Sociétés ET TRANSITIONS

Economie et environnement # 2

ECONOMIE ET ENVIRONNEMENT #2

RYM ALOUI

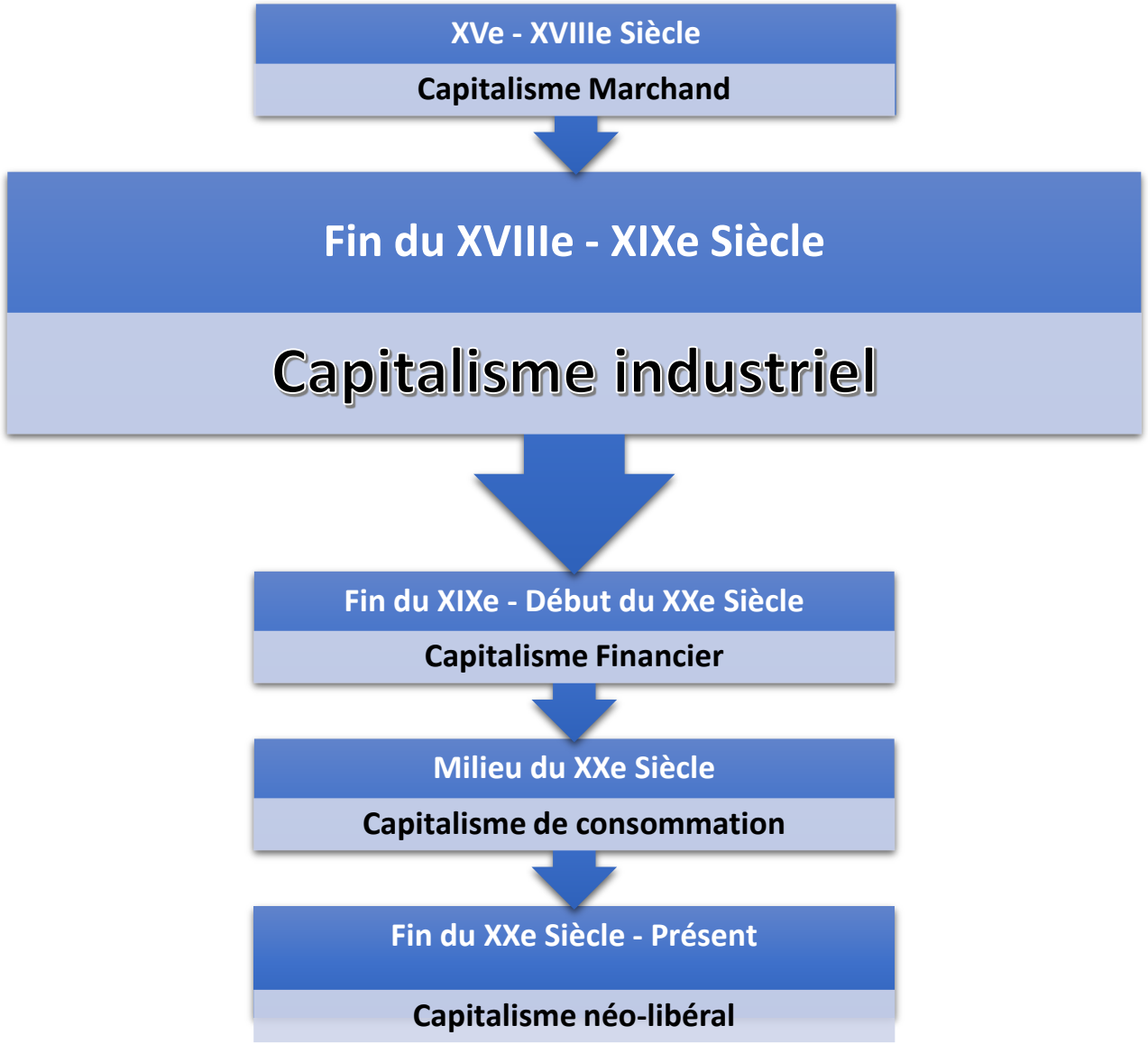
MAITRESSE DE CONFERENCES

UFR SEG et GATE-LSE

Université Lumière Lyon 2

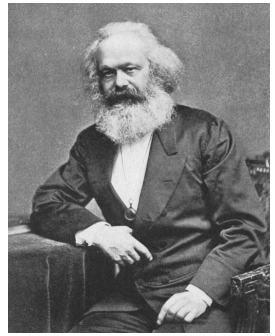
UFR de Sciences économiques et de Gestion

