

# Chapter III.

## Analysis of the world situation

### A. Global issues

#### 1. Ensuring access to and availability of controlled substances for medical and scientific purposes during the COVID-19 pandemic and the effect of the pandemic on drug trafficking and the illicit economy

##### Ensuring access to and availability of controlled substances for medical and scientific purposes during the COVID-19 pandemic

306. Since the beginning of 2020, the COVID-19 pandemic has brought forth unprecedented challenges to the economies and public health systems of all countries. The lockdowns, border closures and social-distancing measures adopted by most countries to reduce the number of infections and contain the further spread of the virus have put to the test the ability of the international community to ensure adequate access to and availability of internationally controlled drugs for those in need.

307. The global supply chain of medicines has been affected since February 2020 as a result of both the disruption in the manufacturing of key starting materials of active pharmaceutical ingredients and of the ingredients themselves in some major manufacturing countries and the logistical challenges arising from border closures and other social-distancing policies adopted by a number of countries.

308. On top of challenges in sourcing active pharmaceutical ingredients for further processing and generic medicines for consumption, the surge in demand for medicines necessary for the treatment of patients with COVID-19 further reduced the availability of some medicines containing controlled substances. In particular, the Board was aware of and concerned about news regarding shortages of medicines containing controlled substances such as fentanyl and midazolam in some countries, largely driven by significant increases in the need to provide pain relief and sedation for patients admitted into intensive care units with COVID-19.

309. In the light of lower supply and greater demand, a number of contingency measures have been put in place by some countries, including increasing stocks to provide a greater buffer, resorting to alternative drugs, implementing temporary export bans, which have in turn led to shortages of certain medicines in other countries, and importing medicines containing controlled substances registered in other countries.

310. The heightened demand for certain substances has been reflected in part by a number of requests by Governments since March 2020 to increase their estimates and assessments and by a greater number of countries deciding to issue electronic import and export authorizations instead of hard copies of such authorizations. Several Governments also permitted the electronic submission of applications for import and export authorizations for narcotic drugs and psychotropic substance and notifications of no objection for precursor chemicals.

311. Alongside the difficulties faced by most countries in the procurement and sourcing of controlled substances,

disruption in the treatment and service delivery for people with mental health problems and substance use disorders since the onset of COVID-19 warrants specific concern and attention. Based on the rapid assessment of WHO, more than 40 countries experienced disruption in their services for people with mental health problems and substance use disorders, including those related to life-saving emergencies. Community-based outpatient services, services to raise awareness of and prevent mental health problems, and services targeted at older adults and children were among those that were most adversely affected. The lack of access to such essential treatment services as a result of COVID-19 is extremely worrisome, as prolonged social distancing and the associated social isolation impose greater emotional strain on people with mental health problems and substance use disorders and may further increase the number of people suffering from such conditions.

312. Research from UNODC has further confirmed the impact and health consequences of COVID-19 on people who use drugs. Specifically, the mobility restrictions imposed by most Governments caused considerable disruption to access to drug treatment services, clean drug-using equipment and substitution therapy. The lack of access to treatment services and safe practices increased not only the risk of aggravating drug use disorders, but also risks with regard to the health and survival of drug users. For instance, heroin users who could not access opiate-substitution therapy were reported to have suffered severe withdrawal symptoms. Meanwhile, shortages in the supply of drugs also led to the use of alternative means of administration (e.g., injection) by some users, incurring additional risks such as the spread of blood-borne diseases (e.g., HIV/AIDS and hepatitis C).

### Measures taken by the Board to ensure access to and availability of controlled substances for medical and scientific purposes during the COVID-19 pandemic

313. In line with its mandate, the Board strives to raise awareness of the importance of ensuring the availability of medicines containing controlled substances during this challenging time. In April 2020, the President of INCB joined a call made in an article in *The Lancet* to extend palliative care during and after the COVID-19 pandemic. On 26 June 2020, to mark the International Day Against Drug Abuse and Illicit Trafficking, he also emphasized the importance of Governments ensuring continued access to controlled medicines for all medical needs related to COVID-19. In addition to joining other

United Nations entities as part of the United Nations COVID-19 response, on 14 August 2020, the Board issued a statement, together with UNODC and WHO, on access to internationally controlled substances during the COVID-19 pandemic.

