News release

from the EU drugs agency in Lisbon

NEW STUDY ON WASTEWATER ANALYSIS SHINES LIGHT ON CITY DRUG USE

Latest wastewater data reveal drug-taking habits in over 70 European cities and an increase in the detection of stimulants

(14.3.2019, LISBON — **EMBARGO 11.00 Central European Time/10.00 Lisbon time**) The latest findings from the largest European project in the emerging science of wastewater analysis are presented today by the Europe-wide **SCORE** group, in association with the **EU drugs agency (EMCDDA)** ([1]). The project analysed wastewater in 73 European cities in 20 European countries in March 2018 to explore the drug-taking behaviours of their inhabitants. The 2018 study points to an increase in the detection of amphetamine, cocaine and MDMA in wastewater samples, compared to the 2017 figures.

From **Lisbon** to **Athens** and from **Copenhagen** to **Madrid**, the study analysed daily wastewater samples in the catchment areas of wastewater treatment plants over a one-week period. Wastewater from approximately 46 million people was analysed for traces of four illicit drugs: amphetamine, cocaine, MDMA (ecstasy) and methamphetamine.

Wastewater based epidemiology is a rapidly developing scientific discipline with the potential for monitoring close to real-time, population-level trends in illicit drug use. By sampling a known source of wastewater, such as a sewage influent to a wastewater treatment plant, scientists can now estimate the quantity of drugs used in a community by measuring the levels of illicit drugs and their metabolites excreted in urine (see motion graphic for method) ([2]).

The **SCORE** group has been conducting annual wastewater monitoring campaigns since 2011. A total of 33 cities have participated in five or more of the eight campaigns run so far, which allows for time-trend analysis of drug consumption based on wastewater testing.

The 2018 results are released today in **'Wastewater analysis and drugs — a European multi-city study'**, an updated edition in the **EMCDDA** Perspectives on Drugs (POD) series. The POD includes an innovative interactive map and a chart-based tool allowing the user to look at geographical and temporal patterns and to zoom in on results per city and per drug. New resources available this year include **'Frequently asked questions' (FAQs)** on wastewater-based epidemiology as well as a **motion graphic** aimed at those interested in setting up wastewater monitoring activities ([3]).

2018 findings: what's new?

The 2018 findings offer a valuable snapshot of drug use patterns in the cities involved, revealing marked geographical and temporal variations:

- **Cocaine:** In cities with wastewater data for 2017 and 2018, the latest figures reveal increases in traces of cocaine, confirming the upward trend reported in 2017. Cocaine residues in wastewater were highest in western and southern European cities, particularly in cities in **Belgium**, the **Netherlands, Spain** and the **UK**. The analysis points to very low levels of cocaine use in the majority of eastern European cities, but the most recent data show signs of increases.

- **Amphetamine:** The most recent data show that most cities reported an increase in amphetamine residues, while data from the previous seven monitoring campaigns showed no major changes in patterns observed. The loads of amphetamine detected in wastewater varied considerably across the study locations, with the highest levels reported in cities in the north and east of Europe. Amphetamine was found at much lower levels in cities in the south of Europe.

- **MDMA:** The 2018 data point to increased traces of MDMA in most cities, compared with a stabilising trend in 2017. (Sharp increases of MDMA had been observed in the period 2011–16).

- **Methamphetamine:** Traditionally concentrated in **Czechia** and **Slovakia**, methamphetamine now appears to be present in **Cyprus**, the east of **Germany, Spain** and northern Europe (e.g. **Finland** and **Norway**).

- **Weekly patterns:** When weekly patterns of drug use were examined, cocaine and MDMA (ecstasy) levels rose sharply at weekends in most cities. Noteworthy in 2018, is that a similar pattern was observed for amphetamine (suggesting recreational use), whereas, previously, traces appeared to be more evenly distributed throughout the week. Methamphetamine loads were found to be evenly distributed over the week.

In this project, **SCORE** uses a standard protocol and a common quality-control exercise in all locations, making it possible to directly compare illicit drug loads in Europe over a one-week period over eight consecutive years.

The **EMCDDA** adopts a multi-indicator approach to drug monitoring on the principle that no single measure can provide a full picture of the drug situation. It views wastewater analysis as a valuable additional tool in its epidemiological toolkit and one which can provide timely information on a wide spectrum of substances.

Notes

(^{1}) The Sewage analysis CORe group — Europe (SCORE) http://score-cost.eu/
For the study results and the cities involved, see Perspectives on Drugs (POD), 'Wastewater analysis and drugs — a European multi-city study' at www.emcdda.europa.eu/topics/pods/waste-water-analysis (14 March 2019).
(^{2}) A motion graphic explaining wastewater methodology is available in English (with sub-titles in: ES, DE, FR, IT, NL and PT) at https://youtu.be/SbdiuEL2r4k
(^{3}) The FAQs and wastewater motion graphic aimed at those interested in setting up wastewater monitoring activities are available at www.emcdda.europa.eu/topics/wastewater-analysis