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Environment

Fact and fiction about climate change

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Q. What is a dangerous perturbation of the climate and can we still avoid it?

A. In article 2, the United Nations Framework Convention on Climate Change (UNFCCC) sets itself the goal of avoiding "a dangerous anthropic perturbation" of the climate system. But the level of this perturbation has never been defined. I noticed in Nairobi that the idea of quantifying the atmospheric concentration of greenhouse gases that should not be exceeded was no longer taboo. That is new, but there is no consensus on a figure.

Up until now, the European Union is the only political body to have officially taken a position: in June 1996 it adopted the objective of maintaining the increase in temperature below 2°Celsius in relation to the pre-industrial period (around 1750).

[https://www.internationalviewpoint.org/IMG/jpg/Jean-Pascal_van_Ypersele.jpg]

Jean-Pascal van Ypersele

But for the small island states, 2°C increase is already too much. They are at present suffering more and more frequent floods because of the thermal dilatation of the oceans. An increase of 2°C will condemn them to disappear. In my opinion, that can almost certainly no longer be avoided for the lowest islands.

So the answer to your question can only be very subjective. If you live in a temperate region situated far from a river and at an altitude of more than 50 metres, which does not depend economically on skiing or agriculture, you will not suffer, or just a little, from climate change and probably a rise in temperature of 2°C does not represent a dangerous perturbation. On the other hand, if you live in one of the small island states in the Pacific, then the present situation is already dangerous, and probably fatal.

That is why, as a complement to the reduction of emissions of greenhouse gases, the small islands are asking for financial compensation in order to try and adapt.

I personally very much want to be in solidarity with the inhabitants of these islands, but we should know that from their point of view, we have to turn off the lights right away! In other words: we need an immediate and brutal reduction of emissions of greenhouse gases, on such a scale that it would have serious social consequences for many people in other regions of the world.

Consequently, you understand that the answer cannot be given by climatologists alone. The question is addressed to human societies. It necessitates a political debate, in the noble sense of the term.

Are the social protagonists sufficiently conscious of the necessity of this debate and of its importance? How can they participate in it?

The environmental NGOs are obviously very present in the debate, as is normal. The trade union organizations are becoming more and more interested in it, as are the employers' organizations. The development NGOs are perhaps a little bit behind, but in a general manner the tendency is towards the broadening of participation in international conferences. In my opinion this is a very positive point.

It is not just a question of being present as spectator: these conferences are also an extraordinary occasion to share knowledge and to collectivize experience. Information is obviously a precondition. Without it no debate is possible. That is why I devote time to answering interviews and to meeting social actors, whoever they are.

But information is not enough: we need places for the debate, it has to be organized and those who take part on it have to know that it will serve some purpose. It is not a question of discussing for the sake of it.

What message are you carrying in this debate, as a climatologist?

Everyone can see that the impacts of climate change are becoming more powerful. The analyses of the group of Intergovernmental Panel on Climate Change (IPCC) can no longer be considered as alarmist. If we want to stay below 2°C of temperature rise, we will have to reduce emissions of greenhouse gases by 80 per cent on a world level, well before the end of the century.

The emissions of the developed countries first of all, because they are the primary countries responsible and they have considerable means at their disposal. But also the emissions of developing countries.

Without this global effort there is quite simply no solution possible, given the enormous mass of carbonic gas that has accumulated in the atmosphere over the last centuries.

Like very many specialists I consider that the situation is serious and requires much more resolute action than what has been put in place or is being envisaged by the international community. In relation to this I would draw your attention to the fact that several researchers, and not the least important ones, consider that the ceiling of 2°C of maximum increase in temperature is too high and that it must be lowered.

“There is urgency, but that is not a reason to act with precipitation.”

So there is urgency?

There is urgency, yes, but that is not a reason to act with precipitation. Whatever we do, the inertia of the climate system confronts us with an inevitable rise in temperature. We have ten years. In the course of these ten years, very radical measures will have to be taken in order to save the climate in the following fifty years, and beyond that.

