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National Narcotics Intelligence Consumers Committee (NNICC)



The NNICC Report 1989

The Supply of Illicit Drugs
to the United States

June 1990

133905

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PREFACE

The National Narcotics Intelligence Consumers Committee (NNICC) Report is the product of a cooperative effort involving Federal agencies with drug-related law enforcement, foreign and domestic policy, treatment, research, and intelligence responsibilities. In April 1978, the NNICC was established to coordinate the collection, analysis, dissemination, and evaluation of strategic drug-related intelligence, both foreign and domestic, that is essential to effective policy development, resource deployment, and operational planning. In 1989, membership consisted of the Central Intelligence Agency, U.S. Coast Guard, U.S. Customs Service, Department of Defense, Drug Enforcement Administration, Federal Bureau of Investigation, Immigration and Naturalization Service, Internal Revenue Service, National Institute on Drug Abuse, Department of State, and the Department of the Treasury. The Office of National Drug Control Policy was an observer. The Deputy Assistant Administrator for Intelligence of the Drug Enforcement Administration served as Chairman.

The NNICC Report for 1989 is the 12th estimate prepared by the NNICC. In recent years, the NNICC has reviewed and updated various estimation methodologies. This continuing effort has resulted in a number of revised estimates for previous years. Since illicit production and distribution of controlled substances are, by definition, illegal, there are little reliable data upon which to base estimates of the quantities of drugs involved. This document, which is based on the best data currently available and on the combined available expertise of NNICC member agencies, is a comprehensive assessment prepared for the Federal Government on the worldwide illicit drug situation in 1989.

A primary source for production estimates and drug control efforts in foreign countries is the Department of State's International Narcotics Control Strategy Report. This report is prepared annually in accordance with the provisions of Section 481 of the Foreign Assistance Act of 1961, as amended (22 U.S.C. 2291).

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EXECUTIVE SUMMARY

Despite record seizures during 1989, cocaine continued to be readily and widely available throughout virtually all areas of the United States. During September through December 1989, an increase in the wholesale price of cocaine was noted in some cities. The increase ranged from as low as \$1,000 to as high as \$12,500 per kilogram. This increase was believed to be due to intensified law enforcement efforts in Latin America and to price gouging by mid-to-low-level wholesalers. These dealers may have thought that a shortage of cocaine existed at higher distribution levels. Wholesale purities remained at high and relatively stable levels during end-of-year 1989, averaging 84 percent per kilogram. It appears that the escalation in cocaine abuse during the past ten years or so is abating. Hospital emergency room mentions either moderated or declined. The annual survey of drug use among high school seniors found a decrease of 15 percent in the proportion of seniors who have used cocaine at least once in their lifetime. There also was a decline of about 17 percent in the proportion who had used the drug at least once in the past year.

In 1989, heroin continued to be readily available at the retail level in many major metropolitan areas. Generally, heroin abuse indicators reflected a stabilization but at the high levels reached the previous year. It is believed that this is largely due to the predominance of high purity heroin available from Southeast Asia and Mexico. Heroin seizures continued to rise, and a 380-kilogram shipment of Southeast Asian heroin was confiscated in New York City. The average purity of heroin samples analyzed rose in all but one participating city, Detroit. The snorting and smoking of heroin have been noted in a number of cities during the last several years. Possible reasons for this development are fear of contracting AIDS through the sharing of contaminated needles, difficulties associated with injecting because of collapsed veins, and the belief that these methods of administration are less addictive than injecting.

In 1989, as in past years, marijuana was the most commonly used illicit drug in the United States. According to the National Household Survey, marijuana use declined from 18 million current (past month) users in 1985 to 12 million in 1988. The number of high school seniors who have ever tried the drug also continued to decrease. Mexico became the largest foreign supplier of marijuana to the United States

in 1989. Marijuana production rose within the United States. An estimated 5,000 to 6,000 metric tons of cannabis were cultivated, a 22 percent increase over the previous year. Of the amount cultivated, approximately 5.6 million plants (2,548 metric tons) were eradicated.

According to the National Household Survey, current (past month) nonmedical use of psychotherapeutic drugs, including sedatives, tranquilizers, stimulants, and analgesics decreased nationwide among the general population. The High School Senior Survey showed that amphetamine use among that group declined. Despite declining trend data, record seizures of clandestine laboratories during 1989, and passage of a stronger federal law to control precursor and essential chemicals, the availability of methamphetamine and amphetamine remained at high levels in the West and Southwest. Availability of LSD remained unchanged, while MDMA (Ecstasy) increased. The distribution of a potent crystal form of methamphetamine, "Ice," continued unabated in Hawaii despite the disruption of a major trafficking group. Limited distribution of "Ice" also surfaced in the continental United States. The use of PCP, however, decreased markedly.

The laundering of money from drug trafficking was usually accomplished in major metropolitan areas such as Los Angeles, New York City, and Miami. Operation Polar Cap, a multi-agency investigation, culminated successfully in 1989. This investigation targeted a group of businessmen who laundered \$1.2 billion in cocaine proceeds for the Medellin Cartel. DEA seized over \$970 million of drug traffickers' assets in fiscal year 1989. Over \$365 million of this amount was in the form of currency.

COCAINE

Domestic Trafficking and Availability

Despite record cocaine seizures during 1989, the drug continued to be readily and widely available throughout virtually all areas of the United States. During September through December 1989, when unparalleled seizure activity should have had its greatest impact, availability remained constant. Those few Drug Enforcement Administration (DEA) offices indicating otherwise generally reported no discernible reduction in supplies.

Cocaine trafficking patterns reflect a change during the last several years in entry points for cocaine being smuggled into the United States. Reports indicate that Colombian cartels increasingly have employed Mexican organizations to transport cocaine through established Mexican trafficking routes to the Southwestern United States. As a result, the primary locations of domestic sources of supply now include southern California and

southwestern Texas as well as the south Florida area. Accompanying this trend has been an eastward shift in domestic cocaine distribution routes as opposed to the more traditional westward movement.

Pricing and Purity

During September through December 1989, an increase in the wholesale price of cocaine was noted in a moderate number of U.S. cities. In general, this price increase ranged from as low as \$1,000 to as high as \$12,500 per kilogram. This increase was believed to be due partly to price gouging by mid-to-low-level wholesalers who may have thought that a shortage of cocaine existed at higher distribution levels. It may have also been the result of attempts to capitalize on users' fear of a shortage. This perception or fear of a shortage seems to have been fueled by the many, well-publicized media reports of multiton seizures and other successful law enforcement initiatives both in the United States and Latin America during the latter half of 1989. In fact, and as previously stated, no such shortage occurred. Moreover, while reporting frequently indicated that trafficking organizations were stockpiling cocaine in the United States, Mexico, and Colombia, there was little or no evidence that supplies were being withheld in order to

create a shortage and drive up the price. On the contrary, all available evidence indicates that the distribution pipelines continued to be amply supplied during end-of-year 1989. If stockpiling was taking place, it was to avoid a glut within these pipelines.

It should also be noted that wholesale purities remained at high and relatively stable levels during end-of-year 1989, averaging 84 percent per kilogram. However, a decline in purity of approximately 10 percent was noted at the retail level (ounces and grams). It is believed that additional cutting agents were used to compensate for the perceived shortage which lowered the purity.

Cocaine Trafficking Indicators, 1986-1989

	1986	1987	1988	1989
Retail Purity Percent per Gram	62	72	70	66
Prices				
Wholesale (kg.) (thousands)	\$22-\$45	\$12-\$40	\$11-\$34	\$11-\$35
Retail (gm.)	\$80-\$120	\$80-\$120	\$50-\$120	\$35-\$125
	FY1986	FY1987	FY1988	FY1989
Laboratories Seized (U.S.)	23	17	9	1

Use

Data from the National Survey and the High School Senior Survey indicate declines in use of cocaine since 1985. According to the most recent Household Survey, conducted in 1988, current (past month) cocaine use declined from 5.8 million users in 1985 to 2.9 million users in 1988. The 1989 High School Senior Survey, sponsored by the National Institute on Drug Abuse (NIDA) and conducted annually by the University of Michigan's Institute for Social Research, found significant decreases in cocaine use for the third consecutive year. In each of the high school senior classes from 1975 to 1986, cocaine use had either increased or remained relatively stable. The survey found a decrease of approximately 15 percent (from 12.1 percent in 1988 to 10.3 percent in 1989) in the proportion of seniors who had used cocaine at least once in their lifetime, and a decline of roughly 18 percent (from 7.9 percent in 1988 to 6.5 percent in 1989) in the proportion who had used the drug at least once in the past year. Furthermore, the proportion of seniors who had used cocaine at least once in the past month decreased by nearly one-fifth (from 3.4 percent in 1988 to 2.8 percent in 1989). Concurrent with these decreases in

prevalence, the percentage of high school seniors who perceived "great risk" of harm associated with ingesting cocaine even once or twice increased from 51 percent in 1988 to 55 percent in 1989. Daily use of cocaine, however, increased from .2 percent to .3 percent in 1989. The survey also showed that lifetime, annual, and current (past month) use of crack cocaine remained relatively stable from 1988 to 1989, while daily use actually increased from .1 to .2 percent. The percentage of high school seniors who perceived "great risk" of harm associated with ingesting crack even once or twice remained the highest of any drug category.

In addition to the recent declines in the prevalence of cocaine use, it appears that the rather precipitous escalation in cocaine-related emergency room mentions experienced during the past ten years or so is abating. The Drug Abuse Warning Network (DAWN) collects data on hospital emergencies in many U.S. cities, providing an indicator of trends in patterns of drug use. During 1989, 42,145 cocaine-related hospital emergencies were reported nationwide through DAWN, compared to 42,512 emergencies reported during 1988. In addition to a decline of 8 percent in emergencies involving the intranasal use of cocaine, those involving use

of cocaine in some of the more dangerous modalities also declined. For example, the number of hospital emergencies involving the injection of cocaine declined from 11,471 in 1988 to 9,346 in 1989, a decrease of 18 percent. Moreover, emergencies involving the use of cocaine in combination with heroin declined from 5,470 in 1988 to 5,034 in 1989, a decrease of 8 percent. Although hospital emergencies involving smoking as the route of administration (primarily reflecting crack) rose from 14,332 in 1988 to 15,742 in 1989, more detailed analysis of these data show that the downward trend also occurred for this mode of use in the last three months of 1989. Emergencies involving smoked cocaine declined from 4,138 in the third quarter of 1989 to 3,142 in the fourth quarter.

Cocaine Use Indicators, 1986-1989

Emergency Room Mentions*	1986**	1987**	1988**	1989***
All routes of administration	18,579	32,052	42,512	42,145
Intranasal snorting	4,316	4,705	5,702	5,251
Injection	5,460	9,041	11,471	9,346
Cocaine/heroin in combination	2,887	4,671	5,470	5,034
Smoking	4,174	10,274	14,332	15,743
Medical Examiner Mentions****	1,269	1,808	2,334	1,723

*Data from DAWN panel of 431 consistently reporting facilities.

**Data for 1986-1988 do not agree with data in 1988 NNICC Report because the emergency room data are based on a different consistent panel of hospitals.

***Medical examiner mentions are incomplete due to lag time in reporting for 1989.

****Excludes New York metropolitan area because of incomplete reporting.

While DAWN and high school senior survey data indicate primarily declining cocaine abuse trends from 1988 to 1989, data on arrestees from the Drug Use Forecasting (DUF) program for July-September 1989, the most recent data available, showed little variance from the high usage rate reported during 1988. For the majority of both male and female arrestees, cocaine was the most prevalent drug found. The range of cocaine positives among males was from 28 percent in San Antonio to 77 percent in New York City. In most cities, cocaine was found in 40 percent or more of male arrestees. The lowest percentage of female arrestees testing positive for cocaine during the July-September 1989 period was found in Indianapolis (22 percent), and the highest percentage was found in Washington, D.C. (79 percent).

Potential Cocaine HCl Production by Country, 1988-1989
 (Based on coca leaf origin. Hectares, yield, and HCl capacity are mean-point estimates.)