314. Since the beginning of the pandemic, INCB has conducted further research and enhanced its contact with competent national authorities to ensure the availability of controlled substances. In May 2020, the Board contacted major manufacturing countries to identify challenges encountered in the supply of controlled psychotropic substances. Several manufacturing countries noted a considerable increase in the demand for drugs containing controlled psychotropic substances and the logistical challenges involved in the international trade therein. Most of them, however, did not anticipate further disruptions to their manufacturing activities.

315. The Board also conducted a survey among users of PEN Online to ascertain the impact of the pandemic on legitimate activities related to precursors. Most respondents reported no major effect on the legitimate supply of such substances, apart from the general “lock-down” effect, such as border closures affecting trade in general. This is corroborated by the information available to the Board through the number of pre-export notifications submitted, which showed a decline of 17 per cent for the period January–June 2020 when compared with the same period in previous years.

316. Since March 2020, an increased number of supplementary estimates for narcotic drugs and modifications to assessments for psychotropic substances have been submitted by Governments as a result of COVID-19. They were processed expeditiously and the assessment system for psychotropic substances continues to be updated on a weekly basis. The INCB secretariat has also facilitated communication between importing and exporting countries and assisted in the verification of the legitimacy of import and export authorizations to ensure that international trade is unaffected as much as possible by measures put in place in response to the pandemic.

317. The Board has repeatedly expressed its commitment to supporting Governments in using I2ES and enhancing their knowledge of the international drug control framework through INCB Learning. Such activities have taken on heightened importance during the COVID-19 crisis, as paperless trade and online training become the norm.

318. Since the end of March 2020, Governments have been encouraged to share updates through the I2ES

forum on contingency measures taken as a result of COVID-19 so that trading partners are informed in a timely manner of the latest measures to minimize disruptions to trade. Furthermore, the secretariat conducted several webinars to strengthen the operational capacity of the I2ES community. Between March and June 2020, representatives of the competent national authorities of Bhutan, Bulgaria, Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Luxembourg, Mozambique, Oman and Panama attended a series of INCB Learning webinars to receive hands-on training on the technical reporting requirements of the international drug control conventions.

319. INCB has been in touch with Member States and international organizations to review the need to update the Model Guidelines for the International Provision of Controlled Medicines for Emergency Medical Care<sup>69</sup> as the impact of COVID-19 continues to unfold, casting uncertainties on the ability of the international community to ensure the adequate availability of medicines containing controlled substances during emergency and other crisis situations.

320. Looking ahead, the Board will continue to monitor the impact of COVID-19 on the availability of medicines containing internationally controlled substances and treatment services for mental health problems and substance use disorders, particularly in low- and middle-income countries. To ensure uninterrupted manufacturing and delivery of those medicines for the treatment of patients with COVID-19, and all others in urgent need of them, **the Board recommends that countries review their forecasts for the demand of medicines containing internationally controlled substances and streamline all the necessary administrative and logistical requirements. Countries are also urged to continue the provision of treatment services for mental health problems and substance use disorders as part of essential services. At the international level, the Board encourages all Member States to continue working closely with each other and the Board to ensure the global availability of medicines containing controlled substances, especially for those who are most in need during emergency situations.**

### Effect of the COVID-19 pandemic on drug trafficking and the illicit economy

321. The measures introduced by Governments to prevent the spread of COVID-19 have inevitably influenced illicit drug markets, from the manufacture and movement

of drugs to the consumption thereof. Thus far, three developments in drug markets and, in particular, in international drug trafficking, can be identified: (a) a decrease in the availability of drugs and an increase in pricing; (b) an impact on law enforcement capacities; and (c) a change in the *modi operandi* of drug trafficking organizations.

