



**UNODC**

United Nations Office on Drugs and Crime

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

**2013**

## 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.

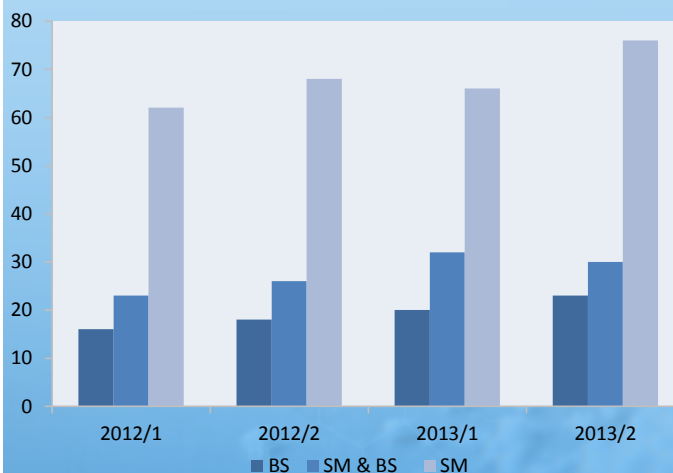
The main areas covered by the survey in 2013 are the International Collaborative Exercises (ICE) programme; provision of drug/precursor reference standards to laboratories; provision of drug and precursor field testing kits; the development and dissemination of best practices manuals and guidelines and the challenges faced by forensic laboratories in the analysis of controlled drugs and new psychoactive substances (NPS).

The 2013 survey was conducted in May/June 2014 and responses were received from 157 institutions in over 48 Member States. A summary of the survey responses received are given below.

### ICE Programme

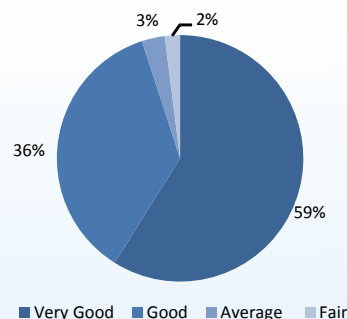
The UNODC ICE programme allows drug testing laboratories from both developing and developed countries to continuously monitor their performance on a global scale. Two rounds are offered per year with options for participation in the analysis of drugs in Seized Materials (SM) and/or in Biological Specimens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



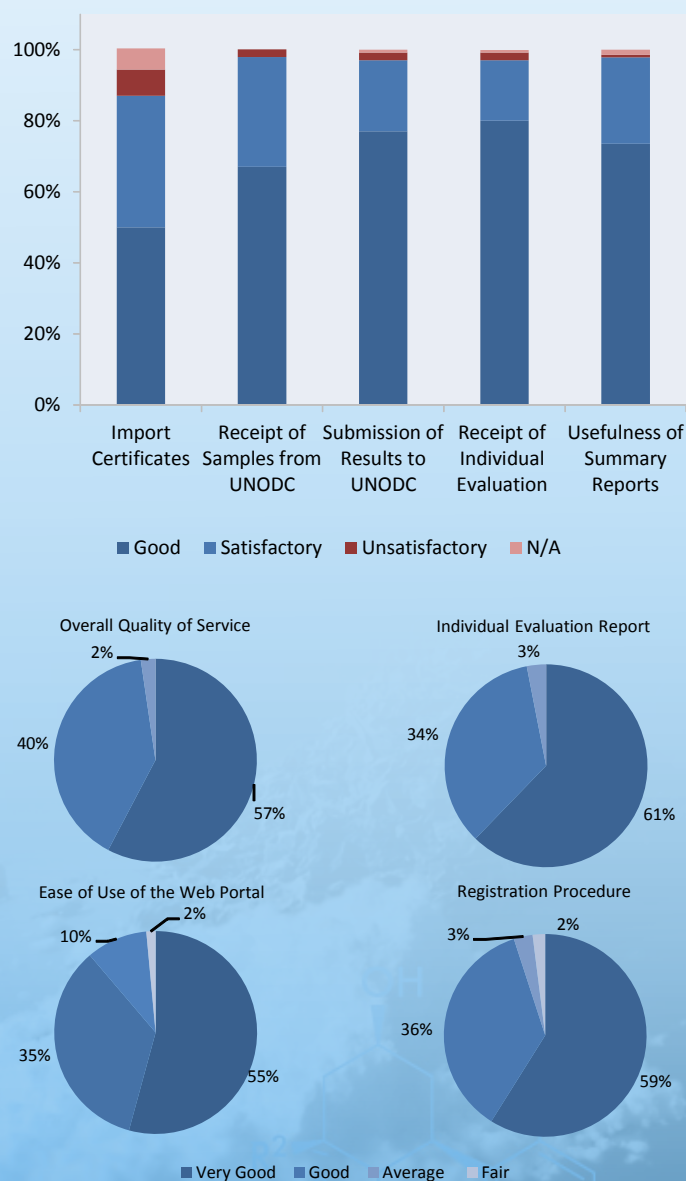
**Figure 1:** Participation of survey respondents in the ICE Programme in 2012 and 2013.

