

Forum: Environment

## **Measures to reduce meat consumption**

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### **Introduction**

Meat consumption is related to living standards, diet, livestock production and consumer prices, as well as economy and GDP. Meat is characterised by high costs in production and output and its demand reflects higher incomes and a shift to food consumption that incorporates proteins from animal sources. However meat production has a very significant impact on the environment and on the health of our planet.

In fact the livestock production, meat distribution and consumption require large outlays of pesticides, fertilizer, fuel, feed and water, during these processes greenhouse gases and toxic chemicals are released into our air and water. This is why it is an allarming issue that needs to be tackled.

### **Key Terms**

#### Livestock

Domestic animals, such as cattle or horses, raised for home use or for profit, especially on a farm.

#### Greenhouse effect

The rise in the Earth's temperature caused by certain gases (such as Carbon Dioxide) that by staying in the atmosphere trap some of the energy that is meant to go back to the universe; just like the glass in a greehouse;

#### Greenhouse gases (GHGs)

Any of the gases whose absorption of solar radiation is responsible for the greenhouse effect, including carbon dioxide, methane, ozone, and the fluorocarbons.

#### FAO

The Food and Agriculture Organization (FAO) is specialized agency of the United Nations that leads international efforts to defeat hunger.

The organization's goal is to achieve food security for all and make sure that people have regular access to enough high-quality food to lead active, healthy lives. With over 194 member states, FAO works in over 130 countries worldwide.

#### Manure

Manure is organic matter, mostly derived from animal feces except in the case of green manure, which can be used as organic fertilizer in agriculture. Manures contribute to the fertility of the soil by adding organic matter and nutrients, such as nitrogen, that are utilised by bacteria, fungi and other organisms in the soil. Higher organisms then feed on the fungi and bacteria in a chain of life that comprises the soil food web.

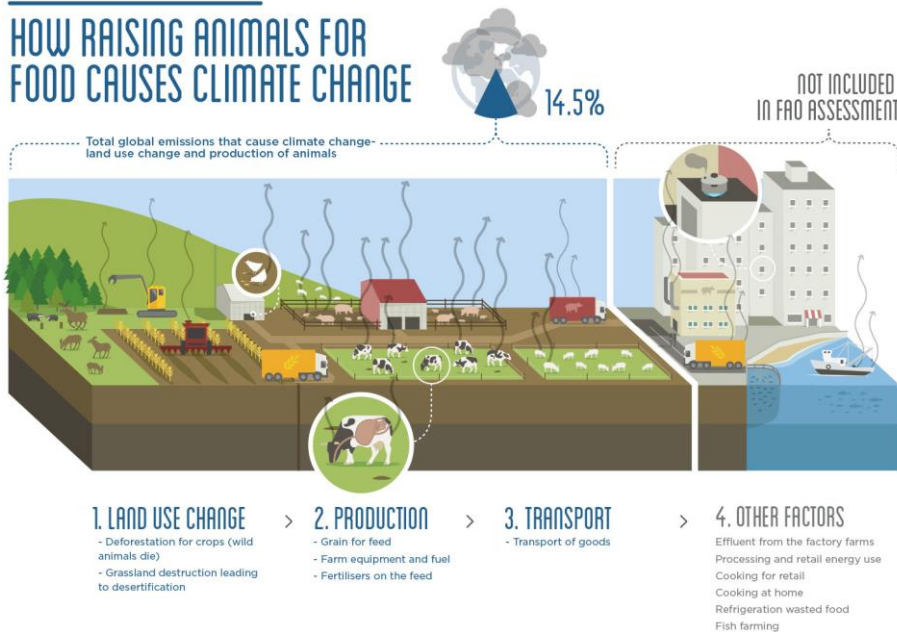
## Overview of the issue

The data provided by the Food and Agriculture Organization show that livestock production is a fast-growing field in the world economy and it is believed to increase up to 70% by 2050 when the world population will reach 9.6 billion.

This trend results from an increasing demand in animal products supported by major technological innovations and changes within this sector, which make it one of the fastest growing parts of the agricultural economy. This rapid growth gives countries and communities opportunities for agricultural development, reduction of poverty and gains in the issue of food security.

At the same time the livestock sector is a major source of environmental problems including deforestation, desertification, excretion of polluting nutrients, overuse of freshwater, inefficient use of energy, diverting food for use as feed and emission of GHGs.

Both intensive (industrial) and non-intensive (traditional) forms of meat production result damages to the environment, it is however certain that factory farms do more harm to the environment than small-scale mixed farms.