Rather than rushing ahead and taking spectacular measures whose articulation is not always sufficiently thought out, it is a question of preparing a global plan, including all the aspects of the problem.

It is in this sense that the decade before us must be considered as decisive.

[<https://www.internationalviewpoint.org/IMG/jpg/Katrina.jpg>]

If it were possible to reduce emissions by 80 per cent in ten years without creating very great difficulties for the majority of humanity, I would be the first to argue for doing so.

But it is not possible. The plan to be worked out can therefore have no other goal than to limit to the maximum the causes and the effects of climate change, while knowing that these effects will be serious for certain populations.

From there comes the importance of adapting to changes, principally in the Third World, and as a complement to the reduction of emissions. This adaptation can take different forms.

For the small island states, it would probably involve migrating. Tuvalu has begun negotiations with Australia and New Zealand, and as you know they have got off to a bad start.

Beyond the migration of populations that are confronted with the rise in the level of the ocean, what should the plan that you evoke consist of?

I am neither Nicholas Stern nor God the Father. I have neither the resources, nor the personnel, nor the competences to reply alone to this question.

The problem that we have to confront is without precedent. To claim to have a ready-made solution would be pretentious. I am sceptical and distrustful towards this kind of discourse.

I have only one personal conviction: we need action on a very large scale, coordinated on a world scale, which will only be effective if it is presented in the form of a plan.

I am ready to think about it with all those who want to think, preferably in the framework of the United Nations Framework Convention. The plan has to be built up. It is not the job of scientists alone to elaborate it. They can enrich the discussions, but the answer is on the level of society. We need a wide-ranging debate.

If a plan was put on the table by a group of experts, other experts would consider it to be unrealistic, populations would consider it unacceptable, and it would be contested by the people who would have to implement it.

Even if I had such a plan, it would only be an outline, one piece to put among many others. I think that it should at least contain the following elements: measures making possible a fairly rapid transition towards models of development that are much less energy-consuming, based on giving priority to renewable energies, and territorial planning which reduces the demand for automobile transport, very strict norms for construction and fabrication, a true price of the impacts of the consumption of fossil or fissile energies, education at all levels on the reduction of our impact on the environment, scientific research that is reoriented towards really sustainable development, all of these while satisfying the essential energy needs of all the "tenants" of the planet.

Is it possible to arrive at a consensus on a plan to save the climate?

Answer: I would rather speak of indispensable compromises. The dramatic case of the inhabitants of the small island states is enough to indicate that a plan cannot be satisfying for everyone. That is obvious, it is in the nature of every human enterprise, of every political initiative. If the plan implies social regression for the whole of the developed world, it will not work.

I support the idea of avoiding social regression, I recognize the importance of social progress. But social progress for everyone, not only for the inhabitants of the developed countries.

I am not convinced that social regression would be an automatic result of measures of reduction of emissions of greenhouse gases. Let us note by the way that the Stern report doesn't say anything different: it talks on the

contrary about chances, economic opportunities. That can perhaps be contested, it is perhaps promising that people can have their cake and eat it too: I am not qualified to say.

In any case we have to take account of the fact that social regression can also be a result of climate change itself. This is even one of the big difficulties in working out the plan: there is a double unevenness, spatial and temporal, between the measures and their effects.

Temporal: given that climatic problems are caused by the accumulation in the atmosphere over decades of excessive quantities of CO₂, reducing emissions only very slowly affects the total that has accumulated; so to decide not to put into question today the advantages of which certain sectors of the population benefit could cause serious social regression in thirty or fifty years.

Spatial: the problem is all the more complicated because this social regression, in thirty years, will no doubt strike less hard those here whose advantages we will have decided not to put into question, whereas others, in Bangladesh or in Africa, for example, will bear the brunt of it.

Is the plan that you envisage conceivable without escaping from the mechanisms of the market?