		Gross Coca Cultivation (hectares)	Estimated Coca Leaf Yield (metric tons)	Potential Cocaine HCl Capacity (metric tons)
Peru	1988	115,630	110,196	220
	1989	120,415	123,828	373
Bolivia	1988	49,976	51,093	102
	1989	53,920	65,998	261
Colombia	1988	27,230	21,600	39
	1989	42,500	33,487	61

Potential Cocaine HCl Production: 1988 -- 361 metric tons
 1989 -- 695 metric tons*

Methodology of Estimates

Bolivia: 1988

1 hectare of coca = 1.4 mt dry leaf/year
 500 kgs. of dry leaf = 1 kg. cocaine HCl

1989

1 hectare of coca = 1.6 mt dry leaf/year (Chapare)
 1 hectare of coca = 1.2 mt dry leaf/year (Yungas/Apolo)
 75-110 kgs. dry leaf = 1 kg. coca paste
 2.6-3.0 kgs. paste = 1 kg. cocaine base
 1.0 kg. base = 1 kg. cocaine HCl

Peru: 1988

1 hectare of coca = 1 mt dry leaf/year
 500 kgs. of dry leaf = 1 kg. cocaine HCl

1989

1 hectare of coca = 1.14 mt dry leaf/year
 115 kgs. dry leaf = 1 kg. coca paste
 2.8-3.0 kgs. paste = 1 kg. cocaine base
 1.0 kg. base = 1 kg. cocaine HCl

Colombia: 1988/1989

1 hectare of coca = .8 mt dry leaf/year
 500 kgs. of dry leaf = 1 kg. cocaine base
 1.1 kgs. of base = 1 kg. cocaine HCl

(*INCSR has been corrected to reflect 694 metric tons for estimated potential worldwide production.)

FOREIGN SOURCES

Peru

Peru continued its position as the world's leading producer of coca, coca paste, and cocaine base. In 1989, an estimated 120,415 hectares of both licit and illicit coca were cultivated in Peru. Nearly 18,000 hectares were licensed for licit cultivation and were primarily located in the Cuzco area. The Upper Huallaga Valley (UHV) accounted for about 65 percent of the total illicit hectarage under cultivation.

During the first 40 days of 1989, 1,285 hectares of coca were eradicated; in 1988, 5,130 hectares had been destroyed. This reduction was a result of a seven-month shutdown of enforcement and eradication operations in the UHV because of a sharp deterioration in security.

During this period, the Peruvian Government with U.S. Government support, undertook a major construction and security upgrade program for the police base at Santa Lucia in the UHV. Despite the temporary shutdown of operations, significant progress was made in drug suppression and

interdiction efforts. Successes included the destruction of 49 cocaine base laboratories, the seizure of 32 metric tons of coca leaf, and the seizure of 3 metric tons of coca paste. The Peruvian Government continued the testing of coca herbicides in 1989.

A 1988 study by Lima's Information and Education Center for the Prevention of Drug Abuse (CEDRO) indicates that Peruvians overwhelmingly believe that the problem of drug abuse is increasing in their country. According to the CEDRO, coca paste is the most widely consumed drug, usually smoked in cigarettes.

Coca leaves are processed into coca paste in crude maceration pits, located alongside cultivation areas. The paste is then collected from a number of processors for further refinement into cocaine base. This activity takes place in full-scale clandestine laboratories. The average laboratory can process about 200 kilograms of cocaine base per day.

Aircraft are currently the preferred method of moving cocaine base, and smaller quantities of coca paste, from the producers in Peru to the hydrochloride refiners in other countries, primarily Colombia. Lesser amounts are destined for Brazil.

Bolivia

Bolivia is the second largest producer of coca leaf. In 1989, there were an estimated 53,920 hectares of coca leaf under cultivation, as compared to 49,976 hectares in 1988, an 8 percent increase. The primary coca growing areas in Bolivia are located in the Chapare and the Yungas. The Chapare consists of a small portion of the Provinces of Carrasco, Chapare, and Arani in the Department of Cochabamba. The Yungas is an area located between the cities of Guanay and Inquisivi, on the eastern slope of the Andes mountains in the Department of La Paz.

In 1988, the Bolivian Government passed a three-part law addressing coca cultivation. The law declared coca cultivation illegal in most of the country; established traditional, transitional, and illegal coca cultivation zones; and declared 12,000 hectares of coca as the requirement to meet Bolivia's traditional coca consumption demand. The law also required the eradication of 5,000 hectares of coca in 1989, and 8,000 hectares per year thereafter. Only 2,504 hectares were eradicated in 1989, approximately 50 percent of the targeted amount. However, the 1989 eradication figure represents a 70 percent increase over 1988 levels when 1,476 hectares were eradicated.

Trafficking in coca products was still profitable but less so than in previous years. Expanded cultivation and overproduction in South America and increased enforcement efforts contributed to the decline. These factors led to fluctuating coca leaf prices during 1989. Prices ranged from \$27 to \$100 per 100 pounds. This contrasts sharply with the average 1988 price of \$200 and the peak 1984/85 prices of \$600 to \$800 per hundredweight.

Dried coca leaves are processed throughout the Chapare in maceration pits at crude coca paste laboratories. The paste is either further processed into cocaine base or hydrochloride primarily in the Beni or Santa Cruz Departments or is transported to other South American countries for further refinement. Most of the paste and base are shipped to Colombia by private aircraft which often take off from airstrips located on traffickers' ranches in the sparsely populated Beni Department. While cultivation and eradication levels increased, seizures rose in only one category - - base laboratories. In 1989, as in 1988, 24 hydrochloride laboratories were seized. There were 15 base and 4,911 paste laboratories seized in 1989, compared to 10 base and 6,705 paste laboratories seized the previous year. In 1989, about 2,894 maceration pits were destroyed, compared to 3,542 in 1988.

Most of the chemicals used in illicit coca laboratories, including acetone and ether, are obtained primarily from Brazil. Chemicals are also smuggled into Bolivia from the neighboring countries of Chile, Argentina, Peru, and Paraguay.

Most of the cocaine produced in Bolivia is smuggled out of South America through Brazil or Colombia. Chile, Paraguay, and Argentina are also conduits for transporting cocaine to the United States, Europe, and elsewhere. Occasionally, Bolivian cocaine transits Mexico on its way to the United States.

Reportedly, the extensive river systems on the border between Bolivia and Brazil also are used to transport essential chemicals into Bolivia and coca products out of the country.

Colombia

In 1989, Colombia continued to be the world's largest producer of cocaine hydrochloride (HCl). Colombian laboratories rely heavily on imported cocaine base from Peru and Bolivia for conversion to cocaine HCl, although there is an

increasing domestic coca crop in Colombia. Surveys conducted in 1989 estimated that 37,500 to 47,500 hectares of coca were under cultivation, up from 23,750 to 30,250 hectares in 1988. Production of dry coca leaf in 1989 was estimated at 30,000 to 38,000 metric tons which would yield from 54 to 69 metric tons of cocaine HCl. This is a 37 percent increase in production from 1988 when it was estimated that Colombia would produce 19,000 to 24,000 metric tons of dry leaf which would have yielded 34 to 44 metric tons of cocaine HCl.

Coca cultivation occurs throughout most of Colombia, with the heaviest concentrations in the Departments of Putumayo, Caqueta, Guaviare, and Vaupes. Also, there was a substantial expansion of the crop in the Department of Bolivar. Coca eradication is done manually in Colombia, usually in conjunction with raids against cocaine laboratories. Eradication is not a priority issue with the Colombian Government at this time, principally because government authority is weak in most of the coca cultivation areas which are controlled by insurgents. However, Colombia eradicated 641 hectares of coca in 1989, more than double the amount eradicated in 1988. Until the Colombian Government authorizes aerial spraying of coca, it is unlikely that there will be a large-scale eradication campaign.

The Colombian Government has not yet approved any herbicide as safe and effective for use against coca, but did have a representative at the herbicide testing which was conducted in Peru in 1989.

Following the August 1989 assassination of Luis Galan, a presidential candidate, the Government of Colombia (GOC) began a large-scale crackdown on Colombian drug traffickers. Despite the tremendous successes by the GOC in 1989, including the killing of a major trafficker, Jose Gonzalo RODRIGUEZ-Gacha, Colombian drug traffickers continue to control most of the production and the worldwide distribution of cocaine HCl. The strength of Colombian traffickers is derived from their ability to finish the processing of multi-ton quantities of intermediate cocaine product and their control of transshipment routes.

The large industrial-complex size laboratories remain active. In 1989, a number of these laboratories were found to be relatively near populated areas in the Magdalena Medio area in north central Colombia. The laboratories were sophisticated, and there was evidence of chemical recycling at some sites. Laboratories and airstrips in the eastern plains and southern jungle areas also continued to operate.

Smuggling by aircraft continued to be the most popular mode of transportation. The practice of shipping smaller bulk quantities of cocaine with greater frequency was an emerging trend; however, vessels were still used to transport large shipments of cocaine which were concealed in containerized cargo.

The Colombian National Police and the military had outstanding successes against cocaine processing facilities in 1989. Seizures for a second year were at record levels: 37 metric tons of cocaine HCl and base were seized; 2 million gallons of essential chemicals were destroyed; 1,164 anti-narcotics raids were conducted; 452 laboratories were destroyed (fewer in number, but larger laboratories than in 1988); properties were seized and held for forfeiture; and 3,607 traffickers were arrested. Extradition was reinstated through presidential decree in August 1989, and 11 fugitives were extradited to the United States for prosecution in 1989.

Brazil

Brazil is considered a significant producer of a coca leaf although not on the scale of Peru, Bolivia, or Colombia. The northwestern State of Amazonas is the primary area of cultivation.

The total amount of coca destroyed in Brazil during 1989 was 330 metric tons, significantly less than the 798 metric tons eradicated in 1988. The Brazilian Federal Police (DPF) attribute this reduction to two factors. First, eradication operations were conducted in the same general vicinity as in prior years, and coca cultivation had decreased somewhat. The second factor was that in 1989 the indigenous Indian population cooperated with the authorities in their efforts to reduce coca cultivation.

In 1987, the Indians collaborated with the Colombian traffickers in the cultivation of coca in exchange for motor boats, clothing, and medicine. When the Brazilian Military expanded their presence in the remote northwestern part of the state of Amazonas, the Indians began to receive social service assistance which was augmented by the DPF. The DPF believe that increased cooperation of the native population may be contributing to the overall reduction of coca cultivation in Brazil's northwestern regions.

Brazil is a primary source country for acetone and ether, essential chemicals used for processing cocaine base into cocaine HCl. Seizures of several large cocaine HCl laboratory complexes over the last few years, indicate that some

major Colombian and Bolivian cocaine trafficking organizations have moved their operations to Brazil. By establishing cocaine HCl laboratories in Brazil, traffickers reduce the risk of shipping large amounts of chemicals to laboratories across the border. Cocaine laboratory seizures during 1988 and 1989 reveal that cocaine is being processed in western and northwestern Brazil, near sources of cocaine base in Bolivia and Colombia and/or near sources of essential chemicals in Rio de Janeiro. Seizures of cocaine HCl and cocaine base during 1989 amounted to 1.88 metric tons, an increase over the 1.46 metric tons seized the previous year.

Transshipment of cocaine out of Brazil to Europe and the United States is accomplished by trafficking organizations based both within and outside Brazil. Courier networks routinely smuggle drugs on international flights leaving from airports in Rio de Janeiro, Sao Paulo, Manaus, and Recife. Cocaine is also being transported by vessels sailing from the port cities of Rio de Janeiro, Porto Alegre, Vitoria, Recife, Belem, and Santos.

Ecuador

Ecuador is a minor producer of coca. An estimated 240 hectares of coca were cultivated during 1989. The Ecuadorian National Police's anti-drug arm, Interpol, eradicated about 100,000 coca plants in Pinchincha and Esmeraldas Provinces. Ecuador serves mainly as a transit country for chemicals destined for clandestine laboratories in Colombia and for drugs smuggled out through air and sea ports. Interpol also seized 15,000 gallons of acetone and other precursor chemicals in 1989. Other Interpol successes include the seizure of 500 kilograms of cocaine HCl, 100 kilograms of marijuana, and the arrest of some 2,700 nationals and 120 foreigners on drug charges in 1989.

Paraguay

Paraguay is a transit country for cocaine HCl produced in Bolivia, Peru, and Brazil destined for Europe and occasionally the United States. There is no known coca cultivation in Paraguay; however, there have been unconfirmed reports of cocaine HCl laboratory activity.

Cocaine Trafficking in Western Europe

Cocaine seizures in Western Europe during 1989 increased in frequency and amount per seizure. Reports indicate that 1989 cocaine seizures surpassed heroin seizures in Europe, and the problem is expected to worsen in 1990. Cocaine seizures for 1989 totaled 7,693 kilograms compared to 6,470 in 1988 and 3,850 in 1987.

Over 50 percent of the cocaine seized in Europe arrives from Colombia and Ecuador. Originating points for the remainder are Bolivia, Argentina, Brazil, and Venezuela. The greatest number of seizures are from South American couriers who carry 2 to 20 kilograms each. Over 60 percent of the seizures occur at major European airports. The large shipments, over 50 kilograms, arrive on cargo ships and planes. Spain remains the European staging area and base of operations for the cocaine cartels. In 1989, it again led Europe in the total amount of cocaine seized.