GATE Lyon / St-Etienne


XVe - XVIIIe Siècle
Capitalisme Marchand
Fin du XVIIIe - XIXe Siècle
Capitalisme industriel
Fin du XIXe - Début du XXe Siècle
Capitalisme Financier
Milieu du XXe Siècle
Capitalisme de consommation
Fin du XXe Siècle - Présent
Capitalisme néo-libéral

Croissance économique

- Croissance économique sans précédent.
- Innovations clés: la machine à vapeur, le développement des chemins de fer,…
- Production mécanisée et essor des usines.
- Urbanisation rapide.
- Changements profonds et rapides dans les économies.
- Emergence de la classe ouvrière (La lutte des classes, Karl Marx.
- Inégalités croissantes.

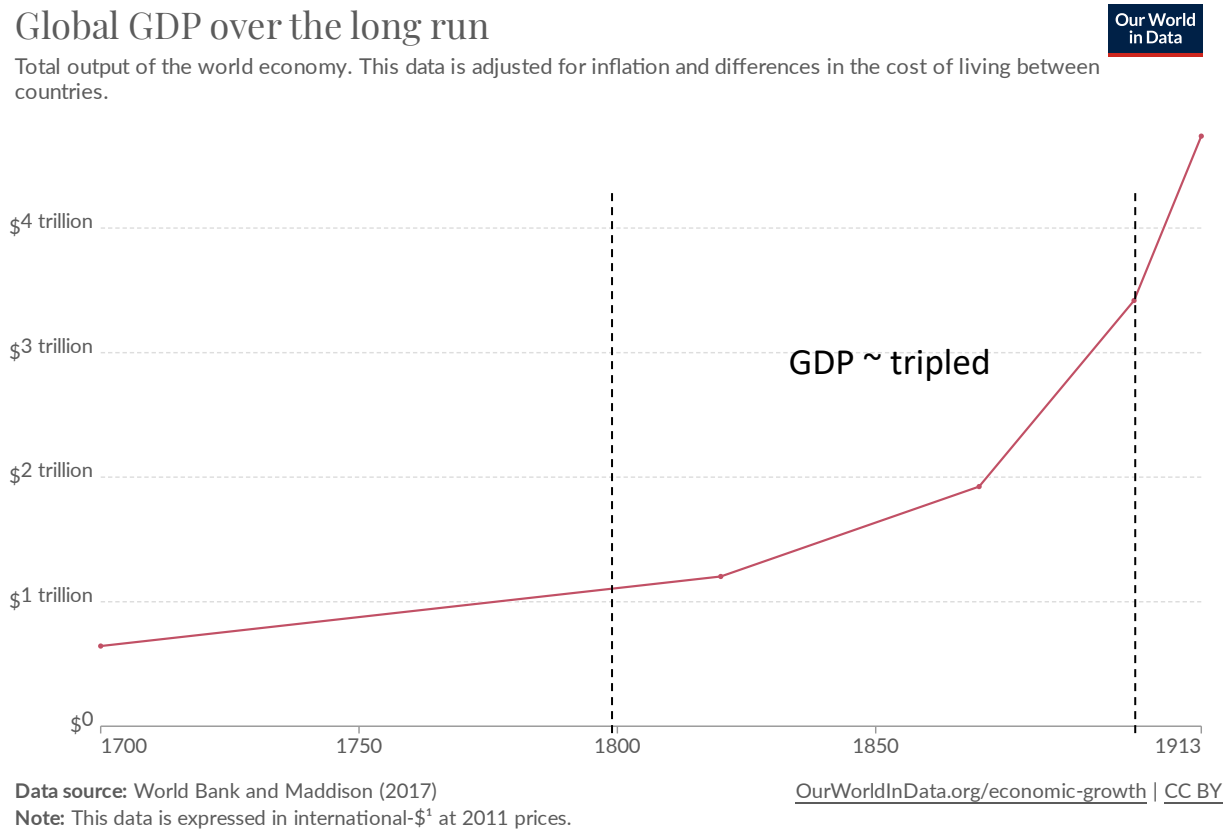


1818-1883

Cycles économiques

- Cycles économiques: expansion et récession
  - Innovations technologiques
  - Fluctuations des marchés des matières premières (charbon, coton, fer, …)
  - Spéculation et crise financière
  - Panic 1825, panic de 1847 et Krach de Vienne 1873

