NOTES

1 Office of National Drug Control Policy, *What America's users spend on illegal drugs*. Washington, D.C.: Executive Office of the President, 2001.
2 National Drug Intelligence Center, *National Drug Threat Assessment 2006,* United States Department of Justice.
3 United States Department of Homeland Security, *Homeland Security Report* No 124, 15 March 2004.
4 Attorney General of Mexico, *National Drug Control Program 2001-2006*, 2002, p. 36.
5 ARQ 2003.
6 National Drug Intelligence Center, *National Drug Threat Assessment 2006,* United States Department of Justice.
7 Dininny, S. 'Pot crops become taxing to law enforcement'. *Arizona Republic*, October 2, 2005.
8 National Alliance of Gang Investigators Associations, 2005 *National Gang Threat Assessment*. Washington, D.C.: Bureau for Justice Assistance.
9 Governments of Canada and the United States, *United States/Canada Border Drug Threat Assessment*, October 2004, p 4.
10 National Drug Intelligence Center, *National Drug Threat Assessment 2005,* United States Department of Justice.
11 International Narcotics Control Board, Report 2005, p.56
12 Based on data from the National Survey on Drug Use and Health.
13 Based on data from the Monitoring the Future Survey.
14 ARQ 2004
15 Royal Canadian Mounted Police, *Drug situation in Canada*, Ottawa: Criminal Intelligence Directorate, July 2004
16 Grow op busts indicate farms are going to pot'. *Winnipeg Free Press*, September 9, 2005. East Torbrook raid nets 9,000 pot plants'. *Monitor Examiner*, 14 September 2005. 'Green tide of Asian grow-ops moving East.' *Chronicle Herald*, 16 Sep 2005
17 ARQ 2003
18 Royal Canadian Mounted Police, *Marihuana Cultivation in Canada: Evolution and Current Trend*s. November 2002
19 National Drug Intelligence Center, *National Drug Threat Assessment 2005,* United States Department of Justice.
20 In 2003, France reported that 82 per cent of the cannabis resin found on its market in 2002 originated in Morocco. Similar estimates have been made for Belgium (80%), Sweden (85%), and the Czech Republic (70%). Spain, Italy, Denmark, Finland and Ireland reported that almost all of the cannabis resin originated in Morocco.
21 Aziz, T., 'Rapid Assessment Survey of Cannabis Cultivation and Related Eradication Options in South Africa'. Consultants Report prepared for UNODCCP by Temur Aziz Ahmed, November 2001.
22 Royal Swazi Police, *2001 Commissioner's Annual Report*. Available at: http://www.gov.sz/home.asp?pid=897
23 ARQ 2003; French Presidency of the Africa Subgroup of the Dublin Group, *Report on Africa*, document presented to the meeting of the Dublin Group on 18 February 2005; United States Drug Enforcement Agency, 'Country brief: Nigeria'. Department of Justice, 2001.
24 Asuni, T. 'The drug abuse scene in Nigeria'. In Petersen, R. *The International Challenges of Drug Abuse*, NIDA Research Monograph 19, 1978.
25 Ibid.
26 Bernstein, H. 'Ghana's drug economy: Some preliminary data.' *Review of African Political Economy*, Vol 26, No 79, 1999, pp 13-32.
27 Evans, M. 'Ni paix ni guerre : The political economy of low level conflict in the Casamance.' Background research for Humanitarian Policy Group Report 13, Overseas Development Institute, February 2003; Evans, M., 'Senegal: Mouvement des Forces Democratiques de la Casamance (MFDC)'. Chatham House Africa Programme Armed Non-State Actors Project Briefing Paper 2, December 2004
28 Ibid.
29 Ellis, S. *The Mask of Anarchy*, London: Hurst, 2001, p. 169.
30 Bundeskriminalamt*, Annual Drug Report 2003*, February 2004, p. 7.
31 UNODC, *Kenya: Country Profile*. Vienna: UNODC, 2003.
32 Bagenda, P. 'Tanzania', in Gastrow, P. (ed), *Penetrating State and Business: Organized Crime in Southern Africa, Vol 1*, Monograph No 86, Pretoria: Institute for Security Studies.
33 Parry, C. and A. Plüddemann, *SENDU Update* Vol 8, 2004.
34 ARQ 2003.
35 Parry, C. and A. Plüddemann, *SENDU Update* Vol 8, 2004.
36 Conace, *Sexto Estudio Nacional de Drogas en Poblacion General de Chile*, 2004, available at: http://www.cicad.oas.org/oid/MainPage/CONACEestudio2005.pdf
37 ARQ 2003.
38 Luilianelli, J., L. Guanabara, P. Fraga, T. Blickman, *A pointless war: Drugs and violence in Brazil*. TNI Briefing Series No 2004/8. Amsterdam: Transnational Institute, November 2004, pp 9-10.
39 UNODC, *Brazil: Country Profile*. Vienna: UNODC, 2005.
40 Organization of American States, *Comparative Report on Nationwide Surveys in Seven Countries: El Salvador, Guatemala, Nicaragua, Panama, Paraguay, Dominican Republic, and Uruguay 2003*. Washington, D.C., Inter-American Drug Abuse Control Commission, November 2004, p 16.
41 Bureau for International Narcotics and Law Enforcement Affairs, *International Narcotics Control Strategy Report 2005*, March 2005.
42 Fifteenth Meeting of the Heads of National Drug Law Enforcement Agencies, Latin America and the Caribbean, Santa Marta, Colombia, 18- 21 October 2005, country report 9, p.1.
43 Ibid.
44 Secretaria Nacional Antidrogas de Paraguay (SENAD), *Plantaciones de Marihuana Destruidas*. Estadísticas del ano 2002, available at: http://www.cicad.oas.org/oid/SENAD/Plantaciones%20de%20Marihuana%20Destruidas.htm
45 SENAD, op cit.
46 Bureau for International Narcotics and Law Enforcement Affairs, *International Narcotics Control Strategy Report 2005*, March 2005.
47 Observatorio Interamericano sobre Drogas, *Resumen Estadístico sobre Drogas 2001*. Washington, D.C.: Comision Interamericana para el Control del Abuso de Drogas, p. 29.
48 Instituto Costaricoense sobre Drogas, 'Erradicación de plántulas de cannabis: Costa Rica, 1989 –2003'. Available at: http://www.icd.go.cr/home.html.
49 United States Drug Enforcement Agency, 'The Pacific Islands Region', *Drug Intelligence Brief*, August 2004.
50 United States Drug Enforcement Agency, *Country Brief: Australia*, Washington, D.C.: DEA, 2003.
51 Australian Crime Commission, *Illicit Drug Data Report: 2003/4*, p 34.
52 Australian Bureau of Criminal Intelligence, *Australian Illicit Drug Report 1997/1998*.
53 Australian Crime Commission, *Illicit Drug Data Report: 2003/4*, p 33.
54 United States Drug Enforcement Agency, *Country Brief: New Zealand*, May 2004.
55 ARQ 2003
56 Alpers, P. 'Gun-running in Papua New Guinea: From Arrows to Assault Weapons in the Southern Highlands'. Special Report No 5, Geneva: Small Arms Survey, 2005
57 Australian Crime Commission, *Illicit Drug Data Report: 2003/4*, p 34.
58 Ivarature, H., *Drugs, Arms and National Security: The Global Becomes Local in Papua New Guinea*. Stockholm: Life and Peace Institute, 2000.
59 National Drug Intelligence Center, *National Drug Threat*