There are a number of reports indicating that the cocaine cartels are expanding their distribution networks in Europe. One influencing factor is that cocaine sells for two to three times more in Europe than in the United States. The kilogram prices of heroin and cocaine are approximately the same in Europe.

Cocaine Trafficking in the Far East

Cocaine trafficking and abuse in the Far East are still limited, although there are indications of an increase in cocaine trafficking to Japan. Australia's cocaine trafficking activity has been considerably less than expected.

Since 1988, Colombian traffickers have been attempting to establish a demand for cocaine in Japan. The Japanese lifestyle and the country's prosperity are attractive to traffickers looking to expand the sale of cocaine. It is believed that cocaine trafficking organizations will continue their efforts to exploit the high profits to be gained in Japan.

In 1986, prices for cocaine in Japan were extremely high at \$160 to \$180 per gram and \$160,000 to \$180,000 per kilogram. In 1988 and early 1989, the initial price for kilogram amounts of cocaine dropped to \$85,000. By the end of the year, the price ranged from \$70,000 to \$75,000.

Unlike the trafficking of stimulants and marijuana, cocaine smuggling and distribution in the past had not been linked to Japanese organized crime groups, but rather to private entrepreneurs. However, current intelligence indicates that Japanese organized crime is indeed involved in domestic cocaine trafficking. In the majority of cases, the cocaine was transported from the United States to Japan. There have been sporadic instances of crack abuse and limited seizures of crack in Japan.

Considering the problem many Western countries are currently experiencing and Japan's ongoing stimulant abuse problem, it is not surprising that cocaine has surfaced in Japan. It is expected that Japan's cocaine abuse will increase.

Cocaine seizures in Australia have increased slightly and the demand for cocaine, although limited, has spread to lower socio-economic levels. The amount of cocaine seized increased from 18 kilograms in 1988 to 56 kilograms in 1989. Most of the cocaine which reached Australia in 1989 transited or was transshipped from the United States. In the past, cocaine passed mostly across the Pacific Ocean from South America. Another smuggling route to Australia is through Western Europe. There were no confirmed seizures of crack reported in Australia during 1988 or 1989.

OPIATES

Domestic Availability

In many major metropolitan areas in 1989, heroin was readily available at the retail level and to a lesser extent at the wholesale level. The heroin available for use in the United States continued to come from the three primary source areas: Southeast Asia (Burma, Thailand, and Laos); Mexico; and Southwest Asia (Afghanistan, Pakistan, and Iran). Instances of treatment for heroin abuse at emergency rooms stabilized, but at the high levels reached in 1988. It is believed that this situation is largely due to the predominance of high purity heroin available from both Southeast Asian and Mexican sources of supply.

During the past several years, there has been an increase in the availability of heroin in the United States. The contributing factors include greater opium and heroin production in source areas, lessened eradication efforts in some countries, and sophisticated and well-established trafficking organizations in the United States and overseas.

Another critical element is that some ethnic trafficking groups in the United States not only have easy access to the foreign sources of supply, but also have developed and expanded contacts with domestic mid-level dealers who purchase their heroin. All of these circumstances have led to increased heroin importation, and one solid indication of this is the amount of the narcotics seized.

Seizures have climbed steadily in this country, and large shipments, destined for the United States, have been confiscated abroad. In recent years, larger shipments of heroin have been reaching the United States. Previously, few organizations were believed capable of smuggling quantities larger than 10 to 50 kilograms on a regular basis. Between 1985 and 1988, however, there were several single-load seizures of Southeast Asian heroin ranging from 75 to 96 kilograms. In 1989, the largest single seizure of heroin in the United States took place in New York City. The heroin, from Southeast Asia, totaled 380 kilograms.

Trafficking

Mexican heroin trafficking is dominated by Mexican nationals and Mexican-Americans. In general, Mexican heroin is smuggled across the U.S./Mexico border in relatively small

amounts by illegal aliens, migrant workers, and Mexican nationals related to the opium/heroin producing families. Other means of importation include concealment in motor vehicles, public transportation, body carries, and commercial express services. Mexican heroin has become more prominent in recent years partly because of the availability of black tar heroin, a high purity form, first introduced into the United States in the early 1980's. It is primarily distributed in the West, but it is also prevalent in Chicago and St. Louis. Prices at the wholesale level for Mexican black tar range from \$70,000 to \$130,000 per kilogram, while at the retail level a gram sells for \$150 to \$400.

New York City remains the major point of entry for heroin from Southwest Asia. San Francisco and Los Angeles as well as the Canadian cities of Vancouver, Montreal, and Toronto, which have U.S. Customs preclearance procedures, also have been used as entry points by numerous ethnic groups trafficking in Southwest Asian (SWA) heroin. The dominant groups are Pakistanis, Indians, Nigerians, and, to a lesser extent, Turks, Israelis, Lebanese, Afghans, and Iranians. Most of the SWA heroin seized in the United States is brought into the country by couriers traveling on commercial air flights. Cargo shipments as well as the international mail system are also used to import SWA heroin. Known

wholesale distributors of SWA heroin include major black organizations, Iranians, Armenians, Nigerians, and members of Traditional Organized Crime families. These organizations are based primarily in New York City, Newark, Los Angeles, Detroit, Chicago, Seattle, San Francisco, and Houston. Prices for SWA heroin at the wholesale level range from \$80,000 to \$180,000 per kilogram.

As production of Southeast Asian (SEA) heroin has continued to escalate, so too has its availability in many areas of the Northeast. The trafficking of SEA heroin is dominated by ethnic Chinese, principally from Hong Kong, Thailand, and Taiwan. SEA heroin is shipped from Thailand, or transshipped through Hong Kong, either directly to New York City or indirectly through the west coast. SEA heroin is usually transported by containerized cargo aboard commercial vessels, air freight cargo, international mail parcels, and couriers traveling on commercial air flights. Ethnic Chinese sell the heroin to Traditional Organized Crime, black, Hispanic, and Asian organizations which are primarily based in New York City. Prices for a kilogram range from \$125,000 to \$180,000, and the purity at the wholesale level is generally 85 percent.

Use

Heroin ranks second only to cocaine in the United States in terms of causality for individuals seeking medical treatment for abuse of illicit substances. Nationally, in 1989, heroin-related hospital emergencies reported through DAWN appear to have stabilized at the high levels reached during 1988. Emergencies for 1989 were 15,227; 16,295 were reported in 1988.

Beginning in 1986 and continuing through 1989, the influx of high quality SEA heroin was believed to effect heroin abuse levels in the Northeastern United States. Addicts unaccustomed to the higher purity sought treatment in increasing numbers. Paralleling the greater demand for treatment was the rise in heroin-related hospital emergencies.

Heroin and Morphine Use Indicators, 1986-1989

	1986**	1987**	1988**	1989***
Emergency Room Mentions*	13,080	14,087	15,435	15,227
Medical Examiner Mentions****	1,745	1,725	1,967	1,352

*Data from DAWN panel of 431 consistently reporting facilities.

**Data for 1986-1988 do not agree with data in the 1988 NNICC Report because the emergency room data are based on a different consistent panel of hospitals.

***Medical examiner mentions for 1989 are incomplete due to lag time in reporting.

****Excludes New York metropolitan area because of incomplete reporting.

Although significantly elevated abuse levels are noted when compared to those of 1986, a review of the trend data for the east coast during the last year reveals a moderate decline in the number of hospital emergencies for heroin abuse. The decline may represent addicts' awareness of the

higher potency and a subsequent adjustment of the dosage. This downward trend on the east coast is offset by increases in emergencies on the west coast, most notably in the San Francisco area where an 85 percent increase was reported in the past year. Reporting from drug research sources indicated that users in San Francisco may be switching to heroin after prolonged use of cocaine or methamphetamine.

Heroin-Related Hospital Emergencies, 1986-1989*

	1986**	1987**	1988**	1989	Change 86-89	Change 88-89
East Coast						
Baltimore	470	618	804	883	+ 87.9%	+ 9.8%
Boston	303	455	610	580	+ 91.4%	- 4.9%
Buffalo	26	133	106	61	+134.6%	-42.5%
New York	3,272	3,547	3,317	3,290	+ 0.6%	- 0.8%
Philadelphia	272	423	772	694	+155.0%	-10.1%
Washington, D.C.	985	1,379	1,719	1,349	+ 36.9%	-21.5%
Totals	5,328	6,555	7,328	6,857	+28.7%	- 6.4%
West Coast						
Denver	200	115	152	170	-15.0%	+11.8%
Los Angeles	1,722	1,230	1,604	1,638	- 4.9%	+ 2.1%
Phoenix	368	319	288	388	+ 5.4%	+34.7%
San Diego	153	143	209	263	+71.9%	+25.8%
San Francisco	983	544	759	1,407	+43.1%	+85.3%
Seattle	417	430	585	615	+47.5%	+ 5.1%
Totals	3,843	2,781	3,597	4,481	+16.6%	+24.6%

*Data from DAWN panel of 431 consistently reporting facilities.

**Data for 1986-1988 do not agree with data in the 1988 NNICC Report because the emergency room data are based on a different consistent panel of hospitals.

The increasing availability of SEA heroin, which began in 1986 and continues to date, can be observed in data extrapolated from DEA's Heroin Signature Program (HSP). HSP data reflects that the percentage of the samples analyzed of Southeast Asian origin rose from 14 percent in 1985 to 22 percent in 1986. It continued upward each year and reached 52 percent in 1989. Correspondingly, the percentage of SWA samples analyzed decreased from 47 percent in 1985 to 27 percent in 1988 and then dropped to 18 percent in 1989. The proportion of Mexican heroin also declined, although not as significantly, from 39 percent in 1985 to 30 percent in 1988 and 1989. The Domestic Monitor Program (DMP) data for 1989 parallels HSP proportional representation figures for SWA heroin, while reflecting more parity in the proportional representation between SEA (40 percent) and Mexican heroin (42 percent).

Geographically, the heroin distribution patterns are fairly well defined: SEA and, to a lesser extent, SWA are the primary types available in the Eastern United States, while Mexican predominates on the West Coast. Both Mexican and SWA heroin are prevalent in the North Central portion, while there is evidence that SEA heroin is becoming more available.

The average purity of samples analyzed through DEA's DMP in 1989 rose in all but one participating city, Detroit, when compared to 1988 data. The purity levels of SEA heroin exhibits analyzed during 1989 averaged 26.2 percent. In New York City, where 64 percent of the exhibits analyzed were of SEA origin, the average purity of the SEA exhibits was 45 percent. Mexican heroin exhibits, the majority of which were black tar, averaged 32.6 percent, with the highest purity average (47 percent) recorded in Phoenix. The average purity of SWA heroin was 10.2 percent in 1989. SWA heroin is prevalent in the Chicago area.

Average Heroin Purities (DMP Cities), 1988-1989

	1988	1989	Change
Atlanta	6.2%	11.9%	+5.7%
New York	34.3%	37.2%	+2.9%
Chicago	3.6%	14.2%	+10.6%
Detroit	15.6%	13.1%	-2.5%
Los Angeles	16.0%	18.5%	-2.5%
Phoenix	45.3%	47.0%	+1.7%

The snorting and smoking of heroin have been noted in a number of cities during the last several years. The primary reason some users have changed routes of administration is possibly due to the availability of high purity retail heroin. When smoked or snorted, its effects are similar to

those of injecting less potent heroin. Other reasons for using these methods are fear of contracting AIDS through the sharing of contaminated needles, difficulties associated with injecting due to collapsed veins, and the belief that these routes of administration are less addictive than injecting. While the number of DAWN heroin-related hospital emergencies involving these routes of administration has increased each year for the past five years or so, the overall number remains low when compared to those involving the injectable use of heroin. Cities having the highest number of emergencies involving heroin snorting include New York City, Chicago, Newark, and Detroit. Washington, D.C. and Chicago have the highest number of emergencies involving heroin smoking. The smoking of heroin in combination with crack has been also reported in a number of cities in recent years. Users of this drug combination reportedly do so to prolong the euphoric sensation and meliorate the depressive post-high effects of crack. Usage appears to parallel trends reported for heroin snorting and smoking.

According to DUF data, opiate use among arrestees was generally less than 20 percent in all four regions (Northeast, Midwest, South, and West) of the United States for both males and females. Opiate use was highest in the Northeast and West and lowest in the South. Female

arrestees in all regions tested positive for opiates more often than male arrestees.

