



UNODC

United Nations Office on Drugs and Crime

Survey on the impact of UNODC assistance in the Scientific and Forensic Field

2014

Background

The UNODC Laboratory and forensic science services programme seeks to ensure that Member States have access to, and use quality forensic science services in their fight against drugs and crime. A substantial proportion of this service is delivered directly from the Laboratory and Scientific Section (LSS) in Vienna, Austria to a large number of institutions in Member States worldwide comprising drug analysis and forensic science laboratories, the criminal justice system, law enforcement authorities and health and regulatory authorities.

As part of its commitment towards continuous improvement, UNODC/LSS carries out a survey on an annual basis to assess the impact/relevance of technical assistance activities provided. Lessons learned and feedback received from respondents to these surveys are subsequently built into the implementation strategy of UNODC Laboratory and forensic science services.

The main areas covered by the survey in 2014 are the International Collaborative Exercises (ICE) programme; provision of drug/precursor reference standards to laboratories; provision of drug and precursor field testing kits; the development and dissemination of best practices manuals and guidelines and the challenges faced by forensic laboratories in the analysis of controlled drugs and new psychoactive substances (NPS).

The 2014 survey was conducted in May/June 2015 and responses were received from 230 institutions in 66 Member States. A summary of the survey responses received are given below.

ICE Programme

The UNODC ICE programme allows drug testing laboratories from both developing and developed countries to continuously monitor their performance on a global scale. Two rounds are offered per year with options for participation in the analysis of drugs in Seized Materials (SM) and/or in Biological Specimens (BS, specifically urine).

Figure 1 shows the participation of the survey respondents in the past four rounds of the ICE programme, reflecting their continuous participation and the overall growth of the UNODC International Quality Assurance Programme. An increase was observed in the number of laboratories choosing to participate in either the SM or BS test groups as well as those who participated in both test groups.

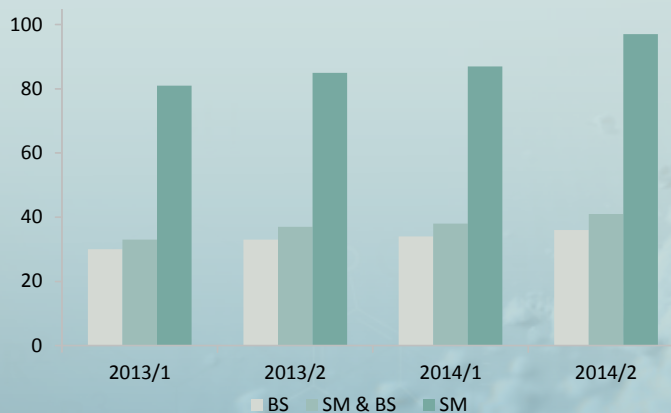


Figure 1: Participation of survey respondents in the ICE Programme in 2013 and 2014.

The impact of the ICE Programme on the work done in their laboratories was assessed as either very good or good by 95% of respondents in 2014 (Figure 2).

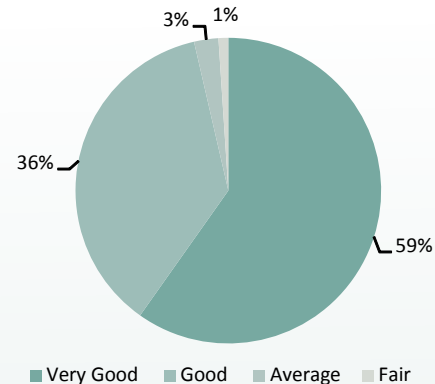


Figure 2: Assessment by participants of the impact of the UNODC ICE Programme on work done in their laboratory.

The information presented in Figure 3 shows the rating of various different aspects of the ICE programme by respondents to the survey.

