



The Carbon Footprint :
Basic Errors in the Methodology
and Uncertainties

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September 2011

English Summary

(full text available in French)

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Of course, the City of Paris rejects used waters in the river Seine, then in the Ocean. Still, no one would count the amount of used waters on three hundred years, and would say : this is Paris' contribution to the raise of sea level. This would be a double mistake, in terms of logics. First, because Paris takes the water before rejecting it, and second because this water is recycled by Nature : evaporation, rains, and so on. So the situation is not that of a lake, which would be static and quiet, which would receive its alimentation from what Paris rejects, and would become higher at each liter rejected.

Precisely, this double mistake of logics is committed about the Carbon Footprint, or Carbon Assessment, as it is sometimes called. Human activities are part of the whole cycle of carbon; to add the rejections for each year is a major logical mistake. The Carbon Footprint, as it is done presently, is completely lacking any scientific value.

Only an instantaneous accounting (what is produced each day by a plant, a car, and so on) makes logical sense, just the same way one would count the liquid passing through a tap. At the logical level, it is perfectly acceptable to measure the quantity of used waters produced by Paris during each day. But this is only one indicator, among many thousands of others, and what interest does it have ?

There is another thing we would like to question: people in mathematics are happy when the vocabulary is precise. This is not a Carbon Footprint, but a CO₂ Footprint, and this is not at all the same thing. The Carbon Footprint of any living species (mankind, animals, plants, etc.) is zero, between birth and decomposition. Here, we deal with CO₂ molecules and not Carbon atoms.

What should be done, in order to obtain that the Carbon Footprint (let's continue calling it this way for the time being) would be coherent, from a logical standpoint ? The answer is simple: one should not take into account anything dealing with the past (ancient constructions, extractions, productions, and so on), anything dealing with the future (dismantling, and so on), and one should simply take into account what is done, produced, at the present moment.

The Carbon Footprint does not meet any juridical obligation, worldwide, but the European Community started giving some recommendations. Immediately, France went further, and decreed laws and reglementations, which have juridical value. Usually, in France, every new law or reglementation is subject to endless discussions (for instance, the "Loi Carrez" about the area of housing, or the establishment of automatic radars for speed control). But the Carbon Footprint was not, up to this day, subject to any methodological criticism. The present document seems to be the first in this direction.

In our paper, we examine several Carbon Footprints : a school, the Coast of Ivory electricity network, the "Réseau de Transport d'Electricité" (French Electricity Transportation Network), the Colas Group, the City of Paris, Ikea : the reader will become familiar with the concept. Some Footprints are made within a few pages, others require more than one hundred. Some are factual and honest, others are not so honest. All, of course, contain major logical mistakes. It does not matter, in fact, because all of them are useless. At best, the Carbon Footprint is a stack of evidences, as one would do the Food Footprint of a community (a list of what people eat). At worst, it is dishonest and dangerous, by the immediate use which is done from it and the legal sentences it carries, with no possibility for an appeal.

Then, assuming the Carbon Footprint to be reduced to its simplest expression, that is the present activities (no past, no future) and only those which are treated by the company itself (not by its subcontractors), we ask the following question : what are the uncertainties ? By reducing the perimeter, can we obtain a reliable result, which may be used for tax definition ?

The answer is entirely negative. The variability of industrial processes is so large that a precise evaluation is possible in theory, but completely impossible in practice. Depending on the circumstances, there may be differences of 20% to 100% between the CO₂ productions of similar processes.

If we study the means of transportation for the employee, we have this difficulty, connected with private life : this is not an information available to the management. So, a given company cannot, at a given time, make an accounting for CO₂ production, which would be as precise as the VAT, just to take this example.

People might say : "Why don't we just take average values : a given process produces approximately this amount, and for 1000 workers, we have an average of X cars, producing Y tons of CO₂".

But then :

- The Carbon Footprint has no incitative value : the industry sees no interest in replacing an old machine with a new one, since the global evaluation is made only with average values ;
- The Carbon Footprint cannot be used as a basis for a tax : only data which are properly measured and produced may be used, not a rough evaluation.

The Carbon Footprint, finally, is a remarkable source for frauds of all kinds, probably the largest source of this century. Since nothing can be checked individually, everyone will declare as they want. The employees, for instance, may declare that they come to work with a bicycle "most of the time", and one will need an inspector in the parking lots, every day, in order to verify the license plates of the cars, and check them against the police databases !

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