FOREIGN SOURCES

Southeast Asia

Southeast Asia continues to be the world's major producing area for illicit opium and refined heroin. Estimates of opium poppy cultivation have increased substantially in the three countries which comprise the area known as the Golden Triangle: Burma, Laos, and Thailand. The total estimated production during the 1988/1989 growing season was 2,515 to 3,593 metric tons of opium, compared to 1,298 to 1,833 metric tons during the previous season.

Opium Production - - Golden Triangle, 1985/86 - 1988/89 (metric tons)

	1985/86	1986/87	1987/88	1988/89
Burma	700-1,100	925-1,230	1,065-1,500	2,175-3,075
Laos	100-290	150-300	210-300	300-460
Thailand	20-25	20-45	23-33	40-58
Total	820-1,415	1,095-1,575	1,298-1,833	2,515-3,593

Of the three Golden Triangle countries, Burma is the leading producer. Continued favorable weather conditions, expanded cultivation of opium poppies, the use of chemical fertilizers, and the lack of government eradication are the primary reasons for the large increase in Burmese opium production. Of these factors, weather plays the most important role.

During the last 20 years, there have been only two notably poor harvests, 1978/79 and 1979/80. Both were caused by insufficient rainfall. A slight drought in 1984 also had an adverse effect on the 1984/85 harvest.

There were indications that some farmers in the Shan State of Burma have been trying to cultivate a second opium poppy crop in addition to the customary one crop per year. A successful second harvest would depend in large part upon sufficient rainfall. Previously, the presence of the Burmese Army in cultivation areas and the Government's eradication program, suspended in 1978/88, deterred Shan State farmers from attempting a second harvest.

Both the political situation and the involvement of insurgent groups in opium production and trafficking have

changed in recent years in Burma. These changes have contributed to an expansion of opium poppy cultivation and narcotics production. After the pro-democracy demonstrations in 1988, the Burmese Government completely abandoned narcotics suppression and concentrated on maintaining control in the cities. Military units were withdrawn from narcotics caravan interdiction and opium poppy eradication duties. This allowed opium poppy cultivation to increase. Also, it made it easier for trafficking groups to use a greater variety of routes and means of transportation for moving narcotics through and out of Burma.

In March and April of 1989, the Kokang and Wa factions of the Burmese Communist Party (BCP) split from the BCP. This led to the disintegration of the BCP, and it was no longer a viable threat to the Burmese Government. The Wa, who comprised the bulk of the BCP's personnel, have continued the expansion of opium cultivation and narcotics trafficking.

Although groups, such as the Wa, the Kachins, and the Third Chinese Irregular Forces, are all actively engaged in narcotics production and trafficking in Burma and along the Burma/Thailand border, the Shan United Army (SUA), led by

Khun Sa, has continued to dominate the border narcotics trade. The fluid political situation and the realignment of insurgent groups in Burma have helped the SUA to strengthen its position as a trafficking organization. On December 20, 1989, Khun Sa was indicted by the United States for his leading role in contributing to worldwide narcotics trafficking.

In Laos, opium production increased from 210 to 300 metric tons in 1987/88, to 300 to 460 metric tons in the 1988/89 growing season. As in Burma and Thailand, this increase was primarily due to favorable weather conditions for opium poppy cultivation. It is hoped that improved U.S./Lao cooperation, as evidenced by the signing of a bilateral agreement on crop control, will help to reduce narcotics production in Laos.

Opium poppy cultivation in Thailand increased during the 1988/89 season, again primarily due to good weather. An estimated 40 to 58 metric tons of opium were produced in Thailand, compared to 23 to 33 metric tons in the previous season.

The abuse of opium and heroin in Southeast Asia remains high, with heroin replacing opium in some areas. Burma's opium users consume an estimated 400 metric tons of opium

and 4.5 metric tons of number 3 heroin each year. Heroin use is believed to be increasing in Burma. In Thailand, an estimated 5 to 10 metric tons of opium and 10 to 15 metric tons of number 4 heroin are consumed every year. In Laos, the degree of opium abuse by hilltribe people is unknown. Heroin abuse in Hong Kong, Malaysia, and Singapore takes the form of number 3 heroin, but there are some indications that number 4 heroin may be gaining in popularity with heroin users.

Heroin refining activity in the Golden Triangle continues to take place primarily along the Burma/Thailand and Thailand/Laos borders; some refining occurs in northern Burma and along the Burma/Laos border. Much of this refining is done in relatively crude, and in many cases, temporary structures. Equipment is hidden in the jungle until the beginning of the processing season, which runs from approximately April through September. These refineries may be moved as a result of pressures from governments or rival insurgent groups.

Overall, refining activity in the Golden Triangle remained relatively stable during the past year. In Burma, refining activity continued unimpeded due to the lack of enforcement operations. Within Thailand, eight heroin refineries were

destroyed during 1989, compared to ten in 1988. Refinery destruction remains a high priority with U.S. and Thai law enforcement personnel. It is believed that refining activity increased in Laos in 1989. In Malaysia, where heroin base is converted to number 3 heroin, the Royal Malaysian Police raided five heroin refineries or laboratories in 1989, the same number as in 1988.

Transportation routes for opiate products from the Golden Triangle to other countries became more varied in 1989. Routes through India, the People's Republic of China (PRC), Bangladesh, and southern Burma increased in number, although the majority of opiate products still transited Thailand.

There is concern that expanded timber logging along the Burma/Thailand border will provide traffickers with an ideal mode of smuggling opiates into Thailand. Once in Thailand, these products are transported south by such means as produce trucks and couriers on buses and trains. A large portion of opiate products from the Golden Triangle pass through Hong Kong. The two primary routes used to carry these products to Hong Kong are overland through the PRC and on trawlers from waters south of Golden Triangle countries. In September 1989, 420 kilograms of number 4 heroin were seized in Hong Kong, the largest seizure of this type of

heroin ever made there. The heroin arrived in Hong Kong by vessel.

In addition to Hong Kong, the countries of Japan, Malaysia, Singapore, South Korea, and the Philippines, are used as transit/transshipment points for Southeast Asian opiates. In recent years, both Mexico and Canada have been used more frequently as transit countries for U.S.-destined heroin.

In the United States, SEA heroin seizures continued to climb. In 1989, over 600 kilograms were seized, compared to 367 kilograms seized in 1988 and 238 kilograms in 1987. A record seizure of 380 kilograms of SEA number 4 heroin was made in New York in February 1989. The heroin had been concealed in hollowed-out, rubber wheelbarrow tires which had been shipped on a cargo vessel from Thailand via Taiwan.

Drug arrests related to heroin use and trafficking increased in Thailand in 1989. Arrests went from 46,000 in 1988 to 55,550 in 1989. Heroin seizures declined from 2.4 metric tons in 1988 to 0.4 metric tons in 1989. Unlike the previous year, there were no seizures on the scale of the 1,086 kilogram seizure made in Bangkok in February 1988. As previously mentioned, very little, if any, anti-narcotics activity took place in Burma in 1989.

In Hong Kong, excellent cooperation continued between U.S. and local authorities. During 1989, four major narcotics traffickers were arrested in Hong Kong. In July 1989, Hong Kong also passed into law a bill (Recovery of Proceeds) that empowered the Hong Kong Government to trace, freeze, and confiscate narcotics-related proceeds.

Both Malaysia and Singapore continue to aggressively enforce some of the strictest anti-drug laws in the world. Each country has a mandatory death penalty for possession of or trafficking in 15 grams or more of heroin. In Malaysia, possession of or trafficking in excess of 200 grams of marijuana brings the death penalty. The penalty is the same in Singapore, but the amount is 500 grams or more.

Mexico

Mexico continued to be a major source country for heroin available in the United States. The 1989 survey estimates roughly 9,600 hectares of opium poppy were cultivated, an increase of about 1,900 hectares over the 1988 estimate of about 7,700 hectares. Additionally, average field size also increased in 1989, continuing a trend which began several years ago.

While the primary growing area for opium poppy continues to be the tri-state area of Sinaloa, Chihuahua, and Durango, cultivation areas have expanded over recent years so that the entire west coast from Sinaloa down to the Mexico/Guatemala border is actually considered a single growing area. Early 1989 drought conditions did not adversely effect the higher altitudes where dense opium poppy cultivation takes place.

Opium poppy eradication totals for 1989 are believed to be lower than official Mexican estimates. Approximately 1,130 hectares are believed to have been eradicated in 1989, a substantial decrease from the 2,700 hectares reportedly eradicated in 1988.

Opium Production -- Mexico, 1986-1989
(metric tons)

1986	1987	1988	1989
20-40	45-55	45-55	85

The net opium production in Mexico for 1989 was estimated at approximately 85 metric tons which could have yielded up to 8.5 metric tons of heroin.

Results from a National Household Drug Use Survey indicate that Mexico does not appear to have a significant heroin addict population. An accurate number of drug users in Mexico is still not available, but the survey did indicate that 1.3 million people (1.6 percent of the population) have tried some illegal drug at least once in their lifetime. Most commonly abused are marijuana and the legal substances of alcohol and inhalants.

The Government of Mexico (GOM) reported the destruction of 12 heroin laboratories in 1989; eight were seized in 1988. Heroin laboratories are usually located near the growing areas, primarily for security and convenience. Often these laboratories consist of simple kitchen or backyard apparatuses, easy to set up and disassemble, but difficult to detect. Literally hundreds of these laboratories are believed to crop up during harvest season and disappear shortly thereafter.

Both traditional brown heroin and black tar heroin continued to be produced in Mexico. In addition, opium gum from Guatemala is, in some cases, refined into heroin in Mexico.

The GOM has a broad-based anti-narcotics program which includes aerial and manual eradication, interdiction, bilateral law enforcement operations, military involvement in drug eradication, and a public awareness program. The GOM's domestic anti-drug program budget was increased from \$23 million in 1988 to \$37 million in 1989.

Southwest Asia

Southwest Asia continued to be one of three major source areas of opium in the world. In 1989, between 805 and 1,310 metric tons of opium were produced in Afghanistan, Iran, Pakistan, and Lebanon. Much of the opium was consumed in those countries and others in the region, but a large quantity was converted to heroin for illicit use worldwide.

Opium Production -- Southwest Asia, 1986-1989
(metric tons)

	1986	1987	1988	1989
Afghanistan	500-800	400-800	700-800	460-710*
Iran	200-400	200-400	200-400	200-400
Pakistan	140-160	190-220	190-220	110-150
Lebanon			20-30	35-50
Total	840- 1,360	790- 1,420	1,110- 1,450	805- 1,310

*DEA believes that opium production remained at the 700-800 metric-ton level in 1989.

The 1989 opium poppy harvest in Afghanistan was estimated at 460 to 710 metric tons. In this politically unstable country, there was neither a narcotics control program nor a ban on opium poppy cultivation.

In the last several years, opium production in Iran has been estimated in the 200 to 400 metric ton range. However, some sources speculate that 1989 production declined considerably.

Pakistan made sporadic efforts to reduce the illicit opium harvest by aerial and manual eradication campaigns in 1989. Opium cultivation did not increase appreciably, but the Government of Pakistan (GOP) has not been able to bring production down to the 1985 level of 40 to 70 metric tons.

During the last three years, farmers in Lebanon have increasingly turned to opium poppy cultivation. In 1989, poppies were planted on 4,000 to 6,000 hectares. Heroin conversion laboratory activity has been reported.

During 1989, the number of heroin addicts in Pakistan was estimated at 650,000 to 700,000, although some GOP officials believe the true figure is more than a million. In 1980, heroin addiction was virtually nonexistent in Pakistan. The number of opium addicts has reportedly remained at about 260,000. Awareness of and attention to the heroin problem by the public, the media, and the GOP continued to increase. There are currently 26 centers equipped with both inpatient and outpatient narcotics treatment facilities. Approximately 300 beds are available for inpatient addiction treatment.

Heroin laboratories in Pakistan remained concentrated in the tribal areas of the North-West Frontier Province (NWFP).

There are an estimated 200 heroin conversion laboratories in Pakistan. Since 1985, no heroin laboratories have been seized or destroyed in the NWFP. Instead, they have usually been surrendered by the operators. A surrender includes handing over some pots and pans. However, no chemicals, opium, or heroin have to be turned over to the Tribal Jirags (Committee of Elders) which presides over the surrenders. The violators do not have to name their customers or sources of supply. Even repeat offenders will only, at most, be forced to pay a moderate fine. In addition, the Pakistan Narcotics Control Board does not aggressively go after laboratories in Tribal border areas, such as the Khyber Agency, even along major routes of access, and even less so in remoter areas.

Heroin laboratories also were located in Afghanistan and Iran. The principal area of laboratory activity in Afghanistan was in Nangarhar Province which adjoins Pakistan's NWFP. In the past, lesser concentrations were found in Helmand Province in the south and near the Iranian border in the southwest. Heroin refined in these laboratories was usually exported. In Iran, heroin and morphine base laboratories are reportedly operating in Kurdish-controlled areas in northwestern Iran.

