<td>Here</td>
<td>225</td>
<td>70.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>319</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

3.13 Number IDUs in this area

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>309</td>
</tr>
<tr>
<td>Mean</td>
<td>476.74</td>
<td></td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>876.469</td>
<td></td>
</tr>
</tbody>
</table>

3.14 Sharing needles with other IDUs

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>70</td>
<td>59.8</td>
</tr>
<tr>
<td>Yes</td>
<td>47</td>
<td>40.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>117</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

3.15 Respondents marital status

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>224</td>
<td>67.9</td>
</tr>
<tr>
<td>Yes</td>
<td>106</td>
<td>32.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>330</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
3.16 Respondents number of children

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>214</td>
<td>71.3</td>
</tr>
<tr>
<td>Yes</td>
<td>86</td>
<td>28.7</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100.0</td>
</tr>
</tbody>
</table>

3.17 Number of single respondents who have girlfriends

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>134</td>
<td>57.5</td>
</tr>
<tr>
<td>Yes</td>
<td>99</td>
<td>42.5</td>
</tr>
<tr>
<td>Total</td>
<td>233</td>
<td>100.0</td>
</tr>
</tbody>
</table>

3.18 Number of single respondents who have boyfriends

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>215</td>
<td>98.2</td>
</tr>
<tr>
<td>Yes</td>
<td>4</td>
<td>1.8</td>
</tr>
<tr>
<td>Total</td>
<td>219</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: Imply homosexual tendencies

3.19 Respondents who are HIV+

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>283</td>
<td>89.0</td>
</tr>
<tr>
<td>Yes</td>
<td>35</td>
<td>11.0</td>
</tr>
<tr>
<td>Total</td>
<td>318</td>
<td>100.0</td>
</tr>
</tbody>
</table>

3.20 Respondents with have Aids

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
</table>

Estimation of DU and IDU sub-population, MALAYSIA 2003
<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>275</td>
<td>91.1</td>
</tr>
<tr>
<td>Yes</td>
<td>27</td>
<td>8.9</td>
</tr>
<tr>
<td>Total</td>
<td>302</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### 3.22 Respondents who used condom during intercourse

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>159</td>
<td>74.0</td>
</tr>
<tr>
<td>Yes</td>
<td>56</td>
<td>26.0</td>
</tr>
<tr>
<td>Total</td>
<td>215</td>
<td>100.0</td>
</tr>
</tbody>
</table>
## APPENDIX 4: MULTIPLIERS FOR DUs FOR ALL DISTRICTS

### Kedah

<table>
<thead>
<tr>
<th>District</th>
<th>Category</th>
<th>DU (NDA)</th>
<th>Drug Addicts Multiplier (Estimates)</th>
<th>Key Informants Multiplier (Estimates)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kubang Pasu</td>
<td>High Grey</td>
<td>757</td>
<td>1.6 (1211)</td>
<td>1.0 (757)</td>
</tr>
<tr>
<td>Kota Setar</td>
<td>High Grey</td>
<td>872</td>
<td>1.4 (1221)</td>
<td>1.0 (872)</td>
</tr>
<tr>
<td>Baling</td>
<td>Low Grey</td>
<td>234</td>
<td>1.3 (304)</td>
<td>1.2 (281)</td>
</tr>
<tr>
<td>Bandar Baharu</td>
<td>White</td>
<td>21</td>
<td>1.3 (27)</td>
<td>1.5 (31)</td>
</tr>
<tr>
<td>Kuala Muda</td>
<td>High Grey</td>
<td>857</td>
<td>1.4 (1200)</td>
<td>1.0 (857)</td>
</tr>
<tr>
<td>Kulim</td>
<td>High Grey</td>
<td>681</td>
<td>1.9 (1294)</td>
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Estimation of DU and IDU sub-population, MALAYSIA 2003
### Kelantan

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Estimation of DU and IDU sub-population, MALAYSIA 2003
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**Sarawak**