Assessment 2005, United States Department of Justice.
60 Andrade, J. 'P16-M marijuana uprooted'. *Manila Times*, 17 October 2005.
61 Philippine Center on Transnational Crime, 'The worldwide drug situation'. Document accessed at: http://www.pctc.gov.ph/edocs/updates/drugs.htm#phil, March 2000.
62 Bureau for International Narcotics and Law Enforcement Affairs, *International Narcotics Control Strategy Report 2005*, March 2005.
63 King, L.,Carpentier, P. Griffiths, 'An overview of cannabis potency in Europe'. European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), *EMCDDA Insights* No. 6, 2004, p.40.
64 Bundeskriminalamt, 2005, op cit, p. 35.
65 ARQ 2003
66 International Crisis Group, *The state of Albania*. Balkans Report No 54, Brussels: International Crisis Group, 1999, p. 5.
67 Centre for the Study of Democracy (Bulgaria), *Corruption, Trafficking, and Institutional Reform*, Report 11, 2002, p. 43.
68 ARQ 2003 and 2004
69 Jamieson, A, and A. Silj, 'Migration and criminality: The case of Albanians in Italy'. *Ethnobarometer Programme Working Paper* No 1, University of Sussex, Centre for Migration and Ethnic Studies, 1998.
70 Jamieson and Silj 1998, op cit.
71 Centre for the Study of Democracy 2002, op cit.
72 BBC News, 'UK: Met seize 'biggest' cannabis haul'. 9 October 2005.
73 1998 INCSR.
74 UNODC, Country Profile: Kyrgyzstan.
75 Madi, M., 'Drug trade in Kyrgyzstan: structure, implications and countermeasures'. *Central Asian Survey,* Vol 23, No 3, December 2004, pp. 249 - 273
76 UNODC, Country Profile: Kyrgyzstan.
77 ARQ 2004.
78 Paoli. L., 'Illegal drug trade in Russia'. Research Project commissioned by the UN Office for Drug Control and Crime Prevention, Freiburg: Max Planck Institute for Foreign and International Criminal Law, 2001.
79 ARQ 2003.
80 UNODC, *Country Profile: Pakistan*. Vienna: UNODC, 2003.
81 UNODC, *Country Profile: Lebanon*. Vienna: UNODC, 2003.
82 Ambekar, A., G. Lewis, S. Rao, and H. Sethi, 'South Asia Regional Profile'. Vienna: UNODC, 2005.
83 Ambekar et al 2005 op cit.
84 National Drug Intelligence Center, *National Drug Threat Assessment 2005,* United States Department of Justice. See also Centre for Geopolitical Drug Studies, 'Cannabis and the Maoist Rebellion.' *Geopolitical Drug Newsletter* No 1, October 2001.
85 Ambekar et al 2005 op cit.
86 UNODC, *Country Profile: Laos*. Vienna: UNODC, 2003.
87 UNODC, *Country Profile: Viet Nam*. Vienna: UNODC, 2003.
88 2005 Annual Report on Drug Abuse in China, National Surveillance Center on Drug Abuse, National Institute on Drug Dependence, University of Beijing, February 2006, p.28
89 The largest missing production area is Africa, where data on production and seizures are difficult to reconcile with other available information. Lebanon, which reported over 11,000 hectares in 2002, is also not included, as this area was reportedly eradicated, and the country's 2003 ARQ response estimated just over 700 hectares of cultivation.
90 The "herbal equivalent" figure is used because hashish seizures actually represent at least 25 times the land area needed to produce the same weight of product.
91 For a discussion of the reliability of the survey data, see National Research Council, *Informing America's Policy on Illegal Drugs: What we don't know keeps hurting us*. Washington, D.C.: National Academy Press, 2001.
92 Martin, B and W. Hall, 'The health effects of cannabis: Key issues of policy relevance.' *Bulletin on Narcotics*, Vol 49, No 1, 1998, pp. 85-150.
93 Observatoire Français des Drogues et des Toxicomanies, *Drogues et dépendances, données essentielles*, 2005, accessed in English at : http://www.ofdt.fr/BDD/publications/an/dds.xhtml
94 These include the Indian Hemp Drugs Commission of India (1894), the Wootten Report of the United Kingdom (1944), the LeDain Commission Report of Canada (1970), the National Commission on Marihuana and Drug Abuse of the United States (1972), the Baan Commission of the Netherlands (1972), the Senate Standing Committee on Social Welfare report of the Australian Government (1977), the National Academy of Sciences Report in the United States (1982), Ministry of Health, Welfare, and Sport report in the Netherlands (1995), and, to some extent, the Report of the Senate Special Committee on Illegal Drugs of Canada (2002).
95 Bergman, D. 'Made in the USA: Hoe Amerikaanse kwekers de Nederwiet uitvonden'. *Essensie*, No 65, pp. 42-46. As quoted in Jansen, A., 'The economic of cannabis cultivation in Europe.' Paper presented at the Second European Conference on Drug Trafficking and Law Enforcement, Paris, September 2002.
96 Landrace' strains are those that have evolved over a period of time in a particular geographic region, e.g. 'Acapulco Gold'.
97 Preston, B (2002) Pot Planet. New York: Grove. P. 154. This account was confirmed by informants in active in early cannabis breeding scene in interviews with the author in Amsterdam in November 2004.
98 The term 'skunk' appears to have been coined in reference to an important early Indica/Sativa cross, which was perceived as particularly pungent by users accustomed to Sativas.
99 Chopra, I and Chopra, R., 'The use of cannabis drugs in India.' *Bulletin on Narcotic Drugs*, Issue 1, 1957, pp. 4-29.
100 Clarke, R (2001) Sinsemilla heritage: What's in a name? In King, J. op cit. p 9.
101 Bruining, W., 'How to avoid criminalisation of euro cannabis: Learning from the Dutch experience' Paper presented at the CEDRO Drug Policy Seminar, Amsterdam. September 12, 2003.
102 Data from the University of Mississippi Cannabis Potency Monitoring Project.
103 Niesink, RJM, Rigter, S, & Hoek, J., *THC-concentraties in wiet, nederwiet en hasj in Nederlandse coffeeshops (2004-2005)*. Utrecht: Trimbos Institute, 2005.
104 King et al 2004, op cit.
105 For example, then Home Secretary of the United Kingdom, Mr Charles Clarke, asked the Advisory Council on Misuse of Drugs to consider whether 'skunk' should be excepted from the downgrading of cannabis from a Class B to a class C drug. Travis, A. 'Senior police fear u-turn on classification of cannabis'. *The Guardian*, 21 September 2005.
106 There have also been a number of technological innovations that have lost currency. The use of carbon dioxide enriched environments to boost yields has largely been abandoned, due to the greater importance of good air circulation in the hot and humid environment of an indoor grow. The use of 'feminised' seeds, produced from hermaphroditic mothers, has also lost popularity, as the risk of further hermaphrodites (and thus pollen contamination) is a threat, and it is much easier to work with female clones.
107 Bruining, op cit., Jansen, A., op cit..
108 Preston, B (2002) op cit.
109 Bruining, op cit.
110 Peterson, R., 'Marijuana and health: 1980', in Peterson, R. (ed) *Marijuana Research Findings 1980* NIDA Research Monograph 31, United States Department of Health and