In Lebanon, a large portion of locally produced opium, as well as imported opiates, was converted into approximately 5 metric tons of heroin which was destined for the United States, Europe, and Middle Eastern countries.

In 1989, nine heroin laboratories were seized in Turkey. There are no reliable estimates of the amount of heroin produced or the number of laboratories operating. This is because of the primitive nature of these laboratories which are usually set up for individual load conversions.

In September 1988, the GOP signed the tribal area agreement which provides for U.S. development assistance in Bajaur and Mohmand Agencies, where the majority of Pakistan's opium production is believed to be located. This agreement provides for gradual introduction of the opium production ban over a five-year period. Anti-opium poppy cultivation campaigns are also underway in growing areas with ongoing development projects. Reliable information about drug control efforts in Iran is difficult to obtain. The Iranian media, however, reported during 1989 that the Government continued its anti-drug campaign. The overall objective of the campaign, called the Val'Adiyat Plan, is to decrease the total consumption of narcotics by 80 percent. Initially,

the plan calls for tightened security at the nation's borders to interdict the drug flow and to apprehend the traffickers. By the end of 1989, the media reported the apprehension of more than 12,000 drug smugglers and the seizure of several tons of narcotics. However, the validity of these claims cannot be confirmed.

Guatemala

Within the last two years, Guatemala has emerged as one of the leading producers of opium poppies in Latin America. Farmers in the western provinces of San Marcos and Huehuetenango have diverted their energies from farming fruits and vegetables to the more lucrative opium poppy. Estimates reflect that there are approximately 1,495 hectares of opium poppy currently under cultivation. Aerial and manual eradication have been used successfully in decreasing opium production in Guatemala. During the last four months of 1989, an aggressive eradication campaign resulted in the destruction of 272 hectares of opium poppy through aerial spraying. In addition, an opium processing laboratory discovered along the Mexican border was seized, confirming reports that Guatemalans are getting involved in the refining of narcotics.

CANNABIS

Domestic Availability and Use

Marijuana, a Schedule I controlled substance and by-product of the Cannabis sativa L. plant, remained the most commonly used illicit drug in the United States during 1989. As the 1980's came to an end, however, trend data reflected significant attitudinal, trafficking, cultivation, and usage changes compared to the prior decade.

Marijuana use continued to cut across all segments of society, and 66 million Americans have tried marijuana sometime during their lifetime. Nevertheless, according to the most recent National Household Survey, marijuana use continued its downward trend from 18 million current (past month) users in 1985 to 12 million in 1988, the lowest level since the study began in 1972. An estimated 21 million Americans were believed to have used marijuana at least once during the survey year. During this time frame, 6.6 million Americans are also estimated to have used the drug once a week or more.

Estimated Sources and Quantities of Marijuana Available
for Use in the United States, 1987-1989

1987	Quantity* (metric tons)	Percentage of Total Imports**	Percentage of Total Supply**
Mexico	3,100-4,200	37.1	27.9
Colombia	2,300-6,600	43.3	32.5
Jamaica	145- 285	2.2	1.7
Belize	200	2.0	1.6
Domestic	3,000-3,500	0	24.9
Other			
Southeast Asia	500-1,000	7.7	5.7
Latin America	500-1,000	7.7	5.7
Gross Marijuana Available:	9,545-16,585	100.0	100.0
Less U.S. Seizures, Seizures in Transit, and Losses:***	3,000-4,000		
Net Marijuana Available:	6,545-12,585		
1988			
Colombia	5,000-8,700	49.6	37.2
Mexico	4,710	34.1	25.6
Jamaica	260- 390	2.4	1.8
Belize	60	.4	.3
Domestic	4,350-4,850	0	25.0
Other			
Southeast Asia	750-1,500	8.1	6.1
Latin America	500-1,000	5.4	4.0
Gross Marijuana Available:	15,630-21,210	100.0	100.0
Less U.S. Seizures, Seizures in Transit, and Losses:***	3,500-4,500		
Net Marijuana Available:	12,130 -16,710		

1989	Quantity (metric tons)	Percentage of Total Imports**	Percentage of Total Supply**
Mexico	42,283****	87	79
Colombia	2,300	5	4
Jamaica	142	0	0
Belize	56	0	0
Domestic	5,000-6,000	0	10
Other			
Southeast Asia	750-1,500	2	2
Latin America	2,250-3,500	6	5
Gross Marijuana Available:	52,781-55,781	100	100
Less U.S. Seizures, Seizures in Transit, and Losses:***	3,500-4,500		
Net Marijuana Available:	49,281-51,281		

*Some NNICC Report figures differ from those in the International Narcotics Control Strategy Report (INCSR) because the NNICC subtracts in-country seizures and consumption from production totals. INCSR production estimates for 1989 are: Mexico 47,590; Colombia 3,001; Jamaica 189; Belize 66; Other 3,000-4,000.

**The percentages reflect the midpoints of the quantity ranges.

***U.S. seizures include coastal, border, and internal (not domestic eradicated sites); seizures in transit include those on the high seas, in transit countries, from aircraft, etc. The loss factor includes marijuana lost because of abandoned shipments, undistributed stockpiles, and inefficient handling and transport, etc.

****This increase is the result of improved estimation methodologies and a review of cultivation areas that had not been included in previous years.

During 1989, Mexico became the largest foreign supplier of marijuana to the United States. Mexican production was estimated at 47,590 metric tons, a tenfold increase over 1988 figures. This estimate is believed to reflect a refinement of the estimation methodology for the amount cultivated rather than a substantial increase in actual production. Colombia, for the past decade the primary source country for marijuana available in the United States, accounted for only 4 percent of the total supply during 1989. Production decreased from a range of 5,000 to 8,700 metric tons in 1988 to 2,300 metric tons in 1989, a 66 percent decline.

Decreased Colombian production and enhanced interdiction efforts by both U.S. and Colombian law enforcement have resulted in a considerable decline in marijuana seizures over the last two years in the Caribbean/Florida area. Moreover, according to statistics provided to the El Paso Intelligence Center (EPIC), 469 metric tons of marijuana were seized in the United States during 1989, a 28 percent decline from the 651 metric tons reported in 1988.

While marijuana seizures declined in the southeastern United States and generally throughout the country, the increase in

marijuana smuggling along the Southwest land border with Mexico continued unabated. In 1989, almost 265 metric tons of marijuana were seized along the border, a 19 percent increase over the 223 metric tons seized in 1988.

Besides the foreign importation problem, marijuana production rose within the United States. It is estimated that between 5,000 to 6,000 metric tons of cannabis were cultivated in the United States during 1989, a 22 percent increase since 1988. Of that amount, approximately, 5.6 million cultivated cannabis plants (2,548 metric tons) were eradicated. Thirty-seven percent of the cannabis eradicated was reported to be sinsemilla, the potent unpollinated female plant. In many areas of the country, with depressed economies and high unemployment, cannabis cultivation has proliferated. Particularly in rural areas, money from marijuana trafficking has a significant impact on local economies. Advanced agronomic techniques, a preference for a more potent seedless marijuana, a lessened fear of arrest, and high profits have all contributed toward an increase in cannabis cultivation.

Although the by-products of the Cannabis sativa L. plant include hashish, hashish oil, and marijuana, the latter is the preferred form of the drug in the United States.

Both delta-9 tetrahydrocannabinol (THC), the plant's primary psychoactive chemical, and the cannabis plant are controlled substances. The flowering tops and leaves are collected, dried, and then usually smoked in a pipe or as a cigarette. Highly prized because of their higher THC content, the buds have become a specialty for many illicit domestic cultivators. Often, these producers discard the less potent parts (stems and leaves) or infrequently use them in the subsequent production of hashish or hashish oil.

Marijuana was reported as readily available nationwide during 1989. According to local law enforcement authorities, domestic cultivation supplemented the once limited supplies noted in the eastern and southeastern sectors of the country. In recent years, marijuana availability in these areas had been effected by both declining South American marijuana production and the shift in trafficking to the U.S./Mexico border. Prices nationally for commercial grade marijuana range from \$300 to \$2,000 per pound.

Marijuana Trafficking Indicators, 1986-1989
(Prices and Potency)

Commercial Grade	1986	1987	1988	1989
Wholesale (pound)	\$350- \$700	\$ 350- \$1,450	\$ 350- \$1,800	\$ 300- \$2,000
Retail (ounce)	\$ 45- \$120	60- \$ 130	\$ 30- \$ 250	\$ 40- \$ 250
Potency (THC)*	3.34%	3.46%	3.82%	3.45%

Sinsemilla

Wholesale (pound)	\$ 800- \$2,000	\$1,400- \$2,100	\$ 800- \$3,000	\$ 700- \$3,000
Retail (ounce)	\$ 100- \$ 200	\$ 160- \$ 210	\$ 120- \$ 300	\$ 100- \$ 300
Potency (THC)	8.43%	7.93%	7.62%	6.95%

*THC is the principal psychoactive ingredient in cannabis. In some instances, THC percentages for prior years are slightly different from those in the 1988 NNICC Report to reflect complete reporting.

According to DAWN data, more than four out of five of all marijuana-related hospital emergencies are a result of its use in combination with other drugs, primarily cocaine, alcohol, and phencyclidine (PCP). In 1988 (the most recent data), marijuana use in combination with cocaine surpassed,

for the first time, its use with alcohol, accounting for 50 percent of the marijuana-related hospital emergency room mentions. Additionally, marijuana ranks fourth in terms of casualty for hospital emergency room mentions reported through the DAWN system and is exceeded only by mentions for cocaine, alcohol, and heroin/morphine abuse.

Marijuana-Hashish Use Indicator, 1986-1989*

	1986	1987	1988	1989
Emergency Room Mentions	4,360	6,473	7,131	6,504

(*Figures are derived from a five-year consistent panel of hospitals and are not meant to represent total marijuana episodes nationwide. Rather, trends in abuse are portrayed.)

Marijuana-related hospital room emergencies remain greatest in the Washington, D.C. area where its use in combination with PCP remains a regional phenomenon. Approximately 50 percent of those seeking treatment are in the 20-to-29 age category.

According to the DUF program, the percentage of male arrestees testing positive for marijuana during 1988 ranged from 17 percent in St. Louis to 50 percent in Chicago and Portland, Oregon. About one-quarter to one-third of all male arrestees tested positive for marijuana in 1988. Data through the third quarter for 1989 reflects little variance in these figures. DUF data for 1988 revealed that more than 66 percent of all male arrestees reported they had used marijuana. The highest reported use was found in Birmingham, Alabama (92 percent). The majority of the arrestees reported that they started using marijuana at age 15.

Current use of marijuana, defined as any use in the prior 30 days, is down from a peak of 37 percent in 1978 to 17 percent in 1989 according to the National High School Senior Survey. This survey has been conducted for 15 consecutive years by the University of Michigan, Institute for Social Research, among 17,000 high school seniors in 133 public and private schools across the nation. The survey noted a change in attitude since the 1970's about the health risk of marijuana use. In 1989, 77.5 percent of seniors surveyed perceived a "great risk" of harm associated with regular marijuana use, compared to only 35 percent in 1978.

Marijuana-Hashish Use by High School Seniors, 1986-1989
(Source: National High School Senior Survey)

	1986	1987	1988	1989
Have ever used	50.9	50.2	47.2	43.7
Used in previous 12 months	38.8	36.3	33.1	29.6
Used daily-30 days	4.0	3.3	2.7	2.9
Regard regular use as "great risk"	71.3	73.5	77.0	77.5

During 1989, the DEA sponsored a Domestic Cannabis Eradication and Suppression Program (DCE/SP) in conjunction with federal, state, and local law enforcement authorities in 49 states. The National Guard and Civil Air Patrol also participated. The DCE/SP resulted in the eradication of 5.6 million cultivated cannabis plants, 124.3 million ditchweed plants (low-potency wild growth), the arrest of 5,767 violators, and the seizure of 2,320 weapons. In recent years, the DCE/SP has been placing more emphasis on the investigation and prosecution of major domestic cannabis cultivators and trafficking organizations. The net result during 1989 was the forfeiture of assets valued at over \$29 million, almost triple the amount seized in 1988. The

Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, National Park Service, and Bureau of Indian Affairs also have established cohesive, long-term programs to combat cannabis cultivation.

The four major cultivated cannabis-producing states in 1989 were Hawaii, Missouri, Kentucky, and Tennessee. These states accounted for 62 percent of the cultivated cannabis eradicated during 1989. Ditchweed growth is greatest in midwestern states, specifically, Nebraska, Indiana, Kansas, and Oklahoma. It was in these four states in 1989 that over 95 percent of the ditchweed was eradicated.