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### APPENDIX 5: MULTIPLIERS FOR IDU FOR ALL DISTRICTS

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Estimation of DU and IDU sub-population, MALAYSIA 2003
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**Estimation of DU and IDU sub-population, MALAYSIA 2003**
### Negeri Sembilan

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Estimation of DU and IDU sub-population, MALAYSIA 2003
### Estimation of DU and IDU sub-population, MALAYSIA 2003

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<td>Hulu Terengganu</td>
<td>White</td>
<td>19</td>
<td>1.9 (36)</td>
<td>2.0 (38)</td>
</tr>
<tr>
<td>Kemaman</td>
<td>White</td>
<td>14</td>
<td>14.9 (209)</td>
<td>1.0 (14)</td>
</tr>
<tr>
<td>Kuala Terengganu</td>
<td>Low Grey</td>
<td>307</td>
<td>2.8 (860)</td>
<td>1.4 (430)</td>
</tr>
<tr>
<td>Marang</td>
<td>White</td>
<td>28</td>
<td>1.9 (53)</td>
<td>2.0 (56)</td>
</tr>
<tr>
<td>Setiu</td>
<td>White</td>
<td>5</td>
<td>14.9 (74)</td>
<td>1.0 (5)</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td></td>
<td><strong>5.66</strong></td>
<td><strong>1.54</strong></td>
</tr>
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#### Pahang

<table>
<thead>
<tr>
<th>District</th>
<th>Category</th>
<th>IDU (NDA)</th>
<th>Drug Addicts Multiplier (Estimates)</th>
<th>Key Informants Multiplier (Estimates)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pekan</td>
<td>Low Grey</td>
<td>35</td>
<td>3.6 (126)</td>
<td>2.2 (77)</td>
</tr>
<tr>
<td>Maran</td>
<td>Low Grey</td>
<td>31</td>
<td>1.3 (40)</td>
<td>1.4 (43)</td>
</tr>
<tr>
<td>Bentong</td>
<td>High Grey</td>
<td>34</td>
<td>2.0 (68)</td>
<td>4.3 (146)</td>
</tr>
<tr>
<td>Cameron Highlands</td>
<td>White</td>
<td>2</td>
<td>1.9 (4)</td>
<td>2.0 (4)</td>
</tr>
<tr>
<td>Jerantut</td>
<td>Low Grey</td>
<td>21</td>
<td>1.9 (40)</td>
<td>4.6 (97)</td>
</tr>
</tbody>
</table>

**Estimation of DU and IDU sub-population, MALAYSIA 2003**
| Kuala Lipis | White | 0  | 14.9 (0) | 1.0 (0) |
| Kuantan    | White | 64 | 1.9 (122) | 2.0 (128) |
| Raub       | White | 2  | 1.9 (4) | 2.0 (4) |
| Rompin     | Low Grey | 23 | 3.6 (83) | 2.2 (51) |
| Temerloh   | White | 15 | 1.9 (28) | 2.0 (30) |
| Bera       | White | 11 | 1.9 (21) | 2.0 (22) |
| **Average**|        |    | 3.34    | 2.34    |

**Sarawak**

<table>
<thead>
<tr>
<th>Districts</th>
<th>Category</th>
<th>IDU (NDA)</th>
<th>Drug Addicts Multiplier (Estimates)</th>
<th>Key Informants Multiplier (Estimates)</th>
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</thead>
<tbody>
<tr>
<td>Kuching</td>
<td>White</td>
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<td>1.0 (0)</td>
</tr>
<tr>
<td>Miri</td>
<td>White</td>
<td>2</td>
<td>14.9 (30)</td>
<td>1.0 (2)</td>
</tr>
<tr>
<td>Kota Semarahan</td>
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<td>1.0 (0)</td>
<td>1.0 (0)</td>
</tr>
<tr>
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<td>1</td>
<td>1.3 (1)</td>
<td>1.4 (1)</td>
</tr>
<tr>
<td>Bintulu</td>
<td>White</td>
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<td>1.0 (0)</td>
<td>1.0 (0)</td>
</tr>
<tr>
<td>Sarakei</td>
<td>White</td>
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<td>1.0 (0)</td>
<td>1.0 (0)</td>
</tr>
<tr>
<td>Sibu</td>
<td>White</td>
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<td>1.9 (0)</td>
<td>2.0 (0)</td>
</tr>
<tr>
<td>Sri Aman</td>
<td>White</td>
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<td>1.0 (0)</td>
<td>1.0 (0)</td>
</tr>
<tr>
<td><strong>Average</strong></td>
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<td>2.89</td>
<td>1.17</td>
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**Sabah**

