

Facts about cocaine

Influences of cocaine on the body and the influences of production on rainforest pollution:

- drug stimulating central nervous system; made from coca leaf
 - immediate effects: feeling of euphoria, increased physical energy, mental alertness
 - adverse effects: elevated body temperature, headache, abdominal pain
 - long term: nasal damage, trouble swallowing, weight loss, nutritional deficiency, damage to bowel tissue from decreased blood flow
- dries coca leaves contain up to 1% cocaine hydrochloride
- Columbia production: 171.000 hectare to grow coca (17% increasement) = 1.520 tons cocaine

Production process:

- coca leaves > extraction > coca paste > purification to base > cocaine hydrochloride
- 1) plucking and dried to avoid rotting
- two ways of extraction: making coca paste from leaves
 - a) solvent extraction: dried coca leave dusted with inorganic base e.g. lime + moistened with water
 - organic solvent e.g. kerosene added to slurry and mixed
 - → by this process process cocaine from leaves
 - extracted cocaine dissolved in solvent
 - heating mixture and filtering; mixed with sulfuric acid to convert cocaine to cocaine sulfate
 - → separating 2 layers; aqueous layer contains cocaine sulfate
 - adding caustic soda to neutralize acid to make cocaine paste
 - b) acid extraction: .. necessary?
- making cocaine from coca paste:
 - purify to get rid of cinnamoyl; diluted in sulfuric acid and potassium permanganate
 - oxidizing impurities to manganese dioxide > easy to filter
 - filtering + adding ammonia to neutralize sulfuric acid and cocaine sulfate
 - final filtering to cocaine hydrochloride

Ingredients:

- Kerosene: H411: Toxic to aquatic life with long lasting effects.



Hazard pictogram(s):

- Sulfuric Acid: H314 -Causes severe skin burns and eye damage.

Hazard pictograms (GHS-US)

:



GHS05

- Caustic Soda: H314 -Causes severe skin burns and eye damage.

Hazard pictograms (GHS-US)

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GHS05

- Potassium Permanganate: H410 - Very toxic to aquatic life with long lasting effects

Hazard pictograms (GHS-US)

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GHS03



GHS07



GHS09

- Ammonia: H331 - Toxic if inhaled..H410 - Very toxic to aquatic life with long lasting effects..

Hazard pictograms (CLP)

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GHS04



GHS05



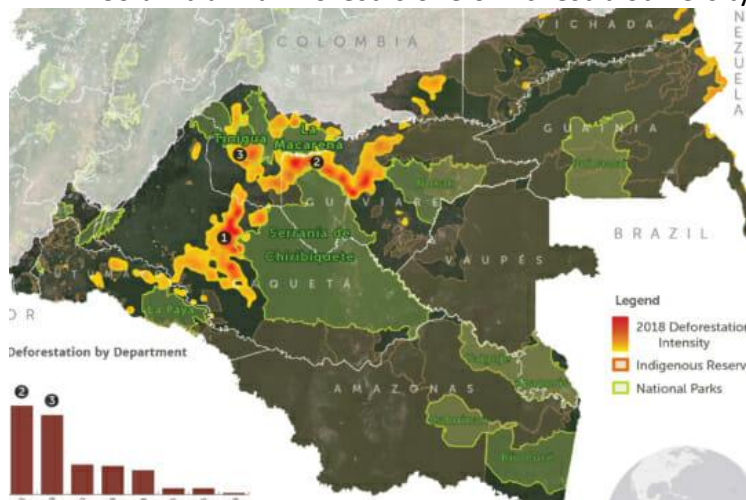
GHS06



GHS09

Environmental effects of cocaine production: Colombia (blood): one gram kills 4m2 of rainforest

- each year 96.000 hectares of rainforest is destroyed for cocaine cultivation
- Columbian rain forest is one of richest biodiversity hotspots



- coca- growing attracts a lot of other farmers destroying rainforest for other farming
- growers using a lot of pesticides which are actually banned
- production chemicals polluting areas with high biodiversity: 2 metric tons chemical waste per hectare
 - → responsible for 10% of total deforestation
- in a span of 15 years, between 1998 and 2012, 608,000 hectares of forest in Colombia were replaced by coca crops
- deforestation slowed the capture of 6 million tons of carbon dioxide and the generation of 5.5 million tons of oxygen

