



Hormozgan University of Medical Sciences

4th National and 1st International

Congress on

**Tobacco** and **Health**

**Tobacco & its environmental impacts**

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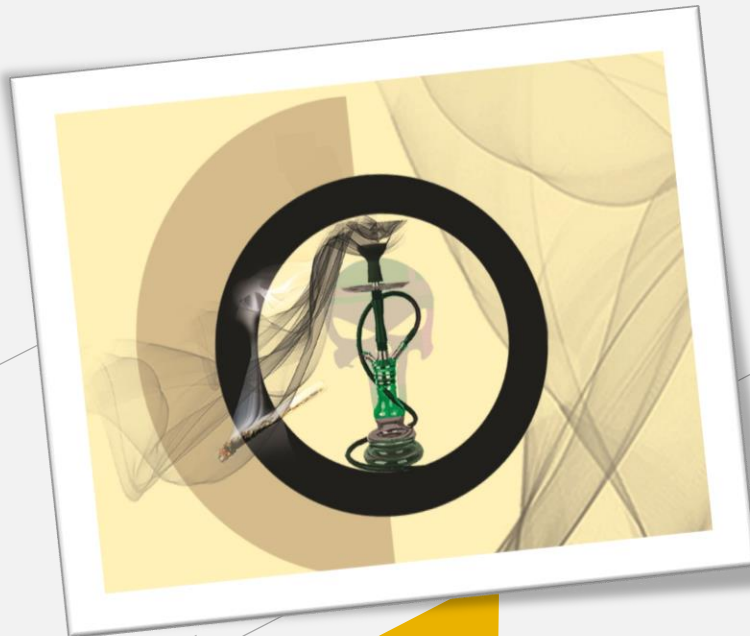
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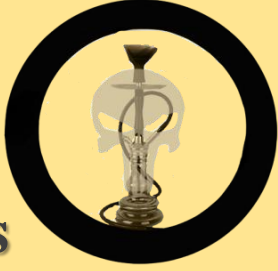
Bandar Abbas







# How TOBACCO affects the ENVIRONMENT ?



- **Growing and curing**



- **Manufacturing**



- **Distributing products**



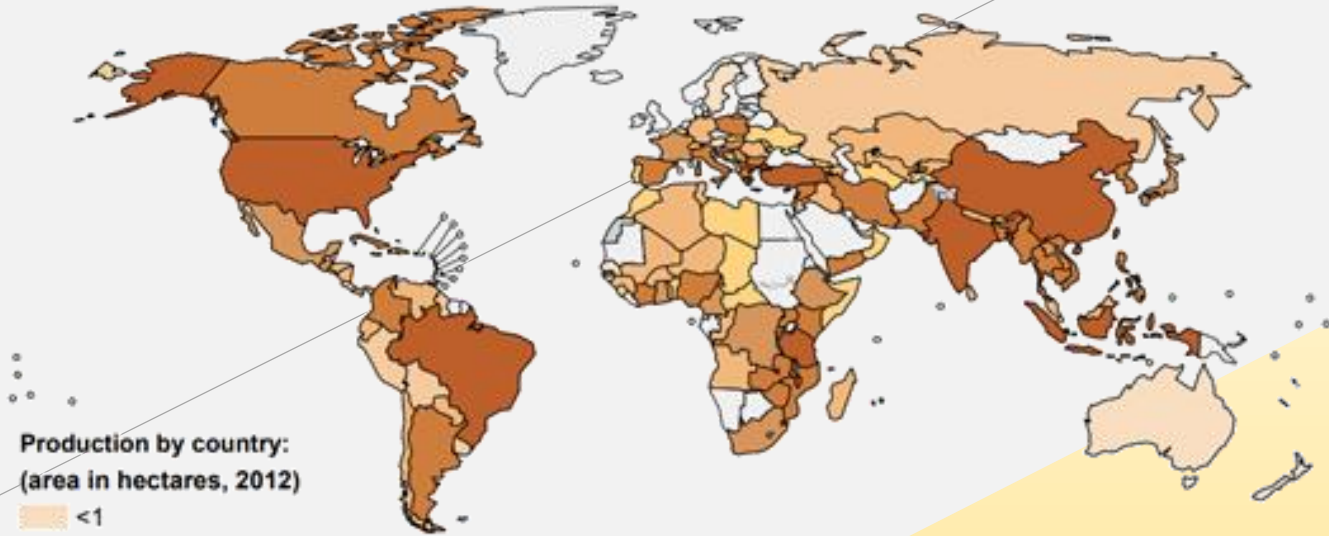
- **Consumption**



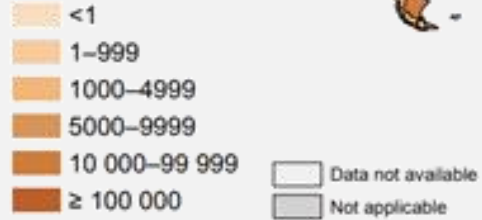
- **Post-consumer waste**



# Tobacco growing and curing



Production by country:  
(area in hectares, 2012)



## impact on land and agriculture

- Tobacco is a very sensitive plant that requires a lot of tending.
- grows as a monoculture, It completely depletes the soil of nutrients.
- Tobacco requires six times more potassium than most other cultures
- After some cultivation of the plant; tobacco can no longer grow there – neither can most other plants.