Human Services, June 1980, p.12.
111 The MPMP only analyses those samples seized under the supervision of the national (federal) government, whereas most routine law enforcement in the country is conducted at local (municipal) level. The cannabis samples seized by local agents may be expected to differ from those consumed by the general public, given the level at which most federal efforts are pitched, including large-scale and import interdiction. This is especially important given the data on the extent of small scale production and social network distribution.
112 The technique used determines which of these two values is captured. High performance liquid chromatography tests for delta-9 THC, while gas chromatography tests for total THC. The latter is probably the most appropriate if the goal is to determine what users are ingesting, because other forms of THC become delta-9 THC in the process of smoking.
113 King, L.,Carpentier, P. Griffiths, 'An overview of cannabis potency in Europe'. European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), *EMCDDA Insights* No. 6, 2004.
114 Hough, M,, H. Warburton, B. Few, T. May, L. Man, J. Witton and P. Turnbull, *A growing market: The domestic cultivation of cannabis*. York: Joseph Rowntree Foundation , 2003.
115 Graeme Newman and Jack Reed (SUNY-Albany), quoting U.S. Department of Justice, Drug Enforcement Administration, 1985 Domestic Cannabis Eradication/Suppression Program Report (p. 7); 1987 Domestic Cannabis Eradication/Suppression Final Report (p. 4); 1990 Domestic Cannabis Eradication/Suppression Program (p. 6); U.S. Department of Justice, Bureau of Justice Statistics, 1991 Sourcebook of Criminal Justice Statistics (p. 483); 1992 (p. 468); 1993 (p. 464); 1994 (p. 421); 1995 (p. 439); 1996 (p. 412); 1997 (p. 369); 1998 (p. 376); 1999 (p. 389); 2000 (p. 401); 2001 (p. 388); 2002 (p. 390); and Sourcebook of Criminal Justice Statistics Online: http://www.albany.edu/sourcebook/pdf/t438.pdf.
116 National Drug Intelligence Center, *National Drug Threat Assessment 2005,* United States Department of Justice, p. 41
117 UNODC, 2003 Annual Report Questionnaire.
118 Plecas, D, Dandurand, Y., Chin, V, and Segger, T (2002) Marihuana growing operations in British Columbia: an empirical survey. Vancouver: International Centre for Criminal Law Reform and Criminal Justice Policy.
119 Royal Canadian Mounted Police, 'Marihuana Cultivation in Canada: Evolution and Current Trends', November 2002
120 Governments of Canada and the United States, *United States/Canada Border Drug Threat Assessment*, October 2004
121 Ibid.
122 United States National Drug Control Strategy Update 2004, p 12.
123 Wilkins, C., S. Casswell, K. Bhatta, M. Pledger, 'Drug use in New Zealand: National surveys comparison 1998 and 2001. Alcohol and Public Health Research Unit, University of Auckland, 2002, p. 31.
124 Atha, M., S. Blanchard, S. Davis, 'Regular users II: UK drugs market analysis, purchasing patterns, and prices, 1997. Independent Drug Monitoring Unit Publications, 1999, p. 25.
125 See the Australian Bureau of Criminal Intelligence, *Australian Illicit Drug Report* from 1997/98 to 2001/2.
126 Australian Crime Commission, *Illicit Drug Data Report 2003/4*, p. 34.
127 ARQ 2003.
128 President's Commission on Organized Crime , 'America's Habit: Drug Abuse, Drug Trafficking, and Organized Crime', 1986
129 Christopher Williamson, Office of National Drug Control Policy, personal communication.
130 National Drug Intelligence Center, *National Drug Threat Assessment 2005,* United States Department of Justice, p. 43.
131 Stamler, R., R. Fahlman, H. Vigeant 'Illicit traffic and abuse of cannabis in Canada.' *Bulletin on Narcotic Drugs*, Issue 1, 1985, pp. 37 -49.
132 Royal Canadian Mounted Police, 'Marihuana Cultivation in Canada: Evolution and Current Trends', November 2002
133 Atha, et al 1999, op cit, p. 16.
134 Johnston, J. 'Most cannabis home-grown by `fair-trade' users.' *Sunday Herald*, October 9, 2005.
135 International Narcotics Control Strategy Report, 2005.
136 ARQ 2003
137 Wilkins, C., S. Casswell, K. Bhatta, M. Pledger, 'Drug use in New Zealand: National surveys comparison 1998 and 2001. Alcohol and Public Health Research Unit, University of Auckland, 2002, p. 36.
138 Australian Institute of Health and Welfare, *2001 National Drug Strategy Household Survey: Detailed findings.* Canberra: AIHW, p.47,
139 Didcott, P., D, Reilly, W. Swift, W. Hall, 'Long-term cannabis users on the New South Wales North Coast.' National Drug and Alcohol Research Centre Monograph No 30, University of New South Wales, 1997, p. 54.
140 Atha, et al 1999, op cit, p. 16.
141 Johnston, J. 'Most cannabis home-grown by `fair-trade' users.' *Sunday Herald*, October 9, 2005.
142 Joseph Rowntree Foundation, 'The domestic cultivation of cannabis.' Findings, April 2003, p.1.
143 Australian Institute of Health and Welfare, op cit.
144 The study also included users in Amsterdam, most of whom bought their cannabis from a coffee shop. Borchers-Tempel, S. and B. Kolte, 'Cannabis consumption in Amsterdam, Bremen, and San Francisco: A three-city comparison of long-term cannabis consumption.' Journal of Drug Issues, Vol 32, No 2, 2002, p. 395.
145 National Advisory Committee on Drugs and Drug and Alcohol Information and Research Unit, 2005, op cit.
146 King, 2004, op cit.
147 Bundeskriminalamt, *Bundeslagebild Rauschgift 2004: Bundesrepublik Deutschland*, May 2005, p. 44.
148 Royal Canadian Mounted Police, 'Marihuana Cultivation in Canada: Evolution and Current Trends', November 2002
149 National Research Council, *Informing America's Policy on Illegal Drugs: What we don't know keeps hurting us*. Washington, D.C.: National Academy Press, 2001, p. 85.
150 Available at: http://www.oas.samhsa.gov/dasis.htm#teds2
151 Compton, W., B. Grant, J. Colliver, M. Glantz, F. Stinson, 'Prevalence of marijuana use disorders in the United States, 1991-1992 and 2001-2002.' *Journal of the American Medical Association*, Vol 291, No 17, May 5, 2001, pp. 2117-2118.
152 National Research Council op cit, p.305.
153 Bureau for Justice Statistics, citing FBI, Uniform Crime Reports, *Crime in the United States,* http://www.ojp.usdoj.gov/bjs/dcf/enforce.htm
154 The Observatoire Français des Drogues et des Toxicomanies notes that if the variation in the number of organizations responding to the survey is taken into consideration, admissions for cannabis increased by 40 per cent between 1997 and 1999.
155 Australian Institute of Health and Welfare, *Alcohol and other drug treatment services in Australia, 2002-03: Report of the National Minimum Data Set*. Drug Treatment Series No 3, Canberra, AIHW, 2004, p. 8.
156 Ibid, p. 26.
157 Hall, W., 'Appraisals of the adverse health effects of cannabis use: Ideology and evidence.' *FAS Drug Policy Analysis Bulletin*, Issue 7, June 1999.
158 The differing time frames are due to availability of data. Plüddemann, A., C. Parry, A. Bhana, N. Harker, H. Potgieter, W. Gerber, and C. Johnson, *SACENDU Research Brief* Vol 8, No 1, 2005 p. 7.
159 The NSDUH surveys in the United States have shown that trends in cannabis use levels are strongly linked to public per-