Labour conditions of cocaine production (slavery):

- Columbia: coca is grown by poor farmers; earning more than with coffee / cacao → leading to scarcity in food farming
 - big part of conflict with FARC rebels taxing poor farmers
- october last year police start shooting on protesting farmers
- 900 people dying every year by landmines to protect crops;

Facts about addiction: (the other side of slavery):

- adding levamisole to cocaine to increase sales; can lead to fatal blood disorder
- long term effects:
 - nasal damage, trouble swallowing, weight loss, nutritional deficiency, damage to bowel tissue from decreased blood flow

The biggest producers of Cocaine

Colombia, Peru, Bolivia–Central America and Caribbean are also involved the previous mentioned remain the biggest producers.

The 20 biggest cocaine consuming countries (By percentage of users per population of country)

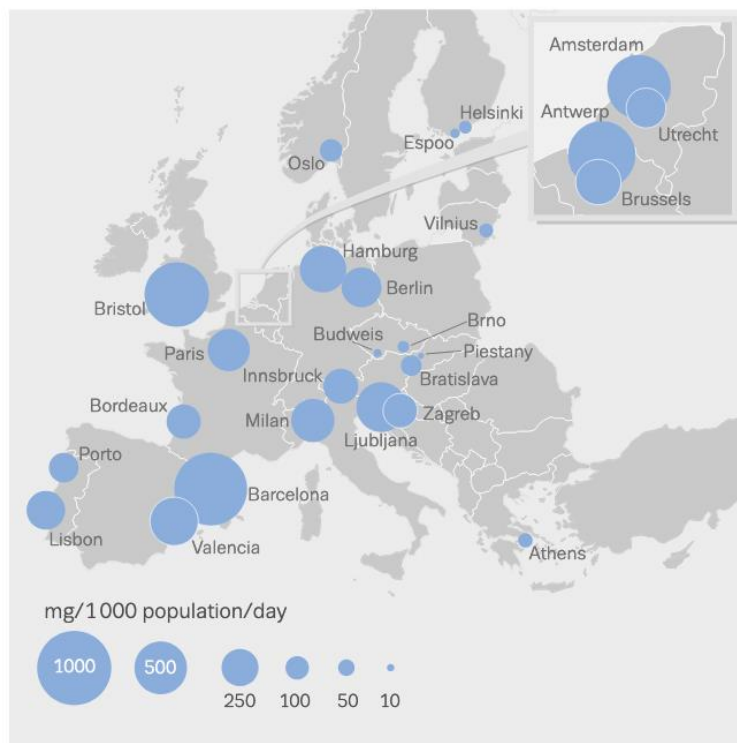
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- Albania - 2.5 %
- Scotland - 2.34%
- United States - 2.3%
- England and Wales - 2.25%
- Spain - 2.2%
- Australia - 2.1
- Uruguay - 1.8
- Chile - 1.73
- Netherlands - 1.6%
- Ireland - 1.5
- Canada - 1.46
- Aruba - 1.3
- Bermuda - 1.3
- Ghana - 1.1
- Italy - 1.1
- France - 1.1

- Israel - 1.07
- Iceland - 1.06
- Costa Rica - 1.06
- Luxembourg - 1.04

Main consumer market:

- Europe / North America; 1129 ton seized cocaine (2016)
 - Europe: annual market of 5.7 billion
- EU-level estimate suggests that around 2.3 million young adults (aged 15-34 years) used cocaine in the last year (1.9 % of this age group), with national estimates ranging from 0.2 % to 4.0 %
 - → research through wastewater

Cocaine residues in wastewater in selected European cities in 2017



<https://news.mongabay.com/2016/09/forests-in-colombia-fall-victim-to-illegal-coca-plantations/>
<http://www.emcdda.europa.eu/system/files/publications/10225/2018-cocaine-trendspotter-rapid-communication.pdf>