## Factory Farms

Pros:

- Cheap meat
- Provides jobs

Cons:

- Methane emissions from enteric fermentation
- Labour (exploitation, poor wages and working conditions, insecurity)
- Fossil fuels used (to produce feed and fertiliser, for refrigeration and transport)
- Deforestation (to produce feed)
- Subsidies (paid by tax payers)
- Manure pollution
- Health of nearby communities (respiratory problems, lack of clean water)
- Antibiotic resistance (general public at risk)

- Cancer (highly processed meats are probable cause of cancer)
- Animal welfare
- Biodiversity loss

### **Small-Scale Mixed Farms**

#### Pros:

- Manure as natural fertiliser
- No pollution
- Limited deforestation
- Small amounts of fossil fuels used
- Animal welfare
- Multifunctional (traction, transport, energy, labour, hide)
- Economic security (animals are the people's "bank")
- Health (protein source to the poor)
- Culture
- Supports small markets and regions
- Carbon capture (sustainable grazing keeps soil healthy)

#### Cons:

- Methane emissions from enteric fermentation
- Over-grazing in certain areas, often due to lack of access to land
- Lack of investment in agroecological methods, due to poverty or lack of knowledge

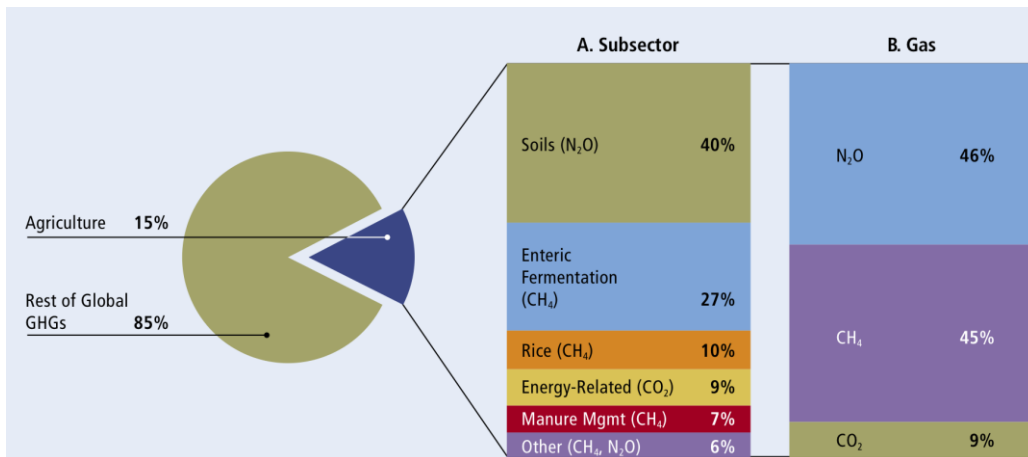
### Emission of Greenhouse gases

Livestock production accounts for 14.5% of anthropogenic greenhouse gases, the production of point-source pollution such as effluents, moreover the growth in the ruminant sector also contributes to the greenhouse effect through methane and nitrous oxide emissions.

The GHG emissions caused by livestock production are composed by only a small portion of carbon dioxide (9%) and much larger quantities of methane (CH<sub>4</sub>) (35-45%) and nitrous oxide (N<sub>2</sub>O) (45-55%).

CH<sub>4</sub> emissions are mainly caused by the enteric fermentation of ruminants and releases from stored manure, which also causes N<sub>2</sub>O emissions.

N fertilizers are a cause of N<sub>2</sub>O and CO<sub>2</sub> emissions, as well as fossil fuels and energy usage release CO<sub>2</sub>.



## Deforestation

30% of global warming is caused by deforestation. One of the main ways livestock production increases global warming is through deforestation caused by expansion of pasture land and arable land used to grow feedcrops. The areas that have been most affected by this process are Central and South America, particularly the Rain Forest, where livestock production and pasture growth are one of the main causes of deforestation. Deforestation causes incalculable environmental damage, in fact it releases billions of tons of carbon dioxide into the atmosphere and leads to the extinction of thousands of species each year.

As stated by FAO deforestation and conversion to grassland into agricultural land cause large emissions of CO<sub>2</sub> and N<sub>2</sub>O, which contribute to the greenhouse effect.

## Water pollution

Livestock produce a large amount of manure and have difficulties managing it, which causes surface and groundwater pollution, it can be produced by direct discharge, runoff, and/or seepage of pollutants to surface or ground water. Pollutants are sediment, nutrients, pesticides, organic matter, salts, and micro-organisms. Polluted surface water can kill fish, cause odors, spread infectious bacteria, and inhibit water-related activities.

The main livestock pollutants in surface water are: organic matter and excess nutrients, pathogen contamination.

Aquatic life relies on the breakdown of organic material to provide food, however the quantities of organic material must be limited to a certain amount, as it produces highly colored, murky water with heavy bottom sludge accumulation. Excess nutrients (especially phosphorous and nitrogen) carried by organic material cause the oxidation of the organic material, therefore reductions in dissolved oxygen can occur and aquatic life might not be able to survive.

