EU Drug Markets: Cocaine

Introduction

This EDMR module describes the European cocaine market, from production and wholesale trafficking, to distribution and retail. To the extent possible, it also details the processes, materials and players involved at different stages of the market. The module identifies key issues and defines recommendations for action at the EU and Member State level.

Cocaine is Europe's most commonly used illicit stimulant drug. Levels of cocaine use vary between countries, being most prevalent in the south and west of Europe. It is estimated that about 14.0 million adults in the European Union (aged 15-64), or close to 5 % of this age group, have tried cocaine during their lives. Among these are about 3.5 million who have used the drug in the last year. Cocaine has traditionally been used in two main forms in Europe (**see box 'Cocaine'**). The hydrochloride salt, often referred to as 'cocaine powder' is usually sniffed or snorted, and to a much lesser extent injected, while a freebase and smokeable form of the drug, often referred to as 'crack', is usually smoked or sometimes injected. Frequent cocaine users may experience more serious problems, and about 60 % of cocaine users entering treatment report using the drug between 2 and 7 days a week (EMCDDA, 2021). Cocaine smoking is associated with more use, more frequent and harmful patterns of use. In some countries, more marginalised groups of drug users exist that may smoke or inject cocaine, often in conjunction with heroin. There is some evidence to suggest that cocaine smoking may be increasing as a route of administration, and this behaviour is observed now in more countries than in the past.

Recently, data from a range of sources have suggested that cocaine use and associated harms may be increasing in Europe. For instance, out of 15 countries reporting sufficient information on prevalence of cocaine use since 2019, 8 reported higher estimates of last year use than their previous comparable survey, 5 had stable estimates and 2 reported lower estimates (EMCDDA, 2022a). These patterns are also reflected in data on people entering treatment as first-time entrants for cocaine problems increased in 14 countries between 2014 and 2020. The health harms associated with regular cocaine use

include dependence, heart and mental health problems, and an increased risk of accidents. Harms may be exacerbated when cocaine is used in conjunction with alcohol. Cocaine injection and the use of crack cocaine are associated with the greatest health risks. Based on data from 20 countries there were an estimated 473 cocaine-related deaths in 2020, or about 13.5 % of all drug-induced deaths with reported post mortem toxicology in these countries. It should be noted that this is likely to be an underestimate because 2020 data from some key countries is not available. Most of these deaths were attributed to drug overdose, with other substances also being detected in most cases, primarily opioids.

Cocaine is trafficked to Europe from the producer countries of South America by both air and sea using a range of methods and routes. In 2020, for the fourth consecutive year, the highest ever amount of cocaine, 214.6 tonnes, was seized in the EU, Norway and Turkey. Belgium, the Netherlands and Spain together account for approximately 73 % of the total. Early seizure figures from a limited number of countries in 2021 suggest that the quantity seized across Europe increased yet again. The largest amounts of cocaine found in seizures are smuggled into Europe hidden in cargo ships, mainly in maritime shipping containers. These typically depart from South America, particularly from Brazil, Colombia, and Ecuador, and are destined for large European ports, especially Antwerp and Rotterdam. Another frequently used route, involving other forms of sea and air transport, appears to involve transit through the Caribbean, North Africa and West Africa, including the islands off the coast of West Africa. Seizure data suggest that cocaine enters Europe mainly through western and southern countries. Recently, however, large seizures have also been made elsewhere in Europe, possibly indicative of trafficking groups extending their activities to ports where cocaine interdiction measures may be perceived as less intensive.

The restrictions adopted to address the COVID-19 pandemic during 2020 have had some impact on the cocaine trade, as seen in a large decrease in seizures at the retail-level and a dramatic decrease in cocaine trafficking by couriers using commercial flights during 2020. Nevertheless, overall the cultivation of coca, production and trafficking of cocaine into Europe have continued during this period and may even have further increased.

Cocaine processing is taking place in Europe. Large seizures of chemicals, particularly ethyl acetate, and adulterants associated with cocaine production have taken place in Europe. Such seizures and intelligence on collaboration between criminal networks based in the EU and Latin America have shed further light on these developments. Cocaine hydrochloride is processed in Europe from carrier materials in dedicated extraction facilities, on a much larger scale and in a more sophisticated way than was previously understood. There are also indications that cocaine hydrochloride is being produced in Europe from intermediary products in the chemical extraction from coca leaf to cocaine hydrochloride (coca paste and cocaine base). This is a worrying development, and the potential smuggling of large amounts of such intermediary products into Europe constitutes both an intelligence gap and a threat that needs urgently to be better understood and documented.

BOX STARTS

Cocaine

Cocaine is a natural product extracted from the leaves of *Erythroxylum coca* and *Erythroxylum novogranatense*. These tropical shrubs are cultivated widely in the Andean-Amazonian region, and are the only known natural source of cocaine ([1]), most of which is produced in Bolivia, Colombia and Peru. Cocaine has been used as a central nervous system stimulant since the early years of the 20th century.

In Europe, cocaine is available in two forms. The more common is a hydrochloride salt, sometimes referred to as powder cocaine. Less commonly available is a smokeable freebase form of the drug, widely known as crack cocaine. The crack cocaine available in Europe is typically manufactured from cocaine hydrochloride, a process known as basification, near to where it is retailed and used.

In South America, other smokeable cocaine products manufactured from the intermediary products of the cocaine manufacturing process, coca paste and cocaine base, are available to consumers and sold under different names such as ‘basuco’, ‘paco’, ‘PBC’. It should be noted that the product sold under the name ‘crack’ in Brazil is manufactured from coca paste or cocaine base and is

therefore different from the product called ‘crack’ in Europe, which is made from cocaine hydrochloride (UNODC, 2021e).

In this report, the term ‘crack’, when used in reference to Europe, refers exclusively to the smokeable freebase form manufactured from cocaine hydrochloride.

([1]) It is possible to obtain synthetic cocaine by various methods, but this is rare and is less economical than the extraction of the natural product.

BOX ENDS

Key findings and threat summary

- The European consumer market for cocaine continues to grow and there are indications that Europe’s role in the international cocaine trade may be changing.
- Cocaine availability in Europe is probably at an all-time high and the drug is more affordable for consumers than in the past.
- The EMCDDA estimates that the EU cocaine retail market was worth at least EUR 10.5 billion (range EUR 7.7 billion to 12.8 billion) in 2020. This represents about a third of the illicit market in all drugs and makes cocaine the second-largest market, after cannabis. While this estimate is the best that can be achieved given current data availability, the method used is likely to underestimate the true size of the market, and this figure should be viewed as a minimum estimate.
- High-risk criminal networks dominate the trafficking and trade of cocaine in the EU and generate billions of euro of profit. Their activities are enabled by high-value targets, such as contact or money brokers, who enable the cocaine trade to take place in a highly fluid and networked environment.
- Record quantities of cocaine have been seized in Europe every year since 2017, particularly in sea ports. In 2020, the largest quantity ever reported, 214.6 tonnes, was intercepted. Preliminary data show that the

2021 total will be even higher, as seizures amounting to 240 tonnes have already been reported.

- The largest quantities of cocaine continue to be seized in Belgian, Dutch and Spanish ports. However, increasing amounts are also now seized in ports elsewhere in Europe, suggesting that trafficking groups are extending their activities to ports where cocaine interdiction measures may be perceived as less intensive.
- Corruption and intimidation of port workers, both in the private sector and the government, is a key enabler of cocaine smuggling through ports. In addition, there are indications that corruption related to the cocaine market is present in other sectors of European society.
- Although it is difficult to monitor systematically, serious violence related to the cocaine market seems to be increasing. Some recent high-profile cases now also suggest that it affects sectors outside of the drug trafficking sphere including journalists and government officials.
- Coca and cocaine production is reported to have become more efficient. It continues to increase in South America and appears to have become more internationalised and also includes efficient production in Europe.
- Chemical profiling of samples of cocaine seized in Europe suggests that Colombia continues to be the main source country, although the number of samples of Peruvian origin has increased noticeably in recent years.
- Data on precursor chemicals and detected illicit production facilities indicate that large (multi-tonne) amounts of cocaine base and unknown amounts of coca paste are now being processed into cocaine hydrochloride within Europe every year.
- The importation of large amounts of cocaine base to Europe for processing creates a potential risk that more smokeable cocaine products may be available on European consumer markets in future.
- More generally, the high availability of cocaine also contributes to this risk. Demand-side data also suggest that problems associated with the smoking or injection of cocaine among more marginalised groups appears to be both increasing and present in more countries.
- A worrying development is that information exists to suggest that some Latin American and European criminal networks are partnering in cocaine production activities in Europe, and perhaps also in South America. This phenomenon has also been observed for other drugs, particularly methamphetamine.

- There is now more evidence that Mexican criminal networks are involved in supplying cocaine to the European market.
- There is evidence that the EU is increasingly being used as a transit point for cocaine shipments intended for non-EU countries, particularly in eastern Europe, Oceania and possibly Asia.
- Cocaine trafficking to Europe by air couriers appears to have resumed in 2021 following its near disappearance in 2020 due to COVID-related restrictive measures on passenger air travel.

Cocaine in the global context

TEASER TEXT STARTS:

Western and central Europe is reported to constitute the second-largest cocaine consumer market in the world, after North America. Globally and in Europe, those in treatment for problems related to cocaine use tend to be older than those in treatment for synthetic stimulants. In the three countries in which coca cultivation is concentrated, Bolivia, Colombia and Peru, coca leaves play a significant cultural role. The extraction of cocaine from the coca leaves takes place mostly in these three countries, which together are estimated to account for the majority of the global production of cocaine hydrochloride. However, cocaine-processing laboratories continue to be detected in other South American countries and elsewhere, including Europe. Global seizures of cocaine totalled 1 436 tonnes in 2019, the highest quantity ever reported. The largest amounts were seized in Colombia, followed by the United States, Brazil, Panama and Belgium.

TEASER TEXT ENDS

Western and central Europe is reported to constitute the second-largest cocaine consumer market in the world, after North America (UNODC, 2021a). Global prevalence rates are estimated to have remained stable between 2010 and 2019 and are particularly high in Oceania (especially Australia and New Zealand), North America and western and central Europe (UNODC, 2021a). Globally and in Europe, those in treatment for problems related to cocaine use tend to be older than those in treatment for synthetic stimulants (EMCDDA, 2021; UNODC, 2021b).

In the three countries in which coca cultivation is concentrated, Bolivia, Colombia and Peru, coca leaves play a significant cultural role. In Bolivia and Peru, some cultivation of coca is permitted to supply licit domestic consumer markets for leaves and de-cocainised flavouring agents to international manufacturers of soft drinks, complicating efforts to control cocaine production.

Global seizures of cocaine totalled 1 436 tonnes in 2019, the highest quantity ever reported. The largest amounts were seized in Colombia, followed by the United States, Brazil, Panama and Belgium (UNODC, 2021b) (**see Europe and the global cocaine trade**). It is likely that even larger amounts will be seized globally in 2020.

The extraction of cocaine from the coca leaves takes place mostly in the three coca producer countries, which together are estimated to account for the majority of the global production of cocaine hydrochloride. However, cocaine-processing laboratories continue to be detected in other South American countries and elsewhere, including Europe (see **Cocaine production: going international and involving Europe**). Thus, while the number of coca/cocaine production sites dismantled in Bolivia, Colombia and Peru decreased by over 50 % in the 2016-2019 period, the number dismantled in the rest of the world doubled in the same period (UNODC, 2021a). In addition, seizures of intermediary products of the cocaine manufacturing process, such as coca paste and cocaine base, increased in several regions globally between 2018 and 2019. These trends suggest that cocaine manufacturing is becoming increasingly internationalised (UNODC, 2021a) and that Europe now plays a more important role than in the past.

Coca and cocaine production

TEASER TEXT STARTS:

Estimated global cocaine hydrochloride production reached an all-time high in 2019. The ensuing COVID-19 pandemic seems to have had only a temporary and limited impact on coca cultivation and cocaine production in South America.

Data suggests that Europe is a significant source for chemicals associated with cocaine manufacturing. Information on dismantled cocaine production facilities, and recent evidence highlighting a new trend in cocaine production related to ethyl acetate, confirm that cocaine manufacturing is taking place in Europe,

especially in the Netherlands, Spain and Belgium. Cocaine hydrochloride production in Europe appears to be larger and more sophisticated than previously thought.

The environmental harms caused by coca cultivation, cocaine production and trafficking are multifaceted. For example, the link between coca cultivation and deforestation is influenced by a number of factors, such as conflict, poverty and insecurity. Cocaine production is associated with the use of a range of chemicals, which may cause serious environmental harms when disposed of inappropriately.

TEASER TEXT ENDS

In 2019, coca bush cultivation remained at historically high levels and cocaine hydrochloride production reached an all-time high. The COVID-19 pandemic appears to have had an impact on coca and cocaine production during the first three months of 2020. In these early stages of the pandemic, a drop in the price of coca leaves in Colombia and Peru was reported, while there were also reports that cocaine production in Colombia was disrupted due to a shortage of fuel (EMCDDA and Europol, 2020; Stargardter and Jorgic, 2020; UNODC, 2020). However, these seem to have only been temporary disruptions.

Coca cultivation: growing out of South America?

Global coca cultivation remains concentrated in Bolivia, Colombia and Peru but the eradication of coca plantations in other countries in recent years indicates that it could be expanding outside of the three Andean countries, albeit on a small scale at present. Thus, in 2020 and 2021, eradication of coca plants was reported not only in countries close to the three traditional Andean producers, such as Ecuador, but also further afield in Central America including Guatemala and Honduras (US State Department, 2021), and Mexico (Cervantes, 2021). In the three latter countries, facilities to process coca leaves into coca paste were also found at or near the coca plantations, leaving little doubt that the intention was to produce cocaine.

In 2020, global coca bush cultivation was estimated to have remained stable compared to the previous year, but remained at a high level by historical

standards at 234 177 hectares (DEVIDA, 2021; UNODC, 2021c, 2021d). An estimated decrease in Colombia (–7 %) was offset by increases in both Peru (13 %) and Bolivia (15 %). In 2020, Colombia continued to account for the majority of global coca cultivation (61 %), followed by Peru (26 %) and Bolivia (12.5 %) (UNODC, 2021a). Coca cultivation does not appear to have been significantly affected by the restrictions adopted in response to the COVID-19 pandemic (UNODC, 2021a).

Cocaine production: going international and involving Europe

Most cocaine manufacture continues to take place in Bolivia, Colombia and Peru. Together these countries report the majority of cocaine laboratories dismantled globally. However, there is evidence that cocaine hydrochloride is refined elsewhere in South America, further along the trafficking routes, and now also increasingly in Europe.

In 2019, global cocaine hydrochloride production is estimated to have increased slightly to 1 784 tonnes, an all-time high, mostly due to an increase in Colombia (UNODC, 2021a). Estimates for cocaine hydrochloride production in 2020 are only available for Colombia, where it increased to an estimated 1 228 tonnes, approximately 10 % more than in 2019 and 233 % more than in 2014 (UNODC, 2021c). This is likely to lead to a further increase in global cocaine production in 2020, especially since coca cultivation increased in both Bolivia and Peru that year (see **Coca cultivation: growing out of South America?**). The trend towards an increase in efficiency of cocaine manufacturing processes reported in the last EU Drug Markets Report (EMCDDA and Europol, 2019) appears to be continuing and is possibly gaining more strength (UNODC, 2021a, 2021c). With even more cocaine becoming available, it is probable that trafficking of the drug to and in Europe will increase.

Cocaine chemicals: global seizures, controls and monitoring

Potassium permanganate is an essential chemical in the illicit manufacture of cocaine, mostly used as an oxidising agent to turn coca paste into cocaine base (Figure 1). It is the only cocaine-processing chemical listed in Table I of the 1988 United Nations (UN) Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances. Efforts to control trafficking in potassium permanganate are complicated since it is used extensively by industries throughout the world, for instance in drinking water treatment, and also because

it is produced in illicit facilities in South America. Licit imports of potassium permanganate to the three main coca-producing countries accounted for less than 1 % of the more than 36 000 tonnes traded internationally in 2020 (INCB, 2022).

Global seizures of potassium permanganate increased to 84.2 tonnes in 2020, 29 % more than in 2019 (INCB, 2022). It should also be noted that the Chinese authorities stopped shipments of potassium permanganate destined to 15 countries and totalling almost 1 700 tonnes in 2020, while India stopped a total of about 5 tonnes destined for two countries (INCB, 2022).

With about 65 tonnes seized, Colombia accounted for almost 77 % of global potassium permanganate seizures in 2020 and, as in previous years, a major source of these was illicit manufacture (INCB, 2022). Illicit manufacture of potassium permanganate using substances such as manganese dioxide and potassium manganate is a fairly long-standing phenomenon in Colombia, where 7.1 tonnes of manganese dioxide and 1.7 tonnes of potassium manganate were seized in 2020. Colombia also reported dismantling 6 illicit potassium permanganate manufacturing facilities in the first 10 months of 2021 (INCB, 2022).

Several other substances are used in the production of cocaine, and a number of them are in Table 2 of the 1988 UN Convention (see **Cocaine chemicals: increasing seizures indicate cocaine production in Europe**). Some of these chemicals, for instance ammonia, hydrochloric acid and sulfuric acid may be manufactured in illicit facilities in or near the cocaine-producing countries (INCB, 2021). Others are not under international control and are diverted from licit production, such as calcium chloride, more than 100 tonnes of which was seized in South America and, to a much lesser extent Europe, in 2020. Another such chemical, sodium metabisulfite was also seized in large amounts in South America as well as in Europe in 2020 (INCB, 2022; data from the European Commission).

BOX STARTS

European data on chemicals associated with cocaine production

A number of chemicals are associated with cocaine production. These include oxidants, reducing agents (often used to standardise the oxidation levels in cocaine base), solvents, drying agents (which contribute to the recycling of solvents), adulterants and other cutting agents, as well as some 'pre-precursors' (used to manufacture other chemicals). EU Member States report to the European Commission on the seizures and stopped shipments of precursor chemicals, 53 of which are monitored by the EMCDDA as being potentially related to cocaine production. Many of these are general purpose reagents and solvents, which, despite being associated with cocaine production, can also be used in the manufacturing of other drugs. The data presented in this section refer to these 53 substances, regardless of the context in which the incidents occurred. For completeness, the 53 chemicals associated with cocaine production monitored by the EMCDDA are listed below.

- Acids: *hydrochloric acid*, nitric acid, *sulfuric acid*.
- Adulterants: **atropine**, **benzocaine**, caffeine, inositol, **levamisole**, **lidocaine**, **phenacetin**, **procaine**, **tetracaine**, **tetramisole**.
- Solvent drying agents: **calcium chloride**, sodium sulfate.
- Oxidants: ***potassium permanganate*** and chemicals used in its manufacture or substitutes such as manganese oxide, **potassium manganate**, sodium hypochlorite and **sodium permanganate**.
- Reducing agents: **potassium metabisulfite**, **sodium bisulfite, sodium metabisulfite**.
- Solvents: *acetone*, **butyl acetate**, dichloromethane, *diethyl ether*, ethanol, **ethyl acetate**, **hexane**, isopropyl alcohol, ***methyl ethyl ketone (MEK)***, **methyl isobutylketone (MIBK**), methanol, propanol, petroleum spirits (e.g. aliphatic solvents), **propyl acetate**, **trichloroethene (TCE)**, *toluene*, xylene.
- Others: **activated charcoal** (filtering agent), ammonium hydroxide, ammonium chloride, benzene, calcium carbonate, calcium hydroxide, potassium carbonate, potassium hydroxide, sodium bicarbonate, sodium carbonate, sodium citrate, sodium hydroxide, **urea**.

Note: The chemicals displayed in bold are strongly associated with cocaine processing, and those displayed in italics are chemicals that are in Table 1 or in Table 2 of the 1988 UN Convention.

BOX ENDS

Cocaine chemicals: increasing seizures indicate cocaine production in Europe

Data reported to the European Commission by EU Member States suggest that Europe is a significant source for chemicals associated with cocaine manufacturing, and together with information on dismantled cocaine production facilities (see **Manufacturing cocaine: new developments highlight larger European role in global production**), confirm that stages of the cocaine manufacturing process are taking place in Europe, especially in the Netherlands and Spain.

Considering the 53 chemicals monitored as potentially associated to cocaine production, a total of 130 tonnes and 1.8 million litres were seized in the EU in 2019 and 2020, which represents a 1.4 and 6-fold increase respectively, compared with the 2017-2018 period. Attempts to source these chemicals in Europe that resulted in stopped shipments amounted to 36 tonnes and close to 45 800 litres in the 2019-2020 period, but given the absence of reports of stopped shipments in 2020, it is not comparable to previous periods. While these data cannot be taken as a direct indicator of cocaine production in Europe, they provide evidence of the scale of the amounts of chemicals seized or stopped in Europe in connection with illicit drug production.

Potassium permanganate is one of the chemicals more directly associated with cocaine processing. Approximately 3.3 tonnes of potassium permanganate was seized in 5 Member States (Germany, Hungary, Latvia, Netherlands, Spain) in 2019 and 2020. The vast majority was seized in a single operation in Germany in 2019 (3 tonnes), where it was found on the property of an individual known to rent farm buildings to people associated with large-scale illicit drug production (information reported to the European Commission). As in previous years, all stopped shipments of potassium permanganate in Europe, amounting to 36 tonnes in 2019, were reported by Spain. No stopped shipments were reported to the European Commission in 2020.

Seizures of chemicals that can be used as precursors or substitutes of potassium permanganate were reported for the first time in Europe in 2018 and 2019. These included potassium manganate (73 kilograms) and the substitute sodium permanganate (95 kilograms), all reported by the Netherlands. This may be an indirect indicator of when the oxidation stage of cocaine processing

commenced in the EU. Reducing agents, such as sodium metabisulfite (100 kilograms) and sodium bisulfite (651 kilograms) continued to be seized in Europe, exclusively in the Netherlands, in 2019-2020, with seizures of the latter increasing considerably in 2020. These chemicals are strongly associated with cocaine production, since they are typically not used in the manufacturing of other drugs.

Seizures of drying agents reached their highest level on record in 2019-2020, at 2.1 tonnes (data from European Commission). These chemicals, which in Europe mostly consist of calcium chloride, have a role in drying the solvents used in the stages of cocaine production where the presence of water must be eliminated.

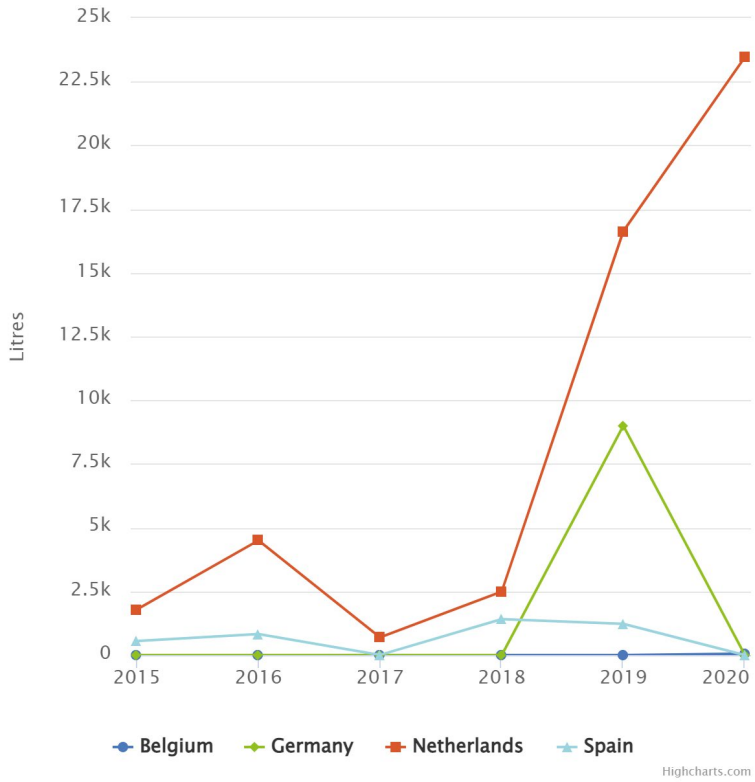
Finally, approximately 2.8 tonnes of cocaine cutting agents, including adulterants, were seized in the EU in 2019 and 2020, the majority of which was tetramisole (1.9 tonnes, all seized in the Netherlands). Tetramisole is a commercially available veterinary medicine made up of equal proportions of levamisole and dexamisole, the two enantiomers of phenyltetrahydroimidazothiazole (PTHIT) (Casale et al., 2012). As well as enhancing profits by bulking the quantity, there is evidence to suggest that levamisole enhances the effects of cocaine in a synergistic way, as it was found to produce no psychoactive effect when administered on its own (Tallarida et al., 2014). Preliminary data for 2021 reported to the European Commission suggest that these seizure levels were maintained or increased in 2021, with more than 1.8 tonnes seized, again in the Netherlands.

BOX STARTS

Ethyl acetate and the European connection

Ethyl acetate is a polar aprotic solvent, which makes it suitable for dissolving cocaine base before processing it into cocaine hydrochloride. Record amounts of close to 50 400 litres of ethyl acetate were seized in Europe in 2019 and 2020. The vast majority of these seizures occurred in the Netherlands (Figure).

Quantity of ethyl acetate seized in Europe (2015-2020)



Source: Data on seizures of precursors in the European Union collected by the European Commission.

Recent evidence from the Cocaine Signature Program (CSP) of the US Drug Enforcement Administration (DEA) has highlighted a new trend in cocaine production related to ethyl acetate that supports the mounting evidence that significant quantities of cocaine hydrochloride are produced in Europe.

According to DEA analysis, the ‘clean ethyl acetate processing’ method is mainly associated with cocaine samples seized in Europe that have been manufactured from coca leaves originating from Bolivia, Peru, or are of unknown origin, but excludes European samples made from Colombian coca (which represent the majority). Importantly, very few of the thousands of cocaine samples seized in the United States and analysed by the DEA since 2018, almost all of which are made from Colombian coca, had a similar profile (DEA, 2020, 2021a, 2022; INCB, 2021). In a recent report, the DEA (2021b) indicated that very few of the 26 analysed samples that were seized in Peru contained traces of ethyl acetate.

Hence, there exists a distinctive forensic connection between cocaine hydrochloride manufactured from coca leaves of Bolivian and especially Peruvian origin using the 'clean ethyl acetate processing' method and a type of cocaine hydrochloride available practically exclusively on the European market. Importantly, this connection must be considered in the broader context of:

- large quantities of ethyl acetate seized in Europe in 2019 and 2020, particularly in the Netherlands (see **figure**);
- an increase in the proportion of European cocaine samples found to be made from Peruvian coca (see **box 'Profiling European cocaine'**) observed since the last edition of this report (EMCDDA and Europol, 2019) and;
- new information on cocaine production facilities dismantled in the Netherlands and Spain recently (see **Manufacturing cocaine: new developments highlight larger European role in global production**).

These preliminary findings support the hypothesis that cocaine base originating from Peru and Bolivia (either raw or concealed in carrier materials) is converted into cocaine hydrochloride using the 'clean ethyl acetate processing' method in Europe. In turn, this potentially means that one or several criminal networks active in South America and Europe have established a 'niche' position on the European cocaine market by manufacturing their own cocaine hydrochloride in the Netherlands from a specific 'pipeline' carrying cocaine intermediary products (coca paste and cocaine base) made in Bolivia and Peru.