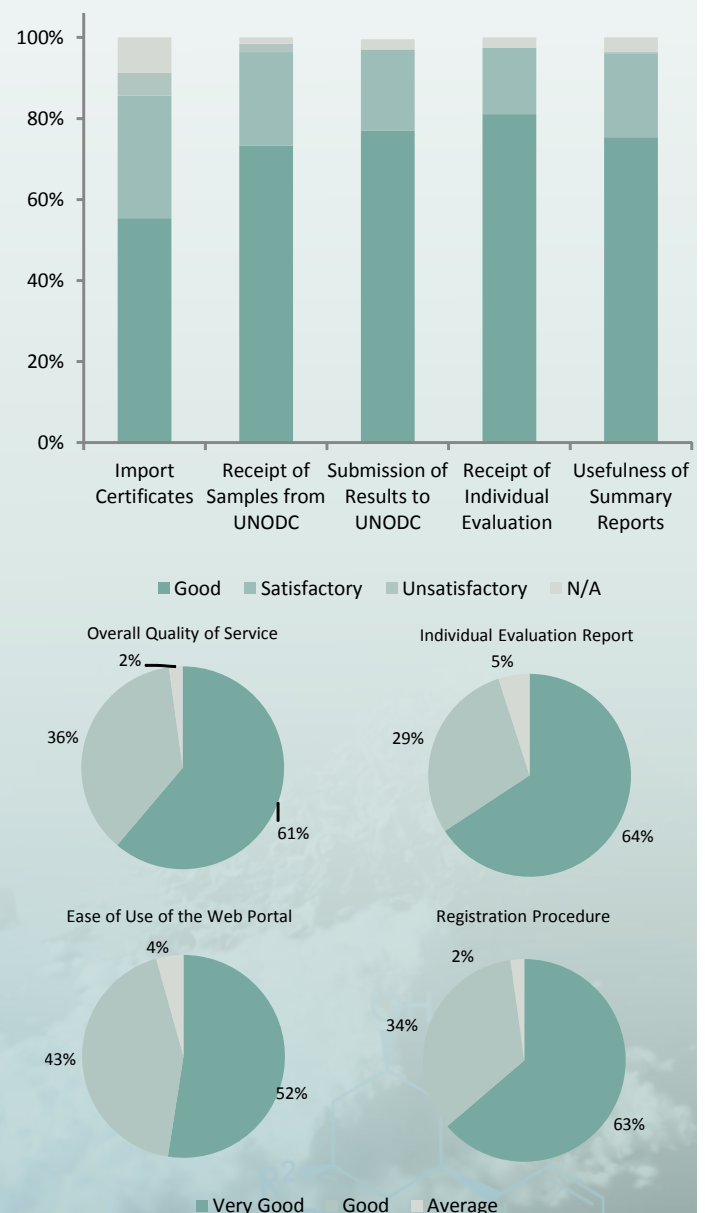


Figure 3: Ratings of various aspects of the ICE Programme by participants in 2014.

The UNODC ICE portal facilitates the submission of participant results and greatly assists in the preparation of summary/regional and yearly reports. The value of the ICE portal is reflected in its continued use as reported by 97% of survey respondents.

Reference Materials

Reference materials of substances under international control and selected metabolites are provided to ICE participating laboratories biennially and to other national drug testing laboratories upon request. UNODC/LSS continues to develop the range of reference materials to suit the needs and specific requests of laboratories. In 2014, UNODC added JWH-073 (a synthetic cannabinoid), norketamine, buprenorphine and norbuprenorphine to the list of reference materials. In 2014 a total of 727 reference material samples were provided to newly participating laboratories from in the ICE programme or to laboratories upon specific request. Figure 4 shows the range of areas in which reference materials were used by recipients in 2014 compared to 2013.

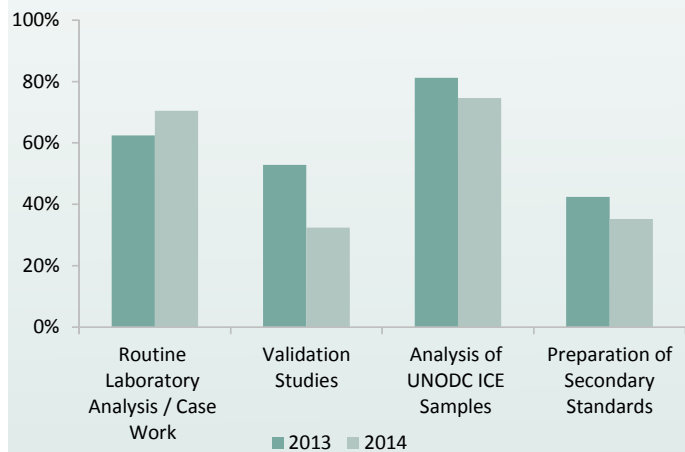


Figure 4: Purposes for which the reference materials supplied by UNODC/LSS are used by laboratories participating in the ICE Programme (2013/2014).