ceptions about the harmfulness of the drug.
160 Khalsa J., S. Genser, H. Francis, B. Martin, 'Clinical consequences of marijuana.' *Journal of Clinical Pharmacology*, 42 (11 Suppl), November 2002, pp. 7S-10S.
161 World Health Organization, *Cannabis: A health perspective and a research agenda.* Geneva: World Health Organization, 1997.
162 Hall and Solowij, 1998, op cit.
163 Ashton C. 'Pharmacology and effects of cannabis: a brief review.' *British Journal of Psychiatry* 78, February 2001, pp.101-6. Drewe J. 'Desired effects and adverse effects of cannabis use.' *Therapeutische Umschau* ,Vol 60, No 6, 2003, pp. 313-6.
164 WHO 1997 op cit, p. 15.
165 Movig K., M. Mathijssen, P. Nagel, T. van Egmond , J. de Gier, H. Leufkens, A. Egberts.' Psychoactive substance use and the risk of motor vehicle accidents.' *Accidents Analysis and Prevention*, Vol 36, No 4, 2004, pp.631-6. ; Bates M. and T. Blakely, 'Role of cannabis in motor vehicle crashes', *Epidemiological Review*, Vol 21, No 2, 1999, pp. 222-32. ; Fergusson D. and L Horwood L. 'Cannabis use and traffic accidents in a birth cohort of young adults' Accidents Analysis and Prevention. Vol 33, No 6, 2001, pp.703-11. ; Ramaekers J, G. Berghaus, M. van Laar, O. Drummer, 'Dose related risk of motor vehicle crashes after cannabis use', *Drug and Alcohol Dependence*, Vol 73, No 2, 2004, pp. 109-19., ; Agents France Press, 'Le cannabis au volant c'est mal, boire et conduire c'est pire'. 3 October 2005. ; O'Kane C., D. Tutt , L. Bauer, 'Cannabis and driving: a new perspective', Emergency Medicine (Fremantle). Vol14, No 3, 2002, pp. 296-303. ; Kurzthaler I, M. Hummer, C. Miller, B. Sperner-Unterweger, V. Gunther, H. Wechdorn, H. Battista, V. Fleischhacker, 'Effect of cannabis use on cognitive functions and driving ability.' Journal of Clinical Psychiatry. Vol 60, No 6, pp.395-9.; Studies of other forms of accidents suffer from the same weaknesses as the vehicular studies, but next to alcohol, cannabis is the substance most associated with injury in adult trauma patients. While baseline figures for the general population were not available, of 105 adult trauma patients admitted to one South African trauma unit, 43.7 per cent were positive for urinary cannabis. Bowley D., P. Rein, R. Cherry, J. Vellema, T. Snyman, K. Boffard,' Substance abuse and major trauma in Johannesburg.' South African Journal of Surgery, Vol 42, No 1, 2004, pp. 7-10. Of 111 patients with trauma injuries who presented to the Accident and Emergency Unit, University Hospital of the West Indies, 50 per cent of road accident victims and 55 per cent of interpersonal violence victims were positive for cannabis compared with 43 per cent and 27 per cent for alcohol, respectively. McDonald A, N. Duncan, D. Mitchell. 'Alcohol, cannabis and cocaine usage in patients with trauma injuries.' West Indian Medical Journal, Vol 48, No 4, 1999, pp.200-2. Studies of non-clinical samples have shown that cannabis use is related to intentional injuries and injuries in general. A higher risk for all types of injuries was indicated among cannabis users. Macdonald S, K. Anglin-Bodrug, R. Mann, P. Erickson, A. Hathaway, M. Chipman, M. Rylett, 'Injury risk associated with cannabis and cocaine use.' Drug and Alcohol Dependence, Vol 72, No 2, 2003, pp. 99-115.
166 Ashton C. 'Pharmacology and effects of cannabis: a brief review', British Journal of Psychiatry. 178, 2001, pp. 101-6.
167 Ramaekers J, G. Berghaus, M. van Laar, O. Drummer, 'Dose related risk of motor vehicle crashes after cannabis use', *Drug and Alcohol Dependence*, Vol 73, No 2, 2004, pp. 109-19.
168 Ibid.
169 Didcott, P., D, Reilly, W. Swift, W. Hall, 'Long-term cannabis users on the New South Wales North Coast.' National Drug and Alcohol Research Centre Monograph No 30, University of New South Wales, 1997, p. 34.