### Impact on the availability and pricing of drugs on the illicit market

322. Recent studies suggest that the measures implemented by Governments to address the COVID-19 pandemic have led (at least temporarily) to a shortage of numerous types of drugs at the retail level, coupled with an increase in prices. These impacts vary depending on the type of substance and the geographical location of production, but they affect in particular those substances that are transported alongside licit goods and services. The availability and prices of synthetic and semi-synthetic drugs are also affected by the availability of the requisite precursor chemicals. Wherever illicit drug manufacture is dependent on the cross-border and, in particular, inter-regional flow of precursors, the decline in international trade, which traffickers use to mask illicit shipments of precursors, will inevitably lead to lower availability of those substances and consequent drug manufacture.

323. Unsurprisingly, drug trafficking by air passengers decreased dramatically in the first months of 2020 as most planes for private passenger transport were grounded owing to COVID-19 restrictions. However, the transportation of commercial goods has not seen the same widespread disruption as passenger transport. Therefore, the trafficking of drugs by maritime shipping or commercial air freight has likely continued at similar levels to those before the outbreak of the pandemic. For example, there are indications that international trafficking in heroin, a substance that is primarily transported by land, has been disrupted more than, for instance, trafficking in cocaine, which relies to a large extent on sea routes. Seizures of relatively large amounts of cocaine in European ports confirm the ongoing international trafficking in cocaine.

324. Furthermore, some countries in the European Union noted an increase in drug distribution using post and parcel services. This increase is substantiated by the data uploaded from law enforcement authorities to IONICS, the Board's global intelligence exchange platform for synthetic opioids and new psychoactive substances: of 3,298 seizures communicated within the first five months of 2020, 86 per cent were made in relation to postal

<sup>69</sup>WHO, document WHO/PSA/96.17.

services, compared with 46 per cent the year before. Overall, within the European Union, the logistics of drug trafficking generally appear to be most affected in relation to the movement of bulk quantities of drugs between member States, owing to the introduction of border controls.

325. Information from community-based drug prevention and treatment workers suggests that there have been some shortages related to heroin that, in some cases, may have led to heroin being substituted with other dangerous substances. For instance, in Czechia, reports have emerged that heroin has fully disappeared from the street-level drug market owing to COVID-19, which has led to concerns of a potential increase in the use of fentanyl or alcohol in combination with benzodiazepines. Another consequence of these drug shortages is that, in some countries, the purity of local drug supplies has decreased over time as dealers add bulking agents in order to continue to meet persistently high demand. There are also instances where adulterants are used to artificially increase the perceived purity. The most common of these adulterants, in particular in North America, is fentanyl and its many analogues, which could significantly increase overdose and death rates. Some reports show that benzodiazepines have also been used as adulterants, in particular in Canada.

326. Thus, regarding the availability and pricing of drugs, there is evidence that the COVID-19 restrictions have, in some countries, led to a disruption in the availability of drugs and to an increase in prices. Depending on the substance, people who use drugs may have either reduced their overall consumption or switched to even more harmful substitutes. The consumption of drugs typically connected to nightlife and party scenes, such as “ecstasy”, has decreased, given the restrictions on gatherings and the closure of nightclubs and other venues imposed as a measure to control the pandemic.

### Impact on law enforcement capacities

327. The shift in operational focus towards duties related to the enforcement of social-distancing requirements, border controls and the fight against falsified medical products has temporarily reduced the availability of law enforcement personnel to conduct investigations into other types of crimes. In countries with already limited law enforcement capacity, this change makes drug trafficking and manufacture less risky and therefore more attractive to criminal organizations.

328. During the first six months of 2020, the number of seizures of new psychoactive substances communicated through IONICS totalled 3,501, which was a decrease of 25 per cent compared with the same period in 2019, when 4,721 incidents were communicated. Similarly, with regard to precursors, the number of incidents communicated through PICS was about one third less in the same time period (the period most likely to have been affected by the pandemic) as compared with the same period in 2019.

### Changes in the modi operandi of drug trafficking organizations

329. Evidence shows that one of the approaches of drug traffickers to dealing with challenges is to change existing trafficking routes, modi operandi and, in some cases, even substances, looking for ways to minimize cost and risk and maximize profit.