## 2 Manufacturing and distributing tobacco products



- **environmental costs**
- **Resource use: Energy use, Water consumption, using paper**
- **Carbon dioxide (CO<sub>2</sub>) pollution**
- **Transport**
- **Use of plastics as packaging material**

# Types of environmental costs



- **chemicals used :in the preparation and treatment of the tobacco leaf**
- **metals involved in the manufacture and shipping of cigarette-making machines**
- **energy used for manufacturing and distributing**
- **wood pulp and waste from cigarette paper and packaging ...**
- **thousands of chemical additives; flavorings and pH modifiers such as ammonia**
- **energy for extraction, extrusion and processing of cellulose acetate filters**
- **energy used in the manufacture and fuelling of trucks, ships and planes to transport tobacco products from production plants to retailers**

# Resource use: Energy use, Water consumption



- **Growing:** land, water, pesticides
- shredding and assembling the tobacco: energy and metals to manufacture the machines
- processing and coating the tobacco, which uses thousands of chemicals and dry ice
- fuel energy used to freeze and artificially expand the surface area of the tobacco
- rolling paper, which uses bleaching agents and generates effluent (from paper production mills, etc.) and which represents additional deforestation;
- producing filters, which uses acetate tow;
- producing packaging; uses paper, plastic wrap and aluminum foil+ computer equipments.



# Energy use



## The energy used to make tobacco products

Examples of total reported yearly energy use for some of the largest tobacco companies

Company	Gigawatt hours/year	Kilowatts per million cigarettes
Imperial Tobacco (2015)	1004	2051
Altria (2014) (129)	1380	Unknown
British American Tobacco (2011)	2504	2864
Japan Tobacco Incorporated (2014)	2804	1832 (2012)
Philip Morris International (2015)	2539	Unknown



# Water consumption



**Tobacco manufacturing is extremely water-intensive**

**Significant amounts of water are used for treatment, making inks and dyes for packaging, and tobacco pulp processing.**

- **Water consumption Used during manufacturing:  
3000-5500 cubic metric/million Cigarettes**

# 3 Consumption

## Tobacco smoke composition

CO2 equivalent Emission: 0.55-0.75

metric tones/million Cigarettes

Tobacco smoke constituents (IARC Cancer Risk Classification) <sup>1</sup>	Mass in sidestream smoke (per cigarette) <sup>2</sup>
Total 'tar'	10.5–34.3mg
Ammonia	4.0–6.6 mg
Nicotine	1.9–5.3 mg
Pyridine	195.7–320.7 mg
NNK (1)	50.7–95.7 mg
NNN (1)	69.8–115.2 mg
Styrene (2B)	23.2–46.1 mg
Toluene (3)	134.9–238.6 mg
Benzene (1)	70.7–134.3 mg
Isoprene (2B)	743.2–1162.8 mg
1, 3 – Butadiene (1)	81.3–134.7 mg
Acetaldehyde (2B)	1683.7–2586.8 mg
Acrolein (3)	342.1–522.7 mg
Formaldehyde (1)	540.4–967.5 mg
Carbon dioxide	79.5-759 mg
Methane	1.3 mg
Nitrous oxides	0.051 mg



# 4 Post-consumer waste



- Aesthetical problems
- Product waste
- Creating problems for sweepers
- Waste disposal (landfill)
- Hazardous waste:
- Every year Over hundreds tons of toxic chemicals are released from tobacco manufacturing plants, including ammonia, nicotine, hydrochloric acid, methanol, and nitrates – not good news for environment.



## smoking and environmental damage



- Soil and land pollution through agriculture and cigarette butts
- Cigarette butts and water pollution
- Air pollution through smoking
- Effect on aquatic fish
- Health effects on pets
- Effects on livestock
- Garbage environment
- Cleaning costs
- forest fire

- **Fact 1:** 4.5 trillion cigarette butts are disposed of/Yr
- **Fact 2:** 600 million trees are chopped down /Yr
- **Fact 3:** One car produces 4 million times less than a tobacco factory
- **Fact 4:** Tobacco manufacturers use 4 miles of paper / hr.



# Solutions



- **Revision of the production process in order to reduce water consumption**
- **Mandating the use of renewable energy in various tobacco supply processes**
- **Carrying out extensive studies and measures in order to increase the productivity of tobacco agricultural land to reduce the culture area**
- **Establish strict environmental obligations for tobacco manufacturers**
- **increase in the proportion of recycled/reused facility waste**
- **Robust regulations and independent oversight**



for every 15 packs of cigarettes, one tree had TO DIE





**Thank you for your attention**