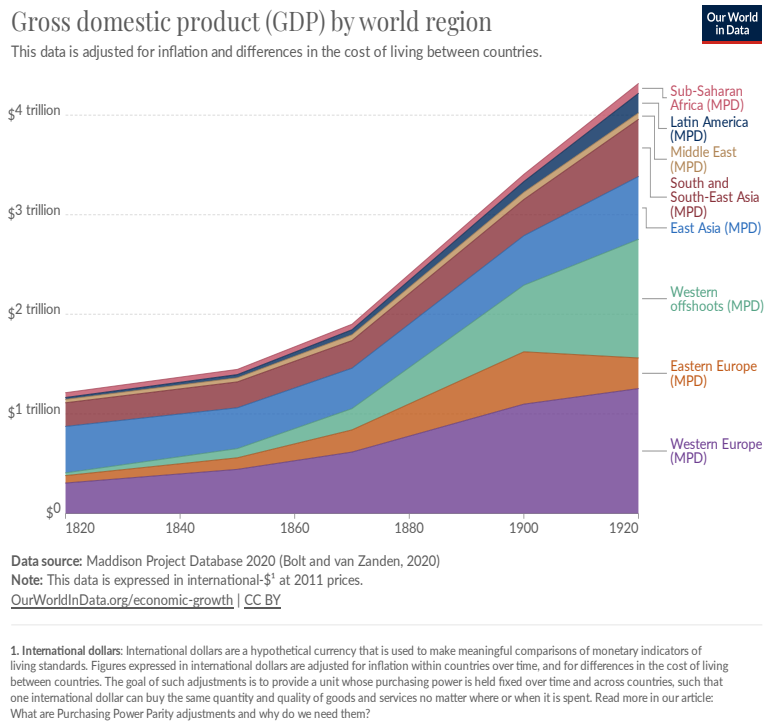
Evolution du PIB dans le monde



1. International dollars: International dollars are a hypothetical currency that is used to make meaningful comparisons of monetary indicators of living standards. Figures expressed in international dollars are adjusted for inflation within countries over time, and for differences in the cost of living between countries. The goal of such adjustments is to provide a unit whose purchasing power is held fixed over time and across countries, such that one international dollar can buy the same quantity and quality of goods and services no matter where or when it is spent. Read more in our article: What are Purchasing Power Parity adjustments and why do we need them?

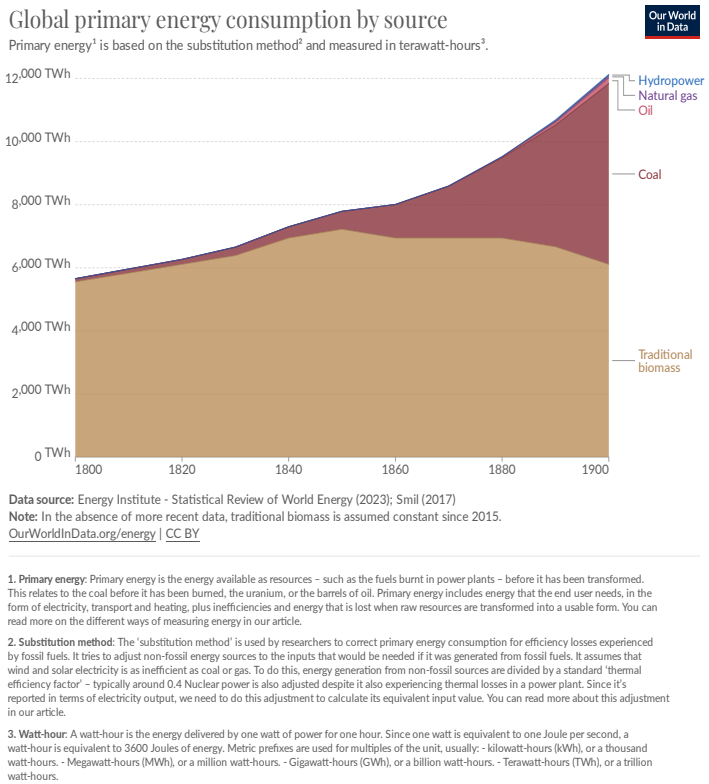
Evolution du PIB en Angleterre

Evolution des inégalités



Régions	PIB en Milliard $US	
	1820	1900
Afrique Subsaharienne	48	73,1
Amérique Latine	19,15	106,8
Moyen-Orient	34,67	72,8
Asie du Sud et du Sud-Est	237,54	364,02
Asie de l'Est	465,65	496,56
Pays d'immigration européenne (Western Offshoots)	28,22	668,78
Europe de l'Est	74,26	525,67
Europe de l'Ouest	305,38	1100
Total	1210	3410