<table>
<thead>
<tr>
<th>Districts</th>
<th>Category</th>
<th>IDU (NDA)</th>
<th>Drug Addicts Multiplier (Estimates)</th>
<th>Key Informants Multiplier (Estimates)</th>
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</thead>
<tbody>
<tr>
<td>Beauford</td>
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<td>2.2 (0)</td>
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<tr>
<td>Kinabatangan</td>
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<td>1.0 (0)</td>
<td>1.0 (0)</td>
</tr>
<tr>
<td>Kota Belud</td>
<td>White</td>
<td>1</td>
<td>1.9 (2)</td>
<td>2.0 (2)</td>
</tr>
<tr>
<td>Kota Kinabalu</td>
<td>High Grey</td>
<td>1</td>
<td>1.6 (2)</td>
<td>1.3 (1)</td>
</tr>
<tr>
<td>Kota Marudu</td>
<td>White</td>
<td>0</td>
<td>14.9 (0)</td>
<td>1.0 (0)</td>
</tr>
<tr>
<td>Kuala Penyu</td>
<td>White</td>
<td>0</td>
<td>1.0 (0)</td>
<td>1.0 (0)</td>
</tr>
<tr>
<td>Kudat</td>
<td>Low Grey</td>
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<td>3.6 (0)</td>
<td>2.2 (0)</td>
</tr>
<tr>
<td>Kunak</td>
<td>Low Grey</td>
<td>0</td>
<td>1.3 (0)</td>
<td>1.4 (0)</td>
</tr>
<tr>
<td>Lahad Datu</td>
<td>White</td>
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<td>1.9 (0)</td>
<td>2.0 (0)</td>
</tr>
<tr>
<td>Papar</td>
<td>White</td>
<td>0</td>
<td>1.9 (0)</td>
<td>2.0 (0)</td>
</tr>
<tr>
<td>Penampang</td>
<td>White</td>
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<td>14.9 (0)</td>
<td>1.0 (0)</td>
</tr>
<tr>
<td>Ranau</td>
<td>White</td>
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<td>14.9 (15)</td>
<td>1.0 (1)</td>
</tr>
<tr>
<td>Sandakan</td>
<td>White</td>
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<td>14.9 (0)</td>
<td>1.0 (0)</td>
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<tr>
<td>Semporna</td>
<td>White</td>
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<td>1.0 (0)</td>
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<tr>
<td>Sipitang</td>
<td>Low Grey</td>
<td>0</td>
<td>1.3 (0)</td>
<td>1.4 (0)</td>
</tr>
<tr>
<td>Tambunan</td>
<td>White</td>
<td>0</td>
<td>1.0 (0)</td>
<td>1.0 (0)</td>
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</table>
### APPENDIX 6: CALCULATION FOR LOWER AND UPPER LIMIT OF DU IN MALAYSIA, USING 95% C.I. FOR POPULATION PROPORTION P1

Average of the multiplier:

\[
\frac{4.27 + 1.47}{2} = 2.87
\]

\[m = 2.87\]

\[p = \frac{100}{2.87} = 34.8\% = 0.348\]

---

\[1\] p represent population proportion of recorded DU by NDA
\[\wedge\] p represent estimate proportion of recorded DU by NDA

---

Estimation of DU and IDU sub-population, MALAYSIA 2003
\[^{\wedge}\]
\[q = (1-p) = 0.652\]