170 Wilkins, C., S. Casswell, K. Bhatta, M. Pledger, 'Drug use in New Zealand: National surveys comparison 1998 and 2001. Alcohol and Public Health Research Unit, University of Auckland, 2002, p. 34.
171 Hall W,and L. Degenhardt, 'Cannabis use and psychosis: a review of clinical and epidemiological evidence.' Australian and New Zealand Journal of Psychiatry. Vol 34, No 1, 2000 pp. 26-34.; Johns A. Psychiatric effects of cannabis. *British Journal of Psychiatry* 178, 2001, pp. 116-22.; Iversen L. 'Cannabis and the brain', *Brain*; 126(Pt 6), 2003, pp. 1252-70.
172 Schaub M, W. Rossler, R. Stohler, 'Cannabis and psychosis: A review.' *Schweiz Rundsch Med Prax*. Vol 93, No 23, 2004, pp. 997-1002.
173 Johns, op cit.
174 Tennant F. and C. Groesbeck. 'Psychiatric effects of hashish', *Archives of General Psychiatry,*. Vol 27, No1, 1972, pp. 133-6.
175 Hall W, N. Solowij, J. Lemon, *The health and social consequences of cannabis use*, Monograph Series No 25. Canberra: Australian Government Publishing Service. 1994.
176 Hall et al., 1994, op cit.
177 Negrete J, W. Knapp, D. Douglas, W. Smith, 'Cannabis affects the severity of schizophrenic symptoms: results of a clinical survey', *Psychological Medicine*, Vol 16, No 3, 1986, pp. 515-20.
178 Verdoux H and M. Tournier, 'Cannabis use and risk of psychosis: an etiological link?' *Epidemiologia E Psichiatria Sociale*, Vol 13, No 2, 2004, pp. 113-9.
179 Fergusson D, L. Horwood N. Swain-Campbell, 'Cannabis dependence and psychotic symptoms in young people.' *Psychological Medicine*. Vol 33, No 1, 2003, pp. 15-21.
180 Andreasson S, P. Allebeck, A. Engstrom, U. Rydberg,. 'Cannabis and schizophrenia. A longitudinal study of Swedish conscripts.' *Lancet*. Vol 26, No 2 (8574), 1987, pp.1483-6. A further analysis of this cohort was performed in Zammit S, P. Allebeck, S. Andreasson. I. Lundberg G. Lewis, 'Self reported cannabis use as a risk factor for schizophrenia in Swedish conscripts of 1969: historical cohort study.' *British Medical Journal* 23; 325(7374), 2002, p. 1199.
181 Arseneault L, M.Cannon, R. Poulton, R. Murray, A. Caspi, T. Moffitt, 'Cannabis use in adolescence and risk for adult psychosis: longitudinal prospective study.' *British Medical Journal*. Vol 325, No 7374, 2002, pp.1212-3.
182 Troisi A, A. Pasini, M. Saracco G. Spalletta, 'Psychiatric symptoms in male cannabis users not using other illicit drugs.' *Addiction*.Vol 93, No 4. pp. 487-92.
183 Chen C, F. Wagner, J. Anthony, 'Marijuana use and the risk of Major Depressive Episode. Epidemiological evidence from the United States National Comorbidity Survey.' *Social Psychiatry and Psychiatric Epidemiology*, Vol 37, No 5, pp. 199-206.
184 Degenhardt L, W. Hall W, M. Lynskey, 'Exploring the association between cannabis use and depression.' *Addiction.*, Vol 98, No 11, 2003, pp. 1493-504.
185 Fergusson D, L. Horwood , N. Swain-Campbell, 'Cannabis use and psychosocial adjustment in adolescence and young adulthood.' *Addiction*. Vol 97, No9, 2002, pp. 1123-35.
186 McGee R, S. Williams, R. Poulton, T. Moffitt, 'A longitudinal study of cannabis use and mental health from adolescence to early adulthood.' *Addiction* Vol 95, No 4, 2000, pp. 491-503.
187 Fried P, B. Watkinson , D. James, R, Gray, 'Current and former marijuana use: preliminary findings of a longitudinal study of effects on IQ in young adults.' *Canadian Medical Association Journal*, Vol 166, No 7, 2002, pp. 887-91.
188 Huestegge, L., R. Radach, H. Kunert and D Heller, 'Visual search in long-term cannabis users with early age of onset'. *Progress in Brain Research*, No 140 2002, pp. 377-94.
189 Ehrenreich H, T. Rinn , H. Kunert, M. Moeller, W. Poser, L. Schilling, G. Gigerenzer, M. Hoehe, 'Specific attentional dysfunction in adults following early start of cannabis use.' *Psychopharmacology* (Berlin). Vol 142, No 3, 1999, pp. 295-301.