Utilisation massive de combustibles fossiles dans le monde



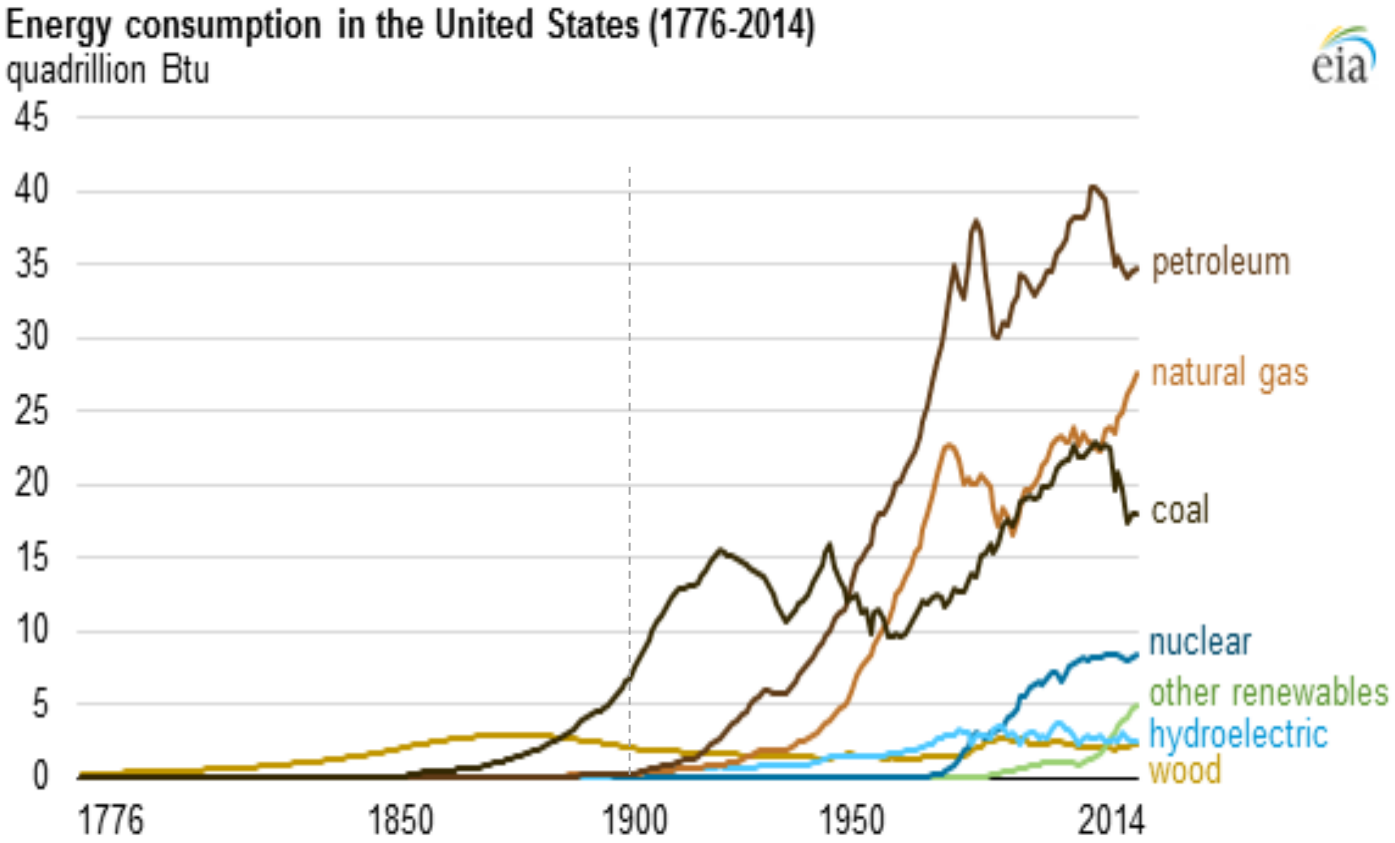
1. Primary energy: Primary energy is the energy available as resources – such as the fuels burnt in power plants – before it has been transformed. This relates to the coal before it has been burned, the uranium, or the barrels of oil. Primary energy includes energy that the end user needs, in the form of electricity, transport and heating, plus inefficiencies and energy that is lost when raw resources are transformed into a usable form. You can read more on the different ways of measuring energy in our article.