95% C.I. for \(p\) is:

\[\hat{p} \pm 1.96 \sqrt{\frac{\hat{p}(1-\hat{p})}{n}}\]

\[= 0.348 \pm \left(1.96 \times \sqrt{\frac{0.348 \times 0.652}{413}} = 1.96 \times \sqrt{\frac{0.226896}{413}} = 0.045\right)\]

\[= (0.303, 0.393)\]

\[0.303 \leq p \leq 0.393\]

95% C.I. for \(p\) is:

\[30.3\% \leq p \leq 39.3\%\]

95% C.I. for \(m\) is:

\[2.54 \leq m \leq 3.30\]

95% C.I. for DU in Malaysia:

\[(DU \text{ ADK}) \ 2.54 \leq DU \leq (DU \text{ ADK}) \ 3.30.\]

\[312,761 \times 2.54 = 794,413\]
\[312,761 \times 3.30 = 1,032,111\]

\[794,413 \leq DU \leq 1,032,111\]

Thus, the lower and higher estimates for DUs for the year 2002 is 794,413 persons (minimum) to 1,032,111 persons (maximum)
APPENDIX 7: CALCULATION FOR LOWER AND UPPER LIMIT OF IDU IN MALAYSIA, USING 95% C.I. FOR POPULATION PROPORTION $P^2$

<table>
<thead>
<tr>
<th>States</th>
<th>IDU (NDA)</th>
<th>Drug Addicts</th>
<th>Key Informants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Multiplier</td>
<td>Estimates</td>
</tr>
<tr>
<td>Kedah</td>
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<td>1317</td>
</tr>
<tr>
<td>Penang</td>
<td>848</td>
<td>2.02</td>
<td>1151</td>
</tr>
<tr>
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<td>36</td>
<td>2.8</td>
<td>79</td>
</tr>
<tr>
<td>Perak</td>
<td>242</td>
<td>5.04</td>
<td>446</td>
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<tr>
<td>Selangor</td>
<td>219</td>
<td>6.3</td>
<td>641</td>
</tr>
<tr>
<td>Kuala Lumpur</td>
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<td>569</td>
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<tr>
<td>Negeri Sembilan</td>
<td>61</td>
<td>2.19</td>
<td>100</td>
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<td>Melaka</td>
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<td>kelantan</td>
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<td>4.22</td>
<td>2129</td>
</tr>
<tr>
<td>Terengganu</td>
<td>502</td>
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<td>Pahang</td>
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<td>Sarawak</td>
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<td>2.89</td>
<td>25</td>
</tr>
<tr>
<td>Sabah</td>
<td>4</td>
<td>5.06</td>
<td>16</td>
</tr>
<tr>
<td>Multiplier</td>
<td>3.82</td>
<td></td>
<td>1.96</td>
</tr>
</tbody>
</table>

Average of the multiplier:

$$\frac{3.82 + 1.96}{2} = 2.89$$

$m = 2.89$

$$\frac{P = 100}{2.89} = 34.6\% = 0.346$$

$q = (1-p) = 0.654$

$p$ represent population proportion of recorded IDU by NDA

$p$ represent estimate proportion of recorded IDU by NDA

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Estimation of DU and IDU sub-population, MALAYSIA 2003
95% C.I. for p is:

\[ \hat{p} \pm 1.96 \sqrt{\frac{\hat{p} \cdot (1 - \hat{p})}{n}} \]

\[ = 0.346 \pm \left( 1.96 \cdot \sqrt{\frac{0.346 \times 0.654}{413}} \right) = 1.96 \cdot \sqrt{\frac{0.226284}{413}} = 0.045 \]

\[ = (0.301, 0.391) \]

0.301 \leq \hat{p} \leq 0.391

95% C.I. for p is:

30.1\% \leq \hat{p} \leq 39.1\%

95% C.I. for \( m \) is:

2.56 \leq m \leq 3.32

95% C.I. for IDU in Malaysia:

\[ 40,815 \times 2.56 = 104,486 \leq \text{IDU} \leq 40,815 \times 3.32 = 135,506 \]

(Min) \hspace{1cm} (Max)

Thus, the lower and higher estimates for IDUs for the year 2002 is 104,486 persons (minimum) to 135,506 persons (maximum)