330. Several reports have revealed that criminals have used falsified certificates, commercial vehicles and corporate uniforms to impersonate food delivery and other key workers in order to deliver drugs. In April 2020, INTERPOL issued an alert warning that criminal organizations were using food delivery services to transport drugs, such as cocaine, cannabis, ketamine and “ecstasy”. Even the increasing demand for supplies such as gloves, masks and hand sanitizer has been exploited in that way by drug traffickers, perhaps in the belief that border controls for those types of goods may be less rigorous.

331. Moreover, open web and darknet markets, social media, secure encrypted communications applications and online forums seem to be playing a more prominent role in the sourcing of drugs at the user level. Home deliveries, less face-to-face dealing and less reliance on cash as a form of payment seem to be trends in individual transactions and it is possible that these behavioural changes, once established, will persist over the longer term. Although the rapid devaluation of cryptocurrencies such as bitcoin at the beginning of the pandemic caused some vendors to pull out of darknet marketplaces, according to the National Cyber-Forensics and Training Alliance of the United States, listings in almost all darknet marketplaces increased between the end of March and the end of April 2020. Drug traffickers and trafficking organizations remain resilient and are adapting their modi operandi to the current situation in many ways, further exploiting online and secure communication channels, as well as adapting transportation modes and trafficking routes.

## Measures taken by the Board to counter current developments on the illicit drug market

332. As a practical response to the COVID-19 pandemic and utilizing opportunities for increased connectivity while moving to online work environments, the Board hosted, *inter alia*, a series of interactive hybrid (in-person and online) webinars, discussion sessions and expert group meetings to raise awareness of the new trafficking trends outlined above, exchange experiences and provide practical approaches for law and regulatory enforcement focal points, information exchange being vital for joint efforts to tackle current challenges in drug trafficking.

333. Given that pandemic-related measures are likely to persist for the foreseeable future, accompanied by uncertainty in circumstances affecting both domestic and international travel and an increase in express consignments and home deliveries for vital supplies, which provide ample opportunities for traffickers to hide substances, it has been proved vital for law enforcement authorities to utilize new strategies for dangerous substance interdiction, which the Board's GRIDS programme provides. Evaluation statistics relating to the GRIDS Programme webinars on trafficking trends and approaches during the COVID-19 pandemic, held in May 2020, showed that, overall, 87 per cent of the participants considered the event to be highly valuable for their work in combating global drug trafficking.

334. As drug manufacturers, traffickers and distributors seem to gradually overcome the difficulties initially caused by COVID-19, it is of great importance that law enforcement authorities, which have already been operating with limited counter-narcotics resources during the pandemic, identify these developments and find new ways to counter changes in the nature of trafficking in dangerous substances.

## 2. Effective drug control as a means of fostering peace and security

335. INCB, within its mandates, continues to support Member States in the implementation of the three international drug control conventions in a comprehensive, integrated and balanced way with a view to achieving the Sustainable Development Goals, in particular Goal 16 (Promoting peaceful and inclusive societies for sustainable development, providing access to justice for all and building effective, accountable and inclusive institutions at all levels).

336. In this regard, the Board notes that the provisions of the international drug control conventions related to supply reduction, which include measures and strategies to reduce the quantities of illicit drugs on illicit markets while ensuring the availability of narcotic drugs and psychotropic substances for medical and scientific needs, together with the provisions of the conventions pertaining to reducing demand for illicit drugs, constitute some of the essential elements of such a comprehensive, integrated and balanced approach. The Board wishes to highlight that the provisions of the international drug control treaties related to criminal justice, covering issues such as penal provisions, international judicial and law enforcement cooperation, asset forfeiture and confiscation, can serve as effective legal instruments in addressing not only drug-related offences, but also any associated criminal activity, such as organized crime, corruption and money-laundering.

337. Target 16.1 of the Sustainable Development Goals is to significantly reduce all forms of violence and related death rates everywhere. In this regard, the Board recognizes that, under the pretext of the "war on drugs", policies in some countries have led to disproportionate and overly repressive responses without respect for due process and the rule of law. Such responses contribute to an increase in violence and related death rates. The Board has called, on numerous occasions, for national drug control systems to be based on the international drug control conventions, the Political Declaration and Plan of Action on International Cooperation towards an Integrated and Balanced Strategy to Counter the World Drug Problem and the Ministerial Declaration on Strengthening Our Actions at the National, Regional and International Levels to Accelerate the Implementation of Our Joint Commitments to Address and Counter the World Drug Problem, in all of which Member States expressed their commitment to implementing a comprehensive, integrated and balanced approach, principles of proportionality in the determination of penalties and response measures, shared responsibility and respect for human rights and liberties and the rule of law. The Board continues to engage in close dialogue with all Member States, as well as the non-governmental sector and academia, with a view to promoting those commitments.