A pathogen is a disease-causing microorganism. Possible pathogen contamination in water is determined by using biological indicators, such as the fecal coliform test. Fecal coliform are intestinal bacteria found only in mammals and fowl, not in soils, vegetation, insects or fish unless contaminated by mammal or fowl feces. They indicate the potential presence of other more serious disease-causing organisms.

## Beef

Beef is the kind of meat that requires more resources and, being the most numerous and having a much larger body size, they cause most of the global enteric CH<sub>4</sub> emissions. It has been estimated that producing beef requires 28 times more land, 6 times more fertilizer and 11 times more water than producing pork or chicken, and it releases 4 times more greenhouse gases than pork and 5 times as much as chicken.

## World Situation

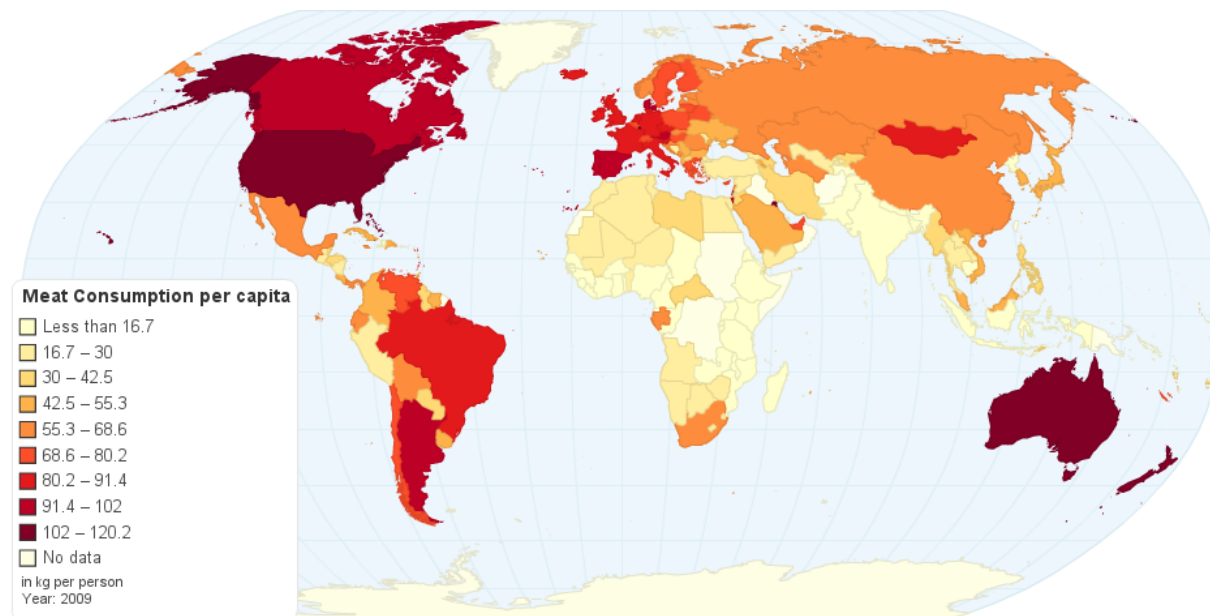
Meat and livestock products are preferred foods in most countries, in developing countries the consumption rate has been growing rapidly, however cultural and religious factors might stand in the way of wider consumption of meat, for example regarding pork meat in Muslim countries and meat in general, but more specifically beef in India.

Per capita consumption of meat has been increasing in many larger countries such as China and Brazil, which have pulled up the average of developing countries in the world.

Brazil's economy in particular is fast growing in meat production, consumption and exports.

Rapid growth has taken place in poultry, this growth is due to lower feed requirements per kg of meat and substitution for other kinds of meat in countries with medium-high levels of meat consumption.

This rapid growth has taken place in the past few decades has been supported by major technological innovations and structural changes in the sector. Moreover the demand has grown because of commercial livestock production and associated food chains requirements.



## What has been done

### **GLEAM (Global Livestock Environmental Assessment Model)**

It is a framework created by FAO that “simulates the biophysical processes and activities along livestock supply chains under a life cycle assessment approach.”

It is designed to multiple analyze environmental dimensions, such as feed use, greenhouse gas emissions, land use and land degradation, nutrient and water use and interaction with biodiversity, in order to help reduce greenhouse gases emissions and ensure the efficiency of livestock production activities making them as sustainable as possible. It can be used by anyone with an Excel software and it can operate on a regional, national and global level.

### **Global Agenda of Action**

It is a partnership of livestock sector stakeholders aiming to a sustainable development of the sector, it supports dialogue, consultation and joined analysis and encourages research bringing together forces of the public and private sector, producers, NGOs, social movements, community based organizations and foundations.

It addresses the following issues:

- Global food security and health,
- Equity and growth in less developed areas,
- Resources and climate.

Watch: <https://www.youtube.com/watch?v=3NmL8DjMOXQ>

### Sources:

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