Nicholas Stern, who is not the most radical of global justice economists, poses the following diagnosis: "climate change is the biggest and broadest market failure ever seen". For me, who is not an economist, this diagnosis, if it is correct, would seem to indicate the difficulty of saving the climate while remaining in an "all market" system.

Venezuela is nationalizing its oil, Bolivia is nationalizing its gas, the trade unions in Quebec are demanding the nationalization of wind farms.

Is collective ownership of energy resources not necessary for the working out of a plan?

The market is not the panacea, but is nationalization a solution? I did not know the case of Quebec that you evoke, I do not know the arguments that are put forward in this precise situation. But in a general fashion, I am not really sure that nationalization is the answer to the problem. EDF is a nationalized enterprise: is its strategy transparent, are its policies subject to democratic control?

Besides, I strongly doubt that nationalization leads to an improvement in terms of management. Are civil servants the most qualified to manage technical installations? We cannot deny the dynamism of the private sector on the level of investment and development.

Moreover, the balance sheet of the former USSR concerning ecology and management of resources is hardly encouraging... A debate is necessary about the conditions that have to be met so that management of resources responds to the interests of the collectivity, I agree. The objective must be that the populations should have their say.

Perhaps that involves nationalization in certain countries. But politics can also impose obligations of public service on private operators, so that certain guarantees are respected. The most important in my eyes is not to know who manages the resource, but to create the conditions for the way in which the resource is managed to give service to the widest public, while respecting the environment.

“Solar flux is fully enough to satisfy all our energy needs.”

More than ten years ago, you launched the idea of an “energy revolution”. What does it consist of?

The principle is extremely simple: our energy system must abandon as soon as possible fossil combustibles and nuclear power, in order to base itself on renewable energies which all flow from solar energy. Coal, oil, gas, and uranium are non-renewable resources. Their stock is by definition limited. In saying that I am only stating a physical reality, which has strictly nothing to do with ideology.

Now, there exists another energy resource that is not a stock but a flux: the Sun. This flux is fully sufficient to satisfy all our energy needs, today and tomorrow. I quote the evaluation of the OECD (it is higher than my own calculation): the rays of the Sun which reach the surface of our globe are worth 8,000 times the primary world demand for energy.

The Sun is the best reactor that we could have: it is free, it is installed 150 million kilometres away from Earth, it recycles its waste itself, it has been functioning for 5 billion years and will continue functioning for at least 5 billion years. To capture even 1000th of this energy would be enough to cover the needs of the whole world, including billions of people who live in extreme energy poverty.

This is absolutely possible with the long-term technical potential of renewable energies: the IPCC estimated it already in 1995 to be more than ten times the present world consumption of primary energy.

Why do we have to radically reduce the primary demand for energy in the developed countries, if the technical potential of renewable energies is equivalent to 10 times world consumption?

Good question... It seems to me that the answer resides in the qualification “technical”. The technical potential of renewable energies is worth ten times world needs, but all this potential is not necessarily realizable as quickly as would be necessary in the economic and political context of today...

So here too the problem is therefore social and political?

Not only. The time factor seems to me to be decisive. I became aware in mid-December 2006 of a sensational communication concerning photovoltaic cells. It spoke of a rate of conversion of 40 per cent of solar energy into electrical energy, which is double the rate realized at present thanks to semi-conductors. Photovoltaic cells are making enormous progress on every level: longevity, efficiency, cost.

But it will take time for these discoveries to be confirmed, for a prototype to be created, for the technology to be diffused. Having said that, it is obvious that political will can shorten these times.

When the United States decided to go to the moon they gave themselves the means of doing so, and ten years later it was done. With the knowledge that we have, by concentrating on the improvement of existing techniques and their diffusion on a mass scale - which will create employment - it is perfectly possible to rapidly increase the share of solar energy.

