

THE DEVELOPMENT OF THE CAPITALIST ECOLOGICAL CRISIS

Humans produce their existence through social contacts.

LABOUR, a conscious activity, transforms natural resources into **use value**.

- Search for technical and social means to increase productivity
- Necessity of communication and social learning (language)
- Each generation stands on the shoulders of the previous one

Humans create society, create history and culture. This is different from the fixed and genetically determined behaviour of animals (instincts).

1. HUMAN NATURE, TECHNOLOGY, POPULATION AND SOCIAL RELATIONS

Humans have a bigger impact on their natural environment than animals: use natural resources for their needs and reject waste: fire, clothes, shelter, tools.

According to some, the ecological crisis is the result of a “technology drive”, from tool making to the atomic bomb. In their view, human progress is always destructive. The “technological system” is responsible for the destruction of nature and is incompatible with the natural limits.

Other thinkers see the growth of the human population as the cause of environmental destruction. MALTHUS (1766-1834): exponential growth of population but linear growth of food supply. Neo-Malthusians adapted these ideas in the 20th Century (*The population bomb* by Anne and Paul Ehrlich in 1968).

This misanthropic and abstract view does not analyse the different modes of production, social relations and demography but sticks to an abstract general principle that does not explain the current crisis does not provides us with real and human solutions!

Technological progress and population growth are not always destructive:

- The invention of agriculture has, in some places, preserved ecosystems that were destroyed by hunter gatherers
- The discovery of green fertiliser in 15th Century Europe has partially stopped destruction and degradation of forests and soils.
- Population growth can be necessary in order to apply more labour intensive techniques in organic farming and the preservation and restoration of endangered ecosystems

We need to reconsider our relation as a society with nature but this is impossible without social struggles towards radical changes of the economic foundation (structure) of our current society.

2. USE VALUE, EXCHANGE VALUE, CAPITALIST DESTRUCTION OF NATURE

Use value: useful things produced (food, clothes, houses, books, etc.)

Exchange value: things that can be sold on a market as commodities

Use values fulfil human needs.

Exchanges values can be sold for money (the abstract form of value) and realise surplus value or profit.

The accumulation of money has no limits, contrary to nature.

The production of exchange value becomes independent of existing human needs.

Pre-capitalist societies produce use values:

USE VALUES (PRODUCTS) → MARKET → MONEY → NEW USE VALUES (PRODUCTS)

Capitalist societies produces also exchanges values:

Money → buying products (have exchange value) → selling these products at higher price → MORE money

The cycle never ends. The purpose of capitalist production is to generate surplus value by selling things on the market. The general aim is the accumulation of capital.

Competition is the permanent search for surplus value (profits) in order to survive competition.

The permanent increase of production, technological innovations, new organisations of the work process etc. result in a constantly changing world and also constant and growing environmental degradation.

THE CAPITALIST SYSTEM IS PRODUCTIVIST IN ORDER TO ACCUMULATE CAPITAL

3. A SHORT HISTORY OF THE DEVELOPMENT OF CAPITALISM

Starting in the 12th Century in England, feudal lords take land and commons (=land used as a common resource) away from farmers. This movement grows from the 15th to the 18th Century. It is called the 'enclosures' movement.

Peasants are excluded their fields and from using the commons (privatisation or exclusive use of forests by lords). The feudal lords put sheep on the land for wool production. They exploit the forests for timber.

Result: creation of large groups of landless and often homeless people; natural resources become commodities (with exchange value); accumulation of money by the dominant class.

Similar mechanisms spread over Europe and become the origin of private property all over the world.

The brutal separation of peasants from the land produces landless agricultural labourers and the future proletarians in factories and mines.

Pre-capitalist modes of production remained local and regional but the capitalist dynamics of accumulation spread all over the world without any respect for nature and its limits nor for human labour.

Marx: capital knows no borders, the only limit for capital is capital itself.

(No borders – global market – work force to be exploited – resources to plunder)

The ecological crisis erupts in the 19th Century and was prepared by the socio-economic transformation that made industrialisation possible.