BOX ENDS

Manufacturing cocaine: new developments highlight larger European role in global production

In addition to seizures and stopped shipments of cocaine chemicals, recent information provides more details on cocaine hydrochloride production in Europe, which appears to be larger and more sophisticated than was previously thought (EMCDDA and Europol, 2016, 2019). Indeed, recent data indicate that, at least since 2018 and probably earlier (Cawley, 2014), large amounts of cocaine hydrochloride have been processed in Europe, especially the Netherlands, Spain, and more recently Belgium, from intermediary products (coca paste and cocaine base) smuggled from South America. The evidence indicates that, in most cases, the intermediary product converted into cocaine

hydrochloride in Europe is cocaine base extracted from carrier materials (such as charcoal, coco pulp, plastics) in which it was chemically concealed in order to facilitate smuggling. Europol information indicates that the methods used to incorporate cocaine in carrier materials, particularly charcoal, have recently become more sophisticated, making detection by law enforcement more difficult. Extraction of cocaine from carrier materials has usually taken place in dedicated 'secondary extraction' facilities. However, since in many cases the cocaine extracted from carrier materials is in base form, it must subsequently be transformed into cocaine hydrochloride either in the same facility or in a dedicated 'base to hydrochloride' illicit laboratory (EMCDDA and Europol, 2016, 2019).

Spain reported to the EMCDDA that between October 2019 and July 2021, 11 illicit cocaine secondary extraction facilities were dismantled, with estimated cocaine hydrochloride production capacity ranging between 3 and 500 kilograms a week (CITCO, 2021). Meanwhile, the Dutch Police reported that 45 secondary extraction facilities were dismantled in the Netherlands between 2018 and 2021. Additional Dutch law enforcement information specified that more than 10 of these facilities had an estimated production capacity of between 100 and 200 kilograms of cocaine hydrochloride a day, that is, between 700 kilograms and 1.4 tonnes a week. This suggests that cocaine hydrochloride manufacturing activities in Europe are on a much larger scale than was previously understood.

Recent law enforcement information also suggests that the cocaine production facilities dismantled in the Netherlands are sophisticated and capable of producing high-purity cocaine. Several factors support this finding. First, some facilities were reported to be exact copies of the layout of facilities producing cocaine hydrochloride in Colombia. Second, some of the equipment seized in Dutch laboratories was built in the Netherlands based on Colombian blueprints, to a higher specification than the Colombian equivalents. Of note, it is possible that the same facilitators who, for years, have been manufacturing synthetic drug production equipment in the Netherlands now also make cocaine production equipment. Third, the chemicals seized in Dutch and Spanish facilities, including potassium permanganate and sodium metabisulfite, imply that the re-oxidation step is performed there. The re-oxidation of cocaine base is a fairly recent and sophisticated method used in Colombia in order to standardise batches of cocaine base of different origins prior to conversion to

hydrochloride, increasing the efficiency of production (EMCDDA and Europol, 2019; INCB, 2018). There are strong indications that the chemicals seized in cocaine facilities in the Netherlands were procured in EU countries including Germany, Poland and Spain. This means that these chemicals are probably of higher quality than the chemicals used in Colombian cocaine laboratories. Fourth, a number of Colombian nationals have been arrested while working in illicit cocaine facilities in the Netherlands and Spain, which could indicate that some Dutch, Spanish and Latin American criminal networks are collaborating in order to produce cocaine in Europe, with each side providing connections and know-how in order to make production more efficient and profitable. This bears a striking similarity to recent findings related to methamphetamine production facilities dismantled in Belgium and the Netherlands, where suspects originating from Latin America have been arrested in several cases and linkages between European and particularly Mexican cartels have been observed (see **Methamphetamine module**).

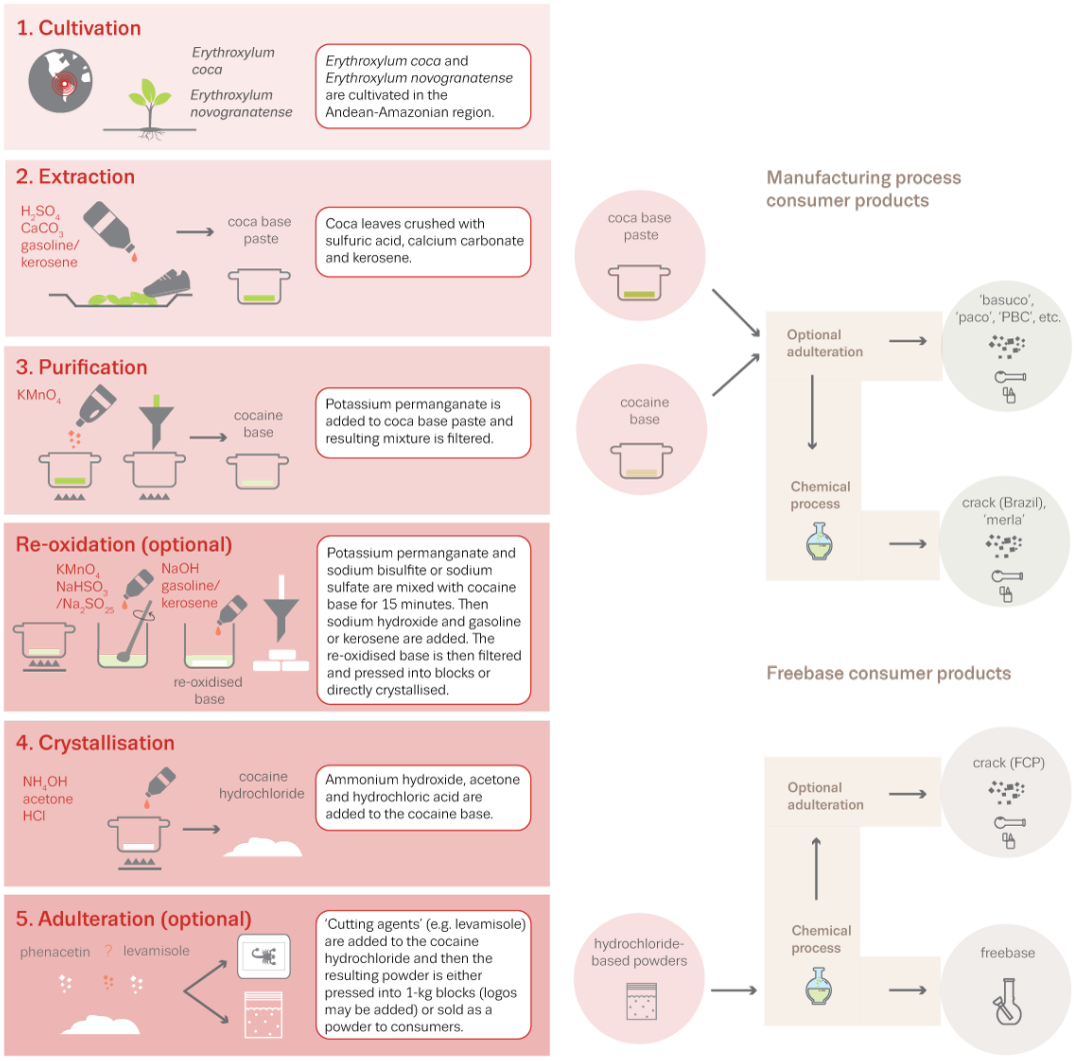
In addition to these concerns, intelligence suggests that some of the large facilities found in the Netherlands and Spain were processing coca *paste* (**Figure 1**). Some of the chemicals seized in illicit facilities in both Spain and the Netherlands can be used to process coca paste into cocaine base, a key step before cocaine hydrochloride can be manufactured (**Figure 1**). This implies that shipments of coca paste, and potentially of fairly large quantities, are now smuggled into Europe. However, no large seizures of coca paste (or cocaine base) have been reported to the EMCDDA by European countries in recent years (30 kilograms of cocaine base in 2018 and 680 grams in 2019), although a few seizures of hundreds of kilograms of coca paste bound for different European countries were reported in Colombia in the mid-2010s (Cawley, 2014). The smuggling of large amounts of coca paste into Europe clearly constitutes an intelligence gap and a threat that must be better understood and documented.

Any availability in Europe of large amounts of cocaine base and coca paste creates a risk that new, inexpensive, smokeable cocaine products similar to those available in many South American countries may emerge on European drug consumer markets in the future (**Figure 1**). This has happened in South America. In Argentina, Brazil and Chile, for example, coca paste and cocaine base, trafficked from Bolivia, Colombia and Peru are used to manufacture smokeable cocaine products under street names such as ‘basuco’, ‘merla’,

‘paco’, ‘PBC’, ‘crack’ (UNODC, 2021e). Such smokeable products would be an unwelcome addition to Europe’s drug markets, as they are known to rapidly lead to serious health harms for users. However, no evidence has been found that such products are sold to consumers in Europe at present, and it appears that the coca paste and cocaine base trafficked to Europe mainly serve as starting materials for the manufacture of cocaine hydrochloride. Indeed, the results of a consultation among European forensic institutes and drug checking services in 2021-2022 suggest that the only smokeable cocaine product available in Europe at present is ‘crack’ manufactured from cocaine hydrochloride, and not from cocaine base or coca paste.

These developments related to cocaine production processes taking place in Europe, requiring large quantities of intermediary products like cocaine base and the more bulky coca paste, as well as the diversion of tonnes of auxiliary chemicals, suggest that concerted efforts are needed to better understand and respond to these new challenges.

Figure 1.: The cocaine production process and the different cocaine products



Sources: EMCDDA and UNODC (2021e)

BOX STARTS

Profiling European cocaine

The Cocaine Signature Program (CSP) run by the US Drug Enforcement Administration (DEA), performs in-depth chemical analyses on samples of cocaine hydrochloride obtained from bulk seizures. While it is primarily focused on seizures made in the United States, a smaller number of samples seized in

Europe are also analysed. The testing provides extremely accurate (97 % confidence level) evidence of the geographical origin of the coca leaf used for processing into cocaine base, the starting material for cocaine hydrochloride. Testing by the CSP also determines the purity of seized samples.

Although the samples are not representative of all of Europe, the findings show how useful this type of analysis can be. In the previous edition of this report (EMCDDA and Europol, 2019), findings pertaining to 474 samples of cocaine hydrochloride submitted by 10 EU Member States between 2015 and 2018 were reported. This updated report presents results for 699 samples submitted by nine EU Member States between 2018 and 2020 (see figure).

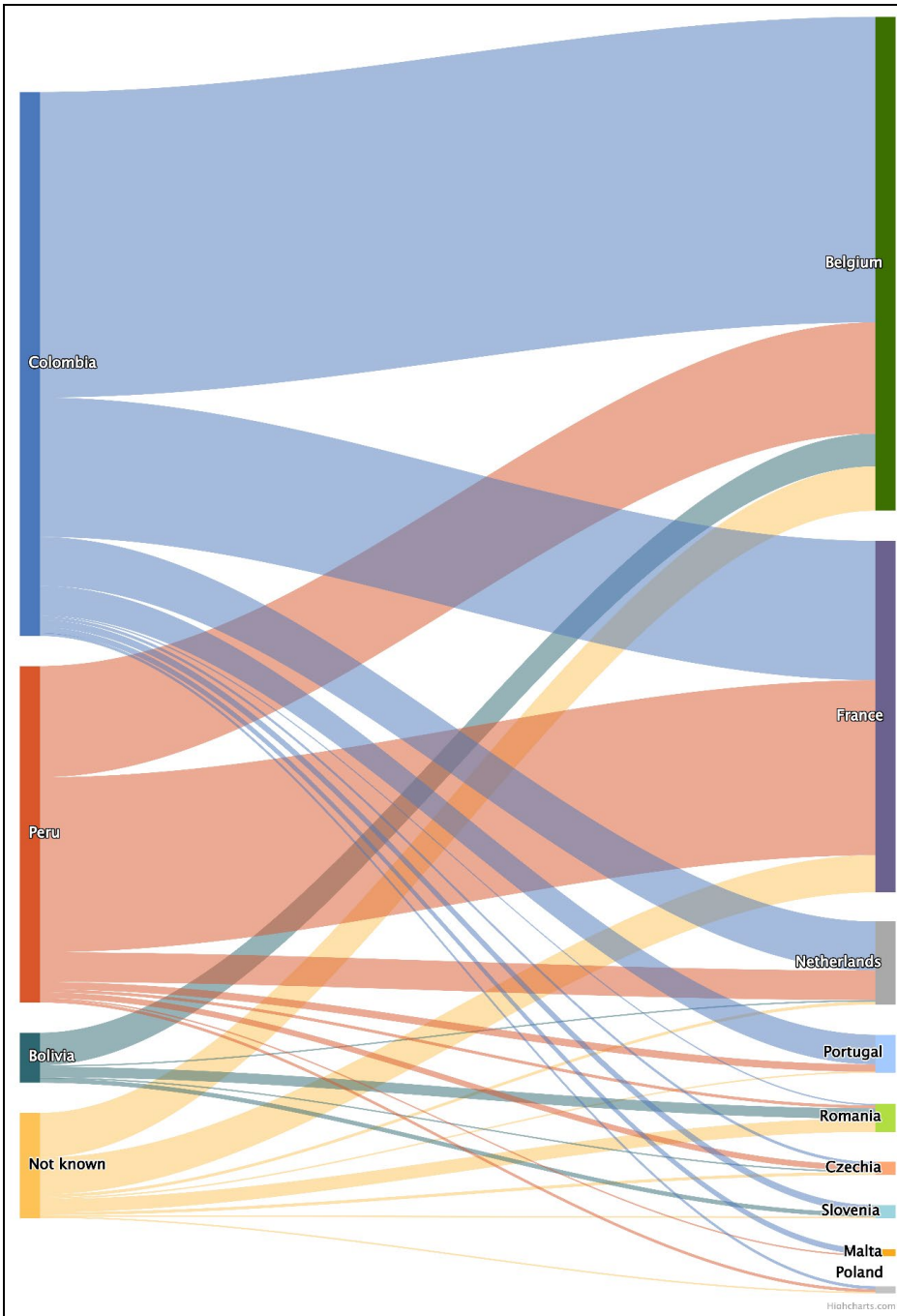
In the 699 samples analysed, purities varied between 15 % and 97 %. In all nine Member States, purities of 90 % or more were detected, while samples of less than 70 % purity were found in four Member States (see **figure**). This suggests that, at the importation and wholesale levels, the cocaine available in Europe continues to be of high or very high purity.

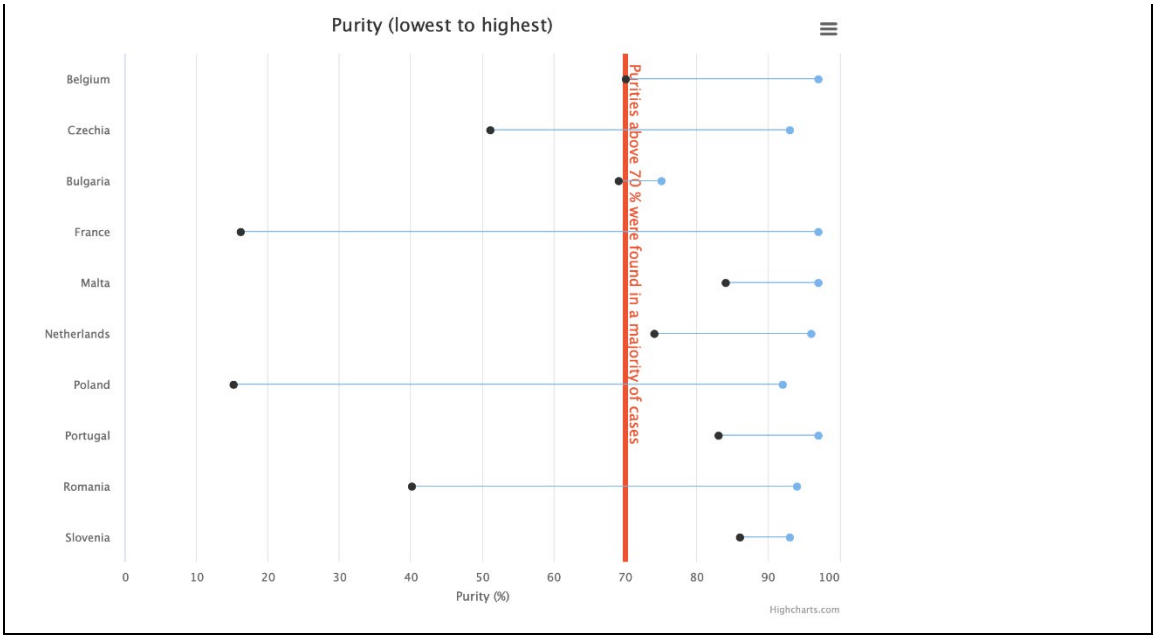
A little more than half (52.5 %) of these samples were of Colombian origin, which is well below the 68 % reported in the previous report (EMCDDA and Europol, 2019). A majority (54 %) of the samples from Colombia continued to originate in the three large coca-growing regions of the south-west, namely Cauca, Nariño and Putumayo, which are also reported as the main coca sources of the cocaine available in the United States (DEA, 2021a). Colombia, the world's largest cocaine-producing country, continues to be the most frequent country of origin identified in EU samples overall. However, out of the samples submitted by EU Member States between 2018 and 2020, sources other than Colombia now constitute the majority of all samples in more EU countries (3/9) than in the previous exercise (2/10).

A third (32 %) of the total number of EU samples originated from Peru, the world's second-largest coca cultivating country, and half of those samples were submitted by France. In the previous edition of this report, Peruvian samples represented 19 % of the total (EMCDDA and Europol, 2019). Since almost all of the cocaine seized in the United States and analysed by the CSP was found to originate in Colombia (DEA, 2021a), this suggests that a significant proportion of the cocaine produced in Peru is exported to Europe either as hydrochloride or as cocaine base or coca paste (see Manufacturing cocaine: new

developments highlight larger European role in global production). Bolivia, the third-largest global coca cultivating country, was identified as the origin of only 34 samples, or about 5 % of the total, a small increase from the previous report (EMCDDA and Europol, 2019).

699 samples of cocaine hydrochloride (HCl) submitted by 9 EU countries between 2018 and 2020





BOX ENDS

Environmental impact of coca cultivation, cocaine production and trafficking

The environmental harms caused by coca cultivation, cocaine production and trafficking are multifaceted. The link between coca cultivation and deforestation is complex and influenced by a number of factors, such as conflict, poverty and insecurity, and past development projects (Dávalos, 2018; Dávalos et al., 2016; Negret et al., 2019). Fundamentally, removing vegetation from a patch of land in order to cultivate a single type of plant, in this case coca, has a negative effect on biodiversity, and can lead to erosion and soil depletion. The drive to maximise the yield of the coca bush often leads to the use of chemical fertilisers, herbicides and pesticides, resulting in the pollution of soils and risks contaminating rivers and underground water deposits. Likewise, aerial eradication of coca crops, through the spraying of herbicides such as glyphosate, can pose a severe threat to the environment as well as the health of local communities (Camacho and Mejía, 2017).

The chemical extraction of the cocaine alkaloid from coca leaves and the conversion to cocaine hydrochloride also has severe environmental consequences. Many of the chemicals used to process coca leaves into cocaine hydrochloride, including potassium permanganate and solvents such as acetone, toluene, kerosene and acids, are hazardous. The waste resulting from cocaine production is often simply dumped on the ground or in streams and rivers (EMCDDA and Europol, 2016). Many of these chemicals are also used in

cocaine extraction and processing facilities in Europe, where cocaine base is extracted from carrier materials and then processed into cocaine hydrochloride. The increased detection of these facilities may indicate rising negative environmental damage from cocaine processing in Europe.

The environmental impact of transporting cocaine between source countries and consumer markets is difficult to assess since bulk transatlantic trafficking mainly occurs via shipments of licit goods, thus contributing to the general environmental consequences of licit global supply chains. Considering the hundreds of tonnes of cocaine seized globally, the emissions related to cocaine transportation through the use of maritime and air freight, and also smaller aeroplanes and boats, could be considerable.

Europe and the global cocaine trade

TEASER TEXT STARTS:

Cocaine trafficking activities targeting the EU continue to intensify and diversify. Record levels of global cocaine production have been matched by record quantities of cocaine seized in Europe, reaching 214.6 tonnes in 2020. Belgium, the Netherlands and Spain account for over 70 % of this figure. Partial data show that the 2021 total will be even higher, with seizures amounting to 240 tonnes already reported by four European countries.

Most of the cocaine seized in the EU or in transit to Europe is transported by sea, primarily in containers. Cocaine is shipped directly from the main countries of production but also from neighbouring countries in South and Central America as well as the Caribbean. Brazil, Ecuador and Colombia were the main departure points in 2020 for cocaine seized in or destined for European ports.

Corruption is a significant facilitator of drug trafficking, particularly when it exploits maritime trade routes, and has been identified as a key threat in the EU.

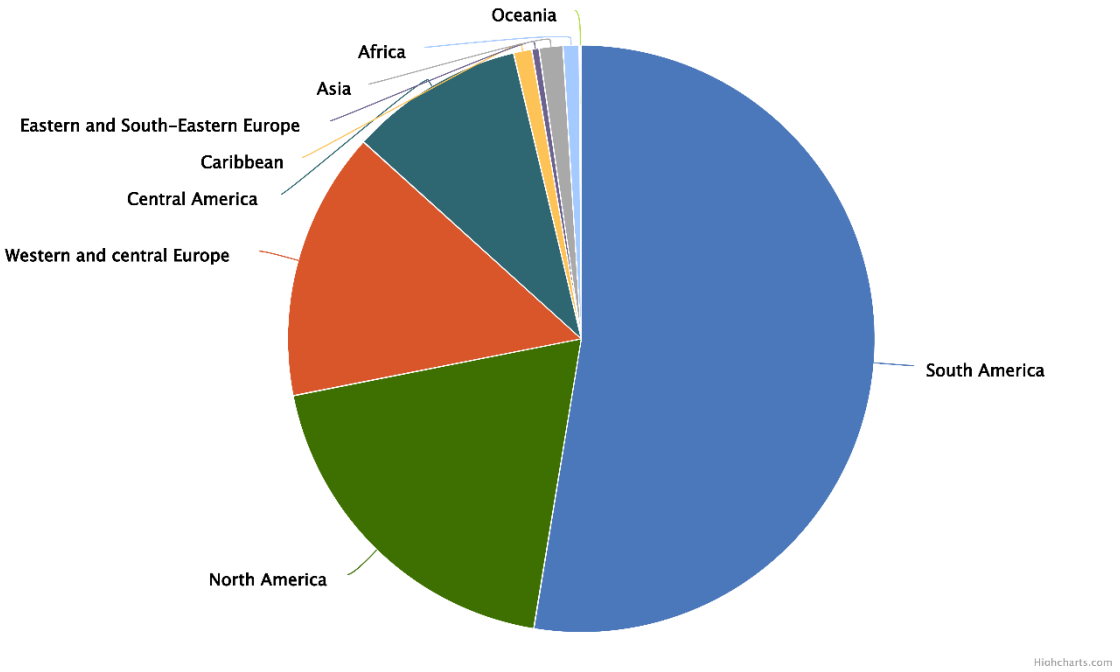
TEASER TEXT ENDS

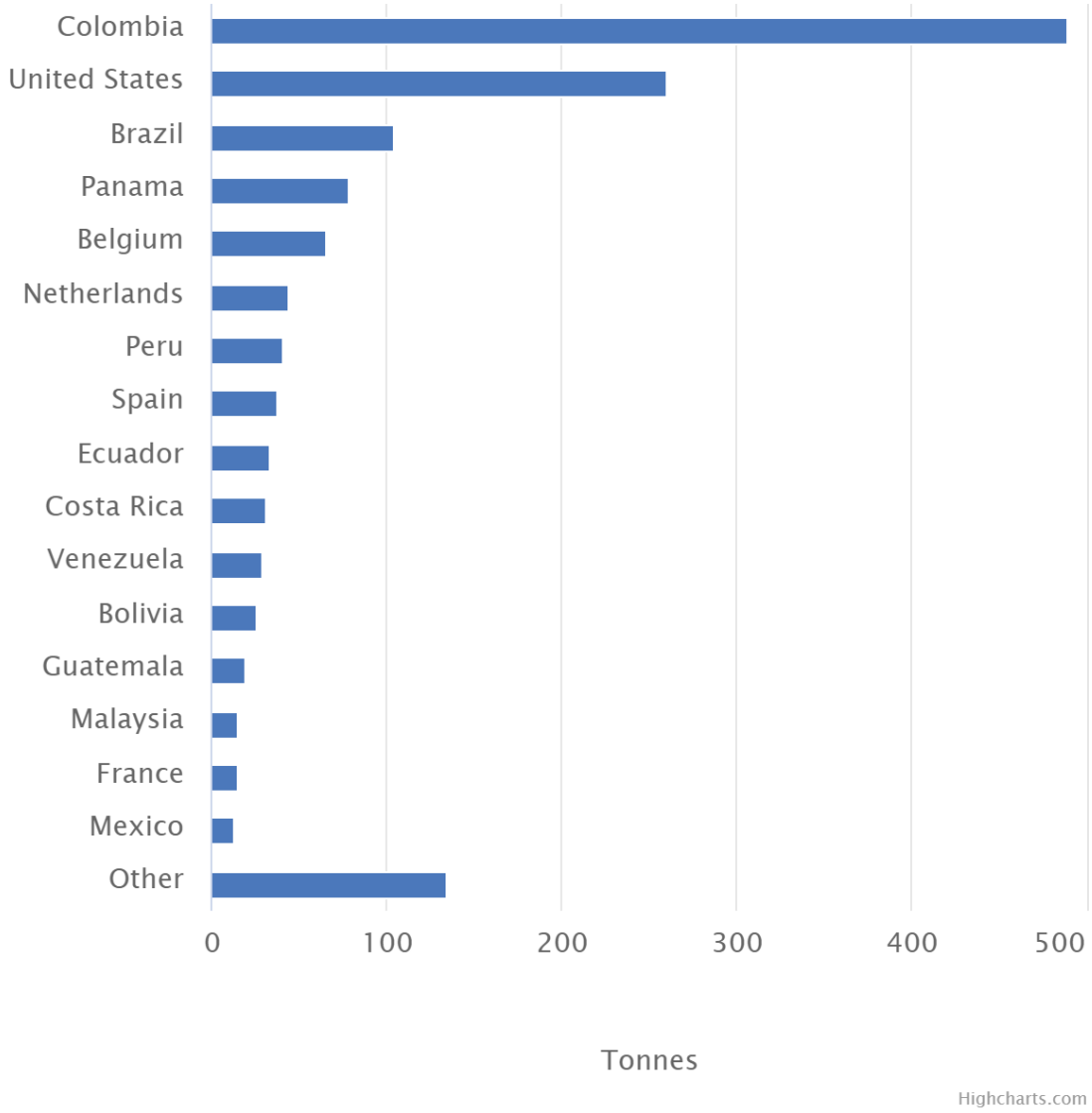
Much of our knowledge about cocaine trafficking routes results from law enforcement activity and intelligence. Information on types and quantities of drugs seized and information on the origin and destination of shipments give

indications of the main routes and modes of transport. However, such information is affected by factors such as law enforcement strategies, resources and priorities, as well as temporary changes to routes and practices in response to interdiction efforts or new opportunities. Hence, caution is needed in interpreting these data.