190 Grotenhermen, F. 'Effects of cannabis and the cannabinoids', in Grotenhermen, F. and E. Russo, *Cannabis and Cannabinoids*, op cit., p. 56.
191 Leggett, T., *Rainbow Vice: The drugs and sex industries in the new South Africa*. London: Zed Books, 2001, p.
192 Rottanburg, D. et al. 'Cannabis-associated psychosis with hypomanic features' *Lancet* 2, 1982, pp. 1364-1366, as quoted in Castle, D. and R. Murray, 'Cannabis and madness' Cambridge: Cambridge University Press, 2004, p 6.
193 Field and Arndt 1980, op cit . Absence of CBD was noted in samples from Brazil, Costa Rica, Cyprus, Nigeria, and other parts of Southern Africa. India and Mexico have produced both low and high CBD samples. See Baker, P, T. Gough, B.Taylor, 'Illicitly imported cannabis products: Some physical and chemical figures indicative of their origin.' *Bulletin on Narcotics*, Issue 1, 1980, pp. 31-40. Other low CBD varieties are found in Burma, Ghana, Jamaica, Kenya, and Thailand. See Clarke 1998 op cit p. 220. In Jamaica, cannabis is used as a stimulant to allow manual labourers to work harder. Dreher, M. *Working men and ganja: Marihuana use in rural Jamaica*. Philadelphia: Institute for the Study of Human Issues, 1982, as cited in Grinspoon, L., J. Bakalar, E. Russo, 'Marihuana', in Lowinson, J. (ed) *Substance abuse: A comprehensive textbook*. Philidelphia: Lippincott Williams and Wilkins, 2004. According to Grinspoon, "Many psychiatrists in India, Egypt, Morocco, and Nigeria have declared emphatically that the drug can produce insanity." It is possible that at least the Indian and Nigerian reports may be rooted in the low CBD plants available in these areas.
194 Zuardi, A, Guimarães, F, Guimarães, V, Del Bel, E (2002) Cannabidiol: Possible therapeutic application. In Grotenhermen, F and Russo, E (eds) Cannabis and Cannabinoids. Binghamton: Haworth. Pp. 359-363.
195 R. and L. Hanuš, 'The cannabinoid system from the point of view of a chemist. In Castle and Murray (2004) op cit, p. 6.
196 Lynskey M, A. Heath, K. Bucholz, W. Slutske, P. Madden, E. Nelson, D. Statham, N. Martin, 'Escalation of drug use in early-onset cannabis users vs co-twin controls.' *Journal of the American Medical Association*. Vol 289, No 4, 2003, pp. 427-33.
197 Knowlton, L. 'Investigating addiction responses and relapses.' *Psychiatric Times*, Vol 28, No 2, February 2001.
198 Anthony, J. and J. Helzer, 'Syndromes of drug abuse and dependence'. In Robins, L and D Regier (eds) *Psychiatric Disorders in America*. Free Press, McMillan, 1991, as cited in WHO 1997 op cit. p 18.
199 Budney A. and B., Moore, 'Development and consequences of cannabis dependence.' *Journal of Clinical Pharmacology*, Vol 42, No 11 (Suppl), 2002, pp. 28S-33S.
200 Hall, W. R. Room, S. Bondy, 'Comparing the health and psychological risks of alcohol, cannabis, nicotine, and opiate use.' in Kalant, H., W. Corrigan, W. Hall, R. Smart (eds) The health effects of cannabis. Toronto: Addiction Research Foundation, 1999, pp. 477-508.
201 Hall, W., 'Appraisals of the adverse health effects of cannabis use: Ideology and evidence.' *FAS Drug Policy Analysis Bulletin*, Issue 7, June 1999.
202 UNODC Annual Reports Questionnaire and Delta database.
203 Day N and G. Richardson, 'Prenatal marijuana use: epidemiology, methodologic issues, and infant outcome.' Clinical Perinatology, Vol 18, No 1, 1991, pp. 77-91.
204 Williams L, A. Correa, S. Rasmussen, 'Maternal lifestyle factors and risk for ventricular septal defects.' Birth Defects Research Part A: Clinical and Molecular Teratology, Vol 70, No 2, 2004, pp. 59-64.
205 Hall W. and D. MacPhee, 'Cannabis use and cancer.' *Addiction*. Vol 97, No 3, 2002, pp. 243-7.
206 Hutchings, D. and P. Fried, 'Cannabis during pregnancy: neurobehavioral effects in animals and humans. In: Kalant et al., 1999, pp. 401-434.
207 Leech SL G. Richardson , L. Goldschmidt, N. Day, 'Prenatal substance exposure: effects on attention and impulsivity of 6-year-olds.' *Neurotoxicology and Teratology*, Vol 21, No 2, 1999, pp. 109-18.
208 Goldschmidt L, N. Day, G. Richardson, 'Effects of prenatal marijuana exposure on child behavior problems at age 10.' *Neurotoxicology and Teratology*, Vol 22, No 3, 2000, pp. 325-36. Richardson G, C. Ryan, J. Willford, N. Day, L. Goldschmidt, 'Prenatal alcohol and marijuana exposure: effects on neuropsychological outcomes at 10 years.' *Neurotoxicology and Teratology*, Vol 24, No 3, 2002, pp. 309-20.
209 Richardson et al., 2002, op cit.
210 Goldschmidt et al., 2004, op cit
211 Fried P, B. Watkinson, D. James, R, Gray, 'Current and former marijuana use: preliminary findings of a longitudinal study of effects on IQ in young adults.' *Canadian Medical Association Journal*., Vol 166, No7, 2002, pp. 87-91.
212 Van Hoozen B and C. Cross, 'Marijuana: Respiratory tract effects.' *Clinical Review of Allergy Immunology*. Vol 15, No 3, 1997, pp. 243-69.
213 Roth M, A. Arora, S. Barsky , E. Kleerup, M. Simmons, D. Tashkin, 'Airway inflammation in young marijuana and tobacco smokers.' *American Journal of Respiratory Critical Care Medicine* Vol 157, No 3, Pt. 1, 1998, pp. 928-37.
214 Marselos, M. and P. Karamanakos, 'Mutagenicity, developmental toxicity and carcinogenicity of cannabis.' *Addiction Biology* 4, 1999, pp. 5-12.
215 Hall W, M, Christie, D. Currow, 'Cannabinoids and cancer: causation, remediation, and palliation.' *Lancet Oncology*, Vol 6, No 1, 2005, pp. 35-42.
216 Ghuran A. and J. Nolan, 'Recreational drug misuse: issues for the cardiologist.' *Heart*, Vol 83, No 6, 2000, pp. 627-33.
217 Jones R. Cardiovascular system effects of marijuana. *Journal of Clinical Pharmacology*,. Vol 42, No 11 (Suppl), 2002. pp. 58S-63S.
218 Indoors, cannabis plants can be kept alive indefinitely, even after harvesting, by reverting back to a vegetative photoperiod, but this practice is rare, as it generally involves more time and effort than starting fresh from clones (see the discussion of changes in cultivation practices below.)
219 Frank, M and Roseland , E (1978) *Marijuana Growers Guide* (Berkeley: Ronin) quoted in Mignoni, G (1998) Cannabis as a licit crop: Recent Developments from Europe. *Bulletin on Narcotics*. 50 (1) p 42.
220 UNODC (2003) *Maroc: Enquête sur le Cannabis*. Vienna: UNODC.
221 For example, the Paraguayan government has reported three annual harvests to the UNODC in response to the Annual Reports Questionnaire.
222 In an interesting study by Haney and Bazzaz (1970), the proliferation of cannabis in the United States was observed. Aside from noting its extreme adaptability and aggressive nature, the authors point out those areas where cannabis has *not* successfully spread. Looking at the state of Illinois, which at that time was considered to be at the heart of the "cannabis belt" in the US, Haney and Bazzaz show that the plant is non-existent in the south-east part of the state. This area is characterised by tight soil that is low in nitrogen and high in clay. Of these two factors, the authors reckon that clay is the most important inhibiting factor, as cannabis has been found growing in very sandy soil with low nitrogen content. Haney, A. and F. Bazzaz, 'Some ecological implications of the distribution of Hemp (Cannabis sativa L.) in the United States of America.' In Joyce, C. and S. Curry, The botany and chemistry of cannabis'. London: Churchill, 1970, pp.39-47.
223 Since it still debated whether these varieties are true species, their names will be used in this report without italics.
224 The term was first used by Janischevsky in 1924, who concluded that it was probably a well marked variety, rather than a species.
225 Zuardi, A, Guimarães, F, Guimarães, V, Del Bel, E (2002) Cannabidiol: Possible therapeutic application. In Grotenhermen, F and Russo, E (eds) *Cannabis and Cannabinoids*. Bing-