While growers continue to plant their illicit crops in remote areas and to conceal them amid natural vegetation, the trend toward indoor cultivation, begun in the late 1970's, continued unabated during the 1980's. In fact, the number of greenhouses seized during 1989 rose to an all-time high of 1,398. Greenhouses were discovered in all but three states, with the greatest number seized (298) in Oregon. In general, the number of incidents of violence and booby traps associated with the cultivation of marijuana has decreased in recent years. This has not been the case in the national forests. According to the Forest Service, there were 57 sites where 181 booby traps were discovered during 1989.

These figures compare to 52 sites and 116 booby traps detected during 1988.

During 1989, a special enforcement initiative targeted illicit marijuana cultivators who had purchased seeds from Dutch supply houses. Working with the Bureau of Alcohol, Tobacco, and Firearms, the Bureau of Land Management, the U.S. Customs Service, the National Guard, state, and local authorities, DEA served search warrants on three related indoor cannabis growing facilities and surfaced the largest sinsemilla production operation ever detected in the United States. Over 9,500 plants were seized, along with 550 pounds of processed sinsemilla, 30 defendants were indicted, and trafficker assets of almost \$500,000 were forfeited.

FOREIGN SOURCES

Mexico

Mexico continued to be a major source country for marijuana available in the United States. Improved survey technologies in 1989 led to cannabis crop estimates of roughly 58,000 hectares, significantly higher than previous years' estimates of approximately 9,000 hectares. Rather than

indicating an increase in production, however, these numbers are believed to reflect a more accurate picture of the production situation which has probably existed over the past several years.

Cannabis continues to be widely grown throughout Mexico, with major growing areas found principally in the more western states of Chihuahua, Sonora, Sinaloa, Guerrero, Zacatecas, San Luis Potosi, Jalisco, Michoacan, and Oaxaca. On the east coast, Veracruz is believed to contain significant growing areas. While two harvests a year have been traditional, these cycles are not rigid. In many instances, cannabis is grown continuously throughout the year. As in 1988, climatic conditions were adequate for an ample, although not optimum, harvest. Cannabis, a hardy plant, appeared not to have been adversely effected by early drought conditions in the northern part of Mexico.

Cannabis continues to be cultivated primarily by small-time farmers who often rely on it as their only cash crop. Larger organizations control the processing and transportation of the marijuana. There is some cultivation of sinsemilla in Mexico, but most of the cannabis produced is of the commercial variety.

In refining the production estimate for Mexico, the average cannabis field size was increased. As a result, marijuana eradication totals for 1989 are believed to be higher than official Mexican estimates. Almost 16,000 hectares are believed to have been eradicated in 1989. Cannabis fields are sometimes camouflaged to avoid detection, but frequently cultivation is overt.

The Mexican Government reported seizing 448 metric tons of marijuana in 1989, a 60 percent increase over the 278 metric tons seized in 1988.

Results from a 1988 National Household Drug Use Survey suggest that while abuse of marijuana does occur in Mexico, its use is not pervasive. An accurate number of marijuana users in Mexico is still not available, but the survey did indicate that 1.3 million people (1.6 percent of the population) have tried some illegal drug at least once in their lifetime. More commonly abused are the legal substances of alcohol and inhalants.

After eradication, in-country seizures, and domestic use, an estimated 42,283 metric tons of marijuana were available for export to the United States.

Colombia

Colombian marijuana production decreased considerably in 1989. Gross production ranged from 2,330 to 3,290 metric tons, compared to 5,925 to 9,625 metric tons for 1988, a 64 percent reduction. Overflights, eradication statistics, police estimates, and intelligence reports all indicated that the traditional major growing areas of northern Colombia were virtually cannabis free, and only small plots were under cultivation in southwestern Colombia. Apparently farmers were discouraged by the continuous herbicidal spraying and turned to legitimate crops during 1989. It does not appear that cannabis was planted in the San Lucas Mountains (Bolívar Department) in commercial quantities in 1989, because farmers switched to the potentially more lucrative coca crop.

Colombian authorities seized over 708 metric tons of marijuana in 1989, and in-country consumption was estimated at 2 metric tons, leaving approximately 2,300 metric tons available for export in 1989. Noncommercial vessels, traveling traditional maritime smuggling routes, remain the preferred method of transporting marijuana from Colombia to the United States.

Jamaica

Jamaica continued its highly successful cannabis eradication program in 1989. Using a combination of manual and herbicidal eradication methods, the Government of Jamaica eradicated 1,150 hectares of cannabis, more than double the 650 hectares eradicated in 1988. An estimated 1,790 hectares were cultivated in 1989, a 42 percent increase over the 1,257 hectares of the previous year. This increase, however, was offset by the destruction of nearly 85 percent of the crop. Net production of cannabis, therefore, was only 189 metric tons as opposed to 405 tons in 1988. In 1989, a total of 38 metric tons of cannabis were seized in-country, and an additional 9 metric tons were estimated to have been lost due to other factors such as spoilage, leaving 142 metric tons available for export.

Belize

The Government of Belize's aggressive aerial eradication of cannabis succeeded in reducing the amount of marijuana produced in Belize in 1989 to about 66 metric tons, down from about 120 metric tons in 1988. Because of the vigorous eradication program, there were many instances of traffickers switching to Guatemalan marijuana suppliers.

An estimated 436 hectares of cannabis were cultivated in Belize in 1989, and 353 hectares were sprayed. Because of the persistent eradication campaign, cultivators are becoming more sophisticated and showing a greater technical competence in concealing their cultivation activities.

OTHER LATIN AMERICAN COUNTRIES

Paraguay

Paraguay is a producer of marijuana destined primarily for Brazil. The major areas of cultivation are reported to be in the Departments of Amambay and Candeyeyu near the Brazilian border. However, repeated aerial eradication and stepped-up manual eradication have reduced the cultivation of cannabis. During 1989, Paraguayan police eradicated 388

hectares of cannabis and seized 8 metric tons of marijuana. Careful aerial surveying during 1989 revealed that an estimated 375 to 425 hectares of cannabis were being cultivated, as opposed to the previous 1988 overestimation of 3,000 hectares.

Brazil

Brazil is a major producer of cannabis, and illegal cultivation has been confirmed in 19 of its 26 states. However, the greatest production takes place in the northeastern part of the country. Marijuana consumption is considered a serious problem in most states.

Intelligence gleaned from cannabis eradication operations during 1988 and 1989 indicates no known foreign involvement in cannabis cultivation and trafficking activities. Also, marijuana traffickers are showing a greater technical competence in concealing cultivation activities than in the past. During 1989, the Brazilian Federal Police (DPF) eradicated the equivalent of 2,400 metric tons of marijuana and seized about 19 metric tons of marijuana ready for consumption.

DPF officials advise that because law enforcement in French Guiana is more vigorous than in Suriname, most of the marijuana that leaves Brazil through the northeastern city of Belem is probably destined for Suriname. In addition, Belem has a large Surinamese community. This enables traffickers to utilize commercial activity, both legal and contraband, between Belem and Suriname to smuggle marijuana out of Brazil. Although the DPF speculates that some of the marijuana grown in Brazil is exported, there is no confirming data.

Southeast Asian Countries

Thailand and Laos continued to be major producers of marijuana in Southeast Asia. In the Philippines, cannabis cultivation remains high and the export of marijuana to other countries continues. Cannabis is also being grown in Cambodia, but the extent of cultivation and the amount of marijuana exported are unknown.

An unknown amount of cannabis cultivation take place in Thailand and Laos, but the latter is believed to be the larger producer. Cultivation shifted to Laos from Thailand in recent years because of eradication operations in

Northeast Thailand and the lack of enforcement in Laos. From Laos, the marijuana transits Thailand, Vietnam, and Cambodia on its way to user countries. Approximately 150 hectares of cannabis were eradicated in Thailand during 1989, and about 50 metric tons of processed marijuana were seized by Thai authorities. In the United States, seizures of Southeast Asian marijuana were small in comparison to the over 100 tons seized during 1988. This may be partly due to the dismantling of a number of marijuana smuggling organizations in the past two years. Seizures of Southeast Asian marijuana continued to be made off the U.S. west coast during the past year.

Hashish

Although most studies address the consequences of marijuana use, hashish use has the same adverse effects because of the THC in the cannabis plant. The effects are more intense with higher concentrations of THC. Most of the hashish exported to the United States comes from Southwest Asia or the Near East and is usually the less-refined grade, with a lower THC content.

Historically, hashish users have represented a relatively small percentage of the cannabis user population in the United States. This is because of a preference for the high THC content of domestically produced marijuana (sinsemilla) and general unfamiliarity with the drug. Annual U.S. seizures of hashish fluctuate as a result of specific large seizures taking place in certain years.

Hashish sold in the United States is comparable in price and directly competitive with domestically produced sinsemilla. Hashish generally ranges in price from \$1,200 to \$2,000 a pound at the wholesale level. At the retail level, prices range from \$80 to \$400 per ounce and between \$20 to \$50 a gram.

Both hashish and hashish oil are more plentiful in Canada than in the United States, where both familiarity with and demand for these drugs are higher. While hashish oil can be produced wherever cannabis is grown, generally the amount of cannabis required to produce the oil is cost prohibitive. Hashish oil available in the United States originates principally from Jamaica. The hashish oil imported into the United States is intended for sale at the gram level so that

traffickers can realize the greatest profit. Prices range from \$15 to \$35 per gram.

Foreign Sources

Lebanon, Afghanistan, and Pakistan are the major sources of hashish. Large-scale production of hashish requires an ample supply of cheap labor near an area where cannabis is grown.

Hashish Production in Major Source Countries, 1986-1989 (metric tons)

	1986	1987	1988	1989
Lebanon	600	600	700	800
Afghanistan	200-400	200-400	200-400	200-400
Pakistan	200	200	200	200
Morocco	30-60	60	85	60-85
Total	1,030- 1,260	1,060- 1,260	1,185- 1,385	1,260- 1,485

Widespread cannabis cultivation continued, as in previous years, in the Bekaa Valley in Lebanon and resulted in the production of approximately 800 metric tons of hashish. As

in the past, the largest portion of the hashish production was exported to Egypt. The remainder was consumed locally or smuggled to other Arab countries in the region, Europe, and North America. Most commonly, hashish shipments left the country on commercial vessels from ports along the Lebanese coast. Cyprus continued to be used as the meeting place for illicit drug transactions associated with Lebanon. Hashish produced in Afghanistan and Pakistan was consumed locally, and large amounts were smuggled into India for both local consumption and transshipment to other countries. With an estimated production of 60 to 85 metric tons of hashish in 1989, Morocco remained a relatively minor producer. Most Moroccan hashish was smuggled to Europe.

DANGEROUS DRUGS

The term, dangerous drugs, refers to broad categories of abused substances, both licit and illicit, which include the following: stimulants other than cocaine; narcotics/analgesics other than opiates; hallucinogens other than cannabis products; and all depressants and sedatives other than alcohol. Each class of substance is generally unlike other classes in its primary action and effect on the user.

According to the NIDA-sponsored National Household Survey conducted in 1988, current (past month) nonmedical use of psychotherapeutic drugs, including sedatives, tranquilizers, stimulants, and analgesics decreased nationwide among the general population from 3.2 percent in 1985 to less than 2 percent in 1988. According to the High School Senior Survey, current (past month) amphetamine use, which had peaked among seniors in 1980 at more than 12 percent, continued its downward trend to approximately 4 percent in 1989.

Despite declining trend data, record seizures of clandestine laboratories during 1989, and passage of a stronger federal law to control precursor and essential chemicals, the availability of methamphetamine and amphetamine remained at high levels in the West and Southwest, where the majority of illicit production occurs. Availability of Lysergic acid diethylamide (LSD) remained unchanged, while 3,4 methylenedioxymethamphetamine (MDMA), more commonly referred to as "Ecstasy," increased. The distribution of a potent large crystal form of methamphetamine, known as "Ice," continued unabated in Hawaii despite the disruption of a major trafficking group. Also, evidence of its limited distribution in the continental United States surfaced. Conversely, PCP abuse decreased markedly. Data extrapolated from drug testing of adult arrestees in the District of Columbia, where some of the highest PCP abuse rates in the nation had been recorded, best exemplified this decline. Levels of positive test results for PCP fell from a record high of 45 percent among all arrestees in 1987 to the 1989 year-end level of 10 percent.