3.1. Mercantilism and first phases of environmental destruction

The first accumulation of capital by merchants and banks happens through the conquest of colonies (America, Indonesia, etc.), the plundering of wealth and natural resources, the first genocides in those regions. Forests are destroyed on a massive scale in Europe (wood crisis). The state will have to take measures to protect and replant forests necessary for building houses and ships. There is also a massive killing of furry animals who are not protected. In Russia and Siberia, hunters have to travel to the extreme north pacific coast to hunt for furs. By the end of the 18th Century some 250,000 seals were killed in 40 years. 10 to 15 million beavers were killed in the 17th Century. The same mass slaughter will happen later in what is now Canada and the USA (beavers, otters, bison).

The first tropical monoculture is put in place in the Caribbean: **SUGAR CANE**, this is the first cash crop exported to Europe. This first monoculture demonstrates the simultaneous exploitation of human labour and of nature, slaves are employed on a massive scale. Eduardo Galeano describes the destruction of the tropical forest in the North-East of Brazil and the establishment of sugar cane plantations.

The burning of tropical forests replaced by plantations also destroys biodiversity!

Marx describes this whole episode as the period of **primitive accumulation of capital** in Europe. The steady flow of money towards Europe produces inflation starting from the 16th Century.

The start of the industrial revolution is now possible: capital invests in the industrialisation of agriculture and in new industries in the cities.

3.2. The industrial revolution

Manufactures: spaces with artisans producing goods using charcoal and hydraulic power.

Factories: machines and low skilled proletarians are put in place using coal and the steam engine.

Heavy pollution in the cities: no sewage systems at first (cholera epidemics), SMOG, no decent housing for workers (slums) see Engels' book *The Condition of the Working Class in England* (1845).

Intensification of the exploitation land during the 19th Century:

Irreversible destruction of landscapes through mining still visible today.

Pollution of water, soil and atmosphere: burning coal releases heavy metals and sulphur (acidification of air and water).

Capitalist concentration in Europe of land and growing differentiation and specialisation of farming: cattle breeding, breeding of other animals (sheep, chickens), land cultivation more and more as monocultures.

Expansion of monoculture export crops from the colonies: rubber, coffee, tea, cotton combined with destruction of tropical forests and of livelihood from local agriculture.

Reconstruction of large part of forest cover in Europe, but continued exportation of tropical hard wood.

Today this intensified and acceleration of the destruction of tropical forests continues: wood for cheap furniture, paper mills, palm oil 'forests', transgenic soya beans, fast growing trees like Eucalyptus for agrofuels.

Fertility and the nutrients cycle

Justus von Liebig ('father of the fertiliser industry') (1803-1873) is the first to be alarmed about the decrease of soil fertility. With urbanisation, human excrement does not return to the soil, the amount of nutrients in the soil diminishes in European agriculture and in the tropical monocultures.

Capitalist answer: GUANO! Bird excrements cover many islands. Guano wars between Spain, Chili and Peru. Guano act in 1856 by the USA: any American citizen can take possession of an inhabited island for its guano.

New technological discovery: **synthetic fertiliser**

Industrial synthesis of nitrogen fertiliser in 1913 by BASF (German company). This chemical process transforms nitrogen from the atmosphere into nitrates, soluble in water.

New problems arise from this technology today: pollution of rivers and drinking water with nitrates, overuse of fertilisers who flows into rivers and oceans, eutrophication and creation of zones without oxygen causing the death of marine life (example: gulf of Mexico). This problem is very difficult to solve. Nitrates can also change into nitrous acid, a very potent green house gas.

Use of energy

In 1800, one steam engine (burning coal to produce steam) replaces the work of #)) humans. In 1900, this steam engine is 30 times more efficient. Capitalism continuously develops new and more efficient technologies but only in as far as this improves the competitive strength of companies:

- Workers are replaced by machines in the race for profit
- The negative environmental impact is not taken into account

From the start of the industrial revolution, scientists warned for the negative impact. The principle of photovoltaic cells was discovered by the French scientist Becquerel in 1839 but the technology was blocked by the very strong coal lobby. Photovoltaic cells were developed with the conquest of space in 1953-56. The principle for storing energy in batteries is also a discovery/invention stemming from the 19th Century.