The 1 436 tonnes of cocaine seized worldwide in 2019 was the highest ever to be reported. Quantities of cocaine seized globally increased by more than 50 % between 2015 and 2019, and cocaine was the second-most seized drug globally after cannabis in 2019 (UNODC, 2021b). As in previous years, the vast majority of the global total was seized in the Americas, followed by western and central Europe. Although small in comparison with the Americas and Europe, quantities seized in emerging cocaine markets in Africa and Asia also reached record highs in 2019 (UNODC, 2021a) (**Figure 2).**

Figure 2. Global quantity of cocaine seized, breakdown by world region and country, 2019





Source: *World drug report 2021, Booklet 4 - Drug market trends: Cocaine, Amphetamine-type stimulants*, UNODC, Vienna.

Trafficking cocaine to Europe

The intensification and diversification of cocaine trafficking activities targeting the EU have continued since the last EU Drug Markets Report (EMCDDA and Europol, 2019). Record levels of cocaine production have been matched by record quantities seized, especially from containers handled in the numerous ports along the transatlantic cocaine routes.

Container trafficking fosters proliferation of points of departure

Most of the cocaine seized in the EU is transported by sea, primarily in maritime shipping containers. Cocaine is shipped to the EU directly from the countries of production but also from neighbouring countries of departure in South and Central America as well as the Caribbean. Based on quantities of cocaine seized in European ports and in ports elsewhere destined for Europe (see box **'Detailed analysis of cocaine seized in or destined for EU'**), Brazil (about 71 tonnes), Ecuador (67.5 tonnes) and Colombia (about 32 tonnes) were the main departure points in 2020, as they have been for some years, followed by Costa Rica (20.4 tonnes). The latter is a relative newcomer in the top countries of origin for shipments destined for Europe, confirming that Central America now has a more significant role (EMCDDA and Europol, 2019). This is likely to reflect a diversification of trafficking routes within the Americas. In total, 25 countries in the Americas reported seizures of cocaine with Europe as the intended destination in 2020. In addition to the countries previously listed, also mentioned are Paraguay (13.3 tonnes) Guyana (13 tonnes), the Dominican Republic (7.2 tonnes), the United States (5.5 tonnes), Chile (5.1 tonnes), Venezuela (5 tonnes), Peru (4.8 tonnes) and Panama (4.4 tonnes). The extensive use of maritime containers to smuggle cocaine from countries of production in South America is making it increasingly difficult to differentiate between 'departure' and 'transit' areas in the Americas.

Transhipment points

There have traditionally been two main areas through which maritime and air shipments of cocaine transit en route to Europe: the Caribbean, and the West African mainland and neighbouring islands of Cape Verde, Madeira and the Canaries. While these are likely to remain significant transit areas, there are indications that North Africa continues to grow in importance and that transhipment through the Western Balkans, while remaining more limited in scope, may also have increased.

From the Caribbean, cocaine is typically shipped on pleasure craft via the Azores, or by air, either on direct flights or via a variety of transit points. In 2019 cocaine seizures in the Caribbean region amounted to 14 tonnes, or about 1 % of the global total, but it is difficult to ascertain what proportion of this total was destined for Europe (UNODC, 2021a).

The quantities of cocaine seized in the West African mainland and neighbouring islands, together with those seized in Europe coming from the region, appear to be small in comparison to the amounts seized at departure points in the Americas. Data reported at the international level indicate that cocaine seizures in West Africa totalled 11.1 tonnes in 2019 (UNODC, 2021a), although this almost entirely reflects a single seizure of 11 tonnes in Cape Verde from a ship travelling to Tangiers, Morocco, in January 2019. The cocaine in this case was probably destined for Europe (EMCDDA and Europol, 2019). Alternative sources indicate that more cocaine was seized in West Africa in 2019 than reported to the UNODC. This includes a finding that more than 16 tonnes of cocaine was seized in the region that year, reversing the dearth of seizures recorded since 2013 (Bird, 2021). In 2020, several seizures of relatively large quantities were reported to the UNODC (2021a) by Côte d'Ivoire (991 kilograms), Senegal (796 kilograms) and Benin (601 kilograms), while data on cocaine seized at ports indicate that about 1.8 tonnes intended for Europe was seized in two separate events, one from Sierra Leone seized in Antwerp (1.25 tonnes), and one seized in Cotonou, Benin (0.5 tonnes). Large seizures were also reported in 2021. This includes a shipment of 2.9 tonnes in a maritime container at Banjul port, Gambia, in January 2021, where 118 bags of cocaine were found concealed within a cargo of industrial salt (Bird, 2021). According to media reporting, Gambian drug authorities were searching for the owner of the consignment, a French national, in connection with the incident (News24, 2021; Reuters, 2021).

North Africa is strategically located at a crossroads between Europe, West Africa and the Middle East. Although considerably less cocaine was seized in North Africa (1.8 tonnes) in 2019 than in West Africa (UNODC, 2021a), cocaine smuggling through North Africa, often taking advantage of pre-existing cannabis routes between Morocco and Europe, was identified as an issue many years ago (UNODC, 2007). However, developments in the last four or five years suggest that the region, particularly its coasts on the Atlantic and the Mediterranean, is a growing transit and storage hub for cocaine both arriving by sea directly from South America and coming via West Africa by land for onward transport to Europe or elsewhere, for instance the Middle East (EMCDDA and Europol, 2019; GI TOC, 2022).

The main cocaine hub of North Africa is probably Morocco. The country has traditionally seized the largest quantities of cocaine in the region, which

continued in 2019 with seizures totalling 1.5 tonnes, more than 80 % of the reported North African total (UNODC, 2021a). There are indications that the 2021 Moroccan total could be even higher. For instance, in October 2021, more than 1.3 tonnes of cocaine was reported seized in the Tanger-Med port in northern Morocco. The drugs were concealed in a container on a ship that had departed from Brazil and was bound for Antwerp, Belgium, and Portbury, a middle-sized port in Bristol, United Kingdom (Kundu, 2021).

On a much smaller scale than Morocco, international cocaine trafficking activities in Algeria and Libya reported in the last edition of this report (EMCDDA and Europol, 2019; Micaleff, 2019) appear to have continued in the recent period. In 2019, Algeria reported seizing about 316 kilograms (UNODC, 2021a), while there are indications that Libyan seizures amounted to over 44 kilograms. In December 2020, there were two significant seizures from containers bound for Libya: one in Ecuador on a container bound for Libya and Syria (512 kilograms), and another in Malta from a container originating in Ecuador (612 kilograms) (Dixon, 2021). Algeria's second-largest cocaine seizure ever occurred at sea in June 2021, when 490 kilograms of the drug was found floating by local fishermen 6 nautical miles (11 kilometres) off the port city of Oran (Franceinfo, 2021). This area is a known hub for the transhipment of drugs at sea, particularly cannabis resin from Morocco, on ships bound for Europe or Libya, while significant quantities of cocaine have been seized in the port of Oran recently (Ben Yahia and Farrah, 2019). It is likely that the cocaine was not intended for local consumption in Algeria, but was destined for Europe or the Middle East, perhaps via Libya (GI TOC, 2022a).

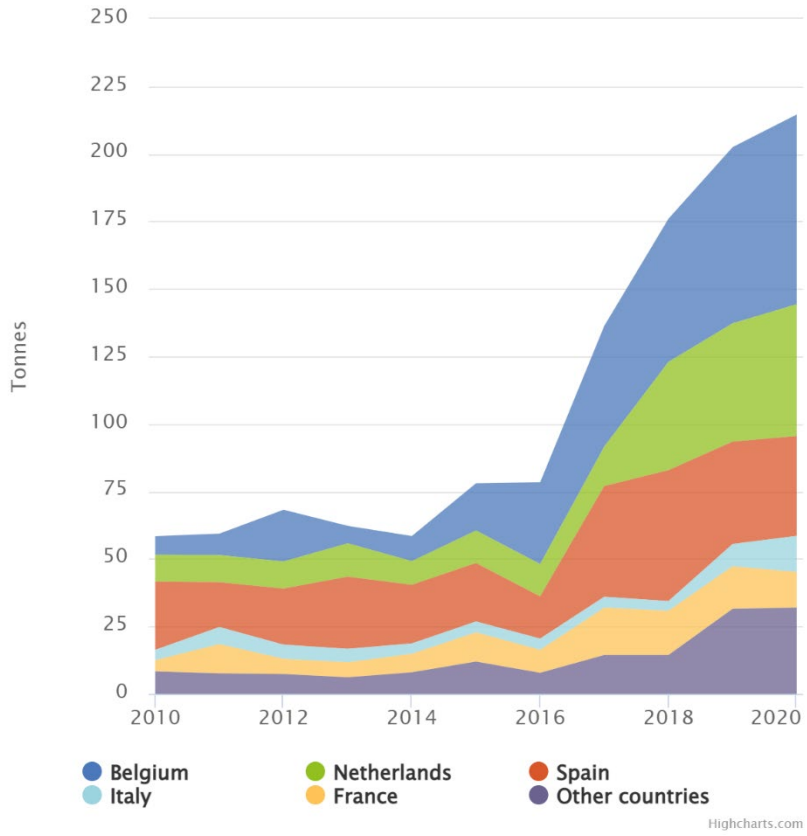
Although there have been some fairly large seizures of cocaine in the Western Balkan region in recent years (EMCDDA and Europol, 2019), the data continue to suggest that, overall, the region's cocaine smuggling is more limited in scope than in western Europe, where the main entry points for cocaine are located. For instance, non-routine data reported by the European Border and Coast Guard Agency (Frontex) on drug seizures at a number of border posts between the EU and the Western Balkans in 2019 and 2020 indicate that comparatively small amounts of cocaine enter the EU from that region. Meanwhile, Frontex data confirm the large quantities of cocaine seized in Spain, a traditional entry point for cocaine into the EU (Frontex, 2021). Nevertheless, individual seizures in 2020 and 2021 could suggest that cocaine trafficking through ports in the Western Balkan region, particularly in Albania and Montenegro, may have

increased. For example, 143 kilograms was seized in the port of Durres, Albania in April 2021 (Exit.al, 2021), while 1.4 tonnes was seized in August 2021 and 500 kilograms in January 2022 in the port of Bar, Montenegro (Kajosevic, 2022). Montenegrin authorities also suspect that more than 3 tonnes were smuggled through the port of Bar in the second half of 2021 (Kajosevic, 2022). Furthermore, Kosovo seized a shipment of 400 kilograms of cocaine in May 2021 after it had been smuggled through the Albanian port of Durres (Halili, 2021).

Record cocaine quantities seized in Europe

For the fourth consecutive year, record amounts of cocaine were seized in Europe in 2020. At 214.6 tonnes, this represents a 6 % increase from 2019 (**Figure 3**). Three countries, Belgium (70 tonnes), the Netherlands (49 tonnes) and Spain (37 tonnes), accounted for about 73 % of the estimated European total, but large quantities were also seized by Italy (13.4 tonnes), France (13.1 tonnes), Germany (11 tonnes) and Portugal (10 tonnes). Seizures in Belgium, the Netherlands, Italy, France and Germany in 2020 were the highest on record (Figure 3). Meanwhile, new records were also established elsewhere in 2020, including Greece (1.8 tonnes) and east European countries not traditionally associated with cocaine trafficking or consumption, such as Bulgaria (1 tonne), Poland (3.9 tonnes) and Turkey (2 tonnes). This indicates that entry points of cocaine shipments are diversifying and that cocaine consumer markets are developing in eastern Europe including Turkey (see **Cocaine retail markets: multiple indicators suggest continued growth and diversification**).

Figure 3. Quantities of cocaine seized in Europe, 2010-2020



Data available for a few key countries indicate that even larger quantities of cocaine were seized in the EU in 2021. For instance, data on cocaine seizures in Belgium indicate that almost 92 tonnes of cocaine was seized in 2021, almost all in the port of Antwerp. If seizures made elsewhere of shipments that were destined for Antwerp are taken into account, then close to 194 tonnes of cocaine was seized in connection with Antwerp in 2021 (Belgian Federal Police, personal communication). Similarly, the Netherlands (73 tonnes), Spain (56 tonnes) and France (more than 19 tonnes) seized new record quantities of cocaine in 2021 (Douane, 2022; Openbaar Ministerie, 2022). Taken together, the available data indicates that these four key countries seized more than 240 tonnes of cocaine in 2021, exceeding the previous record European total (214.6 tonnes) in 2020.

Main transportation methods

Cocaine traffickers flexibly use a wide range of innovative trafficking methods, which evolve over time in response to enforcement efforts and other factors. Although cocaine also enters the EU by air, the main route used to smuggle the

drug into Europe is still the maritime route from South America to western Europe, especially taking advantage of the licit containerised trade. Maritime transport allows the smuggling of large quantities, and the nature of international commercial maritime traffic means that a vast number of routes can be and are used. In addition, smaller, private sailing boats or even semi-submersible vessels are capable of bringing in large quantities of cocaine in single shipments, entering Europe at many points (see box '**First two semi-submersible drug-smuggling vessels captured in Europe**').

BOX STARTS

First two semi-submersible drug-smuggling vessels captured in Europe

Semi-submersibles are custom-built drug-smuggling vessels designed for camouflage at sea, with most of their hull submerged under water, making detection more difficult. Most of these vessels seized over the past 10 years appear to have been built in remote areas of the Amazon region, for instance in Colombia. They have been used in the Americas for trafficking tonnes of cocaine at a time, particularly in the Pacific Ocean from Colombia and Ecuador towards Central America and Mexico.

Until recently no such vessel had been captured in Europe, although they were identified as a potential threat in the previous edition of the EU Drug Markets Report (EMCDDA and Europol, 2019). Since then, however, two law enforcement operations in Spain in 2019 and 2021 have shown not only that semi-submersibles can be used to smuggle cocaine from South America to Europe, but also that they can be built in Europe. In the first case in November 2019, a semi-submersible was captured after experiencing problems that forced its three crew members (one Spanish and two Ecuadorian nationals) to abandon and attempt to scuttle the vessel off the Galician coast. The dangerous one-month journey started on the Amazon river, entering the Atlantic Ocean in Brazil and eventually approaching the European mainland. The vessel contained 3 tonnes of cocaine hydrochloride, which were seized along with the vessel itself (CITCO, communication to the EMCDDA; Ortega et al., 2019).

The second case was in February 2021, when a European-made semi-submersible was found in a warehouse in Málaga, Spain, in a multinational law enforcement operation. During the investigation, 3 tonnes of cocaine, 700 kilograms of cannabis resin and 6 tonnes of precursor chemicals were also

seized. The boat was under construction when it was found; it was 9 metres long and estimated to have capacity for carrying up to 2 tonnes of drugs. Such a vessel could have been used to smuggle cannabis resin from North Africa to Europe or even cocaine from mother ships waiting in the Atlantic Ocean (Europol, 2021b; Guy, 2021).

BOX ENDS

Criminal networks involved in cocaine trafficking now also more frequently employ methods of transport such as mother ships, pleasure craft, fishing vessels, cruise ships and the drop-off method. Sophisticated concealment methods such as placing the illicit load in metal cylinders attached to the ship's hull are also encountered (**Figure 4**).

Major European container ports have recorded many seizures of large cocaine shipments in recent years. In addition to targeting major ports, organised criminal networks are now increasingly shipping larger amounts of cocaine from South America to smaller ports in the EU or neighbouring countries, where security measures may be easier to circumvent.

Corruption of maritime and aviation port employees and security officials throughout Europe is, in most cases, a key condition for the successful use of these facilities for cocaine importation by criminal networks.

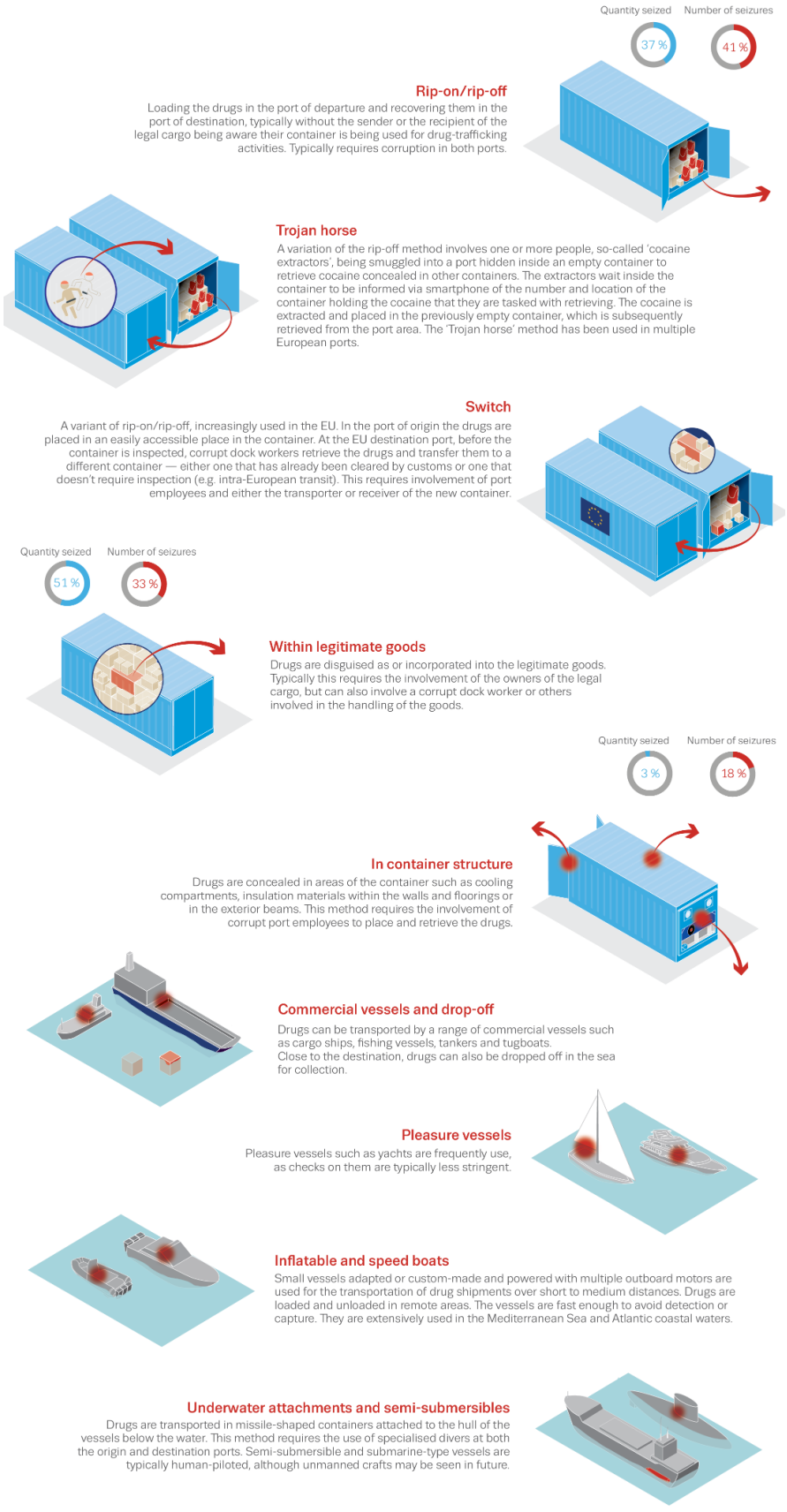
An analysis of the impact of the COVID-19 pandemic on EU drug markets concluded that cocaine trafficking via maritime routes had probably continued at levels comparable to or possibly even higher than those of 2019 (EMCDDA and Europol, 2020).

Exploitation of global logistics: European and Latin American ports

Most of the cocaine available in Europe continues to be smuggled into the largest container ports of the EU located in Belgium (Antwerp), the Netherlands (Rotterdam) and Spain (Valencia and Algeciras). In addition to Hamburg (Germany), ports in France (Le Havre, Dunkerque, Marseille), Romania (Constanta), and Italy (Gioia Tauro), for instance, have also become significant cocaine entry points. The German authorities have attributed the recent increase in seizures in the port of Hamburg to the activities of Balkan and Albanian-speaking organised crime networks (BKA, 2021).

The use of these ports shows how criminal networks continue to exploit established commercial maritime routes between Latin America and Europe to smuggle cocaine into the EU. Taking advantage of the large volume of containerised trade in goods between the two regions, criminal networks are able to conceal large quantities of cocaine in individual shipments. As a result, the main European container ports have recorded increasing numbers of large-volume cocaine seizures in recent years. While these main container ports continue to be targeted, it is likely that law enforcement activities at these facilities have pushed some criminal networks to find alternative smuggling routes, resulting in a recent intensification of cocaine shipments to smaller ports in the EU or in neighbouring countries where security measures may be viewed as easier to evade.

Figure 4. Maritime trafficking: diversification of modus operandi



BOX STARTS

Detailed analysis of cocaine seized in or destined for EU ports

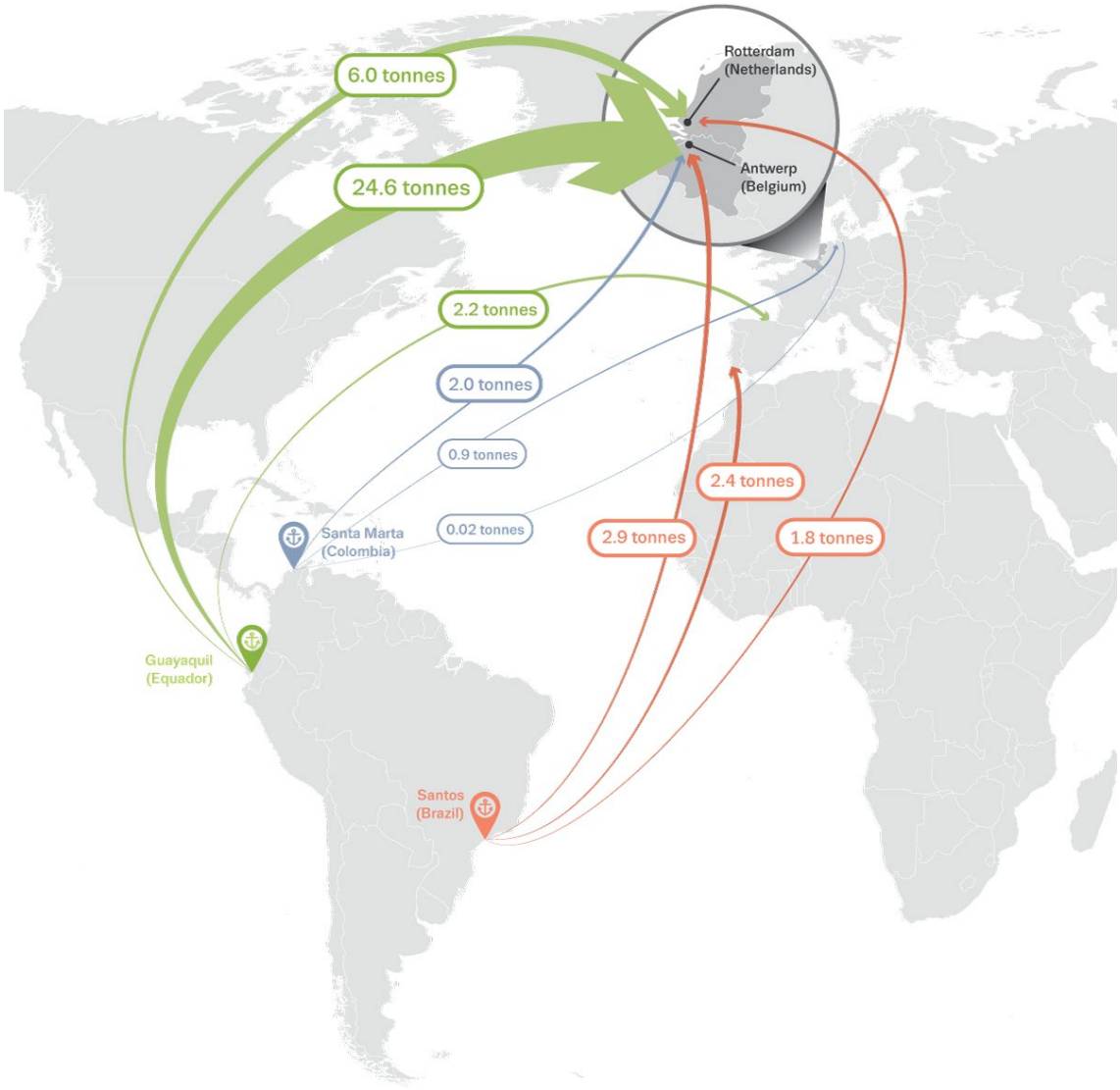
Two detailed datasets shared with the EMCDDA have enabled in-depth analysis about cocaine shipments intended for or seized in EU ports. One was provided by the Belgian Federal Police, covering the 2018-2021 period, and another was provided by customs authorities responsible for the MarInfo database, covering 2020.

The combined dataset contains records of 520 cocaine seizures in 2020 from 12 EU Member States (Belgium, Bulgaria, Denmark, France, Germany, Greece, Italy, Malta, Netherlands, Poland, Portugal, Spain) and three non-EU European countries (Russia, Ukraine, United Kingdom). Combined, they represent a total of 282 tonnes of cocaine seized in 75 different ports, distributed as follows:

- 301 seizures (171 tonnes) from 35 ports in the EU;
- 11 seizures (2 tonnes) from 6 ports in non-EU European countries;
- 206 seizures (108 tonnes) from 32 ports in Latin America;
- 1 seizure (0.5 tonnes) from 1 port in Africa;
- 1 seizure (0.5 tonnes) from 1 port in North America.

BOX ENDS

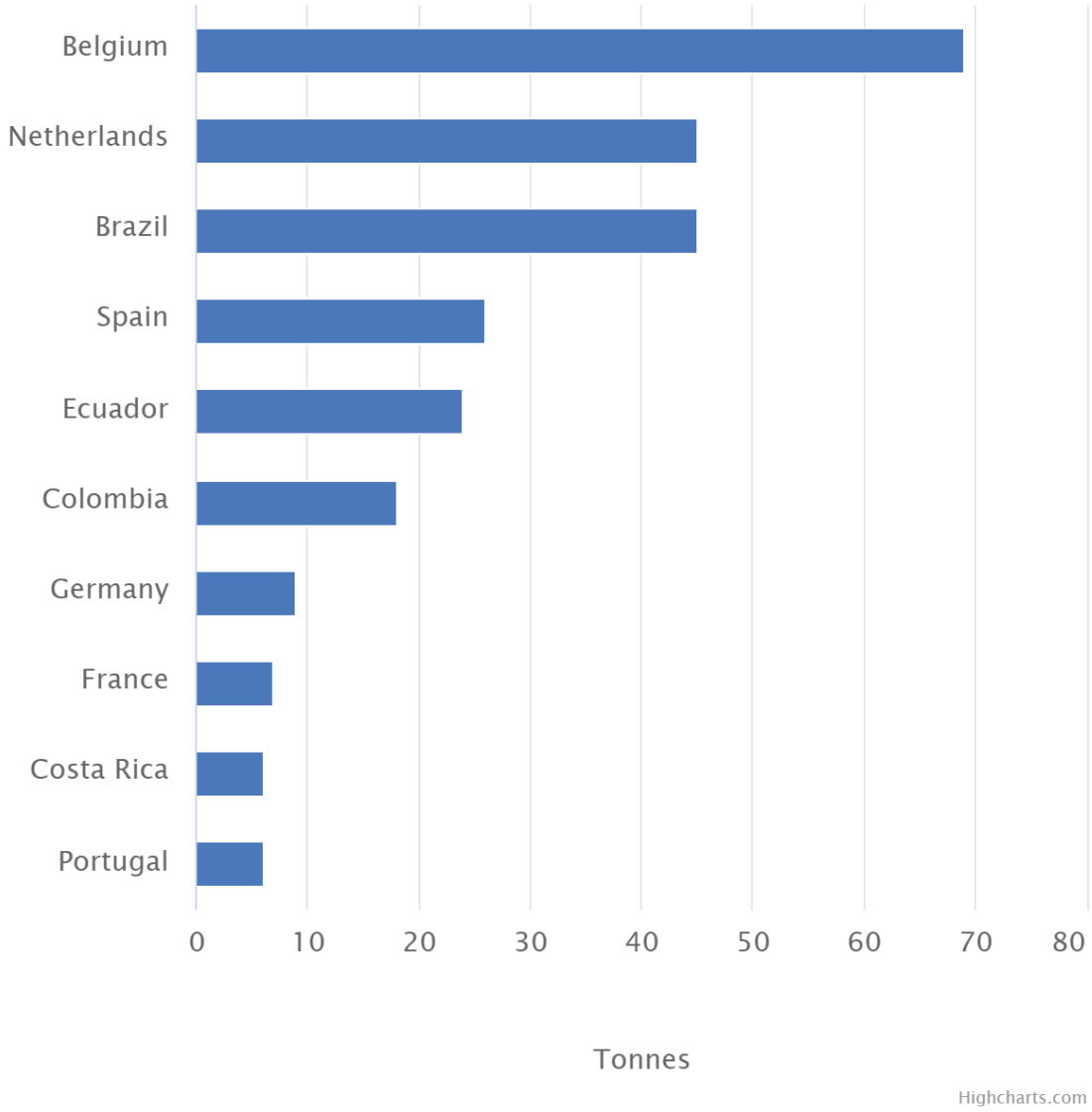
Figure 5. Main trafficking connections between Latin American ports and EU ports in 2020 (based on quantities and numbers of seizures reported by EU ports)



The available data suggest that cocaine trafficking towards the EU continued during the COVID-19 pandemic without any apparent disruption. At least 282 tonnes of cocaine destined for Europe was seized in 2020. Some 108 tonnes was seized at departure ports located in Latin America, and approximately 171 tonnes was seized at EU ports. As in previous years, the largest quantity of cocaine in the EU was seized in Belgian ports (69 tonnes),

followed by Dutch (45 tonnes) and Spanish ports (26 tonnes). In Latin America, the largest amount was seized at ports in Brazil (45 tonnes), Ecuador (24 tonnes) and Colombia (18 tonnes) (**Figure 6**).