hamton: Haworth. Pp. 359-363

226 According to article 1 (d) of the 1961 Single Convention on Narcotic Drugs, cannabis resin is the separated resin, whether crude or purified, obtained from the cannabis plant.

227 King, L., C. Carpentier, P. Griffiths, 'An overview of cannabis potency in Europe.' European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), *EMCDDA Insights* No 6, 2004, p. 40.

228 National Advisory Committee on Drugs and Drug and Alcohol Information and Research Unit, 'Bulletin 3: Cannabis Results'. *Drug use in Ireland and Northern Ireland: First Results (Revised) 2002/2003 Drug Prevalence Survey*, October 2005.

229 Conrad, C., *Cannabis yields and dosage*. El Cerrito (California): Creative Xpressions, no date, p. 2.

230 Copeland, J., S Gerber, and W. Swift, *Evidence-based answers to cannabis questions: A review of the literature*. Australian National Council on Drugs Research Paper No 11. Canberra: ANCD, 2006.

231 One British study of heavy users in treatment found that those who did not mix their cannabis with tobacco were able to garner fewer joints per gram of cannabis than those who mixed. See McBride, A., 'Cannabis use in a drug and alcohol clinic population.' *Drug and Alcohol Dependence* 39, 1995, pp. 29-32

232 Fairbairn, J., J. Hindmarch, S. Simic, amd E, Tylden, 'Cannabinoid content of some English reefers.' *Nature* No 249, 1974, pp. 276-278. Humphrey, I., and J. Joyce, 'A survey of the cannabis content of unsmoked reefer cigarettes.' *Journal of Forensic Science* 22, 1982, pp. 291-292.

233 King, et al , 2004, op cit.

234 Irish joints tend to fall in the middle of the British spectrum (0.18g to 0.26 g). Joints rarely exceed half a gram. Buchanan, B., D. O'Connell, 'Survey on cannabis resin and cannabis in unsmoked handrolled cigarettes seized in the Republic of Ireland.' *Science and Justice*, Vol 38, No 4, 1998, pp. 221-224.

235 Scholten, W. *Bureau voor Medicinale Cannabis*, Personal communication

236 Korf DJ et al. (2004) *Sterke wiet. Blowgedrag, schadelijkheid en afhankelijkheid van cannabis*. Amsterdam: Rozenberg Publishers.

237 Office of Narcotic Drug Control Strategy, *What America's users spend on illegal drugs 1988-1998.* Executive Office of the President, 2001.

238 This is the figure used by the United State Drug Enforcement Administration.

239 This is the typical size of US government produced joints, prepared from the low THC cannabis grown at its University of Mississippi farm.

240 Some medical users who have developed a tolerance may use joints this size. See Conrad, C. op cit, p 3

241 US Drug Enforcement Administration, 'The cannabis situation in the United States.' *Drug Intelligence Brief*, December 1999.

242 Nahas, G. "Critique of a study of cannabis in Jamaica. *Bulletin on Narcotics*, Issue 4, 1985.

243 Observatoire Français des Drogues et des Toxicomanies, *Drogues et dépendances, données essentielles*, 2005, accessed in English at : http://www.ofdt.fr/BDD/publications/an/dds.xhtml.

244 Wilkins, C., S. Casswell, K. Bhatta, M. Pledger, *Drug use in New Zealand: National surveys comparison 1998 and 2001*. Alcohol and Public Health Research Unit, University of Auckland, 2002, p. 36.

245 Office of Applied Studies, *Results from the 2003 National Survey on Drug Use and Health: National Findings* Substance Abuse and Mental Health Services Administration, United States Department of Health and Human Services, 2004, p 22.

246 National Advisory Committee on Drugs and Drug and Alcohol Information and Research Unit, 'Bulletin 3: Cannabis Results'. *Drug use in Ireland and Northern Ireland: First Results (Revised) 2002/2003 Drug Prevalence Survey*, October 2005.

247 Atha, M., *Cannabis use in Britain*: London: IDMU Publications, 2001, p. 16.

248 National Advisory Committee on Drugs and Drug and Alcohol Information and Research Unit, 2005, op cit.

249 Leong, J. 'Cross-cultural influences on ideas about drugs.' *Bulletin on Narcotics*, Issue 1 1974, pp. 1-7.

250 Office of National Drug Control Policy, *The Price of Illicit Drugs: 1981 through the Second Quarter of 2000.* Washington, D.C.: Executive Office of the President, 2001.

251 United States Drug Enforcement Administration, *Cannabis Yields*. Washington, D.C.: Department of Justice, 1992, p. 4.

252 Ibid.

253 One recipient of medical grade cannabis in the United States reported cleaning even this product to the extent that 25 per cent of the material was lost. See Russo, E, M. Mathre, A. Byrne, R. Velin, P. Bach, J. Sanchez-Ramos, K. Kirlin, 'Chronic Cannabis Use in the Compassionate Investigational New Drug Program: An Examination of Benefits and Adverse Effects of Legal Clinical Cannabis.' *Journal of Cannabis Therapeutics*, Vol 2, No 1, 2002, p. 20

254 DEA 1992 op cit, p. 5.

255 British Columbia Compassion Club Society, 'Response to Health Canada's proposed medical marijuana access regulations.' Canada Gazette, Part 1, April 7, 2001, p. 5.

256 For example, the United States Drug Enforcement Administration, in cooperation with the National Center for Natural Products Research at School of Pharmacy of the University of Mississippi, undertook a study of outdoor cannabis yields in 1990 and 1991 using different (mainly sativa) seed stocks and planting at different densities. Plants grown at 'dense' spacings (between 0.91 and 1.28 metres between plants) produced between 215 and 274 grams per plant, while plants given more room (up to 2.74 metres between plants) produced higher yields, including one plant that produced 2.3 kg of cannabis. The study concluded that, "a very significant factor affecting yield was planting density." Indeed, squaring the space per plant resulted in per plant yields increasing as much as four fold. But this increase does not represent the most efficient use of land area, as the yield per unit area, as, on average, the densest plantings were more than twice as productive per unit area as the most widely spaced.

257 UNODC, *Maroc: Enquête sur le Cannabis*. Vienna: UNODC, 2003.

258 Thomas, M, *Cannabis cultivation*. San Francisco: Green Candy Press, 2002.

259 This figure was formerly used by the DEA. The DEA's figure also conflicts with the 100 grams a plant later affirmed United States Sentencing Commission as appropriate when looking at mixed gender crops. "The one plant = 100 grams of marihuana equivalency used by the Commission for offenses involving fewer than 50 marihuana plants was selected as a reasonable approximation of the actual yield of marihuana plants taking into account (1) studies reporting the actual yield of marihuana plants ... (2) that all plants regardless of size are counted for guideline purposes while, in actuality, not all plants will produce useable marihuana ...; and (3) that male plants, which are counted for guideline purposes, are frequently culled because they do not produce the same quality of marihuana as do female plants." *Federal Register* 60 (May 10, 1995): 25078, as quoted in Gettman, J and P Armentano, *1998 Marijuana Crop Report*, NORML, October 1998. This figure was extended to all crops, including those involving more than 50 plants. See also United States Sentencing Commission, *1995 Annual Report*, p. 148. USSG SS 1B1.10, 2D1.1(c)(E) (Nov. 1995).