Drug and Precursor Field Testing Kits

UNODC supplies institutions in Member States with regular field testing kits for drugs, drug precursor chemicals and pocket-sized test kits for acetic anhydride (precursor in the production

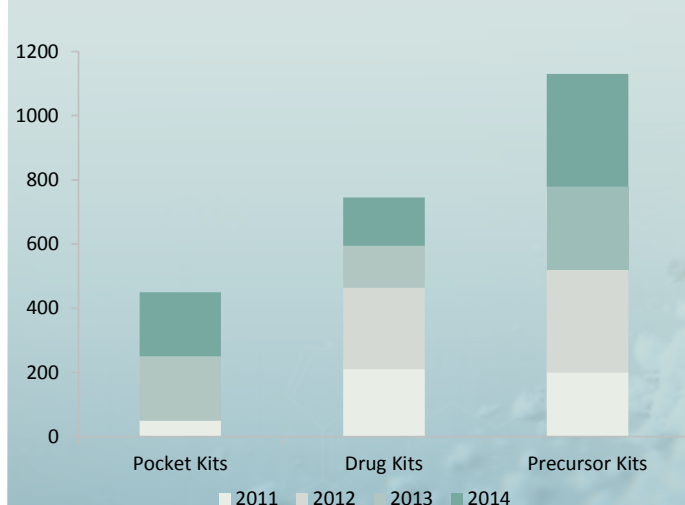


Figure 5: Numbers of drug, precursor and pocket field testing kits provided by UNODC to Member States in the years 2011-2014.

of heroin). Figure 5 illustrates the increasing numbers of each type of test kits that have been provided to Member States in the 2011-2014 period. Of the institutions receiving these test kits who responded to the survey, Figures 6 and 7 show that 68% of respondents rated the kits very good or good and 63% of respondents used the kits regularly or often.

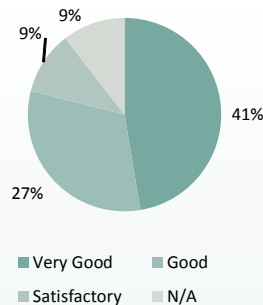


Figure 6: The usefulness of the drug and/or precursor field testing kits.

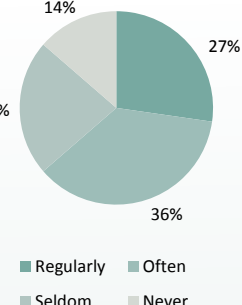


Figure 7: The regularity of use for the drug and/or precursor field testing kits.

UNODC Publications (guidelines and manuals)

In 2014, 86% of survey respondents indicated that they used UNODC/LSS publications (guidelines and manuals) in their work and 96% of respondents rated the usefulness of these publications as very good or good (Figure 8). The majority (90%) of the institutions accessed the publications via the internet or obtained hard copies by post.



Figure 8: Rating of the usefulness of UNODC/LSS publications in the work of participating institutions.

Challenges in the identification and analysis of controlled drugs and new psychoactive substances (NPS)

Survey respondents listed cannabis as the controlled substance most commonly analysed in their laboratories in 2014, followed by cocaine, heroin and amphetamine-type stimulants. With regard to NPS, the most commonly analysed substances were from the synthetic cannabinoids group, followed by synthetic cathinones and phenethylamines. Of the respondents who answered this question, 20% did not identify any NPS in 2014 and 18% of respondents erroneously categorised a number of internationally controlled substances as NPS.

In terms of the challenges faced by laboratories in the analysis of controlled substances and NPS, the most predominant areas identified by survey respondents are listed hereafter and illustrated in Figures 9 and 10 respectively.

Challenges in the analysis and identification of controlled substances

- **Reference materials:** 73% of respondents indicated that they faced challenges, primarily related to the cost of reference materials, difficulties with import/export, regulatory procedures and the identification of suppliers of reference materials.
- **Validated Methods:** 41% of respondents faced challenges, in the validation of methods for both qualitative and quantitative analysis of substances in seized materials and biological specimens. The lack of sufficient resources to validate new methods due to existing work loads was also highlighted.
- **Analytical techniques:** 35% of respondents faced challenges in this area. Advanced analytical instrumentation such as LC/MS, GC/MS/MS and NMR were mentioned by a number of respondents and the training of staff in relevant methods using these instruments was also a concern.
- **Others:** Other challenges noted by 17% of respondents included budgetary limitations affecting staff, training and effective maintenance of equipment.