Figure 6. Top 10 countries for quantity of cocaine destined for Europe seized at ports in 2020

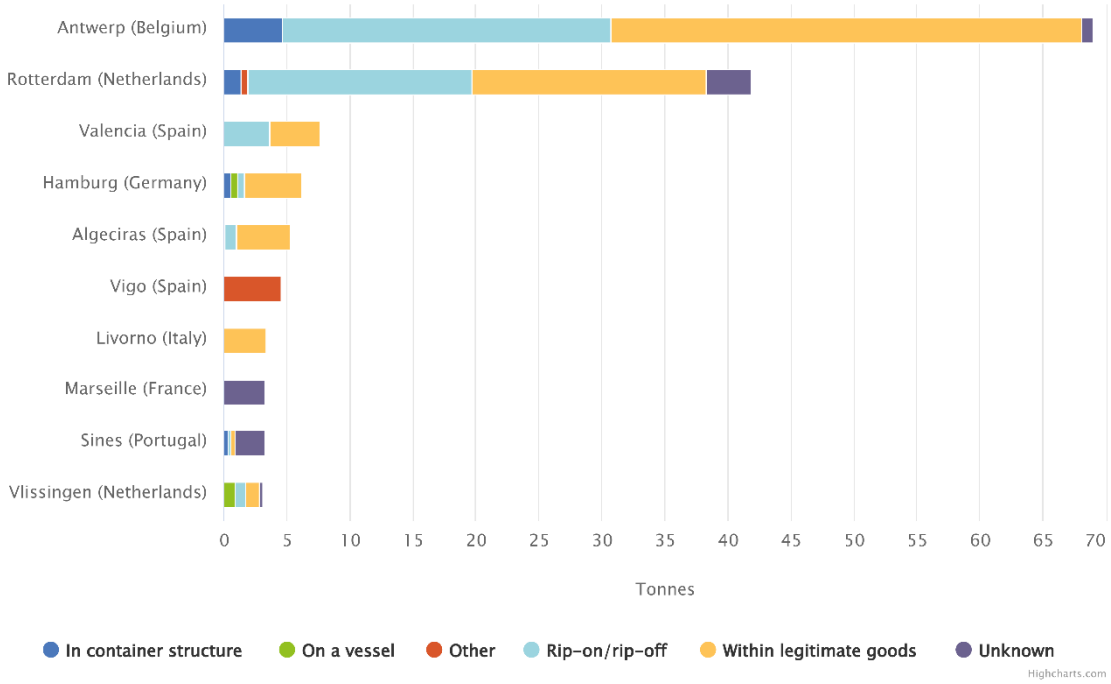


Source: EMCDDA analysis of cocaine seized at or destined for EU ports, Belgian Federal Police and MarInfo, 2018-2021.

Antwerp and Rotterdam accounted for almost 65 % of the cocaine seized in all EU ports in 2020 (69 tonnes and 42 tonnes, respectively). Further analysis confirms a trend identified in the previous edition of this report (EMCDDA and Europol, 2019), namely that criminal networks continue to attempt to circumvent

controls by targeting smaller ‘secondary’ EU ports, such as Vigo (Spain), Livorno (Italy), Sines (Portugal) or Vlissingen (the Netherlands), where profiling and control measures might be viewed as easier to overcome. A total of 60 tonnes of cocaine was seized in such secondary EU ports in 2020 (Figure 7).

Figure 7. Top 10 EU seizing ports for quantity of cocaine, 2020

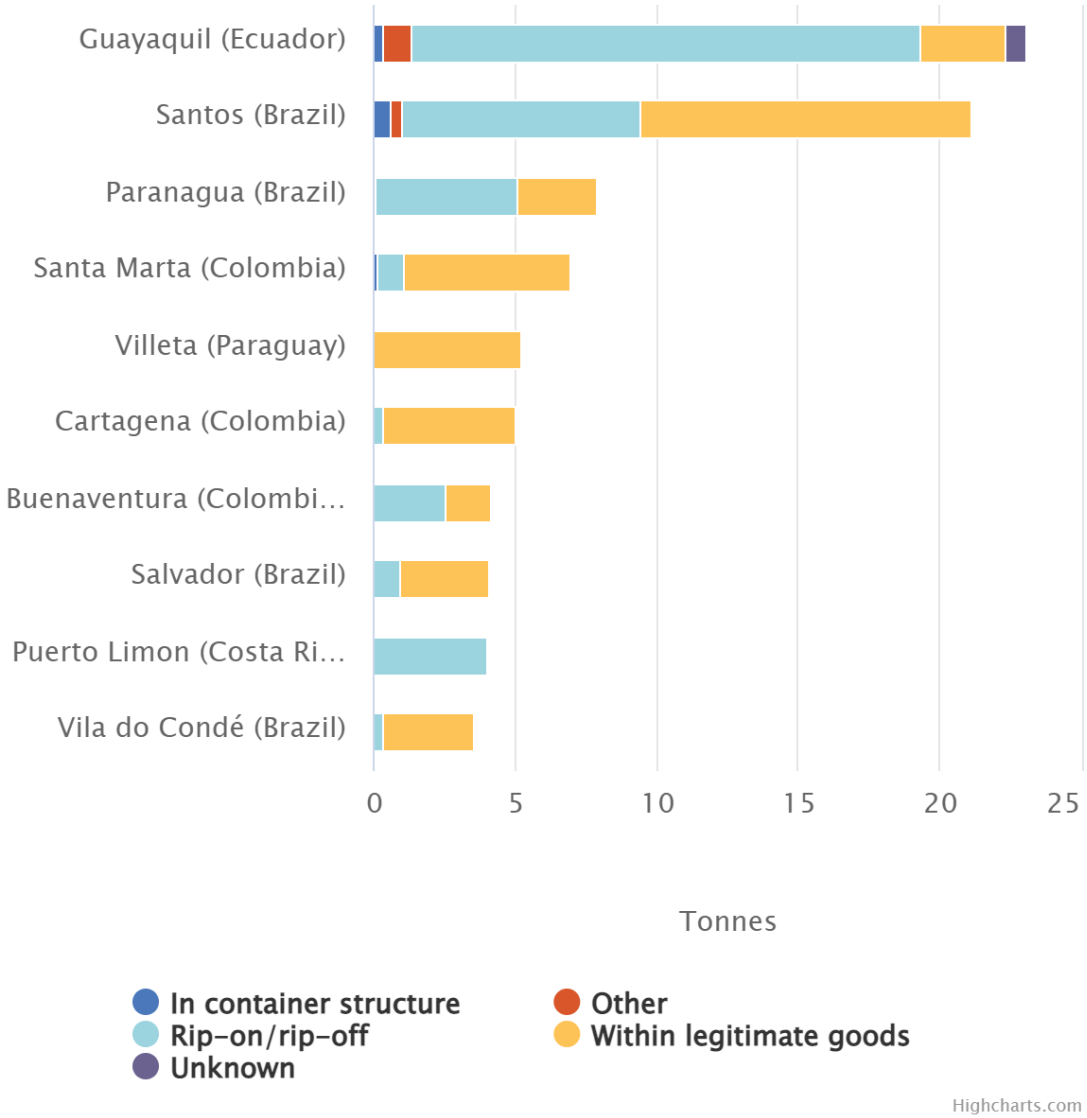


Source: EMCDDA analysis of cocaine seized at or destined for EU ports, Belgian Federal Police and MarInfo, 2018-2021. For a description of different concealment methods, Figure 4.

The available data indicates that in Latin America, the largest quantities of cocaine destined for Europe were seized in Guayaquil, Ecuador (23 tonnes), and Santos, Brazil (21 tonnes). If all seizures departing from these ports are taken into consideration, totalling about 61 tonnes shipped from Guayaquil and 31 tonnes from Santos, it becomes clear that these two ports are used intensively by cocaine trafficking criminal networks.

As observed in the EU, trafficking networks also use an increasingly wide range of secondary ports in Latin America, including Turbo and Buenaventura, Colombia, Villeta, Paraguay, and Vila do Condé, Brazil, presumably in an attempt to avoid detection (Figure 8).

Figure 8. Top 10 Latin American seizing ports for quantity of cocaine destined for the EU, 2020

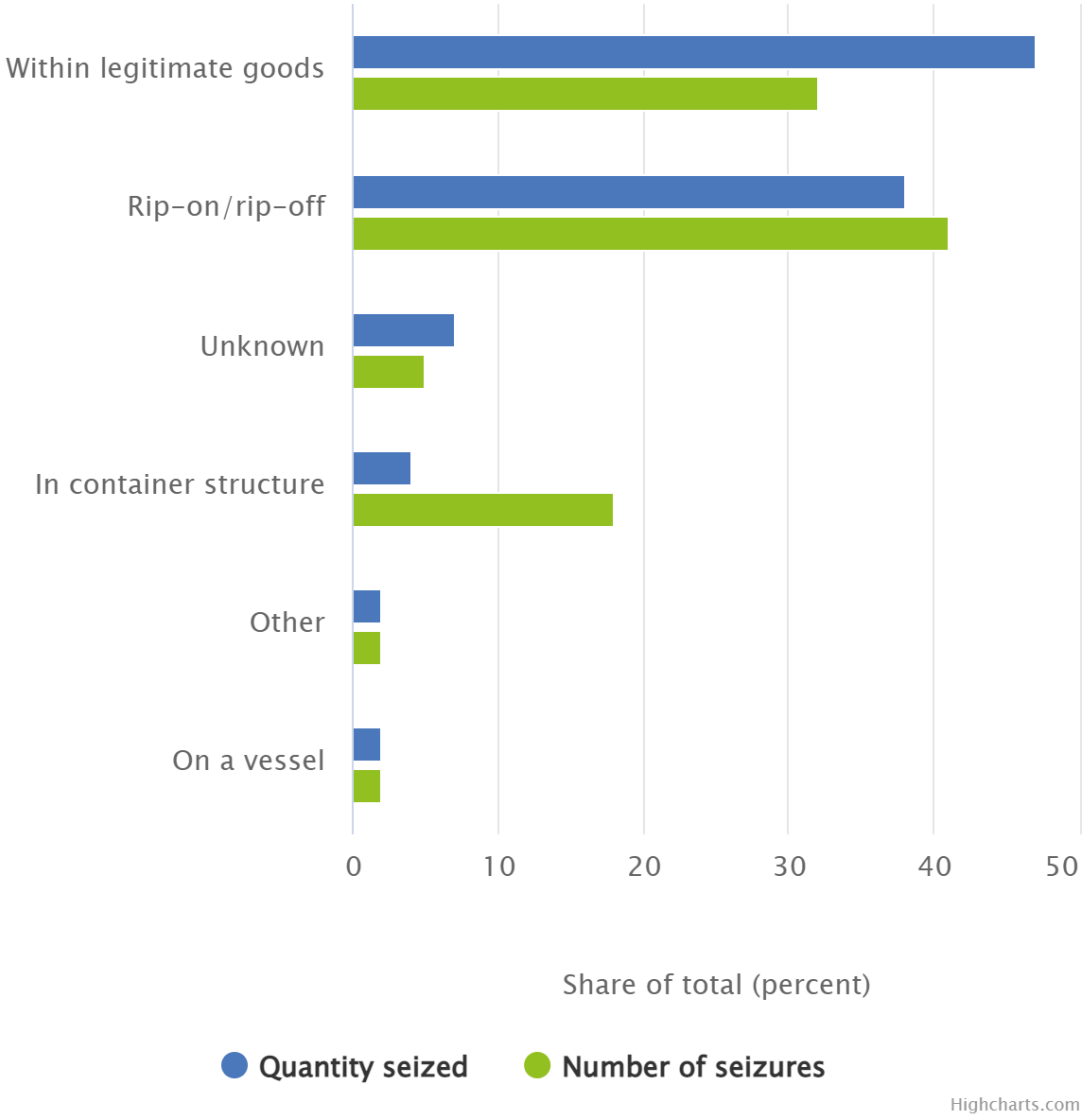


Source: EMCDDA analysis of cocaine seized at or destined for EU ports, Belgian Federal Police and MarInfo, 2018-2021. For a description of different concealment methods, Figure 4.

Analysis of concealment methods emphasises some key features that enable large quantities of cocaine to be smuggled to the EU. Criminal networks are creative and appear to be able to rapidly adapt to avoid detection, which explains why a range of modi operandi are implemented. However, the largest quantities of cocaine are smuggled using maritime containers and through two particular modi operandi: within legitimate goods and rip-on/rip-off. Most of the

cocaine seized in containers destined for the EU in 2020 was smuggled within legitimate goods (132 tonnes), followed by the rip-on/rip-off method (108 tonnes). Similarly, these methods have resulted in the largest numbers of individual seizures (212 rip-on/rip-off and 166 within legitimate goods) (Figure 9). The large number of rip-on/rip-off seizures is of particular concern as corruption is a key requirement for cocaine smuggling using this method (**see** Negative consequences: corruption in EU ports**).**

Figure 9. Quantity and number of cocaine shipments seized at ports in 2020: breakdown by concealment method

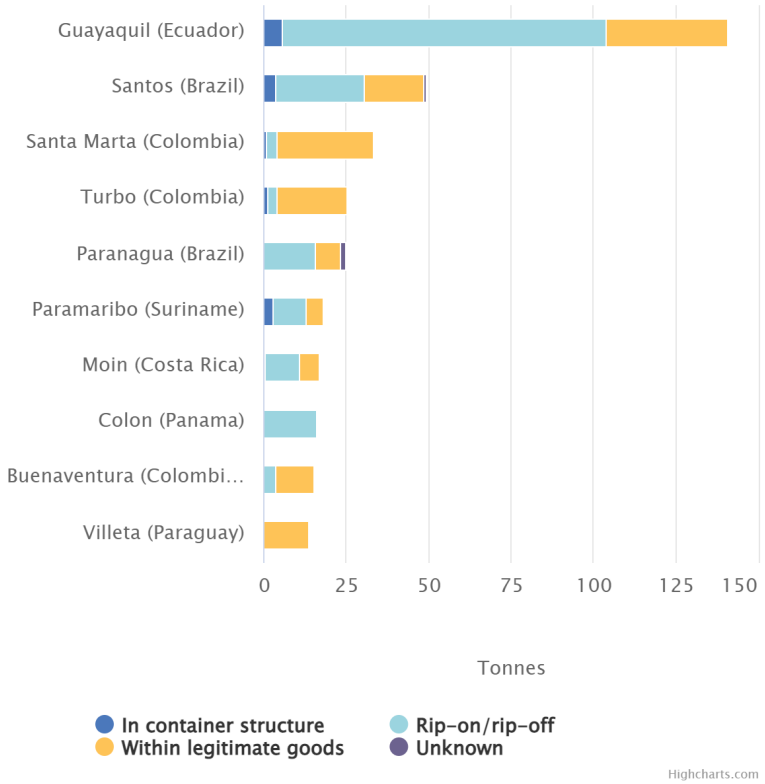


Source: EMCDDA analysis of cocaine seized at or destined for EU ports, Belgian Federal Police and MarInfo, 2018-2021. For a description of different concealment methods, Figure 4.

The data indicate that the port of Antwerp is probably the main entry point for cocaine smuggled into the EU. Europol intelligence suggests that most of the cocaine entering Antwerp is destined initially for the Netherlands, where further distribution is arranged.

Focusing exclusively on cocaine seized outside Europe and destined for Belgian ports in the 2018-2021 period, a variety of modi operandi can be observed in the 10 main shipping ports (Figure 10).

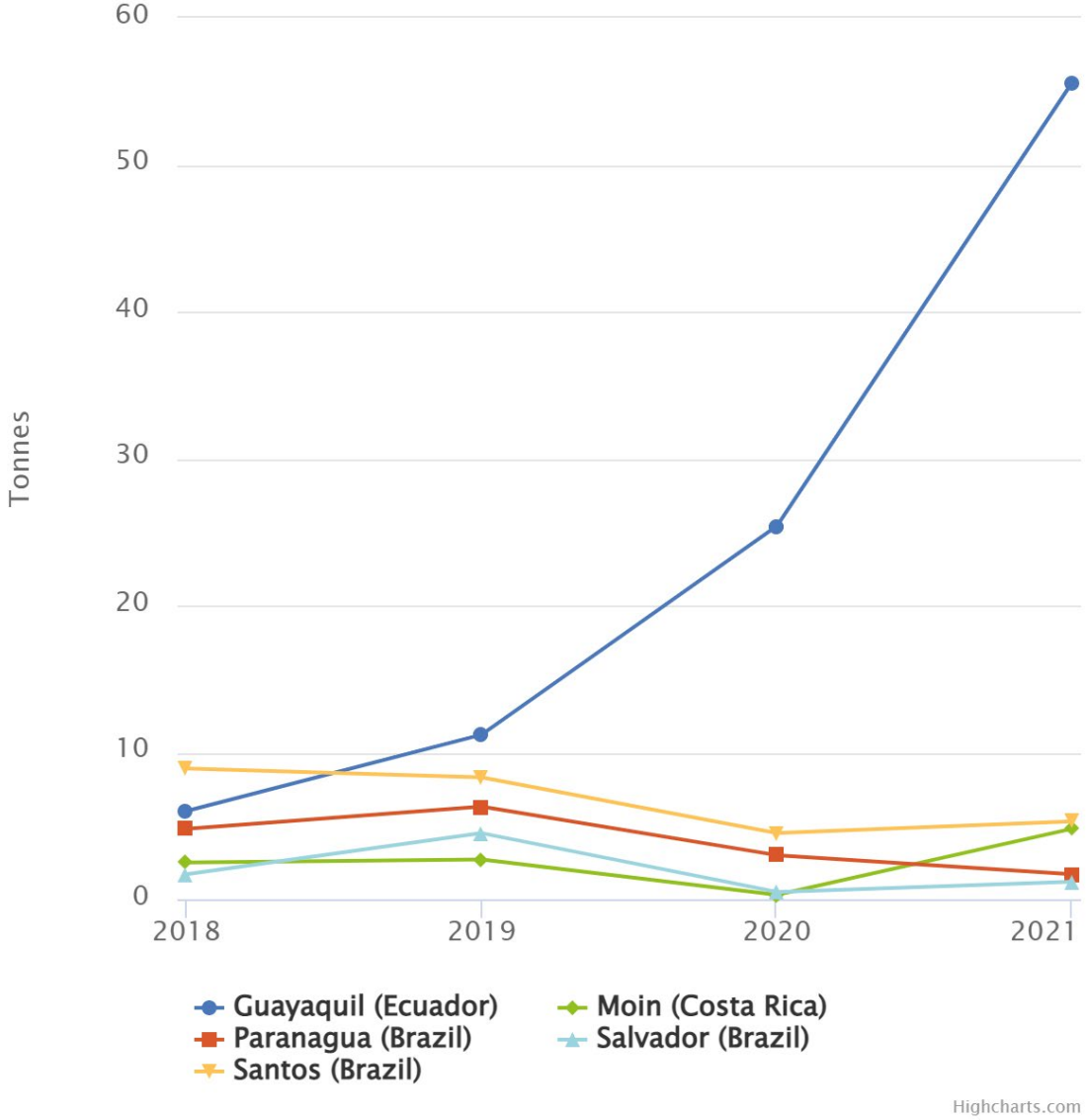
Figure 10. Top 10 source ports for quantity of cocaine destined for Belgian ports, seized in 2018-2021



Source: EMCDDA analysis of cocaine seizure data from Belgian Federal Police. For a description of different concealment methods, Figure 4.

A striking development has been the increase in the quantities shipped from Guayaquil, the largest container port in Ecuador, towards Antwerp using the rip-on/rip-off method, from 6 tonnes in 2018 to almost 56 tonnes in 2021. The reasons for this are unclear and require additional research and closer monitoring. That said, Ecuador, which shares land borders with both Colombia and Peru, two of the main cocaine-producing countries, seems to have transformed in the last decade or so from a transit country into a major trafficking hub. Furthermore, it is now also reportedly emerging as a cocaine-producing country (Pichel, 2021). Such transformation is thought to have fuelled recent violence between local gangs rumoured to be used by important cocaine trafficking networks from Colombia and Mexico. A recent surge in assassinations, which nearly doubled between 2020 and 2021, including violent prison gang riots in which hundreds of inmates died in 2021, are reportedly linked with cocaine trafficking in the country, particularly in the port of Guayaquil. Media sources report that cocaine seizures have increased dramatically in the country in recent years, from 82 tonnes in 2019, to 128 tonnes in 2020 and 210 tonnes in 2021 (Dalby, 2021; Pichel, 2021; Rosero, 2022) (Figure 11).

Figure 11. Top five source ports for cocaine seized while smuggled using the rip-on/rip-off method destined for Belgian ports, 2018-2021



Source: EMCDDA analysis of cocaine seized at or destined for EU ports, Belgian Federal Police and MarInfo, 2018-2021. For a description of different concealment methods, see 'Figure 4. Only the top five ports with data available for all years are shown.

Negative consequences: corruption in EU ports

Corruption has been identified as a key threat in the EU in the latest EU SOCTA report (Europol, 2021a), with almost 60 % of criminal networks estimated to use corruption as a facilitator. Operations supported by Europol have exposed the role played by corruption in the functioning of drug markets in Europe, a factor

that may have been underestimated in the past. Corruption is a crime enabler for all types of criminal activities and is a significant facilitator of drug trafficking activities. In this regard, corruption is used by traffickers to gain entry to ports, to access drugs hidden in containers, to set up or ensure control over businesses used as covers for smuggling activities, such as renting transport vehicles or storage premises, and also to facilitate money laundering, among others.

Indeed, various modi operandi used to smuggle cocaine through EU ports require corruption, and recent investigations in some EU ports have provided valuable insights on the methods used by criminal networks to retrieve cocaine shipments from containers in the EU. Of course, the threat of corruption is not restricted to EU ports, since it is also used in most other ports targeted by criminal groups globally.

Of particular concern is the large number of cocaine seizures involving the rip-on/rip-off method, which suggests that criminal networks have well infiltrated ports both in source countries in Latin America and destination countries in the EU (**Figure 4)**. Corruption is indispensable to smuggling using the rip-on/rip-off method, as criminal actors in departure ports must obtain the assistance of port actors to identify a container that will be shipped to a port of interest in the EU. This entails obtaining the container's individual number, the number of the customs seal attached to it and the container's location within the port facilities. Subsequently, criminal actors will need to introduce the drugs into the container and replace the seal that has been broken during this process with a counterfeited one. Usually, this operation takes place after customs have cleared the container. In the destination port, the criminal network will, again, need inside help and information as they usually require the targeted container to be placed in a specific location in order to facilitate access to it, for instance on the ground and with unimpeded access to the doors. Additionally, they must receive confirmation that the container has been placed in the desired location and, depending on the type of rip-off method used, extract the cocaine from the container and transport it outside the port area.

Other modi operandi may also require corruption as a facilitator. This is the case, for example, when concealing drugs in the container structure, frequently in the cooling compartment, which requires similar actions as the rip-on/rip-off method; or when using the drop-off method, which requires help from the vessel's crew members to pick up the drugs in Latin America, or from a mother

ship somewhere in the Atlantic, and throw them in the water close to a desired shore in Europe. Concealing cocaine within shipments of legitimate goods can also use corruption, for instance in order to be informed and take necessary action if the container has been selected for physical inspection, or to receive customs clearance without such inspection.

According to a law enforcement official from Seaport Police, a unit of the Dutch Police, interviewed in the press in 2021, 220 acts of corruption involving staff from shipping companies were identified in the port of Rotterdam in the previous two and a half years (Driessen and Meeus, 2021).

An investigation that led to the seizure of 11.5 tonnes of cocaine in the port of Antwerp in 2020 brought additional information on corruption in EU ports. An ex-governor, a harbour master, three police officers and a lawyer were among the 22 suspects arrested during this operation (Eeckhaut, 2020). Workers in other large EU ports such as Le Havre, France, or Alicante, Spain, have been targeted by criminal networks and engaged to facilitate cocaine importation. Recruitment into corrupt activities is usually carried out by offering large sums of cash or other valuable assets and services, but can also be achieved using violence and intimidation (Gil, 2021). Kidnappings and murders of port workers have been reported in various EU ports in recent years (Auvray, 2020; Europol, 2021e).

Trafficking cocaine by air: a multitude of methods

Cocaine smuggling by air primarily involves the use of commercial passenger flights, cargo aircraft and general aviation (private aircraft). Fairly large shipments of cocaine are smuggled directly from South America and the Caribbean to western Europe by private business aircraft, and use of this method is expected to increase in the future. Stricter border controls and more effective security checks may encourage criminal networks to use secondary international airports and small airfields (see box '**Private jets: the Achilles heel in the fight against cocaine trafficking by air**?').

The COVID-19 crisis caused an unprecedented disruption to global air passenger transport, and as a result trafficking of cocaine by air passengers dramatically decreased in 2020 (EMCDDA and Europol, 2020). With some travel restrictions remaining in place and significantly reduced air passenger

traffic, it is likely that the use of air couriers will remain limited compared to the pre-COVID-19 period.

In the pre-pandemic period, smaller quantities of cocaine were smuggled using commercial flights. Couriers flew from airports in South and Central America and the Caribbean to major European airports, either directly or after stopovers in countries such as Morocco, Nigeria and the United Arab Emirates. In 2019, air couriers most frequently departed from Brazil, Peru, Colombia, the Dominican Republic and French Guiana (Council of Europe, 2020).

BOX starts

Private jets: the Achilles heel in the fight against cocaine trafficking by air?