260 Conrad, op cit.

261 Trimbos Institute, *Nationale Drugmonitor Jaarbericht 2002*, as quoted in King 2004 op cit.

262 Office of National Drug Control Policy, *Pulse check 2002*. Washington, D.C.: Executive Office of the President of the United States, 2002.
263 Martin, B and W. Hall, 'The health effects of cannabis: Key issues of policy relevance.' *Bulletin on Narcotics*, Vol 49, No 1, 1998, pp. 85-150.
264 Observatoire Français des Drogues et des Toxicomanies, *Drogues et dépendances, données essentielles*, 2005, accessed in English at : http://www.ofdt.fr/BDD/publications/an/dds.xhtml
265 Australian Institute of Health and Welfare 2004 op cit
266 EMCDDA, Statistical Bulletin 2004, op cit.
267 Ramsay, M., P. Baker, C. Goulden, C. Sharp and A. Sondhi, 'Drug misuse declared in 2000:Results from the British Crime Survey, *Home Office Research Study* 224, 2001, p. 47.
268 Australian Institute of Health and Welfare 2004 op cit
269 Wilkins, et al 2002, op cit. p. 27.
270 Swift, W. and W. Hall, 'Cannabis and dependence', in In F. Grotenhermen and E. Russo, *Cannabis and Cannabinoids: Pharmacology, Toxicology, and Therapeutic Potential*. New York: Haworth, 2002, p. 257.
271 Brenneisen, R., 'Pharmacokinetics.' In F. Grotenhermen and E. Russo, 2002, op cit., p.67 One study of heavy medical users, however, also uses about a 15 per cent absorption ratio, despite the experienced nature of the users. See Carter, G., P. Weydt, M. Kyashna-Tocha, and D. Abrams, 'Medical Cannabis: Rational guidelines for dosing.' Report available on CannabisMD.org.
272 Average of samples submitted to the Marijuana Potency Monitoring Project for the first three quarters of 2004.
273 The WHO uses a much wider range of possible values in its own calculations, however, arguing that the THC in an average joint (.5 to 1 g of cannabis with a THC content of between 1 per cent and 15 per cent) ranges from 5 mg and 150 mg, of which 5 per cent to 24 per cent actually enters the blood when smoked. This gives a range of .25 mg to 36 mg of THC being absorbed from a single joint, so individual experiences may vary by a factor of 144. Grotenhermen argues that 0.03 to 0.1mg THC per kilogram of body weight is needed, or 2 to 5 mg for an adult. Grotenhermen, F., 'Practical hints.' In F. Grotenhermen and E. Russo, *Cannabis and Cannabinoids: Pharmacology, Toxicology, and Therapeutic Potential*. New York: Haworth, 2002, p. 351.
274 Using Grotenhermen's upper threshold of 5mg, this would be 20 per cent (with good technique) to 66 per cent (with poor technique) of a joint.
275 Grotenhermen adds a "dose for a marked intoxication" at 10-20 mg. This is still less than an entire joint if the user's technique is any good.
276 Wilkins et al op cit, p. 35-36.
277 New Zealand Health Information Service, *New Zealand Drug Statistics*. Auckland: New Zealand Ministry of Health, 2001.
278 Sas, A. and P. Cohen, *Patterns of cannabis use in Amsterdam among experienced cannabis users; Some preliminary data from the 1995 Amsterdam Cannabis Survey.* Presentation held at the conference "SerT and Therapeutic Communities: the reasons for intergration" at the Palazzo Medici-Riccardi, Florence, Italy, January 11, 1997. Amsterdam, Centrum voor Drugsonderzoek, Universiteit van Amsterdam.
279 Observatoire Français des Drogues et des Toxicomanies, 2005, op cit.
280 One study found that between one and five grams of cannabis with THC levels between 10 per cent and 20 per cent would be necessary to deliver 30 to 90 mg of THC, the daily dosage of synthetic THC. Carter et al op cit. The study notes that this figure corresponds well with actual average use levels reported by California and Washington medical cannabis projects, as well as dosages used in clinical studies.
281 Russo, E, M. Mathre, A. Byrne, R. Velin, P. Bach, J. Sanchez-Ramos, K. Kirlin, 'Chronic Cannabis Use in the Compassionate Investigational New Drug Program: An Examination of Benefits and Adverse Effects of Legal Clinical Cannabis.' *Journal of Cannabis Therapeutics*, Vol 2, No 1, 2002, pp 3-57.
282 Gieringer, D., 'Medical cannabis potency testing project.' *Multidisciplinary Association for Psychedelic Studies*, Vol 9, No 3, 1999, pp. 20-22.
283 As paraphrased in Lap, M. 'Nederweed, Euroweed: The case for regulated production.' Accessed at www.drugtext.org.
284 Atha, M., *Cannabis use in Britain*. London: IDMU Publications, 2001.
285 Ramsay, M., Percy, A., A national household survey of drug misuse in Britain: A decade of development. *Addiction* Vol 92, No 8, p. 931, 1997.
286 The standard sales unit in various locations provides some clues as to dose levels. In the US, cannabis is sold in fractions of an ounce: one sixteenth (1.75 g, enough for two to four joints), eighth (3.5 g, enough for four to eight joints), quarter (7 g, enough for eight to 14 joints), and one full ounce (28 g, enough for up to 50 joints). A daily user consuming one or two joints a day would therefore use between a half and a full ounce a month. In Italy, hashish was sold in 2000 by the deca (10,000 lira worth) which amounted to about 0.7 gram, enough for one or two joints. Paoli, L. *Illegal drug markets in Frankfurt and Milan*. Lisbon: European Monitoring Centre for Drugs and Drug Addiction, 2000, p. 121.
287 Paoli, L. 'Illegal drug markets in Frankfurt and Milan'. Lisbon: European Monitoring Centre for Drugs and Drug Addiction, 2000, p. 84.
288 Carter, W., *Cannabis in Costa Rica: A study of chronic marihuana use*. Philadelphia: Institute for the Study of Human Issues, 1980.
289 Ninety-two percent used at least two times a week, 86 per cent four or more times a week, and 60 per cent daily.
290 Didcott, P., D, Reilly, W. Swift, W. Hall*, Long-term cannabis users on the New South Wales North Coast*. National Drug and Alcohol Research Centre Monograph No 30, University of New South Wales, 1997, p. 25.
291 In the United States, a study found self-reported use of a tobacco/cannabis mixture of between two and four ounces a day. This represents the equivalent of smoking, on the high end, 56 grams or 112 standard (0.5 g) joints of pure cannabis of good quality per day, completely off the scale of other use studies. Schaeffer, J., T. Andrysiak, J. Ungerleider, 'Cognition and long-term use of ganja (cannabis).' *Science*, Vol 213, 1981, pp. 465-466. In Jamaica, Rubin and Comitas delineated three types of daily smokers – light (one to four spliffs daily), moderate smokers (four to seven), and heavy smokers (more than eight). The average level of use was seven spliffs of two to three grams of cannabis of just under 3 per cent THC, combined with tobacco. This represents an average of about 18 grams per day of rather weak cannabis, the equivalent of 36 standard 0.5 g joints. Rubin, V, L. Comitas, *A study of the effects of chronic ganja smoking in Jamaica*. Research Institute for the Study of Man, New York, as cited in Shafer, Raymond P., et al, 1972, op cit. This work has been criticised as "extremely excessive" and not representative of present use levels. Van Solinge, T., 'Ganja in Jamaica.' *Amsterdams Drug Tijdschrift*, No. 2, 1996, pp. 11-14.