338. Target 16.4 of the Sustainable Development Goals is to significantly reduce, by 2030, illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime. The Security Council, in its resolution 2482 (2019), acknowledged that terrorists could benefit from organized crime, whether domestic or transnational, such as trafficking in drugs, and called upon Member States to strengthen their efforts, as well as international and



regional cooperation, to counter the threat to the international community posed by the illicit cultivation and production of, trafficking in and consumption of narcotic drugs and psychotropic substances, which could significantly contribute to the financial resources of terrorist groups, and to act in accordance with the principle of common and shared responsibility in addressing and countering the world drug problem, including through cooperation against trafficking in illicit drugs and precursor chemicals.

339. The outcome document of the thirtieth special session of the General Assembly, entitled “Our joint commitment to effectively addressing and countering the world drug problem”, also reflects the international community’s commitment to addressing the links between drug-related crimes and other forms of organized crime, including money-laundering, corruption and other criminal activities, in line with the international drug control conventions and the United Nations Convention against Transnational Organized Crime, the United Nations Convention against Corruption and the international instruments on countering terrorism. In the outcome document, Member States recommend improving the availability and quality of statistical information and analysis on illicit drug cultivation, production and manufacturing, drug trafficking, money-laundering and illicit financial flows, including for appropriate reflection in reports of UNODC and INCB, in order to better evaluate the impact of such crimes and further enhance the effectiveness of criminal justice responses in that regard.

340. In a statement on 18 December 2013 (S/PRST/2013/22), the President of the Security Council highlighted the Council’s concern over the increasing links between drug trafficking and other forms of transnational organized crime, including trafficking in arms and in persons, and terrorism, as well as its concern over the growing violence resulting from activities of criminal organizations involved in drug trafficking in West Africa and the Sahel region. The Council emphasized the need to enhance interregional cooperation and coordination in order to develop inclusive and effective strategies to combat, in a comprehensive and integrated manner, transnational organized crime, including trafficking in drugs and arms, and activities of terrorist groups. The Council called for increased international cooperation, including with UNODC and INCB, and encouraged Member States to ratify and implement the international drug control treaties.

341. In Colombia, despite the signature of the peace agreement with the Revolutionary Armed Forces of Colombia-People’s Army (FARC-EP) in 2017 and the

continued efforts of the national Government to combat drug trafficking, illicit coca bush cultivation continued, and with it the financing of illegal activities by criminal groups. Despite the efforts of national agencies, the country continues to face threats from other activities related to drug trafficking, such as trafficking in arms, terrorism, money-laundering and corruption. There has also been an increase in violence, resulting in the deterioration of the security situation in some cities of Colombia.

342. Linkages between insurgency and terrorism and drug trafficking in Afghanistan have been repeatedly highlighted by the United Nations and the Board. Despite the fact that the gross value of the Afghan opiate economy fell by two thirds, from between \$4.1 billion and \$6.6 billion in 2017 to between \$1.2 billion and \$2.2 billion in 2018, the opiate economy still accounted for 6–11 per cent of the country’s gross domestic product and exceeded the value of its officially recorded licit exports of goods and services. With a view to supporting the efforts of Afghanistan to address the illicit drug economy and other drug-related challenges, and to mobilize global support in that regard, the Board invoked article 14 bis of the 1961 Convention as amended in May 2018, which allowed it to recommend to the competent United Nations organs and to the specialized agencies that technical or financial assistance, or both, be provided to the Government of Afghanistan in support of its efforts to carry out its obligations under that Convention.