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 2013 (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.

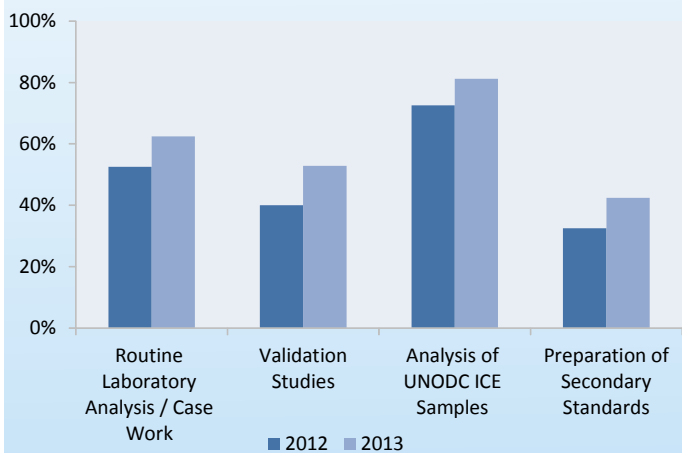


**Figure 3:** Ratings of various aspects of the ICE Programme by participants in 2013.

The UNODC ICE portal facilitates the submission of participant results and greatly assists in the preparation of summary/regional and yearly reports. The survey showed that the ICE portal was used by 98% of respondents.

### Reference Materials

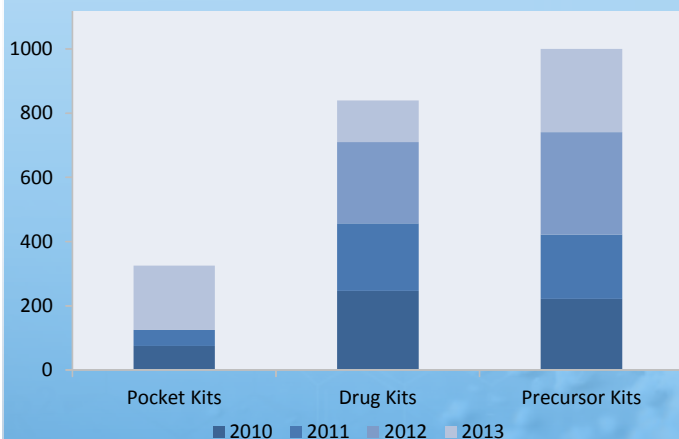
Reference materials of substances under international control and selected metabolites are provided to ICE participating laboratories biennially and to other national drug testing laboratories upon request. UNODC/LSS continues to develop the range of reference materials to suit the needs and specific requests of laboratories, including the introduction of selected new psychoactive substances (NPS) such as 1-(3-chlorophenyl) piperazine, *gamma*-butyrolactone and mephedrone. In 2013 a total of 2267 reference material samples were provided to laboratories in 51 Member States. Figure 4 shows the range of areas in which reference materials were used by recipients in 2012 compared to 2013.



**Figure 4:** Purposes for which the reference materials supplied by UNODC/LSS are used by laboratories participating in the ICE Programme (2012/2013).

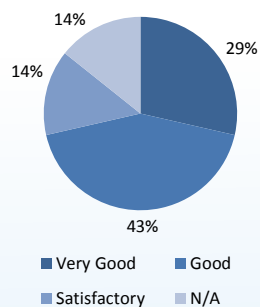
### Drug and Precursor Field Testing Kits

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 of heroin). Figure 5 illustrates the numbers of each test kits that have been provided to Member States in the 2010-2013 period.

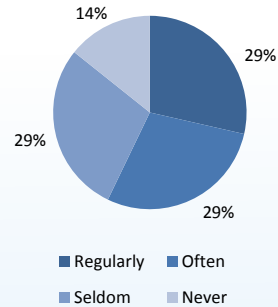


**Figure 5:** Numbers of drug, precursor and pocket field testing kits provided by UNODC to Member States in the years 2010-2013.

Of the institutions receiving these test kits who responded to the survey, Figures 6 and 7 show that 72% of respondents rated the kits very good or good and 58% of respondents used the kits regularly or often.



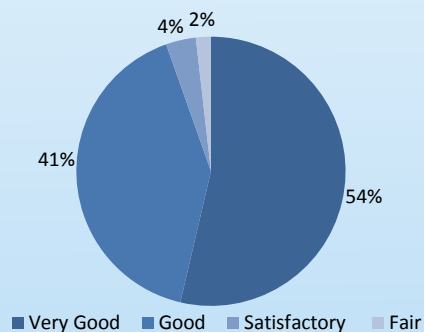
**Figure 6:** The usefulness of the drug and/or precursor field testing kits.



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

### UNODC Publications (guidelines and manuals)

In 2013, 90% of survey respondents indicated that they used UNODC/LSS publications (guidelines and manuals) in their work and 95% of respondents rated the usefulness of these publications as very good or good (Figure 8). The majority 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 2013, followed by cocaine, heroin and methamphetamine. With regard to NPS, the most commonly analysed substances were from the synthetic cathinones group, followed by phenethylamines and synthetic cannabinoids. 20% of respondents who answered this question did not identify any NPS in 2013 and 19% of respondents 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 predominant areas identified by survey respondents are listed below and illustrated in Figures 9 and 10 respectively.