Selected Dangerous Drugs Price Information, 1986-1989

Wholesale Prices	1986	1987	1988	1989
Amphetamine (d.u.*)	\$1.50	\$1.50	\$1.50	\$1.50
Methamphetamine (oz.)	\$1,000- \$1,800	\$1,000- \$1,500	\$700- \$1,800	\$450 \$2,000
Methaqualone (d.u.)	\$0.50- \$2.00	\$0.50- \$2.00	\$0.50- \$2.00	\$0.50- \$2.00
PCP (oz.-liquid)	\$150- \$525	\$100- \$500	\$100- \$500	\$100- \$1000
LSD (d.u.)	\$1.00- \$2.30	\$1.00 \$2.50	\$0.35 \$1.50	\$0.35 \$1.50
Retail Prices				
Amphetamine (d.u.*)	\$3.00	\$3.00	\$3.00	\$3.00
Methamphetamine (gm.)	\$60- \$120	\$60- \$120	\$60- \$125	\$60- \$125
Methaqualone (d.u.)	\$3.00- \$10.00	\$3.00- \$10.50	\$3.00 \$10.50	\$3.00- \$10.50
PCP (1 cigarette**)	\$30- \$50	\$30- \$70	\$30- \$70	\$30- \$70
LSD (d.u.)	\$3.00- \$6.00	\$2.00- \$8.00	\$2.00- \$8.00	\$1.00- \$8.00

*Dosage units.

**A full-length cigarette saturated with PCP and sold in Los Angeles.

Selected Dangerous Drugs Abuse Indicators, 1986-1989

Emergency Room Mentions*	1986**	1987**	1988**	1989***
Amphetamine	797	864	965	718
Methamphetamine	1,473	2,062	2,439	2,135
Methaqualone	204	154	123	115
PCP	5,172	7,586	6,363	3,668
LSD	693	941	860	898
Medical Examiner Mentions****				
Amphetamine	66	63	87	72
Methamphetamine	116	141	163	153
Methaqualone	5	6	2	1
PCP	270	260	188	112
LSD	1	4	4	1

*Data is from the DAWN panel of 431 consistently reporting facilities.

**Data for 1986-1988 do not agree with the data in the 1988 NNICC Report because the emergency room data are based on a different consistent panel of hospitals.

***Medical examiner mentions for 1989 are incomplete due to lag time in reporting.

****Excludes the New York metropolitan area because of incomplete reporting.

Clandestine Laboratories

Clandestine laboratories continued to produce most of the supply of illicit dangerous drugs. All of the PCP and almost all of the methamphetamine and amphetamine illicitly available in the United States during the year are believed to have been produced in clandestine laboratories. During fiscal year (FY) 1989, a record total of 852 clandestine laboratories were reported seized, a 5 percent increase over FY 1988 seizures.

Clandestine Laboratory Seizures in the United States, FY1986 - FY1989

	FY1986	FY1987	FY1988	FY1989
PCP	8	13	19	13
Methamphetamine	372	559	667	683
P2P	21	15	10	33
Amphetamine	66	69	84	101
Methaqualone	4	2	4	5
Cocaine	23	17	9	1
Other Drugs	15	7	17	16
Total	509	682	810	852

The Chemical Diversion and Trafficking Act of 1988

The United States is one of the largest manufacturers and distributors of chemicals in the world. Precursor and essential chemicals are used in the manufacture of illicit drugs such as cocaine, heroin, PCP, LSD, and methamphetamine. DEA has long recognized the problem of the diversion of licitly produced chemicals into clandestine drug laboratories. However, it lacked the authority to deal effectively with the illicit distribution of these chemicals.

On November 18, 1988, President Reagan signed into law the Anti-Drug Abuse Act of 1988 which included Subtitle A, the Chemical Diversion and Trafficking Act of 1988. This new subtitle places under federal control the distribution of 12 precursor and eight essential chemicals as well as the distribution of tableting and encapsulating machines. This legislation also gives DEA the authority to stop import or export shipments not destined for legitimate uses. It also requires all manufacturers, distributors, importers, and exporters of listed precursor and essential chemicals or machines to maintain readily retrievable receipt and distribution records. The implementation of this legis-

lation has assisted in ensuring that the United States is not the source of supply for chemicals used in the manufacture of illicit substances.

Stimulants

Methamphetamine: The most prevalent clandestinely produced controlled substance in the United States is methamphetamine. In FY 1989, a record high of 683 methamphetamine laboratories were seized, accounting for approximately 80 percent of all clandestine laboratory seizures. The FY 1989 figure represents a slight increase over the previous year's total of 667. DEA participated in 575 of the methamphetamine laboratory seizures made in FY 1989, as compared to 553 in the previous year.

The San Francisco, San Diego, Seattle, Houston, and Denver Field Divisions accounted for approximately 74 percent of the methamphetamine laboratories seized during FY 1989. This suggests that the clandestine manufacture of methamphetamine is still primarily based in the western and southwestern United States. The San Francisco Field Division continues to report the highest number of laboratory seizures with a total of 179 in FY 1989, as compared to 159 in FY 1988.

The relatively simple method of producing methamphetamine, known as ephedrine reduction, is now the primary method of manufacturing methamphetamine. This process, once noted almost exclusively in the southern California area, is now used throughout the United States. However, due to the difficulty in obtaining ephedrine HCl, the P2P method of production is once again being used more frequently.

Availability remained at high levels in the western and southwestern states where most illicit production occurs. Despite this, methamphetamine-related hospital emergencies reported through DAWN in 1989 decreased by 12 percent from the previous year's total. In 1989, 2,135 were reported, compared to 2,439 in 1988.

d-Methamphetamine Hydrochloride ("Ice"): "Ice" is not a new analogue of methamphetamine HCl. Rather, it is methamphetamine HCl and derives its name from its appearance: clear, large, chunky crystals which look like ice chips. The drug is often mistaken for shards of broken glass or rock candy. Other terms for "Ice" include quartz, glass, Shabu, Kaksonjae, Hiropon, Batu, crack meth, and ice cream.

Since the mid-1980's there have been attempts to smuggle "Ice" from Taiwan and Korea into Hawaii. However, it was not until the summer of 1988 that its use became relatively widespread in that State. By 1989, there was distribution of this substance on the U.S. mainland, but it was very limited and restricted to the West Coast. Annual prevalence data relating to "Ice" was a component of NIDA's Annual High School Survey for the first time during 1989. The survey found that 1.2 percent of the approximately 17,000 high school seniors had used the drug within the past year. This figure escalated to 3 percent when data for the West, an area where methamphetamine use is prevalent, was reviewed independently.

All of the exhibits of "Ice" analyzed thus far have been found to have purity levels of 90 to 100 percent. In Hawaii, ingestion of "Ice" has been almost exclusively via smoking. In the Far East, however, the preferred method of administration is injection. The cost of a gram fluctuates but, in general, sells for \$300 to \$400. A gram of cocaine, by contrast, sells for \$100 in Hawaii. Treatment experts report that it is not uncommon for the effects of "Ice" to last as long as eight to 16 hours. These effects frequently include euphoria, heightened energy, confusion, paranoia,

nausea, vomiting, coma, and possibly death. Onset of addiction is similar in nature to that of crack and may occur with one inhalation.

The sale of "Ice" during 1989 was traceable to a small number of highly organized Asian groups which have been able to control virtually all trafficking. These groups are organized along ethnic lines; Filipinos and South Koreans are the dominant groups. Laboratories in South Korea, Taiwan, the Philippines, and one, once operated in the Portland, Oregon area, were believed to be responsible for the "Ice" available domestically in 1989. The potential for "Ice" abuse is great in the United States should the production methodology become widespread among domestic illicit laboratory operators. Treatment experts and law enforcement officials are concerned about its replacing crack as the drug of choice should an inexpensive, ready supply become available.

Amphetamine: In FY 1989, a record total of 101 clandestine amphetamine laboratories was seized, as compared to 82 in FY 1988 and 69 in FY 1987. Seventy (or 69 percent) of the amphetamine laboratories confiscated in FY 1989 were seized in the Dallas Field Division. The second highest number of seizures (ten) occurred in the St. Louis Field Division.

The number of amphetamine-related hospital emergencies reported by DAWN nationwide during 1989 decreased by 25 percent from the previous year's total. During 1989, 718 were reported, compared to 965 during 1988. Overall, amphetamine-related hospital emergencies remained low when compared to those involving many other illicit substances. The principal areas of amphetamine use in the United States are the West and the Southwest.

Hallucinogens

LSD: LSD was reported to be generally available throughout most areas of the United States during 1989. LSD traffic continued to be tightly controlled by a few highly sophisticated, well organized groups which manufacture and distribute the drug primarily out of northern California. In FY 1989, no clandestine LSD laboratories were seized in the United States.

The number of LSD-related hospital emergencies reported by DAWN nationwide increased by 4 percent from 1988 to 1989 and remained considerably above those reported during the mid-1980's when abuse levels were relatively stable. Despite this, LSD emergencies were comparatively low partly due to the hallucinogen's relatively low potency of 20 to 80

micrograms per dosage unit common in the 1980's, compared to the 150 to 300 micrograms per dosage unit of the late 1960's and early 1970's. LSD sold for \$0.35 to \$1.50 per wholesale dosage unit and \$1.00 to \$8.00 per retail dosage unit. Blotter acid and microdots continued to be the primary forms encountered.

PCP: Abuse of PCP continued to decrease nationally during 1989. The number of PCP-related hospital emergencies reported nationwide declined by 42 percent from the previous year's total. During 1989, 3,668 emergencies were reported through DAWN, compared to 6,363 in 1988. This was the most significant decline since 1987, when PCP emergencies reached extremely high levels.

One of the largest decreases in PCP-related hospital emergencies during 1989 occurred in the Washington, D.C. metropolitan area where this hallucinogen has been one of the most prevalent illicit drugs of abuse since the early 1980's. Although the Washington area continued to lead the nation in the number of PCP emergencies with approximately two times that of the next highest city, Los Angeles, the number declined from 2,977 in 1988 to 1,349 in 1989, a decrease of 54 percent. In addition to the Washington area, PCP emergencies decreased in all major metropolitan areas

traditionally having significant abuse levels: Los Angeles, Chicago, New York City, San Francisco, St. Louis, Baltimore, and New Orleans. This decline is believed to be largely the result of users switching from PCP to crack, which remains widely available.

Reporting indicates that the bulk of the nation's PCP supply is manufactured and distributed in the Los Angeles area, with some production in Fresno and San Francisco. Thirteen PCP laboratories were seized in FY 1989; ten of them were seized in California.

3,4-Methylenedioxymethamphetamine (MDMA): MDMA, known chemically as 3,4-methylenedioxymethamphetamine, is also known by several street names such as Ecstasy, XTC, MDM, Adam, E, Clarity, Essence, and Doctor. MDMA is not to be confused with MDA, another hallucinogen, although a structural relationship exists between the two substances. It is similarly related to methamphetamine, a stimulant, as a 3,4-methylenedioxy analogue of amphetamine. It has been described by users, most of whom are college students and recent graduates, as a fast-working drug which produces feelings of alertness, euphoria, relaxation, and emotional warmth without the resulting hyperactivity of other substances.

MDMA, which is usually sold in tablet form, was most available in California, Connecticut, Georgia, Illinois, Iowa, Florida, Louisiana, Mississippi, Nevada, New York, Virginia, and Texas during 1989, a year when availability appeared to increase. Retail prices range from \$10 to \$50 per dosage unit; wholesale prices range from \$7.50 to \$10.00 per dosage unit. Dosage units vary in strength from 55 milligrams to 150 milligrams.

Depressants

Methaqualone: The reduction in availability of methaqualone (Quaalude) is an excellent example of effective legislation and international cooperation. Once the principal illicit depressant in the United States, methaqualone trafficking and abuse have dropped over the last decade to a minimal level. Previously, methaqualone had been smuggled from Colombia and Mexico where it was tableted from bulk powder which had been legitimately manufactured in producing countries and subsequently diverted by international traffickers. During the latter half of 1981, agreements were reached with most producing countries which stringently control production and distribution of methaqualone. Additionally, methaqualone was placed in Schedule 1 of the

Controlled Substances Act in August 1984, which prohibits the manufacture, distribution, or possession of methaqualone in the United States and its territories except for research purposes.

Austria, Hungary, West Germany, and Czechoslovakia still maintain inventories of methaqualone powder to satisfy medical requirements. However, traffickers have been unsuccessful in their attempts to purchase large quantities from the remaining stockpiles. Faced with a shortage of bulk methaqualone powder, traffickers have manufactured counterfeit Quaalude tablets using alternative depressant or sedative-hypnotic substances as the active ingredient. In 1989, most of the purported Quaaludes smuggled into the United States were counterfeit, and generally contained diazepam, phenobarbital, secobarbital, or diphenhydramine. Diazepam remained the primary active ingredient in counterfeit Quaaludes smuggled across the U.S. border from Canada. Counterfeit Mandrax tablets smuggled from Mexico contained secobarbital, methaqualone, phenobarbital, propoxyphene, caffeine, and ephedrine hydrochloride.