Recent cocaine seizures involving private jets illustrate that this modus operandi continues to be used by criminal networks and provide additional evidence on the difficulties faced by law enforcement in investigating such cases.

For example, in July 2019, a Gulfstream V private jet loaded with 604 kilograms of cocaine departed from Uruguay and, after stopping in Nice, France, landed in Switzerland where the drugs were seized. The criminal network's modus operandi was to organise fake tourist trips to South America to conceal the real purpose of the flights (Dešković, 2020).

More recently, in February 2021, Brazilian authorities seized 578 kilograms of cocaine from a Falcon 900 private jet bound for Portugal. The drugs were discovered in the aircraft's fuselage after the pilot reported mechanical failures and asked for an inspection. The initial investigation could not produce any evidence on the involvement of the private jet crew members or passengers in the cocaine smuggling. Interestingly, another load of cocaine was discovered later, in July 2021, in the same aircraft by airport staff after the jet had landed at Tires Airport in Portugal (Observator.pt, 2021).

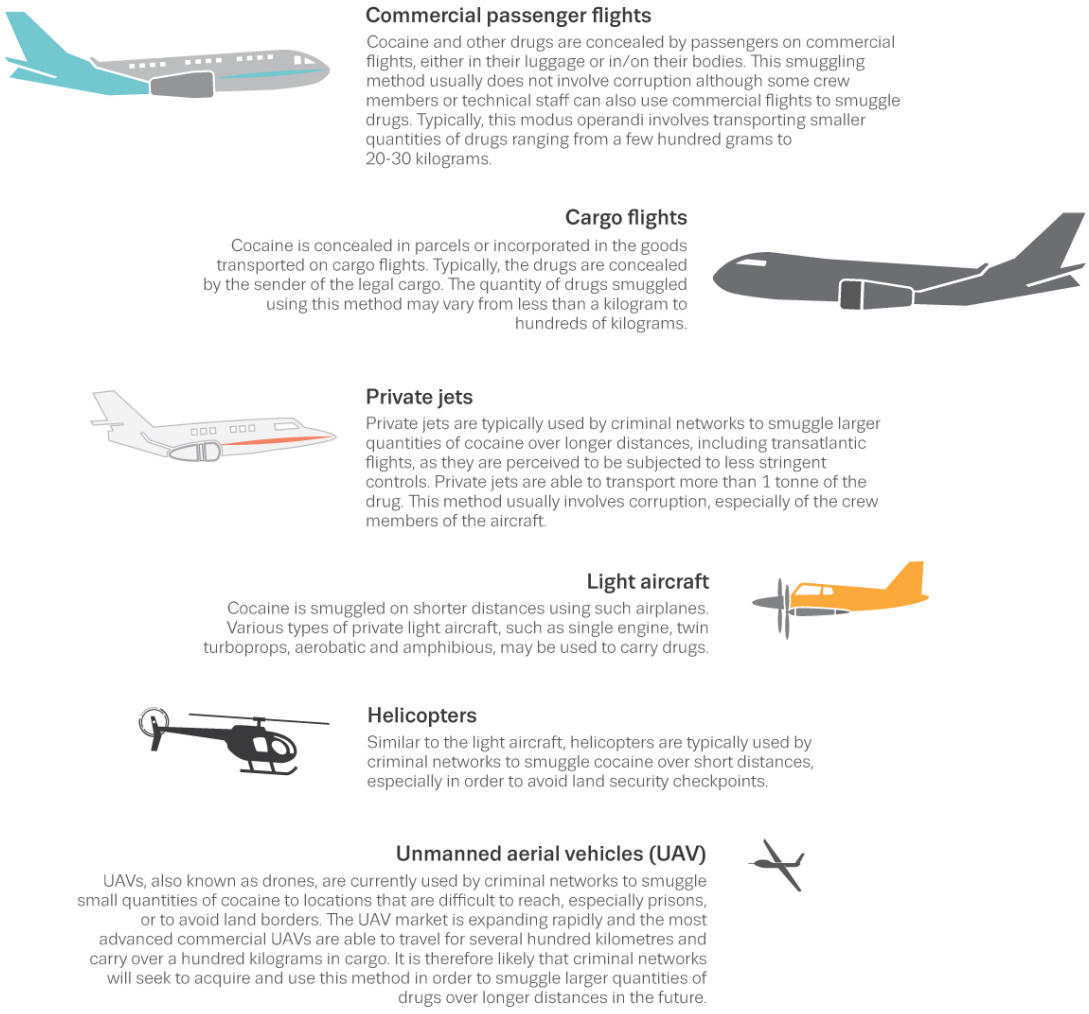
In August 2021, Brazilian authorities seized another 1.3 tonnes of cocaine from a private jet as it was departing from Brazil to Brussels Airport. This case involved a Gulfstream IV private jet that had flown from Spain to Brazil. Upon boarding the jet at Fortaleza airport, Brazilian law enforcement officers found 24

suitcases each containing 50 packs of cocaine totalling 1 304 kilograms. The cocaine was not otherwise concealed (Hope, 2021).

Travel regulations and security measures applying to private jets are not as strict as those applying to commercial passenger flights, and as such private jets are rarely subject to in-depth scrutiny at airports. It is apparent that criminal networks are well aware of this gap and continue to exploit it.

BOX ENDS

Figure 12. Modi operandi on air routes



Distribution within and via the EU

Cocaine trafficking affects all EU Member States (Europol, 2021a). After arrival at the main EU distribution hubs, cocaine shipments are primarily trafficked by road in passenger vehicles and lorries to local markets. Intra-EU trafficking of cocaine also involves commercial flights, light aircraft and helicopters, railway, sea transport, and post and parcel services. Cocaine loads are often hidden in sophisticated concealed compartments in cars, trucks and other vehicles, sometimes with shipments of other drugs. These compartments are also used to transport cash back to the distribution hubs.

The EU appears to have become an increasingly important transhipment point for cocaine destined for markets in the rest of Europe, Africa (GI TOC, 2022a), the Middle East and Asia (Europol, 2021a). In addition, Europol intelligence indicates that some European criminal networks orchestrate cocaine shipments directly from South America to Asia without the drugs ever entering the EU.

In 2020, cocaine was the most frequently seized substance from air couriers intercepted at European airports and the third most frequently detected drug at European mail centres, after cannabis and other psychotropic substances (Council of Europe, 2021).

The COVID-19 pandemic accelerated an expansion in the use of post and parcel services to fulfil orders placed online. Postal and parcel services are exploited for the distribution of drugs such as cannabis, cocaine, synthetic drugs (Council of Europe, 2020), new psychoactive substances, counterfeit currency, stolen and fraudulent documents, and many other illicit commodities. The distribution of illicit goods using post and parcel services is set to increase further in line with the expected growth of online retail activity.

Cocaine: increasingly attractive for a wider range of criminal networks

TEASER TEXT STARTS:

A large variety of individuals and crime networks shape the complex supply of cocaine to the EU. Crime networks involved in cocaine trafficking are highly resilient, and some have global reach. They cooperate to expand their activities and reach new markets, for example by sharing and outsourcing information

and services. Analysis of encrypted criminal communications through recent high-profile operations has shown that brokers play a key role within cocaine trafficking networks. They link crime networks with different expertise, acting as intermediaries between the field operators, other brokers, service providers and high-level criminals.

Information suggests a change in the nature of the growing number of violent incidents linked to the EU cocaine market, with criminal networks using violence in a more offensive way than in the past. Competition between suppliers has intensified, resulting in an apparent increase in the number of violent clashes, particularly in seaports and directed at port workers and officials. In some Member States, cocaine-related violence has also targeted lawyers, government officials and journalists.

TEASER TEXT ENDS

This section provides an overview of the criminal networks supplying cocaine to the EU, mainly based on Europol information.

A large variety of individuals, many of them designated as high-value targets, groups and networks shape the complex supply of cocaine to the EU. Criminal networks involved in cocaine trafficking are highly resilient, with some operating across several continents. For example, some locations in the Middle East, such as the United Arab Emirates, have emerged as a safe haven for top-level organisers of cocaine trafficking to the EU. Further, criminal networks originating from the EU or the EU's neighbourhood have also become established in key locations in South America, or maintain direct contacts with suppliers. Trusted members of the criminal networks are sent to arrange and supervise these shipments.

Wholesalers are involved in the acquisition, storage and distribution of cocaine to regional and local markets. Local criminal networks then usually take care of mid-level or retail distribution or both. However, some Albanian-speaking criminal networks have made successful attempts to apply an end-to-end business model from producing or transit countries in South America to retail distribution within the EU and beyond (see box **'Cocaine trafficking by criminal networks from Western Balkans'**). This includes financing, access to suppliers in the producing or transit countries, transportation, extraction, storage, distribution and money collection.

The substantial profits associated with the cocaine trade have attracted numerous EU-based criminal networks to become involved. Several of these operate in the main EU distribution hubs and also organise shipments from countries of origin and transit to the EU. The majority of the criminal networks reported to Europol have been active for more than 10 years, with some actors having played a key role for decades, such as Italian networks, while new players are on the lookout for a bigger share of the cocaine market, such as Albanian, Belgian, British, Dutch, French, Irish, Moroccan, Serbian, Spanish and Turkish networks (UNODC and Europol, 2021).

BOX STARTS

Recent operations against 'Ndrangheta

The 'Ndrangheta, founded in Calabria in the mid-19th century by a group of Sicilians, is today one of the most notorious criminal organisations in the world. With 'Ndrangheta scattered all over the world, international joint investigations have targeted the organisation in recent years.

In June 2020, police in Italy arrested 12 alleged members of the 'Ndrangheta. The operation, code-named ‘Altan’, carried out by forces in Italy with the support of Europol, Croatia, France and Germany, began in 2017 targeting the 'Ndrangheta clan Alvaro, active not only in Italy but also in other EU Member States. The mafia-structured organised crime group and its members were involved in international drug trafficking (cannabis and cocaine) and firearms trafficking (Europol, 2020b).

In September 2020, the French Gendarmerie and the Italian Carabinieri Corps, supported by Europol and Eurojust, arrested 46 individuals (33 in France and 13 in Italy) for their involvement in large-scale drug trafficking and money laundering. The suspects linked to the 'Ndrangheta were reported to play an active role in cocaine and cannabis trafficking between the Côte d’Azur in France and Liguria in Italy, with supply chains from Belgium, Spain and the Netherlands (Europol, 2020c).

In May 2021, as a follow-up to operation Pollino from 2018 (EMCDDA and Europol, 2019), a new operation targeting international drug trafficking and

money laundering was carried out. Eurojust and Europol supported Italy and Germany with the arrest of 31 suspects in both countries, alleged to be part of the 'Ndrangheta mafia, operating in different regions of Italy and abroad. Further to this, in the context of a joint investigation team between Italy and Germany, 65 other suspects have been identified and locations associated with them were searched during a large-scale action. During a period of several years, the criminal network is suspected of having organised the trafficking of cocaine between Italy, the Netherlands, Germany and Spain using encrypted EncroChat and Sky ECC communication tools. A string of buildings and hospitality companies were allegedly used to launder the proceeds in Italy. The investigations in Germany focus in particular on drug trafficking and potential tax avoidance (Europol, 2021d).

BOX ENDS

In Colombia, the fragmentation of the criminal landscape has multiplied the number of potential suppliers (UNODC and Europol, 2021). These Colombian criminal networks continue to control the production, remain involved in the supply of cocaine to the EU and have further shifted their operations outside Colombia to avoid profiling and increase profits. They cooperate with other South American and EU-based criminal networks and maintain a physical presence in key transit countries and in the EU.

Brazilian criminal networks have become partners of Colombian criminal networks and also purchase cocaine produced in Bolivia and Peru. In addition to their trafficking activities, they are service providers for globally operating criminal networks that use Brazilian ports to traffic cocaine.

Mexican criminal networks ship large cocaine consignments via South American ports to the EU. In addition to their involvement in methamphetamine production facilities located in Europe (**see methamphetamine module**), Mexican suspects are also involved in the operation of cocaine extraction labs in the EU (see box '**Mexican criminal networks become involved in EU cocaine market**').

Nigerian criminal networks also have a presence in Latin America and use air couriers to maintain direct connections to the EU, where they are involved in distribution in numerous Member States.

BOX STARTS

Mexican criminal networks become involved in EU cocaine market

Criminal networks originating in Mexico have traditionally been some of the main suppliers of wholesale quantities of fentanyl, heroin, methamphetamine, cocaine and cannabis into the United States (DEA, 2021c). Recent information indicates that they have also become wholesale suppliers of methamphetamine (see **Methamphetamine module**) and cocaine to the European market. Their long-standing capacity to procure large amounts of cocaine directly from producers in South America has been reported as a threat for Europe by the EMCDDA and Europol (EMCDDA and Europol, 2016, 2019, 2020), and recent reports provide some insights into their operations.

As revealed by Spanish authorities in late 2021, an international cocaine and methamphetamine smuggling and money laundering operation was found to be connected to the Beltrán Leyva organisation of Mexico. The criminal network hid drugs inside large blocks of cellular thermal concrete, loaded into containers shipped to the port of Barcelona. A total of 1.3 tonnes of cocaine and 2.5 tonnes of methamphetamine were seized, with 16 suspects arrested. The alleged coordinator of the operations, a dual Spanish-Mexican national, is reported to be a representative of the Beltrán Leyva organisation in Spain. Several firms served as fronts for the trafficking, which the criminal group attempted to disguise as a legitimate and functioning business importing, storing and trading concrete blocks. Among other things, financial investigations conducted in the Netherlands and Spain into the smuggling network revealed that funds from the United Arab Emirates and Hong Kong were transferred to Mexico using Spanish companies (Chaparro, 2021; Policía Nacional and Guardia Civil, 2021).

A second case highlighting Mexican involvement was concluded by Italian and Colombian authorities in February 2020, illustrating how some criminal networks can methodically plan expansion to new markets and develop new routes, including performing feasibility tests. Using special investigative techniques, Operation Halcón thwarted a project to expand the Mexican Cartel de Sinaloa's operations in Europe. The plan was to open new cocaine smuggling routes from Colombia to secondary international airports in southern Italy using private jets. The criminal network planned to assess the feasibility with an initial test-

transport of about 400 kilograms of cocaine in a private jet that would depart empty from Mexico, load cocaine in Colombia, refuel in Cape Verde and deliver the drugs in Catania, Italy. A follow-up test involving 1 500 kilograms of cocaine was also planned following the same modus operandi and air route. The information available suggests that the criminal network had bribed an official in Catania airport to facilitate the smuggling. However, unforeseen circumstances forced them to send the first 386-kilogram cocaine shipment on a commercial flight from Bogotá to Catania, where it was seized by the Italian authorities. The cocaine was to be sold to the 'Ndrangheta (see box **'Recent operations against 'Ndrangheta'**) (Anesi and Rubino, 2020).

BOX ENDS

Dutch and Belgian criminal networks collaborate with Latin American criminal networks in Brazil, Colombia, Costa Rica, the Dominican Republic, Ecuador, Panama, Peru and Suriname to orchestrate large shipments of cocaine to the EU via Belgium and the Netherlands. Meanwhile, British and Irish criminal networks are very large wholesalers and store significant quantities of cocaine in EU distribution hubs, mainly to supply the United Kingdom.

Non-EU criminal networks originating from south-eastern Europe, particularly the Western Balkan networks, also organise cocaine smuggling operations from Latin America. Western Balkan networks have established themselves as key organisers of cocaine trafficking activities on the global market. In parallel, Albanian-speaking criminal networks appear to have expanded their activities in more EU countries since 2017 (Europol, 2021a). Some shipments arranged by networks from eastern Europe transiting the EU are intended for non-EU markets in eastern Europe, while a share is distributed in the Nordic countries (Europol, 2021a).

BOX STARTS

Cocaine trafficking by criminal networks from the Western Balkans

Criminal networks from the Western Balkan region have emerged in the last 10 years or so as major players in the EU cocaine market. They have been the target of several successful law enforcement operations, as is illustrated by the two cases presented here.

For years, international importers of cocaine worked separately from the wholesalers and the gangs distributing the drug on the streets. However, an Albanian-speaking criminal network abandoned this model and established control of importation and distribution. Using sophisticated encrypted communication means, the organisation's ringleader, based in Ecuador, negotiated directly with the South American drug cartels, arranged huge shipments of cocaine to the major ports of Europe and, with the help of accomplices based in Italy, the Netherlands and Albania, also organised distribution to consumers throughout Europe. The cocaine was smuggled across European borders concealed in vehicles equipped with hidden compartments. The criminals laundered their proceeds using an underground alternative remittance system of Chinese origin, known as the fei ch'ien system, similar to the hawala transfer system (Europol, 2020d).

Another international law enforcement operation involving 8 countries resulted in charges against 61 suspects belonging to a Balkan drug trafficking network believed to be responsible for some wholesale trafficking of cocaine to Europe. This criminal network had branches in several European countries and was composed mainly of criminals from Serbia, Croatia, Montenegro and Slovenia. Law enforcement authorities observed the movement of criminals between Spain and South America as well as the importation of over 1.25 tonnes of cocaine to the EU. Spanish investigators also dismantled the network's alternative revenue streams, such as the production and trafficking of cannabis and the sale of luxury vehicles. Similarly, some members of the organised criminal group were charged in Slovenia for distribution of cocaine and cannabis throughout Europe (Europol, 2021c).

BOX ENDS

Cooperation: a key factor for boosting profits

Criminal cooperation relies on a business mentality that allows criminal networks to overcome financial burdens, expand trafficking activities, access expertise and reach new markets. Criminal networks often share and outsource information, services, resources, smuggling routes, experts, distribution and money laundering (Lalam, 2022). Cooperation even takes place occasionally between rival criminal networks.

Colombian criminal networks cooperate with other South American (e.g. Brazilian) and EU-based criminal networks and maintain a physical presence in key transit countries and in the EU. Similarly, as highlighted in the previous section, Dutch and Belgian criminal networks collaborate with Latin American criminals to organise large shipments of cocaine smuggled to the EU, while Albanian-speaking criminal groups cooperate closely with Italian networks (GI TOC, 2022b).

Encrypted communication makes the degree of global connectedness between criminal networks very apparent. Information gathered from such communication reveals a fragmented landscape comprising different networks of contacts interacting with one another on an ad hoc basis, to organise international drug trafficking at different levels. Further, criminal networks often have a large and changing client portfolio (see box '**Inside criminal networks' operations**').

BOX STARTS

Inside criminal networks' operations

One of the most significant changes in law enforcement's understanding of illicit drug markets was prompted by a number of high-profile international law enforcement operations targeting the communications infrastructure of criminal networks, particularly of those involved in the global trade in cocaine.

Encrypted digital devices are increasingly a key tool that criminal networks use to covertly coordinate and carry out drug trafficking and other crimes. Devices such as encrypted phones have provided such networks with a degree of anonymity and discretion (Europol, 2020a).

However, recent law enforcement operations have been able to penetrate several encrypted platforms and devices. In July 2020, the EncroChat encrypted platform was dismantled. The initial investigation involving the platform dates back to 2017, when Dutch Police, French Gendarmerie and judicial authorities identified phones operating the secured communication tool EncroChat during operations carried out against criminal networks (Europol, 2021c).

The intercepted data provide a deep insight into global high-risk organised crime networks. Based on experts' insights, some 90 % of the communications concern drugs trafficking — mainly cocaine — or violent crimes, corruption and money laundering linked to drugs trafficking. Following this operation, international law enforcement authorities have been able to disrupt or infiltrate additional communication platforms catering to criminals and criminal networks.

The analysis of communications reveals interactions between suspects at all links of the cocaine trafficking chain, except for the production stage and retail distribution. The interactions mainly relate to the transportation of cocaine to Europe and other destinations, including the pick-up and storage of drugs at ports in Europe, and the wholesale trade.

This international operation sent shockwaves in the criminal underworld across Europe and was followed with another takedown of a similar nature in 2021, when an international group of judicial and law enforcement authorities from Belgium, France and the Netherlands successfully blocked the further use of encrypted communications by organised crime networks via the Sky ECC communication service tool. Within a large undercover operation, the US Federal Bureau of Investigation, in close coordination with the Australian Federal Police, had since 2019 strategically developed and covertly operated an encrypted device company, called ANOM, which grew to service more than 12 000 encrypted devices belonging to over 300 criminal syndicates operating in more than 100 countries. The clients included Italian organised crime, outlaw motorcycle gangs, and other international drug trafficking organisations (Europol, 2021c).

BOX ENDS

Facilitators: providers of essential criminal services

Facilitators provide a range of services for the cocaine supply chain. Cocaine traffickers use professionals from numerous areas such as lawyers, bank employees, accountants, money launderers, IT experts, chemists, mechanics, investigators and assassins. For example, clearers at ports provide a unique and essential criminal service in the cocaine market to various criminal networks. They retrieve the cocaine from containers as they have access and knowledge of the procedures and logistics at ports. They are corrupt officials or port workers (stevedores, consignees, and carriers) who may receive part of the

cocaine package or a percentage of its value for their services (Europol, 2021a).

Some criminal networks provide transport and storage logistics to other criminal networks, including vessels, passenger vehicles and trucks. For instance, some provide vehicles with sophisticated built-in hidden compartments.

Parallel criminal financial networks assist cocaine traffickers not only in money-laundering activities, but also in placing large amounts of money in the countries of origin and in the distribution hubs, in order to acquire the cocaine shipments. A number of financial coordinators and money launderers are based in the Middle East, which is home to an established parallel financial system.

BOX STARTS

Brazilian criminal networks and cocaine destined for Europe: a knowledge gap

Brazil's impact on the European cocaine market is significant. The available data indicate that a total of around 45 tonnes of cocaine shipped from Brazil and destined for Europe was seized in ports in Brazil and Europe in 2020 (**Figure 6**). Official data from Brazil confirm that Europe is the largest destination for cocaine shipped from Brazil (CdE, 2021). Santos and Paranaguá appear to be the main Brazilian ports from which cocaine is shipped to the EU, although other ports are increasingly used in Brazil and neighbouring countries, possibly by Brazilian criminal networks. For instance, the emergence of the Paraguayan port of Villeta as a major origin of cocaine shipments to Europe **(Figure 8)** could be a consequence of Brazilian criminal networks' influence (InSight Crime and CLALS, 2020).

Brazilian criminal networks, such as Primeiro Comando da Capital (PCC), Comando Vermelho and Família do Norte, represent a significant threat in Brazil and in neighbouring countries. For instance, in April 2017, the equivalent of more than EUR 21 million was stolen during a violent armed robbery at the headquarters of the cash transportation company Prosegur in Ciudad del Este, Paraguay; the PCC were suspected to be responsible (InSight Crime and CLALS, 2020). The modus operandi of the attack, said to be the biggest carried out in Paraguay, bore the hallmarks of similar assaults perpetrated by the PCC

in Brazil (Ribeiro, 2017), prompting a senior Paraguayan law enforcement officer to describe the PCC as ‘a small army’.

Relatively little information is available in Europe on the role played by Brazilian criminal networks as intermediate players between the cocaine producers in neighbouring Bolivia, Colombia and Peru and the criminal networks receiving the drug in Europe. Some reports suggest that the PCC is a major player in the Brazilian cocaine trade, as a supplier to consumers in Brazil, and as a shipper to Europe, particularly through the port of Santos. Of note, the PCC does not single-handedly ‘control’ the port of Santos and is not in a position to enforce a monopolistic approach to keep other players from using the port for their own illicit activities. On the contrary, the available information suggests that multiple organisations may use Santos to ship cocaine to Europe (Brazilian Federal Police, personal communication).

While the available information indicates that the PCC plays a key role in facilitating port logistics, its potential role as a supplier of cocaine to Europe remains a knowledge gap requiring further investigation. In particular, little is known about the PCC’s potential activities in Europe, including connections to European criminal networks. Brazilian officials suggest that the PCC may be operating differently in Europe than it does outside Brazil in South America, where it sends high-ranking members as permanent representatives in order to implement and coordinate its activities, which does not seem to be the case in Europe.

Possible links between the PCC and Italian criminal networks, especially the Calabrian 'Ndrangheta, were mentioned in connection with the arrests of two members of the 'Ndrangheta in São Paulo in the summer of 2019, and again following a major police operation in the port of Paranaguá in March 2022 (Dalby, 2022). PCC’s potential connections to Portugal and the Netherlands have also been alleged in media reporting on the arrest of a senior PCC member near Rio de Janeiro in 2019 (Rodrigues, 2019). Western Balkan criminal networks, particularly Albanian-speaking ones, are occasionally reported to be involved in the maritime shipment of cocaine from Brazil to Europe, which could indicate connections with Brazilian criminal networks (Record TV, 2021). However, such reports remain poorly detailed.

For strategic and operational purposes, it may be important in the future to enhance the monitoring of the activities of Brazilian criminal network in relation to the European cocaine market.

BOX ENDS

Brokers: central connectors enabling cocaine operations

Analysis of encrypted communications provides valuable insight into the dynamics of global cocaine trafficking operations and the criminal suspects involved in this business (see box '**Inside criminal networks' operations**'). This analysis has identified that a core role within networks active in cocaine trafficking is played by 'drugs brokers'. These are service providers connecting criminals and organised criminal networks with different expertise, acting as intermediaries between the field operators, other brokers and high-level criminals. Typically, they work with a small group of close associates with whom they have a long-lasting relationship. The relationships outside this core group are more fluid and partnerships are rather temporary.

Brokers may be working for larger criminal organisations that have a long-standing tradition in crime, such as the Italian mafia. However, most brokers seem to work independently. Being involved in every phase of the drugs trafficking chain, they connect suppliers in South America to traffickers in the EU, and traffickers to buyers or individuals providing logistical support. Some of these brokers control several stages of the trafficking chain (e.g. transport of the cocaine to a South American harbour, transport overseas, or extraction of cargo from a container in a European port). Others concentrate only on one stage (e.g. organising the extraction teams in a European port). Brokers facilitating the wholesale trafficking of cocaine are mainly based in South America.

The broker will have to pay large sums for the services of associates, intermediate brokers, facilitators, drivers, port workers and corrupt port officials. Intercepted communications also show the significant investments EU clients have to make for an overseas drugs shipment, which high-level brokers and high-risk criminal networks operating in the EU are able to provide. Other brokers and criminal networks pool their resources to jointly invest in shipments.

Shipments from overseas are handed over to a distributor chain in the EU, consisting of wholesale distributors who split it into smaller packages and transport it to intermediary and retail distributors. Conversations between brokers and criminal networks involved in the distribution chain of cocaine in the EU confirm numerous physical money movements of cash amounting to millions of euro throughout the EU and globally.

Negative consequences: violence

Over the last decade, criminal groups involved in the cocaine trade have been associated with the rising number of incidents of violence linked to drug markets in the EU. Europol information suggests a change in the nature of violence linked to cocaine markets, with a growing number of criminal networks using violence in a more offensive way than in the past. In some Member States, competition between drug suppliers has intensified, resulting in an apparent increase in the number of violent clashes. In general, expanding cocaine markets appear to have led to an increase in the occurrence of homicides, shootings, bombings, arsons, kidnappings, torture and intimidation. Analysis of EncroChat communications also revealed that criminals were using the encrypted platform to plan violent acts as a result of betrayal or disputes over debts (see box **'Inside criminal networks' operations'**).

While much violence occurs within and between criminal networks, cocaine smuggling methods, particularly in seaports (see **Exploitation of global logistics: European and Latin American ports**), have led to an increase in violence directed at port workers and officials. However, in some Member States cocaine-related violence, including murder, now also targets non-criminal actors such as lawyers, government officials and journalists (see box **'Cocaine-related violence'**).