2. Substitution method: The 'substitution method' is used by researchers to correct primary energy consumption for efficiency losses experienced by fossil fuels. It tries to adjust non-fossil energy sources to the inputs that would be needed if it was generated from fossil fuels. It assumes that wind and solar electricity is as inefficient as coal or gas. To do this, energy generation from non-fossil sources are divided by a standard 'thermal efficiency factor' – typically around 0.4 Nuclear power is also adjusted despite it also experiencing thermal losses in a power plant. Since it's reported in terms of electricity output, we need to do this adjustment to calculate its equivalent input value. You can read more about this adjustment in our article.

3. Watt-hour: A watt-hour is the energy delivered by one watt of power for one hour. Since one watt is equivalent to one Joule per second, a watt-hour is equivalent to 3600 Joules of energy. Metric prefixes are used for multiples of the unit, usually: - kilowatt-hours (kWh), or a thousand watt-hours. - Megawatt-hours (MWh), or a million watt-hours. - Gigawatt-hours (GWh), or a billion watt-hours. - Terawatt-hours (TWh), or a trillion watt-hours.

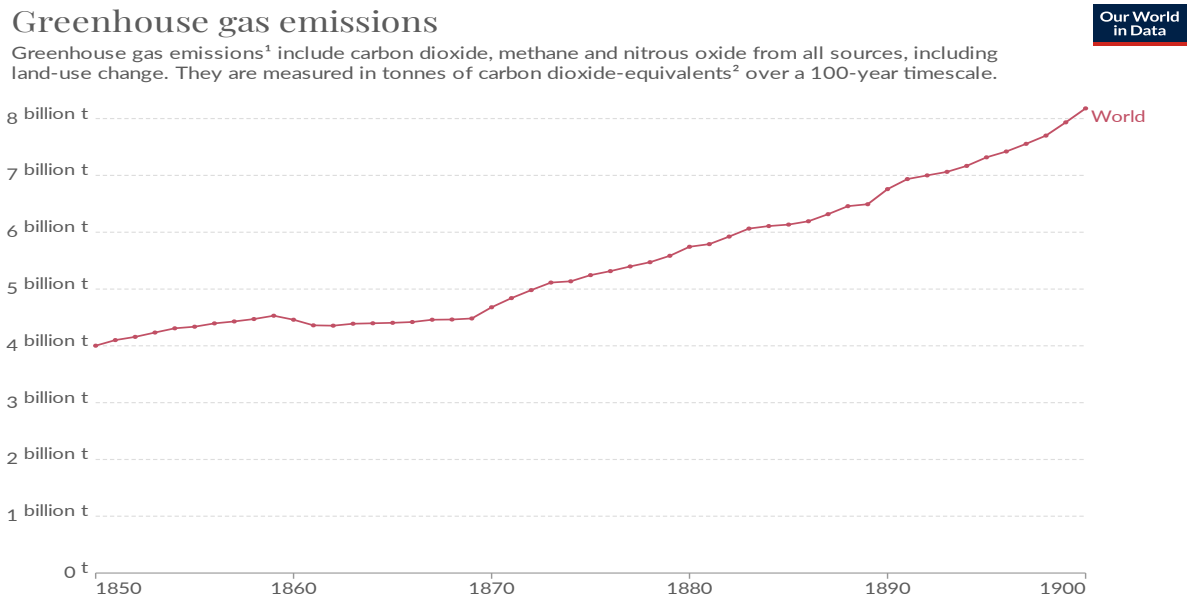
Source d'énergie	Térawatt heures	
	1820	1900
Biomasse traditionnel	6111	6111
Charbon	153	5728
Pétrole	0	181
Gaz naturel	0	64
hydroélectricité	0	47
Total	6264	12131