### Challenges in the analysis and identification of controlled substances

- **Reference materials:** 61% of respondents indicated that they faced challenges, predominantly related to the cost of reference materials, difficulties with regulatory procedures and the identification of suppliers of reference materials.
- **Validated Methods:** 44% of respondents faced challenges, particularly in the validation of methods for quantitative analysis of substances in seized materials and biological specimens and the lack of sufficient time and resources to validate new methods due to existing work loads.
- **Analytical techniques:** 19% of respondents faced challenges in this area. The lack of GC/MS and LC/MS instrumentation and training of staff in relevant methods using these instruments were most commonly mentioned.
- **Others:** Other challenges noted by 20% of respondents included the availability of qualified staff, and financial constraints that affect multiple areas of their work such as human resources, equipment and training.

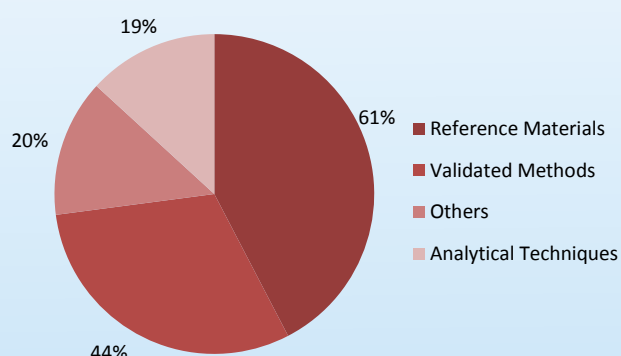


Figure 9: Challenges in the analysis and identification of controlled substances

### Challenges in the analysis and identification of NPS

- **Reference materials:** 73% of respondents mentioned difficulties related to NPS in the area of reference materials. The cost and availability/access to NPS reference materials were the predominant comments. In addition, respondents indicated difficulties determining which reference materials are required to enable the identification of unknown NPS.
- **Awareness:** 40% of respondents faced challenges due to a lack of expertise/experience in the identification of NPS particularly, in the interpretation of mass spectral fragmentation patterns.
- **Reporting:** 39% of respondents made note of difficulties they have in reporting NPS, in particular due to gaps in or lack of national legislation. Difficulties in the nomenclature of NPS and in the determination of positional isomers of certain substances were also mentioned as challenges in this area.
- **Validated methods:** 32% of respondents noted they did not have access to validated analytical methods for a wide range of NPS.
- **Analytical techniques:** 25% of respondents mentioned the lack of techniques as being a challenge. GC/MS and LC/MS were the most often indicated techniques, however, TLC, FTIR and NMR were also mentioned.
- **Literature:** 25% of respondents noted difficulties with accessing relevant up to date scientific literature on NPS.
- **Others:** comments in areas not covered above were mentioned by 7% of respondents, most notably in the area of financial capacity and the need for training.

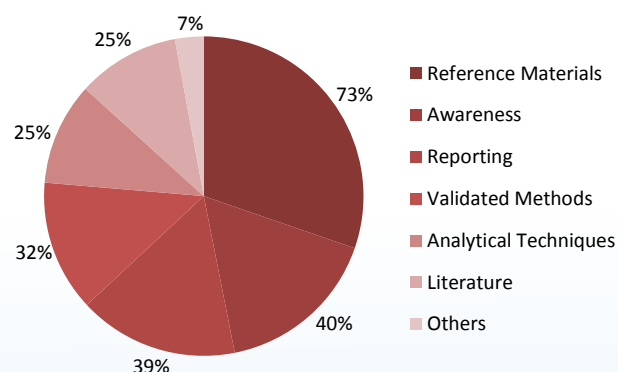


Figure 10: Challenges in the analysis and identification of NPS

### Additional feedback from survey respondents

Respondents to the 2013 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. Thirty five (35%) of the comments received were related to requests for UNODC support with reference materials of controlled drugs and NPS. In the past two years UNODC/LSS has introduced NPS such as 1-(3-chlorophenyl)piperazine, *gamma*-butyrolactone and mephedrone in the ICE menu and will continue to develop the ICE programme and provide reference materials to laboratories upon request wherever possible.

UNODC will also continue to develop its early warning advisory (EWA) on NPS ([www.unodc.org/nps](http://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.

Twenty three (23%) of the comments received by survey respondents were related to requests for training and technical assistance. A number of comments were also received related to more detailed statistical analysis of the results of each ICE round.

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.

This report was produced by UNODC Laboratory and Scientific Section (LSS) under the supervision of Dr. Justice Tetley and was coordinated by Dr. Conor Crean. The contributions of Dr. Iphigenia Naidis, Ms. Yen Ling Wong and Ms. Fernanda Rossi Iriondo are gratefully acknowledged.



# UNODC

United Nations Office on Drugs and Crime

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