A large number of incidents are related to Belgian and Dutch criminal organisations operating in two of the largest cocaine entry points in Europe, namely the ports of Antwerp and Rotterdam. Between 2017 and the end of August 2020, 66 events with hand-grenades or firearms were reported in Antwerp, likely related to the cocaine trade (Eeckhaut, 2020). While corrupt port workers initially appeared to be the main targets, the emphasis then appeared to shift towards intimidation between rival drug gangs. Thus, a conflict between some criminal networks of Moroccan origin, which are important players in the

cocaine market, has apparently led to serious acts of violence in Belgium and the Netherlands.

Persons other than gang members have also been targeted. In September 2019, the lawyer of a member of one of the Moroccan criminal networks, was shot dead in front of his house (Tieleman and Voskuil, 2019). Several 'murders by mistake' have also occurred, that is, killings of people who looked like, or lived near, the intended target but who were not connected to the cocaine trade at all (Noordanus, 2020). Some of the perpetrators of these murders appear to be young, sometimes teenagers, including local people with no previous experience in the killer-for-hire business (Dahlkamp et al., 2021). Some Dutch law enforcement officers, members of the judiciary and journalists have been put under permanent police protection as it was determined that their work made them potential targets (Dahlkamp et al., 2021). In addition, the security arrangements for the Dutch prime minister were upgraded in September 2021 due to concerns that he may become a target of criminal networks (Van den Heuvel and van Wely, 2021). A Dutch national of Moroccan origin, reportedly leading a major cocaine network, has been connected to at least 10 murders (see box **'Cocaine-related violence: high-profile trials in the Netherlands '**).

BOX STARTS

Cocaine-related violence: high-profile trials in the Netherlands

One of the most high-profile trials in recent Dutch history, the Marengo trial, is focused on two main suspects and 14 accomplices who, according to the public prosecution, are connected to a number of homicides and homicide attempts between 2015 and 2017 (Openbaar Ministerie, 2021). In 2017, a suspect in one of the homicide cases, was arrested and started to cooperate with the public prosecutor. This represented a breakthrough, since the code of silence within the criminal network had made it very difficult to collect hard evidence against any of the suspects. Shortly after the investigation formally started and the suspect was presented as a crown witness, his brother, who had no links with criminal activities, was shot dead in March 2018 (Tieleman, 2018). At the time, the main suspect (a Dutch trafficker of Moroccan origin), based on the crown witness's testimony, was at large (Vissers, 2019). Further, the lawyer acting on behalf of the crown witness was shot dead in front of his house in September 2019 (Tieleman and Voskuil, 2019). In December 2019, the main suspect was arrested in Dubai and extradited to the Netherlands, after which the trial started

in early 2021. In July 2021, a well-known international crime reporter, who was advising the crown witness against the main suspect, was murdered on the streets of Amsterdam (NU, 2021). The Marengo trial resumed in March 2022.

Another landmark case illustrating the violence surrounding the cocaine trade started in the Netherlands in January 2022, with eight individuals on trial including the main suspect who was arrested by the Dutch Police in June 2020. Based on communications intercepted from the EncroChat network (see box '**Inside criminal networks' operations**'), he is accused of leading a crime group involved in major cocaine transactions in the port of Rotterdam (ANP, 2022). The prosecution have asserted that the main suspect is also connected with a complex made of maritime shipping containers fitted out as a detention, torture and possibly killing centre for members of rival gangs. The containers were soundproofed, fitted with heat protective foil and equipped with a re-purposed dentist chair, handcuffs and torture implements. Based on witness testimony, the containers were set up following a feud between the main suspect and a former accomplice who allegedly stole millions of euro from the main suspect (Laumans, 2021). The prosecution is requesting 17 years' imprisonment for the main suspect's role in cocaine trafficking and an additional 12 years for his role in the torture complex (NU, 2022).

BOX ENDS

Violence connected to cocaine is also reported in other European port cities, such as Marseille and Le Havre, France. In the port of Le Havre, increasing cocaine seizures, sightings of criminal groups' members in the terminals and reports of corruption of port workers go hand in hand with intimidation, kidnapping, torture, murder and attempted murder of port workers. A large proportion of these incidents is apparently related to the methods used by criminal networks to enforce the compliance of corrupt workers who may want out or who request more money for their assistance (Piel and Saintourens, 2022). In a particularly horrific incident, the mutilated body of a Le Havre dock worker was found in the car park of a nursery school near the port area in June 2020 (Pointel, 2020). While the violence in Le Havre seems to be restricted to those involved in port logistics, in Marseille it affects the city more comprehensively. Drive-by shootings, where rival youth gangs and criminals violently settle scores, have become an identified problem in several districts. The violence is attributed to the increasing influence of criminal networks

involved in the cocaine trade, combined with economic and social problems (Ravindran, 2021). Score-settling among gangs has led to numerous deaths, with more than 20 contract killings reported in the Marseille area in 2021 alone (Bordenave, 2021).

Southern Spain is also recording significant numbers of deadly score-settling incidents between criminal networks involved in the cocaine and cannabis resin trades. In the Costa del Sol area, the Spanish authorities report a total of 33 homicides and murders and two attempted homicides between 2018 and 2021. Each incident had one victim recorded; most victims were EU nationals, Spanish (13) and other EU (12), including western European (8: Belgian, Danish, Irish, French, Swedish) and eastern European (4: Bulgarian, Croatian, Lithuanian, Slovakian). In addition, there were three victims from Western Balkan countries (Montenegro, Serbia), two from the United Kingdom; and three from Africa (Democratic Republic of Congo, Morocco) (CITCO, 2022).

Violence and homicides in several EU Member States have also been connected to the notorious Kinahan clan from Dublin, Ireland. Conflict between the Kinahans and rival groups has led to the murder of at least 20 people in Belgium, Ireland, the Netherlands and Spain. The trial of some Kinahan clan members revealed that specialised crime cells were established in order to kill rivals (Reynolds, 2020).

Criminal groups from the Western Balkans, including Albanian-speaking groups, also appear to be responsible for some deadly violence. For instance, the widely reported conflict between the Kavac and Skaljari clans from Kotor, Montenegro, spread to Serbia and led to dozens of murders (GI TOC, 2022b). Similarly, there are indications that acts of violence and murders linked to cocaine trafficking also occurred in Albania recently, but apparently not on the same scale (Oculus News, 2019; Politiko.al, 2022; Tiranapost.net, 2021). Violence associated with competition for cocaine markets and routes among Western Balkan criminal networks has also been reported in the EU, with homicides occurring in cities such as Vienna (Amerhauser, 2019), Málaga, Berlin, Amsterdam and Athens (GI TOC, 2022b). The criminal groups seem to use a wide arsenal ranging from pistols and automatic rifles to sniper rifles and remote-controlled bombs (OCCRP, 2020; Politiko.al, 2022). Violence connected to Western Balkan criminal networks has also been reported in South America, where some of them maintain a presence, but more often as victims than

perpetrators. This has been the case, for example, in Ecuador, where many suspected members of Albanian-speaking groups fell victim to mafia-style killings, in particular in connection with the port of Guayaquil (Cela and Moran, 2019; Euronews.al, 2022; Ford, 2021). Others have been killed in Brazil (Record TV, 2021) and Colombia (Analisisurbano.org, 2018; Parkinson, 2020). Overall, Western Balkan criminal networks seem to use violence in a somewhat strategic and controlled way, primarily to maintain their credibility as a threat, which is reported as a key feature of their business model in the cocaine trade (GI TOC, 2022b; Kemp, 2020; Townsend, 2019).

Cocaine retail markets: multiple indicators suggest continued growth and diversification

TEASER TEXT STARTS

A demand-based estimate of the European cocaine retail market places its value at EUR 10.5 billion in 2020. This represents about a third of the total illicit market in drugs, making cocaine the second-largest market (after cannabis), and suggests a large increase since the previous estimate for 2017.

Indicators suggest that cocaine availability on consumer markets remains at historically high levels, with continued market expansion across Europe. While smaller markets for more harmful forms of cocaine, often referred to as ‘crack’, remain concentrated in western Europe, there are indications that these are growing and appearing in new countries. The market expansion is driven, in part, by a growing range of purchase and delivery methods, including darknet markets, social media platforms and encrypted communication tools.

Data indicate that cocaine on EU consumer markets became on average almost 40 % more affordable between 2015 and 2020, based on the cost of 1 gram of a pure, ‘uncut’, cocaine to buyers in the context of their national standard of living. In 2020, cocaine purity reached its highest level in a decade, although adulteration with various substances continues to take place.

TEASER TEXT ENDS

Most indicators continue to suggest that cocaine availability on European consumer markets remains at historically high levels and that the markets continue to expand across Europe. While most cocaine consumers remain

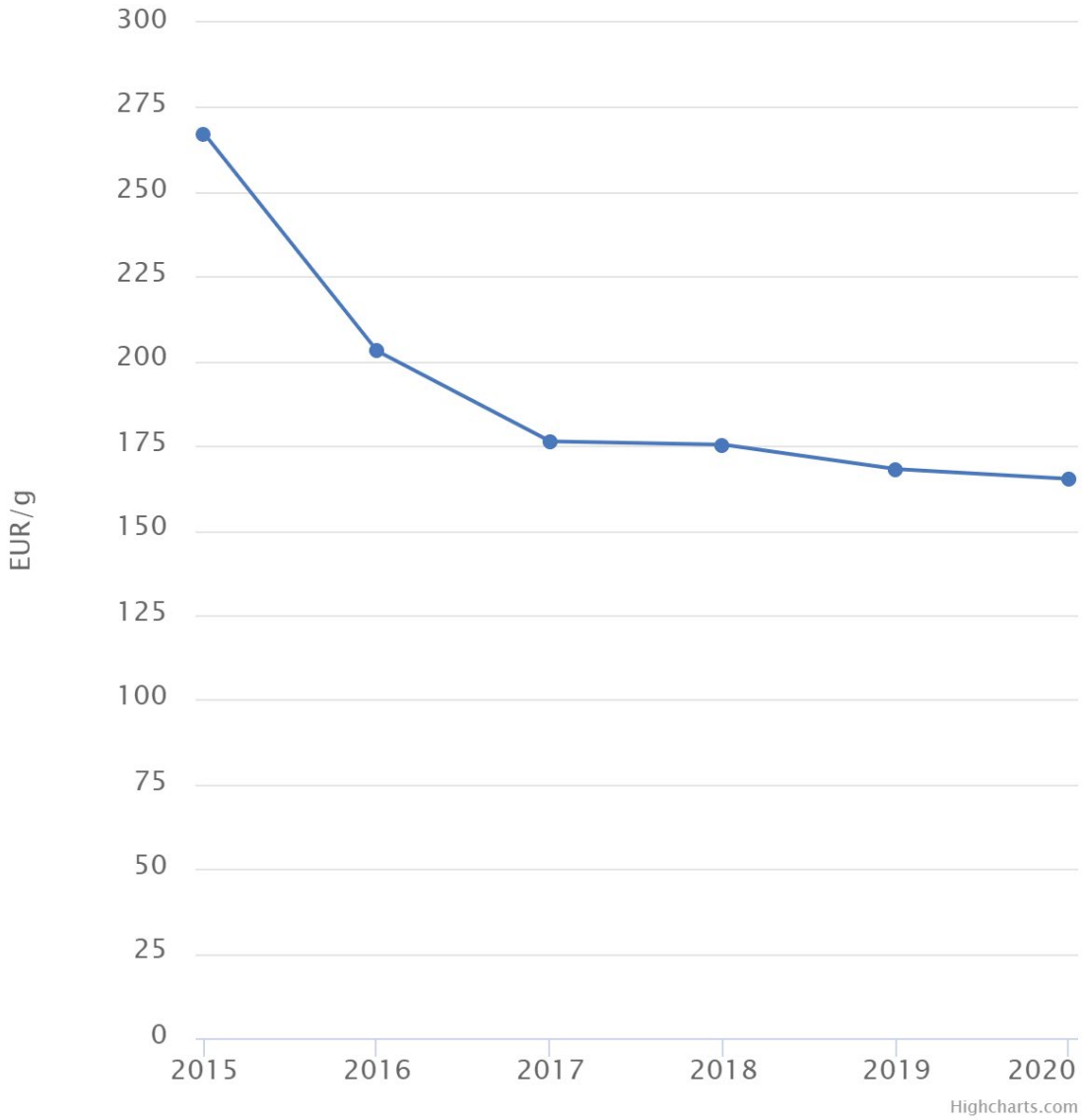
concentrated in a limited number of western and southern European countries, whose markets appear to be continuing to expand, there are also indications that cocaine retail markets continue to grow in northern and eastern Europe. Smaller markets for more harmful, freebase forms of the drug, often referred to as ‘crack’, remain concentrated in western Europe. However, there are also indications that these markets are growing and are emerging in countries where they were not observed before.

Retail markets for cocaine hydrochloride powders

New indicator suggests cocaine is now more affordable

Affordability of drugs is a measure that incorporates drug purity and accounts for differing national economic conditions as quantified in the price level indices (PLI) (for fuller details and limitations, see Groshkova et al., 2018). In other words, affordability reflects what 1 gram of a pure, ‘uncut’ drug costs to buyers in the context of their national standard of living. Affordability allows a more sophisticated comparison of retail drug markets across countries and over time. Based on EMCDDA retail price and purity data for 16 European countries reporting sufficient information, and which together make up approximately 60 % of the total EU population, 1 gram of cocaine became on average 38 % more affordable between 2015 and 2020 (**Figure 13**).

Figure 13. Changes in average affordability of cocaine in a group of 16 EU Member States, 2015-2020

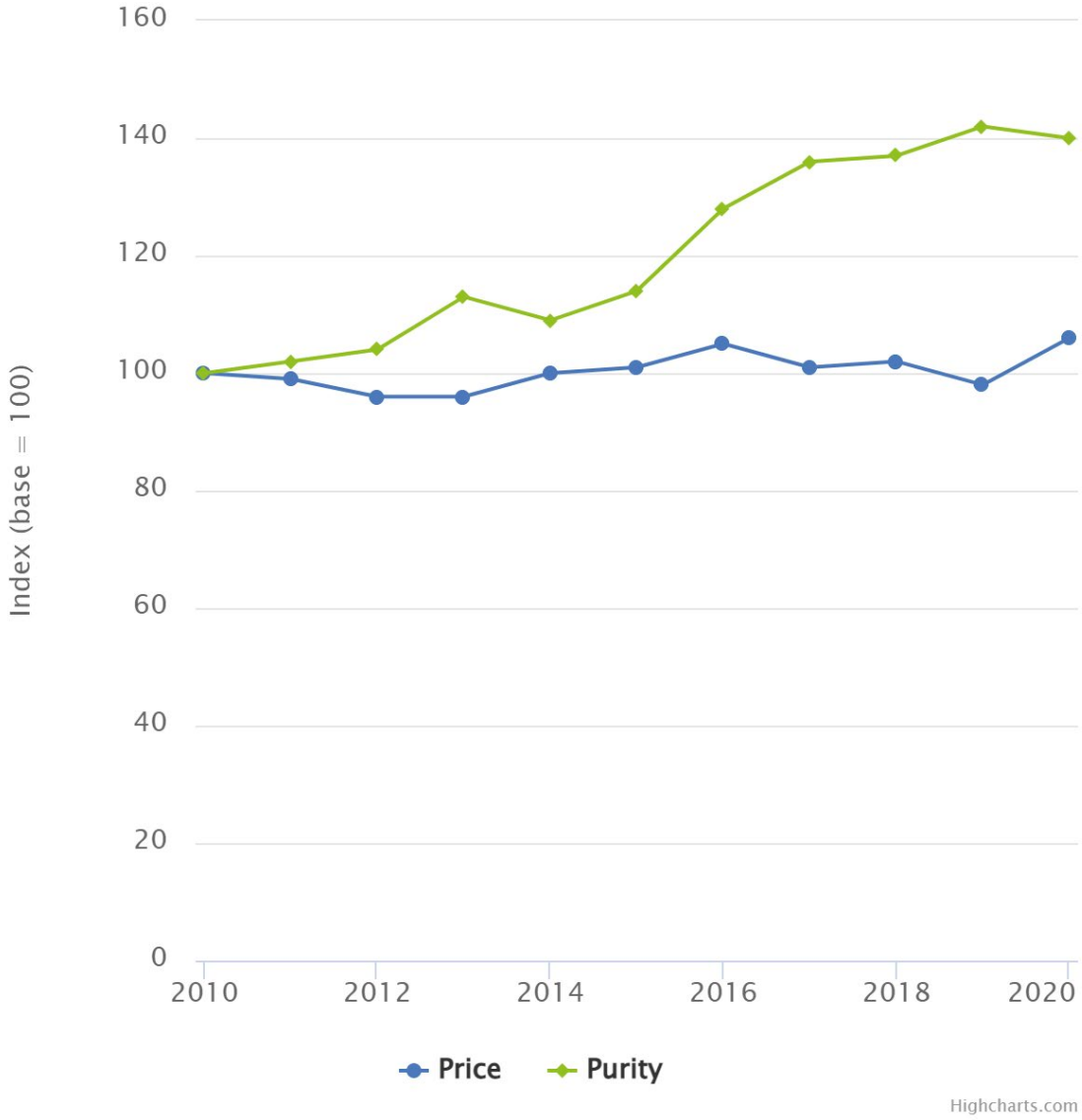


This finding is in line with trends noted in other indicators of retail markets such as retail prices and purity, estimated prevalence of drug use, wastewater analysis and numbers of cocaine seizures, which all suggest a further increase in cocaine availability since the last edition of this report (EMCDDA and Europol, 2019). It should also be noted that cocaine affordability in Europe does not appear to have been impacted by the COVID-19 pandemic and associated measures restricting movement in Europe, as it remained stable or slightly increased in 2020 (**Figure 13**).

Price remains stable while purity increases

The purity of cocaine at the retail level has been increasing in Europe since 2010, and in 2019 it reached its highest level in the last decade, although adulteration continues to take place (see **box 'Recent trends in cocaine adulteration'**). Overall, the retail price of the drug remained stable between 2010 and 2020. This appears to confirm the trend, identified in the previous edition of this report, that more cocaine is now available on European retail markets than before (EMCDDA and Europol, 2019). The COVID-19 pandemic does not seem to have impacted retail prices or the increase in purity recorded since 2010 in significant ways, even if a slight increase in price and a stabilisation of purity can be observed in 2020 (**Figure 14**).

Figure 14. Indexed trends in cocaine retail price and purity, 2010-2020



This is likely due to an increase in the availability of high-purity cocaine at the wholesale level (see box **'Profiling European cocaine**) and to competition between the numerous criminal networks involved at the various levels of the cocaine market (see **Cocaine: increasingly attractive for a wider range of criminal networks**). The increasing production of cocaine hydrochloride in Europe may also have played a role (see **Manufacturing cocaine: new developments highlight larger European role in global production**).

BOX STARTS

Recent trends in cocaine adulteration

Cutting drugs with cheaper materials (also known as dilution and adulteration, Figure 1) is usually done to increase profits along the distribution chain, but this may also enhance or modify the effects of the drug and affect the health of users (EMCDDA and Europol, 2019).

Information on the dilution and adulteration of cocaine is not routinely gathered in Europe. However, based on complementary information reported to the EMCDDA and information available from other sources, some analysis of recent trends regarding pharmacologically active adulterants in cocaine products in Europe can be performed.

The most common adulterants found in cocaine products over the last 10 to 15 years in Europe and at the global level have been levamisole and the other phenyltetrahydroimidazothiazole (PTHIT) substances dexamisole and tetramisole, three veterinary antiparasitic drugs harmful to humans, and phenacetin, an analgesic. However, other substances, such as caffeine, lidocaine, diltiazem, and hydroxyzine have also been frequently encountered, sometimes in higher concentrations than levamisole or phenacetin (UNODC, 2021e).

In the mid-2010s, levamisole was encountered in the vast majority of the cocaine products available in the United States and Europe. In 2015, levamisole was found in 93 % of hundreds of cocaine hydrochloride 1-kilogram bricks seized in the United States and analysed by the DEA (2016). This confirmed that the substance was added by most manufacturers of cocaine hydrochloride

in source countries, especially Colombia (EMCDDA and Europol, 2019; INCB, 2017, 2018). In Europe, levamisole was also found in a majority of cocaine products available on retail markets during the same period. For example, analysis of more than 1 300 consumer samples submitted for drug checking in the Netherlands in 2015 showed that about 70 % contained levamisole (Trimbos Instituut, 2016).

In the early 2020s, the picture has changed. At the wholesale level, only 22 % of the 1-kilogram cocaine bricks seized in the United States and tested by the DEA contained levamisole or another PTHIT substance, suggesting that much less adulteration of cocaine hydrochloride is occurring in source countries (DEA, 2020). Similarly, but to a lesser extent, in 2020 the Dutch Trimbos Instituut reported that a little more than 40 % of the retail-level cocaine samples it tested were adulterated, most frequently with levamisole (Trimbos Instituut, 2021). The same year, drug checking services in 10 cities of other European countries reported to the EMCDDA that the adulterant most commonly detected in cocaine samples was levamisole followed by phenacetin, caffeine and lidocaine, but that nearly 40 % of tested samples were not adulterated at all. As such, the trend towards an overall decrease in adulteration of the cocaine sold to European consumers reported in the last edition of this report (EMCDDA and Europol, 2019) appears to have continued into the early 2020s.

However, although less adulteration seems to be occurring (particularly from source countries), levamisole and other PTHIT substances continue to be frequently used to cut cocaine products available at the retail level in Europe. Data on cocaine adulterants seized in Europe (data from the European Commission) shed some light on cocaine adulteration in Europe and indicate a sustained increase in seizures from very modest amounts in 2012 (2 kilograms) to record values in 2020 (over 2.3 tonnes). The vast majority of seizures reported in 2020 were made by the Netherlands (2.2 tonnes), consisting essentially of the PTHIT substance tetramisole (2 tonnes), and to a much smaller extent Spain (157 kilograms, essentially caffeine). Preliminary data for 2021 suggest that the record seizures of adulterants in 2020 will be surpassed (see section **‘Cocaine chemicals: Increasing seizures indicate cocaine production in Europe’**).

The available data could indicate that the cocaine available in Europe is increasingly adulterated in Europe itself, and to a much lesser extent in South

American source countries, as was previously the case. In turn, this may be linked to the development of cocaine hydrochloride production in Europe discussed earlier in this report (**see Manufacturing cocaine: new developments highlight larger European role in global production**). Currently, this is speculative but does point to the need to improve the monitoring of cocaine adulteration in Europe in the future.

BOX ENDS

Signals of continued growth of cocaine consumer markets

In Europe, the retail market for cocaine has historically been concentrated in the western and southern parts of the continent. This is where most of the drug first enters the EU, and they are the most populated and wealthiest regions of Europe. Data on prevalence of cocaine use, expressed in estimated numbers of users during the last year, may be viewed as an indicator of the location and approximate size of retail markets, with the latest available data signalling that the largest retail markets continue to be located in western and southern Europe. Specifically, France, Germany, Italy, the Netherlands, and Spain, which together represent more than 61 % of the total EU population (Eurostat, 2020), account for about 77 % of Europe's estimated 3.5 million last year cocaine users (in the age group 15-64) in 2021. Two Nordic countries, Denmark and Sweden, follow these countries, but report much lower estimated numbers of users. Meanwhile, the available data indicate that Poland may be the largest cocaine market in eastern Europe. However, due to a lack of recent general population survey data from some countries in this part of Europe, this may not be the case.

While western and southern Europe remain the main markets, signs such as cocaine consumption becoming more common in cities in eastern Europe suggest that the cocaine retail market is also developing in other regions (EMCDDA, 2021). Recent trends based on data from 15 countries that have conducted surveys on last year cocaine use since 2019 indicate that levels of use are increasing in 8 countries, remaining stable in 5 and decreasing in 2 (EMCDDA, 2022a). While an overall decrease in cocaine use was visible in 2020, likely due to COVID-19 and the restrictions imposed on social gatherings and the nightlife scene, there are indications of recovery in 2021 and overall signals that the cocaine retail market continues to expand.

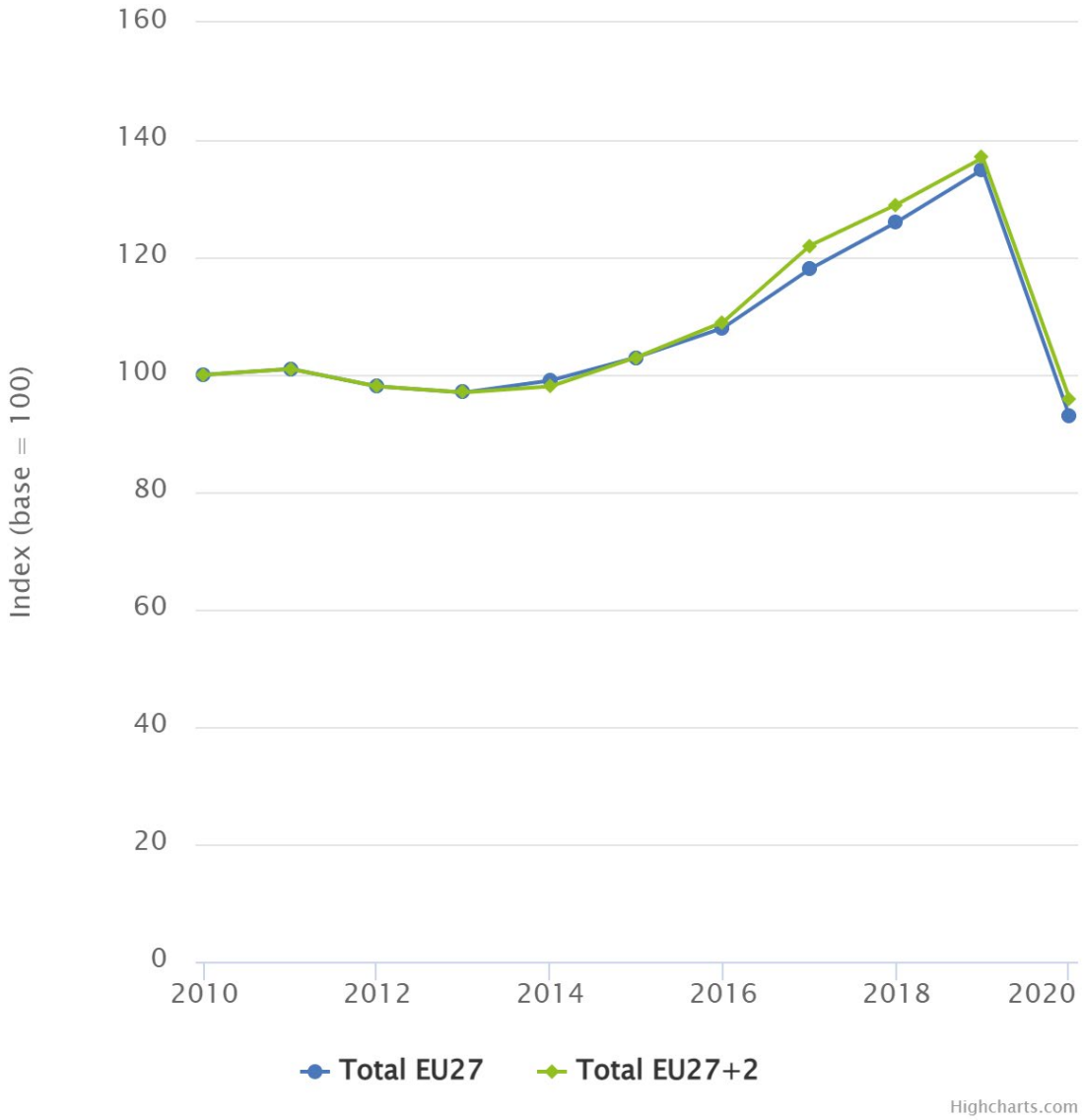
Wastewater information provides some details on the characteristics of European cocaine retail markets (see note on **Data and methodology**). Likely due to a temporary reduction in cocaine use during the initial lockdown period of the COVID-19 pandemic, data on cocaine residues (namely the benzoylecgonine cocaine metabolite) in municipal wastewater showed a decrease in the majority of cities in 2020 compared to 2019 (EMCDDA, 2021). However, in 2021 an increase in cocaine residues was observed in 32 out of 58 cities compared to 2020, with 12 reporting no change and 14 reporting a decrease (EMCDDA, 2022a). Furthermore, wastewater data from 12 European cities covering the period 2011-2021 show increasing longer-term trends. While this cannot be readily interpreted as an increase in the number of cocaine users, although this is a possible explanation, other factors could have caused this increase in metabolites. Higher concentrations of metabolites could mean that the same number of people used more cocaine, or they could reflect the increased purity of cocaine found on European retail markets. A combination of these three causes could also be an explanation.

