CO2 IS NOT NOXIOUS TO HUMAN HEALTH (excluding global warming)

CO2 EMISSIONS ARE NOT A DIRECT POLLUTANT, BUT A KEY CONTRIBUTOR TO GLOBAL WARMING, WHOSE FOOTPRINT WE MUST REDUCE IN ANY CASE.

First of all, a writing convention: 1,000,000 ppm of a gas = 100% concentration of this gas, and 10,000 ppm of a gas in the air = 1% concentration.
The current concentration of CO2 in the atmosphere is 385 ppm, or 0.038%.

- A closed house contains, depending on the ventilation quality, from 600 to 800ppm, related to the breathing of living beings in this place, that being 0.06 / 0.08%. These concentrations are those that might be measured in the atmosphere in the next century, according to the most pessimistic estimations made by the IPCC.
- A closed and moderately ventilated auditorium can reach 1200 ppm, or 0.12%. Nobody will be disturbed by CO2 in itself. That said, poor ventilation will cause other negative effects. Safety standards consider that beyond 1200ppm, a room shows signs of potentially annoying ventilation defects, but not because of CO2.
- At 1% or 10,000 ppm, which is 25 times more than in the ambient outside air, and 14 times more than in a house, occupants are likely to show signs of drowsiness. This is only conceivable in the case a poorly ventilated large capacity auditorium in which the same crowd would remain for several hours without ventilation!
- It is from 20 000 ppm (2 %) that medical issues may occur: heaviness in chest and breathlessness. This level cannot be met in a natural situation; the effects of such concentrations have been studied in the laboratory.
- At 3%, the breathing rhythm becomes two times faster than normal. At 5%, four times faster. At 5% (50,000 ppm, 125 times more than current levels), CO2 is directly toxic and even fatal, mainly by respiratory distress.

As observed, before CO2 actually becomes a "direct pollutant", there is a huge step: the IPCC predicts 560ppm in the atmosphere at the end of the 21st century.

CO2 in its natural state, whichever its concentration, is not a problem to human life, and in general to mammals.

It is however an essential element which fosters global warming

We must therefore limit emissions as much as possible, especially in agriculture, in the industry and buildings. Emissions from freight transport by trucks today only represents 6.7% of French CO2 emissions and company leaders are highly motivated to reduce their fuel consumption and therefore, reduce their CO2 emissions without the need for other incentives.

On the recommendation of its Scientific Council, and despite many much smaller assessments (see Annex "Assessment of the CO2 cost"), TK'BLUE chose the value of 90 €/tCO2 in its assessments.

Despite this "overvaluation" compared to the price currently accepted (30 €/t), CO2 emissions only represent 5% (in town) to 15% (in the countryside) of the overall cost of transport's negative externalities, mainly consisting of particles, congestion, noise and accidents.

TK'Blue Agency - www.tkblueagency.eu - *"Notation As A Service »*
+33 1 45 63 48 90 – info@tkblueagency.eu
SAS au capital de 1 699 464 € - 28 avenue de Messine F-75008 Paris

Actually, the average citizen is not impacted by CO2.
Yet, this is the only impact of transport on which media, regulation and good conscience have been acting for 10 years...
In fact, the most important pollutants generated by transport are fine particles (PM <2.5) and nitrogen oxides (NOx). Their impacts are visible in urban areas and lead to disease and premature death.

The average calculated value of these health costs in urban areas is between 270,180 €/t for PM, and 10,640 €/t for NOx, on average in Europe.
Unlike CO2, this actual air pollution may soon have huge health impacts felt by every inhabitant in his daily life, as reflected by these figures.

Fortunately, the latest generation of cars, trucks and buses, diesel and petrol, no longer produce significant amounts of pollution (except during their manufacture).
They are at the same level as clean vehicles (electric or gas), which also emit particles with their brakes and tires.

The priority is therefore to incorporate the air pollution, congestion, noise and accidents dimensions in its goods transport policy.
CO2 is a weaker nuisance, already well regulated by the desire to reduce fuel consumption.

Different assessments of the cost of a tonne of CO2

As CO2 is not a pollutant; we cannot really calculate the health and human costs (which is the usual way to quantify the damages caused by a pollutant).

- The IPCC estimates the value of investments to be made in order to control the increase to less than 1% of global GDP for 50 years. The common point of reference set by the IPCC has defined that the tonne of CO2 had to reach €100 by 2030 if we want to limit global warming to 2°C, that is to say € 52.64/tCO2 in 2014, with a yearly 4% inscrease to reach €100 by 2030. Some economists predict that this price will reach €400 per tonne in 2050.
- Nicolas Stern, whose report is a reference, calculates the present net value of CO2 at $85/tonne. It states that the expenditure to fight against climate change must now be of 1% of the GDP per year until 2050, and that otherwise, the cost will vary between 5 to 20% of the GDP.
- The CO2 stock market system measuresthe marginal cost to "destroy" 1t of CO2 at a given moment precisely enough. The problem lies with the highly speculative nature of the system; however, it can give an order of magnitude. Its value is currently moving towards a 6€/t mark but has varied between 2 and 25€/t in the past.
- Many economists are trying to figure out which amount would help have an impact on the behaviour of individuals or companies.
- For example when the price of petrol or diesel increases by about 30c€/l in France, it begins to have an impact on behaviour. A 30 c€/l tax on gasoline or diesel, once broken down to the CO2 content of a liter of fuel, corresponds to a CO2 price of 55-60€/t.
- Another landmark: a CO2 tax of 20€/t emitted applied to all goods transport operations in France would bring 1 billion euro in revenue per year
- The trajectory widely accepted by politicians in Europe is to quickly establish a CO2 tax on the base of 30 €/t, then to increase it to 50€/t in 2030 and to 100€/t by 2050.

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