Utilisation massive de combustibles fossiles aux Etats-Unis



Source: Energy Information Administration

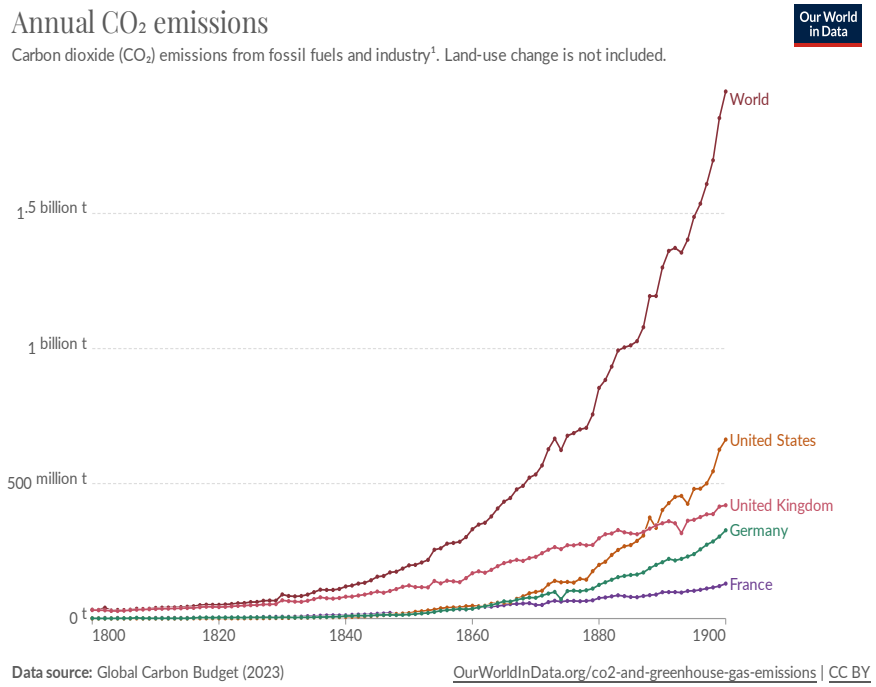
Emissions de GES dans le monde



1. Greenhouse gas emissions: A greenhouse gas (GHG) is a gas that causes the atmosphere to warm by absorbing and emitting radiant energy. Greenhouse gases absorb radiation that is radiated by Earth, preventing this heat from escaping to space. Carbon dioxide (CO_2) is the most well-known greenhouse gas, but there are others including methane, nitrous oxide, and in fact, water vapor. Human-made emissions of greenhouse gases from fossil fuels, industry, and agriculture are the leading cause of global climate change. Greenhouse gas emissions measure the total amount of all greenhouse gases that are emitted. These are often quantified in carbon dioxide equivalents (CO_2eq) which take account of the amount of warming that each molecule of different gases creates.

2. Carbon dioxide equivalents (CO_2eq): Carbon dioxide is the most important greenhouse gas, but not the only one. To capture all greenhouse gas emissions, researchers express them in "carbon dioxide equivalents" (CO_2eq). This takes all greenhouse gases into account, not just CO_2. To express all greenhouse gases in carbon dioxide equivalents (CO_2eq), each one is weighted by its global warming potential (GWP) value. GWP measures the amount of warming a gas creates compared to CO_2. CO_2 is given a GWP value of one. If a gas had a GWP of 10 then one kilogram of that gas would generate ten times the warming effect as one kilogram of CO_2. Carbon dioxide equivalents are calculated for each gas by multiplying the mass of emissions of a specific greenhouse gas by its GWP factor. This warming can be stated over different timescales. To calculate CO_2eq over 100 years, we'd multiply each gas by its GWP over a 100-year timescale (GWP100). Total greenhouse gas emissions – measured in CO_2eq – are then calculated by summing each gas' CO_2eq value.

Emissions de CO2 dans le monde



Pays	Million de tonnes	
	1820	1900
Le Royaume Uni	42,57	419,74
L'Allemagne	3,38	326,76
Les Etats-Unis	0,791	662,74
La France	2,9	11,93
Le Monde	50,73	1950

Travaux scientifiques

- Comprendre les effets de serre:
- Eunice Newton Foote (1818-1888), pionnière en science du climat

➢ L'augmentation du CO2 dans l'atmosphère pourrait augmenter la température de la Terre.

- Jon Tyndall (1820-1893)

➢ Sensibilisation d'un public scientifique plus large à la question des GES

Conclusion

- Le capitalisme industriel (fin du XVIIIe au XIXe siècle):

➢ Croissance économique significative

➢ Production mécanisée et essor des usines

➢ Impact climatique observable

➢ Travaux scientifiques en progression

➢ Conscience écologique limitée