The reduction in energy consumption in buildings is also taking time, but the technologies and the competences are already very widely diffused, capacities of production are installed, etc. In my opinion the reduction in demand must be seen as a stage, a necessary transition towards the energy revolution.

In the same register of ideas, it seems to me important not to miss out on carbon capture and sequestration, as an immediate means of reducing emissions.

Isn't the energy transition likely to pose all sorts of extremely complicated problems?

The implementation is likely in fact to be very complicated, and the difficulty is not only technical. It is a question of reviewing the way we travel, heat ourselves, consume, produce, plan the territory.

Take the example of housing and territorial planning: we need norms of construction so that new buildings are heated by the Sun, we need to stop building just anywhere "zonings", residential zones, commercial centres which increase needs for mobility that are impossible to satisfy with public transport.

We can get a bus to pass by every quarter of an hour in a concentrated habitat, not in a dispersed habitat. I could give many more examples. It is easy to understand that all these domains are interconnected. To deal with them, a long term vision is indispensable. That is why we have to take the time to think and to discuss with the whole of society.

“We have to first of all create the collective means of reducing emissions”

The British Minister of the Environment proposes individual carbon rationing by means of a green credit card. What do you think of that?

Can such a system function? It will certainly be difficult to implement practically... I don't say no from the outset... but everyone needs to be concerned, not only individuals, but also economic and public actors. Otherwise revolt will not take long to rumble.

And then, we cannot limit ourselves to carbon rationing. We also have to give people the means of limiting emissions. Now, this reduction of emissions is not a purely individual question, but a collective question. Each person individually cannot develop solar cells, or increase the provision of public transport.

If we give people individually carbon credit cards without having previously created collective means of reducing emissions that will open the door to discontent. What will people do when they notice in the middle of the year that they have no credit left?

There will be understandable explosions of anger, and this anger will not be constructive. The result will be that nine tenths of the population will become hostile to the fight against climate change.

Therefore: a carbon credit, why not, if all the collective measures making it possible to reduce emissions have previously been taken? But that means that there are many, many things to discuss before putting such a proposal on the table.

You support the proposal of Anil Agarwal [1] . What social force could impose it? Are the poor of the Third World going to mobilise for such an abstract and complicated demand?

It is a bit of a caricature to pose the problem in these terms. The governments and political men and women have the task of translating the aspirations of the people they represent into policies that can be applied.

The NGOs of the South can take part in the process of informing and make things move. The cancellation of the debt or agrarian reform are no less abstract demands, nor is it obvious that they automatically benefit the populations.

For every big reform, it is necessary to verify on the level of its application that its spirit is really respected in practice. I think that certain leaders of the developing countries could get down to defending this kind of proposal in a more visible and effective way.

We are perhaps on the eve of the moment when that will be done openly. It has not been given prominence in the media, but, in Nairobi, certain representatives of African countries, Kenya in particular, said that it was necessary to move towards a system of “contraction and convergence”. That is not quite the same thing as the Agarwal proposition, but it is also very abstract.

Just before the Conference of the Parties of the UNFCCC which was held in New Delhi in 2002, I went to listen to the debates of the “Climate Justice” movement. Hundreds of Untouchables and Indian small fisher folk were taking part. I didn't really have the impression that the notion of climate justice seemed to them to be too abstract.

“We cannot speak of scientists as a monolithic bloc”

Furthermore, saving the climate is not only a question of social forces.

When we say “social forces”, in general, we think of an action that goes from below towards the top: strikes, demonstrations, a revolution...

Here, the process is different because everyone is involved in the climate. I know that the poor are the main victims, but you suffer from a heat wave even if you live in castle with air conditioning.

People are realising little by little that there is a message that is coming directly from Nature. Nature, in fact, is beginning to take part in climate negotiations.

That was very clear in Nairobi, since heavy rains perturbed the conference, a complete anomaly for that season. So there are not only social forces, but also physical forces, and they act on each of us individually. It would be a mistake to forget that factor.

