![European Monitoring Centre for Drugs and Drug Addiction]

News release
from the EU drugs agency in Lisbon

WORLD WATER DAY — WASTEWATER TESTING UNCOVERS CITY DRUG-USE HABITS IN EUROPE

Wastewater samples from over 100 European cities reveal latest drug-taking trends

(22.03.2023, LISBON) The latest findings from the largest European project in the science of wastewater analysis are released today in **Wastewater analysis and drugs — a European multi-city study**, published by the Europe-wide SCORE group, in association with the **EU drugs agency** (EMCDDA). The analysis reveals a rise in cocaine and methamphetamine detections and describes how wastewater research can now tell us more.

The project analysed wastewater in a record **104 European cities** from **21 countries** (20 EU + Türkiye) to explore the drug-taking behaviours of their inhabitants. Ketamine was included in the analysis for the first time in 2022, bringing the total number of substances examined to six.

From **Copenhagen** to **Valencia** and **Nicosia** to **Lisbon**, the latest study analysed daily wastewater samples in the catchment areas of wastewater treatment plants over a one-week period between March and April 2022. Wastewater samples from some **54 million** people were analysed for traces of **five illicit stimulant drugs** (cocaine, amphetamine, methamphetamine, MDMA/ecstasy and ketamine) as well as **cannabis**.

The **latest results** show a continued rise in cocaine detections, a trend observed since 2016 (despite some fluctuation during COVID-19 lockdowns). The methamphetamine situation also appears to be evolving, with more cities reporting traces of the drug. A mixed picture emerges for the remaining substances where trends can be observed (amphetamine, cannabis, MDMA). Despite detections varying considerably across the study locations, it is noteworthy that all six illicit drugs investigated were found in almost every participating city.

Alexis Goosdeel, EMCDDA Director says: 'Wastewater samples can tell revealing stories about the lives of a community and can provide an early warning of emerging health threats. Today's findings, from a record 104 cities, paint a picture of a drugs problem that is both widespread and complex, with all six substances detected in almost every location. Now an established science, wastewater surveillance provides us with increasing insight into the dynamics of drug use and supply. We are also encouraged by its growing potential for targeting and evaluating localised public health responses and policy initiatives'.

The **SCORE group** has been conducting annual wastewater monitoring campaigns since 2011, when 19 cities from 10 countries participated and four stimulant drugs were studied. Sixty-five cities have participated in at least five of the annual wastewater monitoring campaigns since 2011, allowing for time trend analyses.

Key findings

• **Cocaine ↑:** Cocaine residues in wastewater remained highest in western and southern European cities (particularly in Belgium, the Netherlands, Spain and Portugal), but traces were also found in the majority of the eastern European cities, where some increases were observed. Overall, over half (38) of the 66 cities with data for 2021 and 2022 recorded increases in cocaine residues (18 cities reported no change and 10 a decrease). A recent European project on wastewater (EUSEME) also found crack cocaine residues in all of its 13 European cities, with the highest loads in Amsterdam and Antwerp.

Methamphetamine ↑: Traditionally concentrated in Czechia and Slovakia, this drug is now also present in Belgium, the east of Germany, Spain, Cyprus and Turkey and several northern European countries (e.g. Denmark, Latvia, Lithuania, Finland and Norway). Of the 60 cities with data for 2021 and 2022, almost two-thirds (39) reported an increase in residues, 15 a decrease and six a stable situation. Elsewhere, methamphetamine loads were very low to negligible, although some increases were reported in central and southern European cities. The three cities with the highest loads were all situated in Czechia, followed by cities in Latvia, Germany, Turkey and Cyprus.

• **Amphetamine ↑↓:** The level of amphetamine residues varied, with the highest loads reported in cities in the north and east of Europe (Belgium, Germany, the Netherlands, Finland and Sweden) and much lower levels in cities in the south. Of the 55 cities with data on amphetamine residues for 2021 and 2022, the picture was mixed, with 20 reporting an increase, 26 a decrease and nine a stable situation.

• **MDMA ↑↓:** Here the picture is also mixed. Of the 62 cities with data for 2021 and 2022, 28 reported an increase in MDMA detections (mostly in cities in Southern and Central Europe), 27 a decrease (mostly in northern Europe) and seven a stable situation. The highest mass loads of MDMA were found in wastewater in cities in Belgium, Czechia, the Netherlands, Spain and Portugal.

• **Ketamine:** Following signs of increased availability and use of ketamine in Europe (EDR 2022), the drug was included for the first time in the 2022 analysis. The highest mass loads were found in wastewater in cities in Denmark, Italy, Spain and Portugal.

• **Cannabis ↑↓:** The highest loads of the cannabis metabolite THC-COOH were found in western and southern European cities, particularly in Czechia, Spain, the Netherlands and Portugal. In 2022, diverging trends were seen (18 cities out of 38 reported a decrease since 2021, 15 an increase and five a stable situation).

• **City variations**: The study revealed differences between cities in the same country, which may be partly explained by their different geographical, social and demographic characteristics (age distribution, universities, nightlife). In most countries with multiple study sites, residues were higher in large cities compared to smaller locations for three of the stimulants (cocaine, methamphetamine, MDMA). No such differences were detected for amphetamine and cannabis.

• **Weekly patterns:** Wastewater analysis can detect fluctuations in weekly patterns of illicit drug use. More than three-quarters of the cities showed higher residues of drugs often associated with recreational patterns of use (cocaine, ketamine and MDMA) at the weekend (Friday–Monday). In contrast, residues of the other three drugs were distributed more evenly throughout the week.

• **New developments:** The study explores the potential for wastewater research to identify new psychoactive substances and how it might have a role in providing early warning of emerging trends as well as help evaluate public health interventions. It also describes techniques (e.g. enantiomeric profiling) which determine whether mass loads of drugs in wastewater originated from human consumption or from the disposal of unused drugs or waste from synthetic drug production sites. Although primarily used to study trends in illicit drug use in the general population, wastewater analysis can also be applied to precise locations (e.g. music festivals, specific neighbourhoods) to provide timely data.

Interactive features

Today's study includes an innovative interactive map allowing the user to look at geographical and temporal patterns and to zoom in on results by city and by drug. This interactive feature has been designed to be accessible and user-friendly and to perform better on mobile and desktop devices. In line with the **EMCDDA**'s commitment to open data, all of the source tables behind the tool can be easily downloaded by researchers, data journalists or anyone interested in using the data in their work.

For more on wastewater analysis, see motion graphic, FAQs, guidelines and topic page.