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Ecosocialism

Confronted by the ecological emergency: project of society, programme, strategy

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In April 2014, two different teams of American glaciologists, specialists in the Antarctic, reached - by different methods, based on observation - the same conclusion: because of global warming, a portion of the ice sheet has begun to dislocate, and this dislocation is irreversible.

Although scientists are reluctant to say that their projections are 100 per cent certain, these ones were categorical: "We have gone beyond the point of no return," they said at a joint press conference. According to them, nothing can prevent a rise in sea level of 1.2 metres in the coming 300-400 years. It is their opinion that the phenomenon will lead to accelerated destabilization of the adjacent area, which could subsequently lead to a further rise in sea level of more than three metres. [1]

The silent catastrophe is underway

The social consequences of rising sea levels on this scale cannot escape anyone. It is enough to mention that 10 million Egyptians live less than one metre above sea level, as do 15 million Bengalis, about 30 million Chinese and Indians, some 20 million Vietnamese... Not to mention all the major cities situated in coastal areas: London, New York, San Francisco...

You can certainly build dykes to a height of one metre - provided you have the financial and technological means to do so. But you cannot build dykes that are ten metres high. And even if you could, not many people would accept living behind them.

But to take the full measure of the threat, we must know that the dislocation of the Antarctic ice cap is only one of the four causes of rising sea levels. The other three are: the thermal dilation of masses of water, the melting of mountain glaciers and the dislocation of the Greenland ice cap. If the quantity of ice accumulated on submerged land melted completely, it would lead to a rise in sea level of more than 90 metres.

Anders Levermann has attempted to make global projections of the rising sea levels that the models ascribe to these four causes. His conclusion is alarming: to any one degree Celsius of increase in average surface temperature relative to the late eighteenth century, there would correspond an increase in sea level of 1.3 metres, at equilibrium [2]. The temperature differential with respect to the reference period is now + 0.8°C. If Levermann is right, a rise of 1.84 metres at equilibrium is already inevitable.

Fatih Birol, "chief economist" in the International Energy Agency is not a Bolshevik or an ecosocialist. He admitted recently that the current trend in emissions of greenhouse gases is perfectly consistent with global warming of 6°C by the end of the century, and that it could go up to 11°C or more [3].

Assuming that Levermann's findings are accurate, we would therefore be creating the conditions for a rise in sea level of 13.8 metres or more, at equilibrium. This is one of the reasons why no adjustment to global warming of this magnitude is possible in a world of 9 billion people [4].

In these projections, the term "at equilibrium" means: at the moment when a new equilibrium point is reached between the average surface temperature and the quantity of ice present on the globe. Concretely, this return to the

energy equilibrium of the Earth system should take roughly between one and two thousand years.

One to two thousand years is a long time. But the important point is that the process, once engaged, cannot be stopped: to an atmospheric concentration of greenhouse gases X there will inevitably correspond Y increase in temperature, which will inevitably lead to Z dilation of masses of water and the melting of a quantity Z' of ice which, transformed into water, will lead to an increase in sea level.

The only way to stop this chain of causes and effects would be to put the planet in the freezer. A kind of natural freezer exists: it is the glaciations. But glaciations are obviously not set in motion to order. Astrophysicists believe that the next one will take place in 30,000 years at the earliest.

So far, I have only discussed the impact of global warming on rising sea levels. It gives a vivid picture of the terrible danger - irreversible on a human time scale - that is building up silently over our heads. But this is, as you know, only one of the consequences of climate change. I will just quickly mention a few others which are more threatening in the short term than the rise in sea levels; some of them are already noticeable:

âEurosç The decline in agricultural productivity. Up to the point of 3Â°C global warming compared to the eighteenth century, it is estimated that overall productivity will increase. But as of now, it is decreasing in some tropical regions, particularly in sub-Saharan Africa;

âEurosç Extreme weather events. If you had come here two weeks ago, you would have landed right in the middle of a heat wave, with temperatures above 35Â°C for more than a week, which was once very exceptional in these areas but is tending to occur more and more often;

âEurosç The consequences on health: if the good weather starts again and you're lying in the undergrowth, beware of ticks. These Lyme disease-carrying mites are much more numerous than before, because the winters are becoming milder. In the subtropics, the extension of the zone conducive to the development of malaria is already a serious health problem.