343. The strong financial “incentives” offered by drug trafficking to organized criminal groups were highlighted by UNODC in its 2011 report entitled *Estimating Illicit Financial Flows Resulting from Drug Trafficking and Other Transnational Organized Crimes*. In that report, it was pointed out that the largest income for transnational organized criminal groups came from illicit drugs, which accounted for some 20 per cent of all crime proceeds, about half of transnational organized crime proceeds and 0.6–0.9 per cent of global gross domestic product. In turn, drug-related proceeds available for money-laundering through the financial system were equivalent to between 0.4 per cent and 0.6 per cent of global gross domestic product.

344. In its statements regarding the situation in Afghanistan, which are applicable to any country or region seriously affected by drug trafficking and use and associated criminality, the Board has highlighted the fact that drug control is a cross-cutting issue and that, unless local, national, regional and international efforts to address it are effectively pursued, poverty, insurgency, terrorism and obstacles to development will remain unaddressed.

345. In this regard, the Board wishes to call upon Member States to counter drug trafficking and related violence through comprehensive and balanced measures. These measures include effective prevention and criminal justice responses and alternative development initiatives. Member States should also ensure that responses to drug-related criminal conduct are proportionate and founded upon respect for human rights and dignity, in line with the three international drug control conventions, international human rights instruments and the rule of law.

### 3. Collective approaches to drug terminology

346. Strengthening international cooperation in drug control requires a collective understanding of common challenges and the identification of mutual approaches to key concepts and issues. Some challenges in promoting the consistent application of the international drug control treaties have resulted from shifts over time in the terminology used to describe issues related to drug control. The Board routinely takes note of changes to drug-related lexicons and developments in the terminology used by Member States, intergovernmental organizations, academia and civil society in relation to the world drug problem.

347. Since the drafting of the most recent international drug control convention, the 1988 Convention, there have been changes to the terminology commonly used to describe various aspects of the world drug problem. These changes have resulted from major advancements in science, as well as substantial societal developments and increased understanding of drug use and drug dependence.

348. Some terminology, although not found in the international drug control conventions, has been used by the international community and included in intergovernmental processes to reflect both advancements in science and evolving societal approaches to drug control, in particular from the perspectives of prevention, treatment and rehabilitation. Changes to drug-related terminology have come from changes in the broader societal context, such as the increasing awareness of the importance of inclusivity in language. For example, although the preamble to the 1961 Convention includes a reference to concern for the health and welfare of mankind, the Board keeps within the full spirit of the Convention when it replaces the term “mankind” with “humankind” or “humanity”, which are also translations of the terms used in other languages in which the Convention was written. The principles in the conventions continue to be upheld,

even as certain word choices are avoided in the interests of gender-inclusive language.

349. The drug terminology used in resolutions and decisions of the Economic and Social Council and the Commission on Narcotic Drugs and in publications in the field of international drug control has changed over time. The Board notes that some changes to terminology have been based on new and evolving challenges or the need to better safeguard human rights protections and place people and their needs at the centre of drug control policies. The term “drug use”, for example, has been mostly preferred in recent publications over the term “drug abuse”, owing to perceptions that the word “abuse” can, in some instances, result in the further stigmatization of people who consume drugs.

350. The careful use of terminology can therefore aid in preventing the stigmatization of drug use and dependence. Those working in the field of drug control have had to take a cautious approach to the use of terms in order to be mindful of the possible effects of language on the protection of human rights. The Board takes note of Commission on Narcotic Drugs resolution 61/11, entitled “Promoting non-stigmatizing attitudes to ensure the availability of, access to and delivery of health, care and social services for drug users”, and affirms the Commission’s guidance that Member States can prevent social marginalization and promote non-stigmatizing attitudes, including in the development and implementation of scientific evidence-based policies.

351. The Board regularly and carefully examines the use of drug-related concepts and other lexicons, such as the lexicon used by WHO. In its report for 2017, for example, the Board specifically indicated that precision was required in the use of terminology concerning the medical use of cannabinoids. Such precision and the collective aim of standardization can help the Board in the coming years with data collection across countries and periods of time and facilitate the effective monitoring of treaty compliance.