Treatment data can also provide some insight into the drug retail trade. Between 2014-2020, first-time entries to specialised drug treatment for cocaine problems increased in 14 countries (EDR 2022). Overall, new entries to treatment for problems associated with cocaine use have increased in Europe since 2015.

Trends in cocaine seizures: remaining at historical highs but impacted by COVID-19

Trends in numbers of drug seizures may be viewed as an indirect indicator of changes in a drug's availability at the retail level, although they primarily reflect law enforcement activity and the factors affecting it (such as resource availability and allocation, and priorities), so caution is needed when interpreting such data. Most of the drug seizures reported in Europe are of small amounts of under 10 grams, likely confiscated on retail markets. In 2020, an estimated 84 % of the 56 000 cocaine seizures reported by the 17 EU Member States that provided a breakdown by market levels (wholesale, middle market, retail) were carried out at the retail level.

Figure 15. Indexed trend in the number of cocaine seizures reported in the EU, Turkey and Norway, 2010-2020



Overall, the number of cocaine seizures recorded in the EU, Norway and Turkey appears to have been impacted strongly by the measures adopted against COVID-19. The 68 000 individual seizures reported in 2020 represent an estimated 32 % decrease compared to 2019 (Figure 15). Out of the 26 countries with sufficient data, only Bulgaria and Greece, which report comparatively small numbers of cocaine seizures, did not report a decrease between 2019 and 2020.

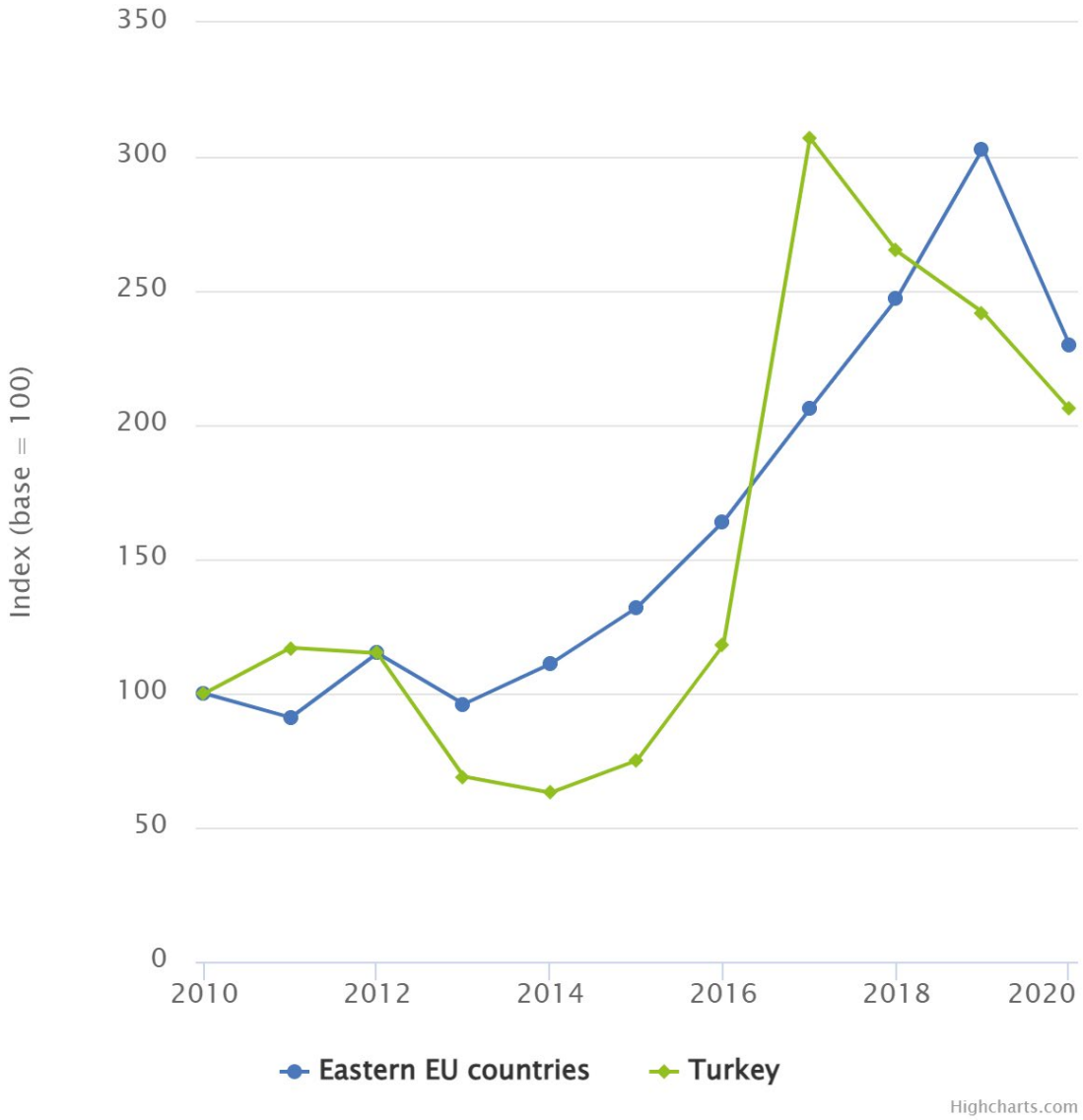
This reduction in seizures is most probably due to the pandemic's combined effects on levels and patterns of cocaine use and on the enforcement of drug

laws at the consumer level. Indeed, as already mentioned, lockdowns across Europe impacted on levels of cocaine use, and it is also probable that less police time and resources were focused on enforcing drug laws at retail level in 2020, since many officers were mobilised in the enforcement of COVID-19 restrictions.

However, the impact of COVID-19 on European retail markets for cocaine in 2020 should not obscure the steady increase in the number of cocaine seizures observed between 2015 and 2019, a general trend which, put in the context of the other indicators reviewed in this report, may have only been temporarily interrupted by the effects of COVID-19. In this respect, it will be important to continue monitoring numbers of cocaine seizures in Europe in the future.

The country reporting the largest estimated number of cocaine seizures in 2020 (and in previous years) is Spain (35 240) followed by Italy (7 858), Belgium (5 354), and Sweden (4 204). However, it must be noted that 2020 data are not available for several countries usually reporting large numbers of seizures. The countries reporting the highest numbers of seizures also report some of the highest estimated numbers of cocaine users. It should be noted that the Netherlands, one of the top retail markets in terms of numbers of cocaine users, does not report numbers of drug seizures and as a result is not included in this analysis.

Figure 16. Indexed trends in numbers of cocaine seizures in 11 east EU countries and Turkey, 2010-2020



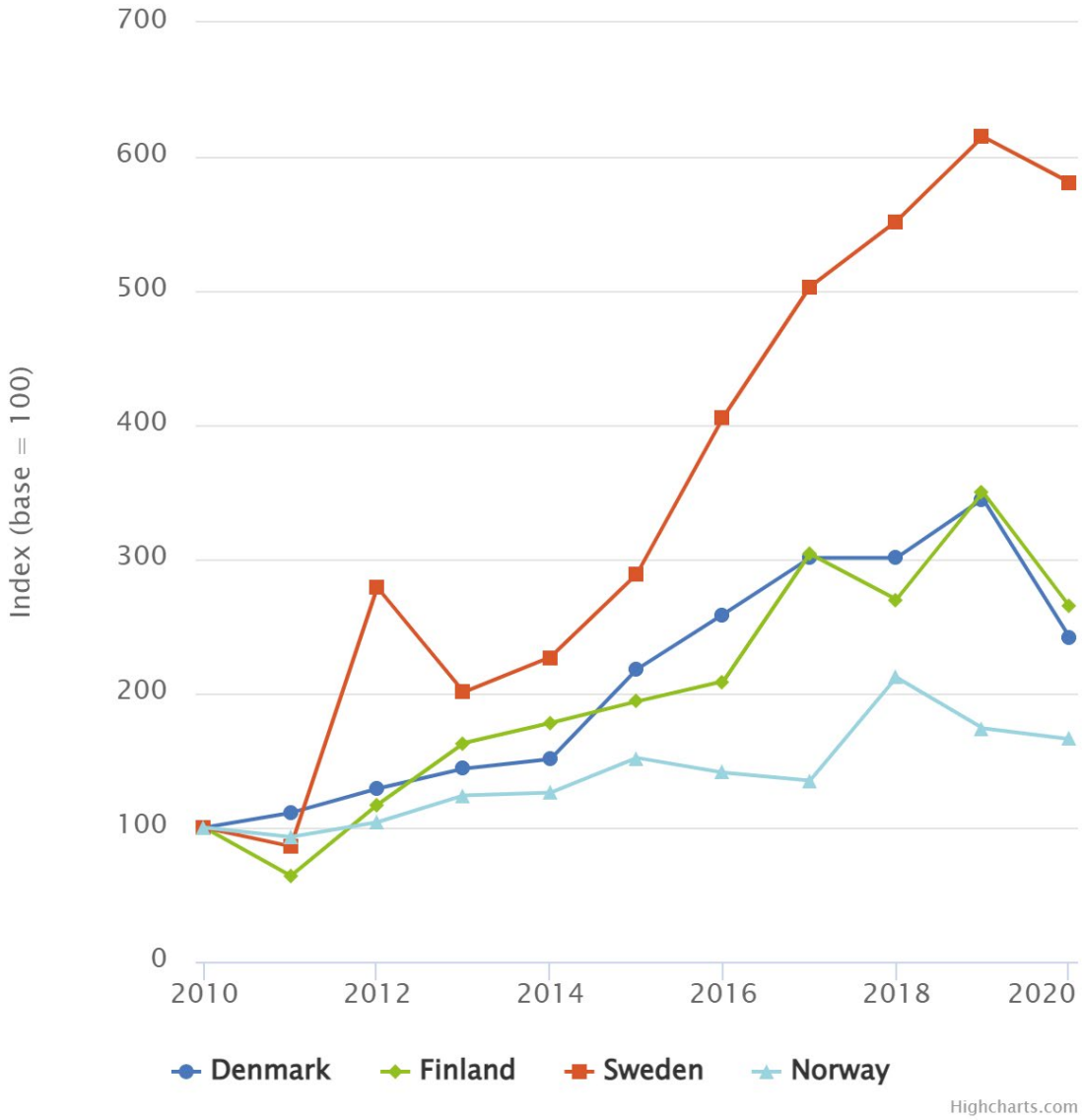
Note on Figure 16: 'East EU countries' includes the following 11 countries: Bulgaria, Croatia, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia, representing together 23 % of the EU population in 2019 (Eurostat, 2020).

Trends in numbers of seizures (and other indicators) presented in the 2019 edition of the EU Drug Markets Report (EMCDDA and Europol, 2019) suggested that the largest cocaine retail markets of western and southern Europe continued growing, while other markets were emerging or expanding in eastern Europe and in the Nordic countries. New seizure data broadly confirm that these trends continued until the shock caused by COVID-19 in 2020.

East European countries generally report much lower numbers than the rest of Europe, reaching a few hundred cocaine seizures annually at the most. However, their numbers also increased overall by more than 200 % between 2010 and 2019 (130 % between 2010 and 2020), indicating retail market expansion (**Figure 16**). Bulgaria, Czechia, Estonia, Croatia, Latvia, Lithuania, Hungary, Romania, Slovenia and Slovakia all reported more cocaine seizures in 2019 and 2020 than in 2010. Seven countries (Estonia, Croatia, Latvia, Lithuania, Hungary, Romania and Slovakia) reported record numbers of cocaine seizures in 2019. Poland, mentioned earlier as potentially eastern Europe's largest consumer market, reported only six seizures of cocaine in 2020. However, data from the police are not available, so this may not reflect the true level.

Furthermore, Turkey reported 3 018 cocaine seizures in 2019, seven times the number reported in 2009 and the seventh largest number of cocaine seizures in Europe that year. Although the number of Turkish seizures started declining after the 2017 peak of 3 829, it remains at significantly higher levels than in the mid-2010s, continuing to suggest that a sizeable cocaine retail market exists in Turkey (**Figure 16**).

Figure 17. Indexed trends in numbers of cocaine seizures in Denmark, Finland, Sweden and Norway, 2010-2020



Sweden is another example of potential retail market expansion, with the number of cocaine seizures increasing by a dramatic 481 % between 2010 and 2020 (or 515 % between 2010 and 2019) when it reported a record 4 450 cocaine seizures to the EMCDDA (**Figure 17**). Similarly, Danish, Finnish and Norwegian seizures were more numerous in 2019 and 2020 than in 2010. Denmark and Finland, like Sweden, broke records in 2019, before the pandemic hit Europe.

Retail markets for cocaine freebase products

Historically, small freebase cocaine markets have existed in a few western and southern European countries including Germany, Spain, France, Italy and the Netherlands. The available information indicates that use of freebase cocaine in eastern and northern Europe continues to be very limited.

Although there is little doubt that the European market for smokeable freebase products is much smaller than the market for hydrochloride powders, it is difficult to monitor and the data available at present are unlikely to reflect its true dimension. An estimate of the number of freebase cocaine users in mainland France indicates that it more than quadrupled between 2010 (10 000) and 2019 (42 800) (Cadet-Taïrou et al., 2021; Janssen et al., 2020). Should the other main freebase cocaine markets in Europe have experienced a similar increase in the number of users over this time period, of which there are some indications, then there would potentially be over 100 000 freebase cocaine users in Europe.

An important distinction between the two cocaine markets is that while cocaine powders are invariably bought from dealers, the freebase market involves products that are either manufactured by the users themselves (from purchased powders) or purchased as crack from dealers. Based on the available evidence, it is difficult to estimate which of these two types of products is the most prominent, but basification for own use (i.e. the processing of purchased cocaine powder into freebase by the user) may be significant and increasing. Those who manufacture their own freebase products may not identify themselves as crack users but as cocaine users, which may lead to an underestimation of the number of freebase cocaine users in Europe (EMCDDA and Europol, 2019). Thus, for a number of reasons, it is likely that the European market for freebase cocaine products is both underestimated and under-documented. Caution is therefore required when interpreting the available data.

Freebase cocaine is primarily smoked, but some users inject it. In some countries such as France and Portugal, low-threshold facilities report that injection of freebase is not infrequent. Freebase users appear to predominantly belong to vulnerable high-risk populations, and are often also current or former users of opioids. Migrants from Africa and east European countries are reported to make up a sizeable proportion of freebase cocaine users in some EU

Member States. There are also indications of cocaine freebase use among some recreational drug users in France and Italy, which suggest that use is spreading to a new customer base.

Only a handful of countries report the number of crack cocaine seizures consistently, and as a result it is difficult to distinguish trends. Nevertheless, it would appear that since the last edition of this report (EMCDDA and Europol, 2019), seizures have continued to be relatively stable and low in both numbers and quantities among the reporting countries.

However, other datasets suggest that in recent years, some long-standing freebase markets may have grown, although they remain small, while new markets seem to have emerged in countries where they previously were not observed, resulting in an increase in Europe as a whole. For example, the overall number of people seeking treatment for problems with crack use tripled between 2016 and 2020, when 7 000 people entered treatment. Notable increases were observed in countries with long-standing markets, such as Spain, France and Italy, but also in others including Belgium, Ireland and Portugal. Crack use was also reported in some German cities where it was rarely observed in the past.

Similar trends emerge from other datasets. For instance, low-threshold services in Brussels, Lisbon and some areas of Ireland and Italy reported a significant increase in the number of crack users among their clients in 2020. In addition, wastewater analysis performed in 13 cities of six western European countries in 2021 found freebase residues in all cities and during all sampling days, indicating daily use (EMCDDA, 2022b). The highest loads were encountered in Amsterdam and Antwerp, that is, in cities located in countries identified as major entry points for wholesale cocaine shipments to the EU (**see section on ‘Exploitation of global logistics: European and Latin American ports’**).

Cocaine freebase markets often entail serious consequences in terms of public health and security, and can be particularly challenging to deal with for the public services concerned. Dependence on crack cocaine is characterised by high-frequency use, serious mental and physical health problems, and aggression. Notable harms associated with cocaine freebase use in Europe include intimidation, violence and forced prostitution, and it frequently leads individuals to financial ruin.

At the global level, and particularly in South America, a bigger range of smokeable cocaine products are available to consumers than in Europe. The majority are made from the intermediary products, coca paste and cocaine base, that are formed during the manufacture of cocaine hydrochloride from coca leaves (Figure 1). These are smuggled in wholesale amounts within and across borders from production areas in Bolivia, Colombia and Peru. In some South American countries, especially the three main cocaine-producing countries, there is evidence to suggest that markets for smokeable products are larger than those for powder cocaine (UNODC, 2021e). As already mentioned, the availability in Europe of large quantities of coca paste and cocaine base creates a risk that new smokeable cocaine consumer products similar to those available in South America could emerge on the European market in the future (see **Manufacturing cocaine: new developments highlight larger European role in global production**).

How cocaine is retailed in Europe

Compared to other aspects of the cocaine market, there is limited systematic information available on the methods used to retail cocaine directly to consumers in Europe. Overall, the nature of the connections between the players active at different levels of the market — importation, wholesale distribution, mid-market distribution and retail sales — is generally poorly documented. Until more and better data are systematically collected on these aspects, it will be difficult to paint a comprehensive picture of how the cocaine retail market operates in Europe. That said, like the diversification of the criminal networks involved in the importation and distribution of cocaine in Europe analysed earlier (see section on **'Cocaine: increasingly attractive for a wider range of criminal networks'**), some evidence exists to show that retail markets have seen the emergence of new players and are becoming more diverse, in terms of where and how they operate. While the traditional view remains that most sales to users are likely conducted in public or semi-public settings, such as on 'the street' or, where they exist, in open drug markets, the emergence of new technologies, such as semi-private encrypted communication applications, internet-based platforms such as darknet markets, and the use of social media platforms, are likely key factors in the diversification of cocaine retail markets.

Buying cocaine: face-to-face still the preferred method, but social media and messaging apps increasingly used

While research on the cocaine retail trade is limited, it is generally thought that face-to-face methods for buying and delivering cocaine to consumers is most common. However, data collected through novel methods and on internet-based platforms have provided some insights into the market and how it may be changing. The diversification of the cocaine retail market has potentially been influenced by, among other things, the direct delivery to consumers of small amounts of cocaine purchased through the darknet. There is relatively good data on darknet markets, which have provided insights into estimated sales volumes, for example. Based on such data, cocaine has been estimated to be one of the drugs that generates the highest revenues for dealers operating in anonymised darknet markets. While darknet markets have been a relatively important source of supply for European cocaine consumers, there are indications that they are losing ground as a method for retailing cocaine and other drugs (Groshkova et al., 2022).

Research and analysis also suggest that public social media platforms and encrypted communication tools are commonly and potentially increasingly used across Europe for mid-level and retail cocaine trafficking. In Sweden, for example, ongoing research has found that the retail drugs trade has moved increasingly to social media platforms (Bloem and Svederborn, 2021), with one study finding that cocaine is offered in smaller quantities on Facebook compared to one of the largest Swedish cryptomarkets, namely Flugsvamp 2.0 (Moeller et al., 2021).

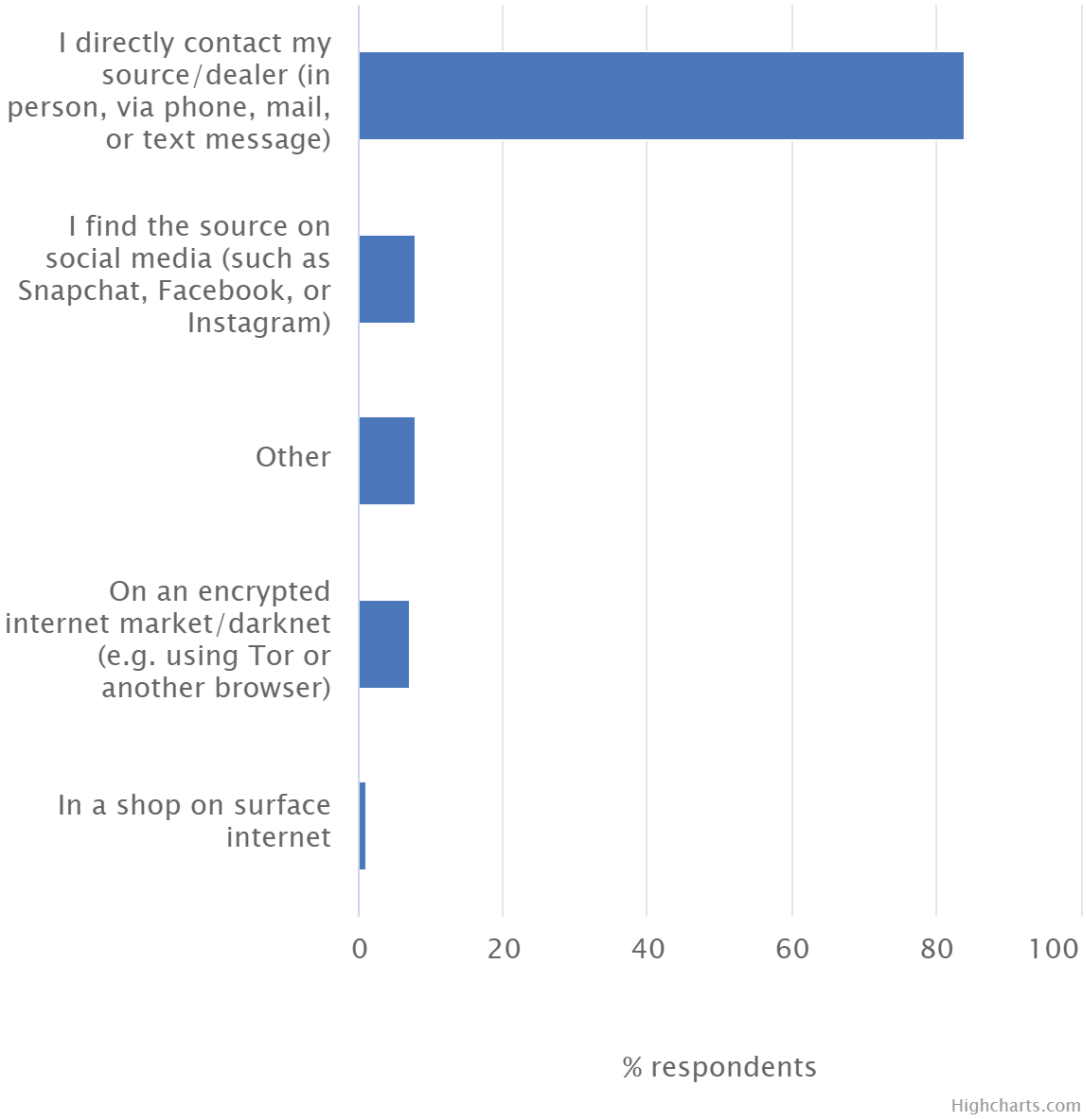
Web-based surveys can also be a quick and inexpensive tool for collecting information from relatively large numbers of people who use drugs. While their results cannot be generalised to the population as a whole, or indeed to all people who use drugs, they can paint a detailed and timely picture of drug consumption and purchasing patterns and are a useful complement to traditional data-collection methods. One such survey is the European Web Survey on Drugs (EWSD), which since 2016 has supported the EMCDDA and national decision-makers in gathering in-depth data on the drug situation in Europe.

Across the 21 EU countries and Switzerland that were covered in the 2021 round of the EWSD, 16 266 respondents (33 %) reported the use of cocaine. A

smaller proportion of these respondents provided detailed information enabling further analysis of how cocaine is retailed in Europe.

The EWSD found that the majority of respondents who answered questions related to how they usually bought cocaine powder, and how it was usually delivered to them (*N* = 5 599), bought cocaine directly from a dealer in-person, via phone, mail or text message (84 %, **Figure 18**). However, a number of respondents also reported using social media (8 %) and the darknet (7 %), further supporting the developments observed in other research related to the growth of internet-based methods for purchasing cocaine. Interestingly, the use of these methods differed between countries. For example, buying the drugs directly from a dealer ranged from 96 % in Bulgaria to 69 % in Latvia, and the use of the darknet ranged from about 20 % in Sweden and Finland to 2 % in Ireland and several other countries. The use of social media stood out in Ireland and Sweden, at 13 %. While this indicates that some methods of purchase are more common in some countries than others, indicating that the retail markets may differ somewhat across Europe, it should be stressed that sample sizes were very small in several countries.

Figure 18. In the last 12 months, how did you usually buy cocaine powder?