From the moment that everyone is convinced that there is a problem, we are not quite in the same situation as when a demand comes only “from below”. Now, that is what is happening at present in the negotiations: everyone is beginning to understand that, at the present rate of progress of the discussions, we will not succeed, and that there will be very serious impacts for everyone. That exercises pressure. Having said that, so much the better if there is, on top of that, pressure from below...

Reading certain publications, you get the feeling that the scientists are putting on the same footing physical laws and social laws, for example by posing as a dogma that measures must be “cost effective”. What do you think?

The principle of the least action in physics is not only a hypothesis. According to it, nature operates by consuming the least possible amount of energy and resources. Can this principle be compared to cost-effectiveness? That is the whole question.

I am thinking aloud...One is tempted to say yes, at first sight...But on the other hand, in physics, energy is a well-defined notion, which obeys determined laws, in particular a principle of conservation. Whereas money is not a physical category, but a human creation.

Other than a simple comparison, to imprudently transpose from one domain to the other could therefore turn out to be deceptive...That reminds me that the approval of the second report of the IPCC gave rise to extremely animated debates about the estimation of costs of damages.

In reality, it emerged that this estimation was based on a measure of the cost of human life in terms of salaries, which obviously led to the conclusion that the life of an inhabitant of Bangladesh was not worth as much as the life of an inhabitant of a developed country. But there was in fact a debate.

So we cannot speak of scientists in general as a monolithic group: there are different opinions, sometimes opposed. I must make it clear that I am particularly concerned by the work of working groups I and II of the IPCC.

In group II, there is a debate with those whom I call the narrow-minded economists, but the economic debate takes place mainly on the level of working group III. I am less well equipped to judge what is happening there.

The IPCC comes across as an incontestable scientific authority. Now, it is an intergovernmental group. Are its reports reliable? Don't scientists run the risk of falling into a trap?

It is in fact an intergovernmental group, but the influence of the governments is quite limited on the level of reports, and it is very indirect.

It is true that the plenary assembly of the IPCC determines the contents and that this decision is made by representatives of governments. It is also true that that sometimes gives rise to rather difficult discussions.

But, beyond that, the governments do not have much direct say. Certainly, the governments elect the bureaux of the working groups, but they are made up of scientists. Once they are constituted, they do not receive instructions from individual governments. There are perhaps exceptions for certain countries with a very authoritarian structure, but that certainly does not go for the majority of the members of the bureaux. The bureaux freely choose the authors who will contribute to the reports.

The governments can formulate their comments on the reports, but at the end of the day the authors decide and there is a system to guarantee that they decide honestly, and that they have to take account of every comment that has been made.

At the end of the process, the governments intervene again in the approval of the summary for policy makers. Their written comments are collected together by the secretariat, then the authors and the bureaux of the working groups decide on the version that will be submitted to the plenary assembly.

The governments can again intervene at this level, to introduce nuances, but the final approval of is done line by line, on the basis of the report and the authors would not accept that the summary for policy makers should contain things which were incorrect.

The freedom of the scientists who work in the framework of the IPCC is quite large. Moreover, the possibility of appealing to specialists from all countries opens up very broad horizons.

Twenty-five thousand people, especially young people, demonstrated to save the climate, in London on November 4 2006. What do you think about that?

It is very encouraging to see that so many people are ready to mobilize on a question like that - it gives one energy. I did not see this demonstration, but I saw the one in Montreal in 2005, where there were 12,000 people. You can say that a demonstration doesn't settle anything, but it is important to physically see that there are people who are moving. And if they are young people, that gives a lot of hope.

Interviewed by Daniel Tanuro, December 22, 2006.

[1] This proposal, made by the late Anil Agarwal, is known as "Contraction and Convergence". See Anil Agarwal and Suinita Nairin, "The Atmospheric Rights of All people on Earth", www.cseindia.org. See also Daniel Tanuro's article on this site, "The devil makes the saucepans, but not the lids".