352. In line with the Ministerial Declaration on Strengthening Our Actions at the National, Regional and International Levels to Accelerate the Implementation of Our Joint Commitments to Address and Counter the World Drug Problem,<sup>70</sup> the Board seeks to promote the collection, analysis and sharing of quality and comparable data. This will require the continued identification of any scientific or legal ambiguities in the terminology chosen

<sup>70</sup>See *Official Records of the Economic and Social Council, 2019, Supplement No. 8 (E/2019/28)*, chap. I, sect. B.

in the drafting of drug policies and laws. Member States draw distinctions in drug terminology on the basis of their own national and local understandings and interpretations of the conventions and public health priorities.

**353. In this context, the Board urges Governments to continually examine any drug terminology that has ambiguous usage, or potentially stigmatizing effects, and that might have an impact on the ability of the international community to cooperate effectively on and jointly counter the world drug problem.**

#### **4. Genetic engineering and its implications for the cultivation of cannabis and production of cannabis derivatives in the context of the international drug control conventions**

354. Selective breeding techniques have been used for centuries in the agricultural sector to maximize desirable traits in plants and animals. However, they require careful cultivation or breeding of multiple generations in order to maximize certain traits and minimize others. The rise of genetic engineering has, for several decades now, allowed the agricultural sector to modify crops to increase their yield, improve their resilience to pests and enable them to grow in harsh environments. Although many genetic engineering techniques may be unreliable, expensive or difficult to execute, recent advancements in genetic engineering technologies now allow for highly accurate, effective and cheaper genetic engineering of organisms. These new technologies are also being applied to the cannabis plant and the production of cannabinoids.

355. In article 1, paragraph 1 (b), of the 1961 Convention as amended, cannabis is defined as the flowering or fruiting top of the cannabis plant (excluding the seeds and leaves when not accompanied by the tops) from which the resin has not been extracted. These portions of the plant contain the most THC and other cannabinoids. Moreover, studies of the cannabis plant over the last few years have found that, beyond THC and CBD, over 100 cannabinoids are found naturally in the plant.

356. As more jurisdictions permit the cultivation and use of cannabis for medical purposes, researchers and the private sector are investigating the use of genetic engineering technologies to modify the cannabis plant to optimize industrial processes and more precisely adjust the yields of the types of cannabinoids being produced. Research is also being undertaken on modifying other

organisms to produce cannabinoids that they would not otherwise produce naturally.

357. As the flowering top represents only a fraction of the cannabis plant's biomass, cultivators are seeking ways to increase yields of cannabinoids from the plant. To this end, patents have already been filed using recently developed technologies to modify the cannabis plant to grow trichomes or produce cannabinoids in other parts of the plant beyond the flowering top, leaves or seeds, effectively making the entire cannabis plant a producer of cannabinoids.

358. In addition to the modification of the cannabis plant, some technologies may allow the production of cannabinoids without using the cannabis plant at all. Through initial research conducted in 2019, a method was found of modifying a kind of yeast that could allow for the large-scale fermentation of cannabinoids from simple sugars, independent of cannabis cultivation.

359. Research into both the genetic modification of the cannabis plant and the yeast-based method of cannabinoid production has also indicated the possibility of using these technologies to produce cannabinoids such as cannabigerol, cannabichromene and cannabinol in far larger quantities than can be produced through selective cultivation.

360. As the system of control established under the 1961 Convention as amended includes controls of the flowering top, with limited control on the leaves and seeds, these developments pose questions with regard to the control of the cannabis plant if it were modified to produce cannabinoids throughout the plant and beyond the flowering top.

361. Advances in technology also allow for the possibility for its abuse, in particular, through the misuse of these new genetic engineering technologies to illicitly produce drugs. The method of cannabinoid production through genetically modified yeast makes the need for large "grow houses" or clandestine cultivation of cannabis unnecessary.

**362. The Board calls upon Governments to take note of the advances in genetic engineering and biotechnology in the cultivation of cannabis, as well as other technologies that can allow for the manufacture of cannabinoids through non-conventional means. The Board also calls upon Governments to ensure that these technologies are appropriately used with respect to the international drug control conventions and to take steps to prevent the misuse of such technologies in the illicit manufacture of drugs.**