History is not a linear process of continued progress. We are time and time again confronted with cross roads and different choices also concerning technologies. Under capitalism, these choices are very strongly determined by the prospect of new fields for profits to be made. Consequences for the environment are defeated by market forces, competition and the race to realise more profit.

3.3. Second industrial revolution

The discovery of oil fields, the invention of the internal combustion engine and the electric motor, mark the start of a profound revolution. The oil industries with refineries for the production of petrol and other derivatives and the establishment of large electricity producing plant and transportation of electricity in centralised grids constitute the basis of this revolution.

This makes possible the development of a techno-industrial sector big consumer of hydrocarbons (oil): aeronautics, naval construction, farm- and building engines, petrochemicals and the CAR industry. All these powerful sectors depend on the fossil energy present in oil.

Environmental consequences

- oil replaces coal for heating of houses in developed countries: big improvement of air quality in the cities (London – 1952 – 12000 people die from smog – clean air act voted in 1956)
- coal mines and coal plants pushed towards the periphery (India, China, South Africa, Vietnam etc.)
- development of the CAR BASED INDIVIDUAL TRANSPORT: destruction of collective public transport (San Francisco trams destroyed in the 1950's in favour of development of individual cars)
- cars colonise more and more space, motorways and traffic jams, lead pollution, smog
- planned car obsolescence, need for more and more raw materials (iron, steel, glass, rubber, plastic)
- increase in consumption of petrol

Further developments starting after the First World War and intensifying after the Second World War

- 30 years of economic growth, social welfare and mass consumption in USA, Canada, Europe, Japan, later South Korea
- More resources taken from developing countries
- Dangerous waste sent to developing countries (electronic waste!)
- More maritime pollution through spilling of oil and destruction of ecosystems in oil fields
- Growing poisoning of ecosystems and agriculture with pesticides (Silent Spring Rachel Carson)

TWO NEW GLOBAL PROBLEMS EMERGED IN THE 1970's

The hole in the ozone layer

Ozone in the stratosphere protects all life from strong ultraviolet radiation. The 'hole' was discovered at a South Pole station in 1976.

Cause: chlorinated fluorocarbons or CFC's used as refrigerants, propellants, solvents.

Solution the Montreal protocol signed in 1985, phasing out the production of CFC's. This regulation by law was accepted because the industry had already developed alternatives.

The hole in Ozone layer has shrunk thanks to the ban of CFCs,. Last year satellite images showed that the hole had begun to close and could be completely healed by 2060.

No market mechanisms involved to solve the problem!!

Global warming by Green House Gas (GHG) emissions

Green House Gasses are mainly produced by burning fossil fuels and destroying forests.

This is the most dramatic and urgent problem humanity is faced with.

Dangers: rising ocean levels, acidification of oceans, extreme climate phenomena, droughts and floods, crisis of biodiversity, decrease in agricultural productivity, breakdown of whole ecosystems, tipping points (IPCC).

The poorest countries and populations are the first victims. The developed countries have an enormous ecological debt towards the dependent countries.

The neoliberal offensive aimed at restoring the rate of profit, worsens the ecological crisis:

- more delocalisation's – globalisation of production chain – more air and maritime transport – destruction of ecosystems – exportation of pollution into the dependent countries
- the plundering of resources continues
- in the dependent countries, 'old' pollutions (ex. coal) coexist with new dangers

Capitalist pseudo solutions

Eco-taxes to change individual behaviour, privatisation of natural resources as "services" to be sold, market mechanisms such as REDD+ provide profit for owners of privatised forests, organic agriculture is not promoted, agribusiness grows etc.

Renewable energy remains more expensive than fossil fuels. Vast sums of capital are frozen in fossil and nuclear power plants. The proven oil reserves are 5 times bigger than the carbon budget that remains in order to stay beneath the 2 degrees Celsius rise of global temperature.

Globally, emissions are not diminishing and in fact nearly nothing is being done.

The green economy is not paving the way for sustainable development. The fossil fuel and petrochemical sector remain very powerful. Renewables need help from the state to develop but with huge state deficits and austerity, there is no space left for the development of a comprehensive transition plan getting rid of fossil fuels

The coming together of the economic and ecological crisis make the eco-socialist project even more necessary.