Accelerated deterioration of all ecological parameters

At the same time, climate change is only one manifestation among others of accelerated deterioration of the environment. We speak in this regard of "ecological crisis". I will explain later why this expression is, in my opinion, inappropriate. Suffice it for now to say that the "ecological crisis" has many facets. The main ones are:

âEurosç The acidification of the oceans - it constitutes a serious threat to many marine organisms whose outer skeleton of calcium carbonate would not withstand excessive acidity;

âEurosç The decline in biodiversity - at present we are experiencing what biologists call the "sixth wave of extinction" of living species, and it is faster than the preceding one, which corresponds to the disappearance of the dinosaurs, sixty million years ago;

âEurosç The perturbation of the nitrogen and phosphorus cycles - it may cause a relatively unfamiliar phenomenon of the sudden death of oceans, which seems already to have occurred naturally in the history of the planet;

âEurosç The destruction of the stratospheric ozone layer that protects us from ultraviolet rays - it is the only major environmental issue on which positive points have been scored, I will come back to that later;

âEurosç The deterioration and overexploitation of water reserves - at present, 25 per cent of rivers no longer reach the sea because of excessive siphoning off of water, particularly for irrigated agriculture;

âEurosç The chemical poisoning of the biosphere - in one century, the chemical industry has created one hundred thousand molecules that do not exist in nature, some of which - particularly toxic compounds - cannot be decomposed by natural agents;

âEurosç The destruction of soil and the loss of arable land.

All these phenomena are interconnected and climate change occupies a central position. The acidification of oceans, for example, results from increasing atmospheric concentrations of carbon dioxide, which is at the same time the principal greenhouse gas. The decline in biodiversity is also partly due to global warming: it is so rapid that some species are unable to save themselves by migration.

Especially, all these phenomena have in common that their graphic representation reveals similar curves, of an exponential kind - with, in any case, a marked acceleration from the three decades following the Second World War.

âEurosç The curve of atmospheric concentrations of greenhouse gases, in terms of time, is exponential;

âEurosç The curve of the number of species that are disappearing, in terms of time, is exponential;

âEurosç The increasing acidity of the oceans in terms of time is exponential;

âEurosç The quantity of soils destroyed is exponential;

âEurosç The quantity of phosphates and nitrates released into the seas is also exponential.

The common profile of all these curves obviously indicates a common origin. The question arises: what is it?

Yes to a demographic transition, no to diversion

To this question, a reactionary and misanthropic current, which is very present in the mass media, responds by pointing to human nature or population, or both. Earth is supposedly "sick of humanity," as James Lovelock concludes his essay on Gaia [\[5\]](#). And from a typical patriarchal attitude, women are particularly in the sights of these gentlemen.

We must be very firm on this issue. It goes without saying that the number of people on Earth is a factor in the environmental equation. It would be foolish to deny it. We are moreover in favour of a stabilization of the population - a so-called demographic transition. But we warn against the authoritarian, neoliberal and barbaric solutions that the demographic obsession has caused to germinate in some brains - for example, the proposal to establish "rights to procreate" that are exchangeable, on the model of "rights to pollute".

The demographic transition depends fundamentally on two elements: the right of women to control their own fertility (in particular the right to free abortion in good conditions) and a social security worthy of the name (in particular a pension system that enables older people to live decently without the help of numerous children).

If we exclude the barbaric solutions - and we must obviously exclude them! -the demographic transition is a slow process, which cannot respond to the environmental emergency. That is why we must be vigilant: in most cases, those who seek a solution to the ecological crisis that starts from the question of the population want to create a diversion from the real causes.

However, it is not because there are too many of us that:

âEurosç 50 per cent of the food produced on a world scale never ends up on our plates or in our fridges;

âEurosç The part that ends up on our plates or our fridges gets there after travelling thousands of kilometres, often unnecessarily;

âEurosç This part includes more and more meat, beef in particular, whereas a diet containing too much meat is bad for our health;

âEurosç Firms spend fortunes on advertising to produce in us artificially alienated consumption needs, a miserable compensation for the poverty of human relationships in this society;

âEurosç Companies compete to work out ingenious ways for the goods they sell us to wear out and break down more quickly, and for them not to be repairable;

âEurosç Governments spend fortunes and squander huge resources on armaments and security and surveillance equipment;

âEurosç Economic and political decision-makers, although they are fully aware of the dangers, have refused over the last half-century to organize seriously the transition to an energy system based exclusively on renewables, which are more than sufficient to meet all the energy needs of humanity.