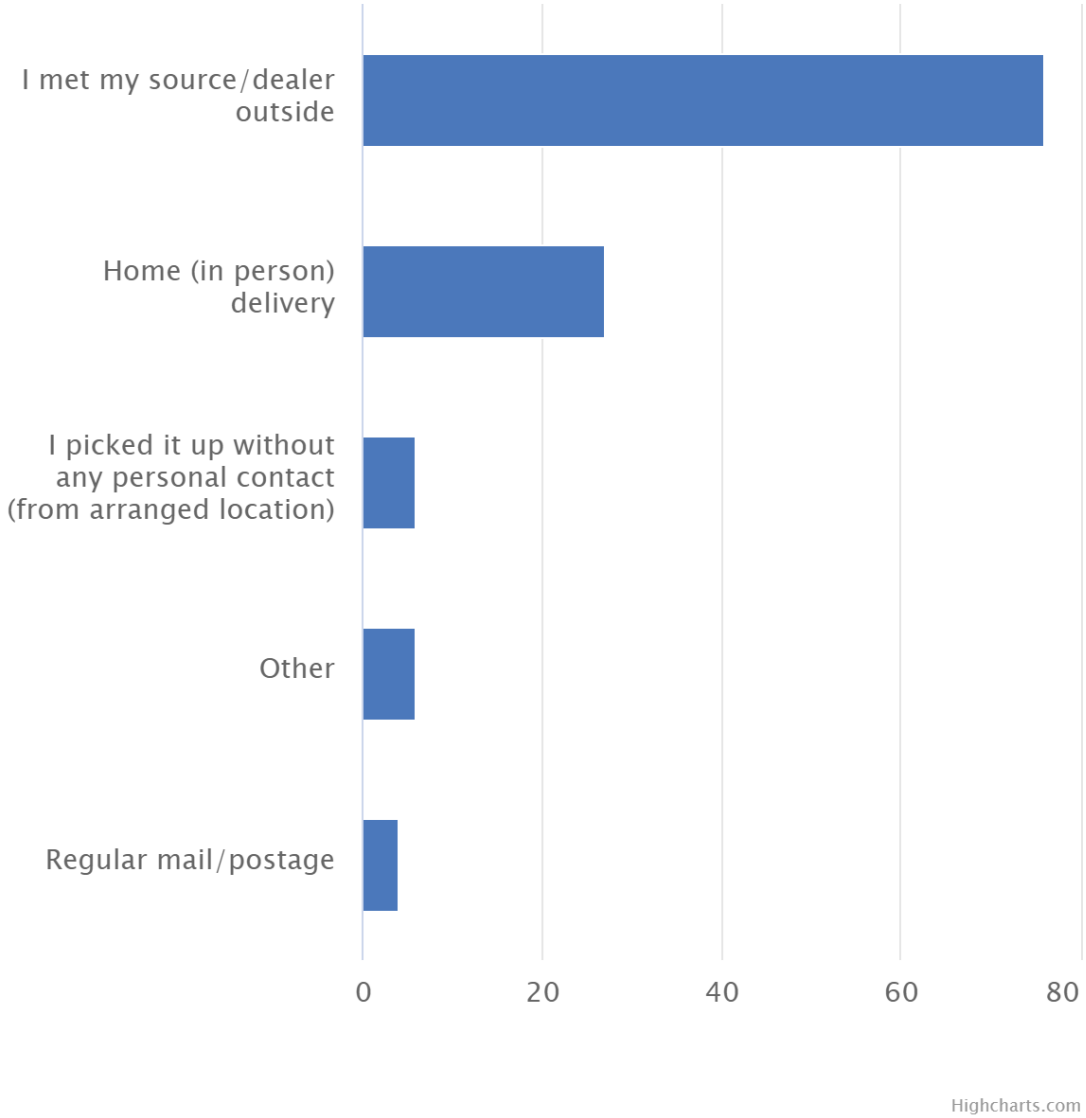


Source: European Web Survey on Drugs, 2021. Twenty-one EU countries and Switzerland. Number of respondents = 5 599.

Figure 19 shows that more than three quarters of respondents reported meeting their dealer outside as the usual delivery method, followed by home deliveries (27 %). It was more common for respondents to report that the cocaine powder was delivered to a drop-off location without any contact (6 %) than receiving the drug through the regular postal service (4 %). Similarly, the use of delivery methods greatly differs between countries, again suggesting differences among

European countries. For instance, postal services were more frequently used in Sweden (13 %), while home deliveries were most common in Switzerland (39 %); however, it is again important to note the small sample sizes in some countries.

Figure 19. In the last 12 months, how was the cocaine powder usually delivered to you?



Source: European Web Survey on Drugs, 2021. Twenty-one EU countries and Switzerland. Number of respondents = 5 599.

Early analysis on the impact of the pandemic on EU drug markets indicated that the effects of COVID-19 restrictions appeared to be more noticeable at the retail

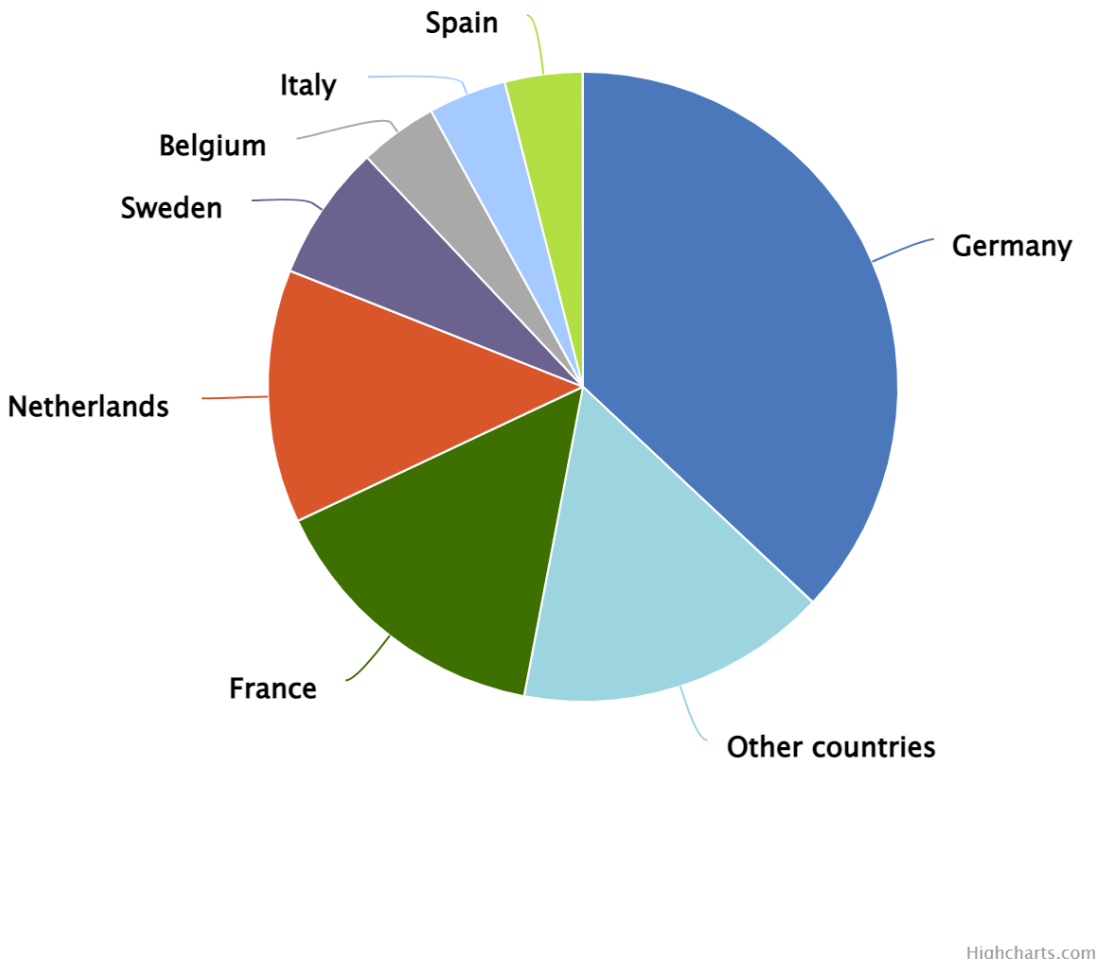
level than at the wholesale level. Although large quantities of cocaine were available in Europe, the logistics of transporting smaller batches, including retail quantities, were more difficult to orchestrate. New modi operandi observed in some EU Member States indicated that some dealers quickly adapted to new challenges. For instance, seizures of drugs from people disguised as key workers have been widely reported (Daly, 2020; EMCDDA and Europol, 2020). It is too early to tell whether the pandemic will have any lasting effects on the retail trade for cocaine in Europe. It will be important to continue monitoring these aspects in the coming years.

Darknet markets: losing ground but still active

Based on 2020 data from 14 darknet markets (Agartha Market, White House Market, DarkMarket, Versus Market, DarkBay Market, Square, Icarus Market, ASAP Market, Cypher Market, BitBazaar, Monopoly, Empire Market, Europa and Apollon Market), a total of 10 832 listings (sale offers) were detected of cocaine in hydrochloride (powder) and freebase (crack) forms purporting to ship from an EU country. Of these, 90 (1 %) of the listings were for crack. Although caution is needed in interpreting these data, the number of listings provides a useful indicator of the scale of activity on darknet markets.

The available data suggest that the majority of powder cocaine sale listings during 2020 originated from Germany (37 %), France (15 %) and the Netherlands (13 %). Other reported EU Member States of origin included Sweden (7 %), Belgium, Italy and Spain (4 % each). An additional 16 % of cocaine listings were offering shipping from various other EU countries, Norway and Turkey (Figure 20).

Figure 20. Proportion of powder cocaine listings on major darknet markets by EU Member States, Norway and Turkey, 2020



Source: EMCDDA analysis based on Web-IQ data.

For crack, a different picture emerges, with the majority of listings purporting to ship from the Netherlands (76 %), followed by Germany (9 %). Several other EU countries featured as shipping origin, and an additional 10 % of crack listings purported to ship from an unspecified country in Europe.

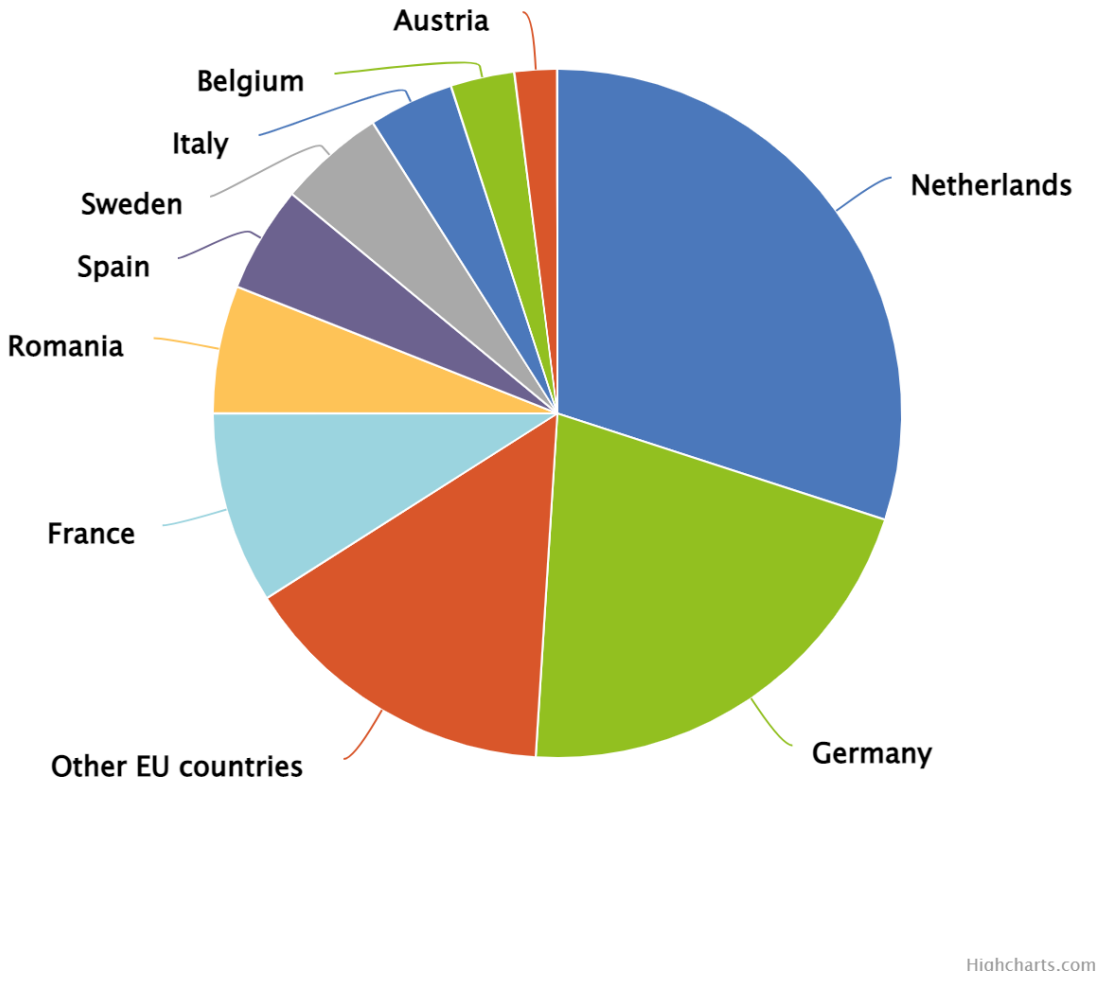
Compared with data from previous monitoring periods, when the origin of cocaine offered on darknet markets was limited to a few EU Member States

(EMCDDA and Europol, 2019), the current data show considerable diversification, with cocaine now apparently being shipped from every corner of the EU.

The typical quantity (most frequently observed value) of cocaine powder offered was 10 grams (1 371 listings), followed by 20 grams (1 031). The typical price per gram was consistently EUR 60 per gram, up to 50 grams, at which point a bulk discount was evident — listings of 50 grams and 100 grams were typically offered at EUR 50 per gram. The typical quantity of crack offered was 1 gram (14 listings), followed by 0.5 grams (11), 5 grams and 10 grams (10 each) and 2 grams (9).

There were 256 listings of 1 kilogram or more (cocaine powder). In 201 listings of 1 kilogram, the typical price was EUR 42 000 (minimum EUR 16 660, maximum EUR 49 000). There were 47 listings for 2 kilograms; one listing each for 2.5 kilograms, 5 kilograms, 10 kilograms, 15 kilograms, 20 kilograms and 30 kilograms; and two listings for 50 kilograms. However, price data were not available for these quantities. The Netherlands and Germany together accounted for over half of the listings of bulk quantities (Figure 21).

Figure 21. Proportion of bulk cocaine listings on major darknet markets shipping from EU countries, 2020



Source: EMCDDA analysis based on Web-IQ data.

BOX STARTS

Cocaine market size estimates

Estimating the size of illicit drug markets is not an easy undertaking, and the European cocaine market is no exception. Conceptually, there are two main strategies to assess the size of drug markets: a supply-side or top-down approach and a demand-based or bottom-up approach. The strengths and limitations of these strategies differ according to the substance studied and for the different methods used within these two strategies, which are reviewed in a

background paper commissioned for this report (Udrisard et al., 2022). Other approaches and novel methods also exist to estimate drug market size, such as wastewater-based analysis.

While each of the approaches outlined have their merits and limitations, in the end they only provide an estimate of the overall amount spent on drugs by those who use them, and nothing about the profit (and losses) at different stages of the supply chain that would expose who benefits the most. Early research found that with illicit drugs, the dominant costs appear to be associated with importation, labour, product and asset seizures, and compensation for the risks of imprisonment and physical harm (Caulkins and Reuter, 1998). In order to adequately inform and hence prioritise responses in future, it will be important to conduct more detailed research and move beyond calculating values of the retail drug market and to focus on calculating the net benefits at each stage of the value chain.

Demand-based estimate

Using the methodology established by the EMCDDA (2019), an estimate of the cocaine retail market size is possible based on the number of users and their use patterns, how much they use per year and the average price paid at retail level.

Despite its limitations, this approach provides a lower bound of what we could expect the retail market size estimate to be. Using the latest data available, the minimum estimated value of the retail market for cocaine in the EU in 2020 was EUR 10.5 billion (range EUR 7.7 billion to 12.8 billion). This represents about a third of the total illicit market in drugs and makes cocaine the second-largest market, after cannabis. This suggests that in 2020 about 158 tonnes of cocaine was consumed, with a likely range of 117 to 193 tonnes. Comparing the current estimate with the value calculated in 2017, even after omitting the United Kingdom, this suggests a large increase. Given the changes in the parameters, this comparison should be treated with care. However, it does suggest the market has expanded.

While this approach has a sound scientific basis, demand-based estimates are prone to underestimation due to misreporting and under-reporting of prevalence and use, as self-reported data do not always reflect reality (Udrisard et al., 2022). According to some studies, demand-based estimates may be in a range

of about 10 % to 50 % of the actual quantities used (Udrisard et al., 2022). One way to compensate for this is to apply correction factors. In the papers reviewed in the EMCDDA's commissioned study, rates up to 40 % to 50 % were used to correct the initial estimates of the number of users or to suggest alternative scenarios (e.g. Bouchard et al., 2012; Kilmer et al., 2011). The impact of such a correction factor (which only applies to the estimated number of users) has the potential to increase the estimated quantities consumed in Europe annually by about one third (Udrisard et al., 2022).

Supply-side estimates

It is also possible to produce a cocaine market size estimate using a top-down approach. There are two main models that can be used for this, namely a production-based approach and a seizure-based approach. The first involves assessing the amount of cocaine available for consumption in a given country or region by taking global production estimates, subtracting the amount seized by law enforcement authorities or otherwise lost (spoiled, etc.) and then estimating the portion of the market share in that place. The amount available can then be multiplied by the local price (adjusted for purity, to account for adulteration) to arrive at the retail market value. There are several challenges with this approach, such as the accuracy of global production estimates, global seizure data and how the national or EU market share could be assessed.

The seizure-based approach simply uses the amount of police seizures and an estimated seizure rate to assess the quantities of drugs available on the market. However, no data are available that would allow an assessment of the seizure rate. An alternative supply-side approach is based on estimates of the number of dealers and the average number of doses they sell (Rossi, 2013). Making such assessments may be possible, and further studies are needed, at city level initially, to test this method and assess its suitability for use at national or EU level.

National market size estimates

A national estimate of cocaine consumption was made in France in 2015 using demand-side estimates. The INHESJ (National Institute for Advanced Security and Justice Studies) reported that the cocaine market evolved significantly between 2005 and 2010, reaching a turnover of EUR 902 million, representing

consumption of 15 tonnes at an assumed purity of 30 %, or 4.5 tonnes of pure cocaine (Ben Lahkdar et al., 2015).

According to the National Crime Agency (NCA) in the United Kingdom, the national cocaine market was estimated to be worth between EUR 10.7 billion and 13.4 billion (GBP 9.4 billion and GBP 11.8 billion) in 2019, with consumption estimated to be 117 tonnes, an increase of at least 290 % since 2011 (excluding Northern Ireland; NCA, 2020). This estimate was derived from a mixed-methods approach combining wastewater analysis, supply-side data and criminal intelligence (NCA personal communication, 2021).

Wastewater-based approach

Drug residue measurements in wastewater show some promise as a method to estimate city-level drug consumption, since the amount of drug metabolites found in wastewater is directly correlated with the amount of drug consumed by the population served by the wastewater treatment plant. In one study, the city-level consumption of cocaine in Brussels was approximately 190 kilograms in 2009 (Van Nuijs et al., 2011). In a study commissioned for this report, wastewater data from the cantons of Vaud and Geneva in Switzerland were analysed. Estimates for cocaine were around 60 % higher than the demand-based estimates in Vaud. In Geneva, the difference was more pronounced, with wastewater providing a 266 % greater estimate than the demand-side estimate (Udrisard et al., 2022).

There are limitations to the wastewater approach, including the difficulties in assessing the size of the population at any given time and the lack of EU-wide coverage. That said, measurements are being conducted regularly in a number of European cities (72 in 2021). More research, analysis and data are needed to maximise the utility of this approach for assessing the size of the cocaine market in the EU.

BOX ENDS

Implications for action to address current threats and increase preparedness

The data available strongly supports a number of overall conclusions.

- Cocaine availability and use is very high by historical standards and we are observing more health and social problems associated with this drug. If current trends persist these problems are likely to increase further in the future.
- Against a background of high availability, we are seeing cocaine use spreading geographically to new markets and socially to new groups. We are also seeing some evidence that more harmful patterns of use, such as smoking or injection, are becoming more common.
- Despite an increase in interdiction efforts, the cocaine market appears both resilient to control efforts and innovative in developing new methods to avoid detection and increase profits.
- The amount of money generated by this market creates a number of important security threats that are currently insufficiently recognised but have the potential to grow further in the future. These include a) corruption, violence and the undermining of legitimate business activities; and b) the alliances increasingly forming between European-based crime groups and those operating from outside of the EU.

To respond to the current situation and to be better prepared to meet the challenge of potential future threats, the following actions are needed.

Improve the intelligence picture: detection, monitoring and analysis

Systematically monitor cocaine-processing laboratories. There is a need to better understand the strategic and tactical implications of secondary extraction and cocaine hydrochloride production laboratories in the EU. This includes the need to understand the processes and assess their extent and scale. Attention should also be paid to the facilitators providing expertise, equipment and chemicals and the involvement of criminal networks or individual high-value targets.

Increase efforts to identify, map and profile criminal networks active in cocaine production, trafficking and distribution. This will improve the tactical intelligence picture, facilitate the identification of high-risk criminal networks and high-value targets and support the prioritisation of operational resources.

Monitor cooperation between EU and non-EU criminal networks involved in the cocaine market. Partnerships between EU-based criminal networks and those outside the EU represent a significant security threat, which may extend beyond the cocaine market to other drugs and criminal enterprises. In particular, a priority is to document and analyse how EU and Latin American criminal

networks work together. Attention must also be paid to alliances linked to cocaine trafficking to the EU via transit areas, such as Africa, and trafficking to global markets where Europe is used as a transit area.

Improve national and EU-level analysis through better integration of operational and strategic information. Resources should be allocated for the strategic analysis of operational information collected during large-scale encrypted communications investigations. In addition, information collected during operations involving large seizures, both in and destined to the EU, could be better utilised to inform strategic analysis. A secure platform for information exchange and joint analysis would enable monitoring and research data to be combined with law enforcement information. The resulting intelligence would inform policy responses, operational prioritisation and planning, and research priorities.

Strengthen the capacity to rapidly identify and follow up on existing and emerging health and security threats. There is a need to improve the surveillance of cocaine use and the associated health and social consequences. Despite some signs of increased cocaine availability and use in eastern and northern European countries, overall, considerable heterogeneity still exists between Member States. A proactive approach is needed to rapidly identify and follow up on signals of increased cocaine use. This will require a multi-indicator approach incorporating both established statistical data, such as seizures, price and purity, and new, more innovative monitoring methods, such as wastewater analysis, hospital emergencies, syringe residue analysis, drug checking and monitoring of darknet markets and other online supply channels.

Systematically monitor cocaine market-related violence and corruption. The cocaine market is a significant driver of corruption and violence within the EU. To improve operational and strategic responses, it is important to understand better the scale and impact of this, as well as how criminal networks use corruption and violence to facilitate cocaine production, trafficking and distribution in the EU.

Better understand drug flows through cocaine profiling. Europe lacks the capability to chemically profile cocaine. Currently, this information is available to a limited extent through the US DEA Cocaine Signature Programme. Generating this information at European level would provide a greater

understanding of drug flows involving the EU, which has value for both policy and operational responses.

Strengthen responses to reduce supply and enhance security

Strengthen operational responses through priority actions against criminal networks. Enhance cooperation and coordinated efforts by making full use of EMPACT and other European instruments that support cooperation, such as operational task forces and joint investigation teams, pooling the resources of national authorities, EU agencies and participating strategic partners.

Strengthen capabilities for cross-border investigations and support maritime surveillance, including controlled delivery operations, by enhancing cooperation between border guards, customs, police and other law enforcement agencies across the EU and internationally. Support for existing mechanisms of maritime surveillance should be continued.

Target the brokers, key facilitators and enablers. These high-value targets play a key role in the current operating model of the cocaine market by facilitating the production, large-scale trafficking and distribution of the drug in Europe. Operational actions specifically focused on these groups and individuals may prove to have high impact in disrupting the cocaine market.

Target the chemical supply chain enabling cocaine processing in the EU. It is essential to effectively prevent and disrupt the diversion or production of precursor chemicals used for the extraction and conversion of cocaine base and coca paste into cocaine hydrochloride. This implies increased focus on the criminal facilitators that supply these chemicals and proactive engagement with legitimate industry.

Disrupt the online distribution of cocaine. Digital channels for sourcing cocaine appear to play an increasingly important role. While the darknet market ecosystem has been substantially disrupted, sustained effort is needed. More emphasis is now required to target supply on instant messaging and social media platforms.

Invest in screening technologies. The most effective screening technologies for the detection of cocaine in containers, vehicles and ships should be

deployed at key ports and airports as well as in post and parcel services. Further investment in research and development has the potential to improve the efficiency of screening processes.

Strengthen public-private partnerships. Cocaine traffickers exploit companies in the legitimate logistics sector, the chemicals industry and other commercial infrastructure. Public-private partnerships therefore represent a valuable resource, and companies should be enabled and encouraged to report suspicious activities.

Improve the targeting of illicit revenues. The cocaine market is highly lucrative, estimated at EUR 10.5 billion in 2020, but this presents the challenge of laundering revenue. Financial investigations into money laundering conducted in parallel with cocaine trafficking and distribution investigations provide opportunities to effectively disrupt criminal networks. Continued efforts are needed to implement in full the revised European regulatory framework to target illicit financial flows.

Strengthen international cooperation

Further enhance international cooperation between the Member States, the EU, and key international stakeholders working to reduce the supply of cocaine. The cooperation should be based on active engagement combined with an intensified exchange of operational and strategic information. This requires the strengthening and further operationalisation of the existing coordination mechanisms involving the EU, the Member States, relevant EU agencies and key international partners including Bolivia, Brazil, Colombia, Ecuador, Peru as well as Mexico and the US. Further synergies with the UN system should also be pursued.

Make full use of existing EU-funded operational coordination platforms and programmes. The EU finances a number of important international initiatives specifically focused on cocaine. Information gathered in these projects should be collated and used to inform EU analyses and responses. Investment in operational initiatives that capitalise on the capabilities of Member States and have proven successful, such as MAOC-N should be continued. In parallel, it is important to continue supporting other projects with a wider focus on health and social problems.

Invest in capacity-building

Improve forensic testing capabilities at European and Member State level. Greater efforts are needed to harmonise the routine forensic analysis of cocaine seizures in Europe to support the collection and reporting of comparable data on the cocaine market. This should include the possibility to distinguish between different forms of the drug (cocaine hydrochloride, cocaine base and coca paste). In addition, a European system of chemical profiling of cocaine seizures should be established to improve strategic analysis, determine production methods and the origin of the coca used to produce the drug.

Invest in awareness-raising and training. Raise awareness and provide training at EU and Member State level to border guards, customs, police and other law enforcement agencies focused on cocaine trafficking routes, modi operandi and the emergence of cocaine-processing laboratories within the EU. Frontline services should be alerted to the links between the cocaine market and violence and corruption.

Support capacity development at key entry points. Significant risk profiling expertise has been developed in major European ports for the detection of cocaine at EU borders. The knowledge, expertise and good practices should be transferred to smaller ports and other secondary entry points such as provincial airports. In particular, information about concealment methods and modi operandi should be disseminated rapidly using existing mechanisms. The risk of infiltration by criminal networks using intimidation, corruption and digital intrusion requires specific attention.

Strengthen policy, public health and safety responses

Increase awareness of cocaine threats at policy level. Awareness-raising is needed to increase the preparedness of Member States to respond to threats posed by the cocaine market. Support to policy at Member State level could be provided through threat assessments, targeted rapid alerts and risk communications in order to implement multi-disciplinary national and local action plans.

Take a future-oriented approach. There is a risk that the success of efforts on known key locations may result in displacement of trafficking routes and other criminal activities. A future-oriented approach to planning and risk assessment

is therefore required to identify potential vulnerabilities and put in place preventive measures, where merited.

Strengthen prevention efforts related to involvement in the cocaine market. Significant numbers of Europeans may now be involved in the operation of the cocaine market, and there is a need to develop and implement crime prevention programmes targeting young people at risk. In addition, efforts are also needed to reduce the risk of other vulnerable individuals being recruited into high-risk roles in the cocaine market, such as couriers and street-level dealers.

Strengthen targeted prevention, treatment and harm reduction interventions. Many people who use cocaine do not sufficiently recognise the harm it causes, especially when injected or smoked. There is a need to strengthen prevention strategies, treatment provision and emergency services. Harm reduction measures should aim at preventing overdose and infectious diseases, and be tailored to preventing harms linked to the use of crack cocaine.

Respond to the environmental risks associated with cocaine production in Europe. There is a need to develop and deliver prevention messages in relevant countries alerting professionals and the public to the inherent dangers of cocaine processing, including fire hazards, water and soil contamination and poisoning caused by the presence of harmful chemicals.

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