Narcotics/Analgesics and Heroin Substitutes/Supplements

Pharmaceutical products containing narcotics remained a significant part of the overall illicit drug trafficking and abuse situation in the United States during 1989. These products were used alone or in combination, both as substitutes for and as supplements to heroin, and were primary drugs of choice for a substantial portion of the narcotic addict population of the United States.

Abuse of oxycodone has remained relatively stable during the mid-to-late-1980's; abuse of codeine and hydromorphone has declined during that period. The trafficking and use of pentazocine (Talwin) in combination with the antihistamine tripeleennamine, commonly referred to as "T's and B's" or "T's and Blues," continued to be well below levels reported prior to the addition of the narcotic antagonist, naloxone, to the pentazocine tablets in 1983. Users are reportedly not using the reformulated product, Talwin NX, as frequently due to the adverse effects brought about by the antagonist. Abuse of codeine/glutethimide combinations, commonly known

Narcotic/Analgesics and Heroin Substitutes/Supplements Use
and Trafficking Indicators, 1986-1989

Emergency Room Mentions*	1986**	1987**	1988**	1989**
Oxycodone	705	715	782	659
Codeine	741	658	552	471
Hydromorphone	298	355	266	212
Glutethimide	299	298	231	98
Pentazocine	316	292	144	111
Tripelennamine	124	124	48	9

Prices

Codeine/ Glutethimide (set)	\$7- \$14	\$7- \$14	\$7- \$14	\$7- \$14
Hydromorphone (4 mg.) (Dilaudid)	\$30- \$65	\$20- \$60	\$20- \$80	\$20- \$80
Pentazocine/ Tripelennamine (set)	\$10- \$20	\$10- \$20	\$10- \$20	\$10- \$20

*Data is from the DAWN panel of consistently reporting facilities.

**Data for 1986-1988 do not agree with the data in the 1988 NNICC Report because the emergency room data are based on a different consistent panel of hospitals.

as "Fours and Doors," or "Hits," declined significantly during 1989. Use of this combination, however, remains prevalent in some areas. The primary reason for the decline in abuse of these pharmaceutical products was due to the availability of high purity heroin in many areas.

Controlled Substance Analogues

The term, controlled substance analogues, refers to clandestinely produced substances which are chemically and pharmacologically similar to substances listed in the Controlled Substance Act, but are not themselves controlled. In terms of the number of users and extent of distribution, the problem of controlled substances analogues appeared relatively small when compared to that of the abused substances such as heroin, cocaine, and cannabis. Nevertheless, in those areas of the United States where controlled substance analogues were available, substantial numbers of people used them and many suffered severe adverse reactions, including death.

A serious aspect of controlled substance analogues is the production of narcotic analogues. The substances consist of variations of the parent compounds, fentanyl and meperidine (Demerol). Some of the clandestinely produced analogues of

fentanyl are a thousand times more potent than morphine. During FY 1989, DEA seized one operational clandestine laboratory which was producing an analogue of fentanyl. Additionally, five clandestine laboratories were confiscated which were producing the amphetamine-related analogues, MDA (4), and MDMA (1).

During 1989, the following substances were permanently placed into Schedule I of the Controlled Substance Act:

- o the amphetamine analogue, N,N-dimethylamphetamine;
- o the MDA analogues, N-ethyl-3,4-methylenedioxyamphetamine (MDE) and N-hydroxy-3,4-methylenedioxyamphetamine;
- o the central nervous system stimulant, 4-methylaminorex;
and
- o the PCP analogue, 1-[1-(2-thienyl)cyclohexyl]pyrrolidine (TCPY).

DRUG MONEY

Money Laundering and Movement

The illicit drug trade is a cash-based industry which generates billions of dollars in revenue annually. The volume of cash generated poses a serious problem for the drug trafficker: concealing the source and ownership of the funds so that they can be spent or invested without drawing the attention of law enforcement. Consequently, at any given time, there are millions of drug dollars in the United States which may have to be laundered or moved between locations. Laundering is usually accomplished in major metropolitan areas such as Los Angeles, New York City, and Miami. However, sporadic reporting suggests that other locales are also being used.

The techniques or methods used to launder money and move currency in 1989 were largely the same as in past years. After the original capital-generating drug transaction in the United States, the currency was either moved to overseas financial centers with strict bank secrecy laws or to the drug source country. If the currency remained in the United

States, it was deposited into bank accounts in its original form or changed to monetary instruments and then deposited.

In 1989, as in 1988, there was increased reporting that drug traffickers were establishing legitimate businesses to facilitate their illicit drug trafficking and money laundering activities. These businesses ranged from bars to automobile dealerships. The investigation of one such business enterprise under Operation POLAR CAP, which culminated in early 1989, further confirmed that commodities are being used to facilitate the laundering of drug monies. In this two-year, multi-agency investigation, it was discovered that a group of Armenian businessmen, posing as legitimate gold dealers and jewelry shop owners, laundered \$1.2 billion in cocaine proceeds for the Colombia-based Medellin Cartel. These individuals used their outlets in Houston, New York City, and Los Angeles as collection centers. The currency from the latter cities was listed as jewelry on bills of lading and transported to Los Angeles via armored car companies. In Los Angeles, the currency was recounted and deposited into business accounts at various banks. Once deposited, the monies were then wire transferred to other accounts in Los Angeles and New York City for subsequent transfer to international banks and a money exchange house in Uruguay.

Financial institutions also received drug monies in the form of money orders, cashiers checks, and checks drawn on personal or corporate accounts. These transactions, carried out under fictitious names, were often made to resemble those of legitimate businesses. Smurfing, the common term associated with the conversion of cash to monetary instruments such as cashiers checks, remained popular in 1989. Structuring was employed as a mechanism to deposit large sums of drug cash. In previous years, structuring consisted of deposits of slightly less than \$10,000. However, in 1989, in south Florida for example, structuring took on a slightly different look. Several groups employed individuals to deposit from \$3,000 to \$6,000 in currency into a number of accounts. Such sums drew less attention from bank employees. One organization employed several subjects who structured the deposit of \$1.8 million into several accounts over a two-month period. Smurfing and structuring are used to circumvent reporting requirements under the Bank Secrecy Act which requires financial institutions to file Currency Transaction Reports for cash transactions of \$10,000 or more.

International currency exchange houses continued to be used to facilitate the laundering of drug monies. In addition

to exchanging currency, these businesses are also known to wire money to locations of choice.

Numerous small-scale financial service operations in Texas, New York, and New Jersey are also engaged in money laundering activities. For a fee of about 5 to 7 percent, these operations use an international network of telefax machines to acknowledge money movement requests. Messages are sent between operators acknowledging the receipt of the commodity and outlining instructions for disbursement. There is no physical transfer of cash. Drug traffickers also take advantage of wire transfer companies such as Western Union to move money. Information suggests that both the profits and cash used to purchase drugs are moved via these systems. The movement is usually within the \$3,000 to \$9,000 range.

The physical movement of funds within the United States remained via air or land routes. Vehicles continued to be used to transport drug monies from consumer locations to drug source locations and from consumer locations to laundering sites. A total of \$32.1 million was seized from vehicles traveling on U.S. highways in FY 1989. In January 1989, a record \$18.7 million was seized in New York City. This currency was one group's proceeds from slightly over a month of operations. The money was to be physically

transported via motorhome to Texas, and from there it was to be moved out of the United States. Drug traffickers are also using interstate bus and rail systems to move their drug monies. Money was also transported within the United States and abroad via commercial airlines, as cash seizures continued to be made at domestic airports.

In 1989, the overall average amount of currency seized per incident was less than in previous years and followed the 1988 trend. Drug money couriers had between \$10,000 to \$20,000 in small denomination bills on their person or in carry-on luggage. Attempts were also made to transport larger sums of currency out of the country concealed in toys, gift-wrapped packages, and various other materials. Appliances and other household products, being shipped as cargo, were also used to conceal large sums of currency.

While drug cash frequently moves out of the United States to pay sources of supply and to be invested, some cash must be immediately available. It is used for a variety of recurring expenses such as attorney fees, salaries, and travel. Capital is also needed to acquire assets such as cars, jewelry, real estate, horses, and legitimate businesses.

Asset Seizures

DEA and other U.S. Government agencies have programs dedicated to the identification, seizure, and subsequent forfeiture of drug traffickers' assets. DEA seized assets in excess of \$970 million in FY 1989. Of this total, over \$365 million was in the form of currency. The aggressive approach to remove the profits from the drug trafficker is not restricted to the United States. In 1989, the Colombian Government raided several properties in attempts to apprehend major cocaine traffickers. During these enforcement actions, the authorities confiscated vehicles, aircraft, weapons, real estate, and currency. In October, while conducting a raid on Jose Gonzalo RODRIGUEZ-Gacha's ranch, authorities discovered a cache of records. Some detailed part of the financial wealth of this notorious trafficker and his family. These records reflected that RODRIGUEZ and some family members maintained bank accounts in Europe, Hong Kong, and Panama under corporate identity. Authorities in countries where the accounts were maintained were given the information from these records and extensive supporting documentation about RODRIGUEZ's illicit activities. Several governments took action against these accounts, and by the end of 1989, over \$60 million had been frozen. Other

governments also initiated similar actions. The new Panamanian Government joined the U.S. Government in the attack against drug assets. Using its 1986 anti-drug legislation, authorities began, in late 1989, freezing bank accounts which had been identified under Operation POLAR CAP and other U.S. investigations.

In 1989, asset removal and anti-money laundering efforts continued to be valuable tools in the war on drugs. In addition to successful law enforcement actions, the U.S. Senate ratified the U.N. Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances. The Convention included provisions that money laundering should be a crime and that legislation be adopted authorizing the tracing, seizure, and forfeiture of assets.

GLOSSARY

The Domestic Monitor Program (DMP) is a retail-level heroin purchase program designed to provide federal, state, and local authorities with intelligence relating to heroin purity, price, availability, adulterants, and geographic source areas (Signature analysis).

The Drug Abuse Warning Network (DAWN) System, a federally funded program co-sponsored by the Drug Enforcement Administration and National Institute on Drug Abuse, collects information relating to drug abuse occurrences that have resulted in a medical crisis and subsequently have been identified as drug abuse episodes by one of 700 hospital emergency rooms and 80 medical examiner offices nationwide.

The Drug Use Forecasting (DUF) Program measures drug use among the criminal population. Sponsored by the National Institute of Justice, the program is designed to collect data in central booking facilities in the largest cities across the United States via urinalysis and oral interviews. During 1989, 21 cities participated in this program. Approximately 250 male arrestees are sampled at each site per quarter. DUF statistics are considered minimum estimates of drug use in the male arrestee population. However, they provide a valuable indicator of drug abuse among this segment of the population.

HEROIN:

Black tar heroin is a relatively high purity heroin made from opium poppies grown in Mexico using techniques classified as Mexican in origin. Colors may range from brown to black with a consistency as sticky as roofing tar or hard like coal. Typically, black tar is the hydrochloride salt and is injected.

Southeast Asian number 3 heroin, also known as smoking heroin, varies in color from tan to grey to red and is granular or lumpish in composition like fish tank gravel or pet litter. The heroin is not produced with a purity of higher than 50 percent; it usually ranges between 20 to 40 percent. In the manufacturing process of number 3 heroin, large amounts of caffeine are added. Caffeine is the one common chemical characteristic in number 3 heroin. It is readily found in analysis despite any attempts to dilute the heroin. The normal usage for number 3 heroin is smoking, but it can also be dissolved in lemon and/or lime juice and be injected.

Southeast Asian number 4 heroin is injectable, highly soluble in water, and normally sold as a fluffy white powder which may vary in color from white to creamy yellow. The consistency has been likened to that of laundry detergent. The wholesale purity of number 4 heroin usually ranges from 80 to 100 percent.

Heroin Signature Program (HSP). Heroin Signature chemical analysis identifies and quantifies selected heroin characteristics and secondary constituents. From the resultant data, heroin exhibits are classified according to the process by which they were manufactured, which in turn enables the association of exhibits with geographic regions. HSP data for 1989 is based upon the analysis of 504 exhibits. Exhibits include random samples of domestic purchases and seizures as well as seizures made at U.S. ports of entry. Based on the exhibits analyzed, percentages of the total U.S. supply are assigned to each source region. The data is based upon a qualitative not quantitative measure and therefore is not a direct measure of availability. HSP data for 1989 is incomplete as of this writing due to the lag time in laboratory analysis.