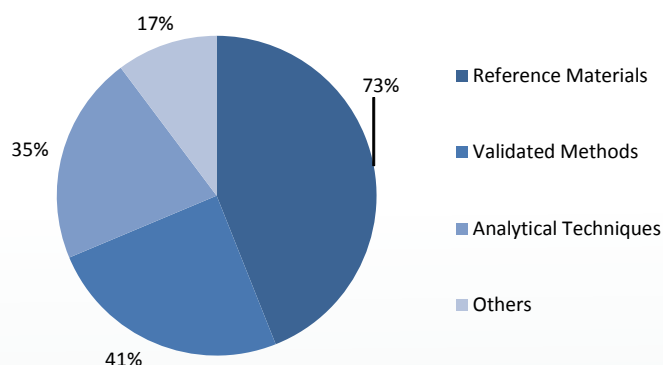


Figure 10: Challenges in the analysis and identification of NPS

- **Others:** comments in areas not covered previously were mentioned by 9% of respondents, most notably in the area of work load, training and the need for greater access to databases.

Additional feedback from survey respondents

Respondents to the 2014 survey were requested to provide additional comments or suggestions in order to assist UNODC in improving the services it provides to institutions in Member States. Twenty (20%) of the comments received from respondents were related to requests for UNODC support with reference materials of controlled drugs and NPS. Following scheduling decisions at the 58th Commission on Narcotic Drugs, ten substances were placed under International Control. As a result, UNODC will provide reference materials of these substances to laboratories participating in the ICE programme in the second half of 2015.

UNODC will also continue to develop its early warning advisory (EWA) on NPS (www.unodc.org/nps), and provide resources to assist laboratories in the identification and analysis of NPS, including GC/MS spectra, analytical methods, literature, online resources and alerts through the EWA. Laboratories participating in the ICE programme have direct access to the contents of the advisory through their ICE portal accounts.

Comments were also received related to requests for assistance with training requirements, analytical equipment and translation of manuals and guidelines among others. UNODC will reply to each of the comments of individual respondents and issues raised will be addressed in order to improve the quality of UNODC laboratory and forensic science services.

Acknowledgements

UNODC would like to express its gratitude to all survey respondents.

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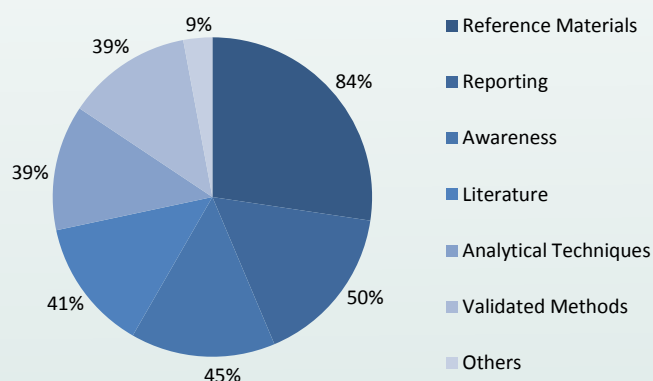
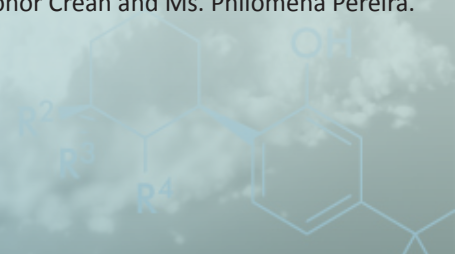


Figure 9: Challenges in the analysis and identification of controlled substances

Challenges in the analysis and identification of NPS

- **Reference materials:** 84% of respondents mentioned difficulties related to the analysis of NPS in the area of reference materials. The cost and availability/access to NPS reference materials were the predominant comments. In addition, respondents noted difficulties determining which reference materials they should purchase.
- **Reporting:** 50% of respondents mentioned difficulties they have in reporting NPS, particularly due to gaps in national legislation and also how to report NPS without complete characterisation or due to challenges in reporting/discrimination between positional isomers.
- **Awareness:** 45% of respondents faced challenges due to a lack of knowledge of current trends in NPS and insufficient expertise/experience in the identification of NPS particularly, in the interpretation of mass spectral fragmentation patterns.
- **Literature:** 41% of respondents noted difficulties with accessing relevant up to date scientific literature on NPS.
- **Validated methods:** 39% of respondents noted they did not have access to validated analytical methods for the analysis of a wide range of NPS.
- **Analytical techniques:** 39% of respondents mentioned the lack of techniques as being a challenge. GC/MS, LC/MS and NMR were the techniques most often mentioned.





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Vienna International Centre, PO Box 500, 1400 Vienna, Austria
Tel.: (+43-1) 26060-0, Fax: (+43-1) 26060-5866, www.unodc.org