A double impasse of capitalism

In truth, as you will have understood, the cause of all these phenomena is neither the population nor human nature but capitalism and the "nature" of this mode of production which runs counter to nature. In truth, the exponential curves of the deterioration of the environment are nothing other than the manifestation of the basic law of capitalism: "Always more".

A capitalism without growth is a contradiction in terms. The explanation is simple: in this system based on competition for profit, each private owner of the means of production is forced to continuously seek to reduce their costs, in particular by replacing workers with machines that increase labour productivity. This constraint is absolutely imperative: whoever would seek to evade it would immediately be condemned to economic death.

Capitalism is therefore by its essence productivist. It produces ever more commodities, which means appropriating and pillaging ever more natural resources, increasingly exploiting the labour force (either directly in production or

indirectly in services and in the reproduction of the labour force), and increasingly destroying knowledge and logical alternatives to its own bulimic "logic".

In this insane capitalist logic, the "ecological crisis" itself is perceived only as "a formidable opportunity for new markets." Thus the business press highlights the opportunities in the market for renewables, the market for pollution rights, the (pseudo-) organic agriculture market, etc. The global nature of the problem disappears and the global solution also disappears, swallowed up by the appetite for profit of individual capitalists.

It is obvious that the pseudo-solutions of this "green capitalism" will solve nothing. I will not waste my time explaining it. As Albert Einstein said, you do not solve a problem with the means that caused the problem. We will not solve the ecological crisis by the market mechanisms and the productivism that are the cause of the ecological crisis.

On this subject, take note of this: as I mentioned, the only aspect of the ecological crisis where the exponential dynamics of destruction have been broken is the disappearance of the ozone layer. The emissions of gases responsible for the phenomenon have indeed fallen dramatically since the Montreal Protocol (1987). Yet it is precisely the only area in which governments (for a series of very specific reasons that I cannot go into here) have used regulatory measures rather than market mechanisms [6].

The conclusion is glaringly obvious: it is not nature that is in crisis, it is capitalist society. We have arrived at a stage where the absurdity of this mode of production is seriously perturbing the relationship between humanity and the nature to which it belongs, to the point of posing a mortal threat to much of the human race. That is why I do not like the expression "ecological crisis".

The term "crisis" is moreover incorrect. A crisis is a moment of transition between two states of a system. In my view, we cannot talk of "crisis" to describe the totality of exponential phenomena of environmental deterioration that I have talked about, which have amplified over the past two centuries.

It is not a "crisis" that we are dealing with but a double impasse of capitalism, on both the environmental and social levels (to put it briefly: the tendency for the rate of profit to fall and how capital is trying to counter it).

It is striking that, on the two levels - social and environmental - the system is coming up against limits that it is not even capable of identifying itself. This validates completely the analysis of Marx, who said that "the only limit to capital is capital itself" and concluded that this Moloch, if we do not eliminate it in time, would exhaust "the only two sources of all wealth: the Earth and the worker".

Ecological struggle, class struggle

This approach enables us to give a framework to the struggle that we must wage. This is not an "ecological struggle" - in the sense of a kind of luxury struggle for those who do not have too many social problems. It is a social struggle to preserve the conditions of existence on this planet, especially for the working class, women, youth, peasants, indigenous peoples - in short the exploited and oppressed that capitalism threatens to sacrifice en masse.

The struggle that we must wage for the environment is a class struggle, an anticapitalist struggle that encompasses virtually all other struggles and that has the potential to bring them all together. A struggle whose outcome will decide the choice between a humanity worthy of the name - that takes loving care of itself and of the nature to which it belongs - or the barbaric chaos of social and environmental destruction.

This struggle is both poetic - it is full of emotions and passion because it is about saving the enchantment of the world that makes us human in the full sense of the word - and eminently rational. But we are under no illusions: it will be won neither by poetry nor by reason, whatever the beauty of the first and the rigour of the second.

Given the news in recent weeks, I will illustrate this assertion by a Greek parable: what is there in common between Yanis Varoufakis and the major environmental associations? The illusion of believing that human tragedies and reasonable arguments, supported by Nobel prizewinners, could persuade the adversary that their policy is absurd, even from the point of view of their own capitalist interests.

This belief is actually illusory. It is not a question primarily of stupidity or lack of information on the part of "decision-makers" but one of material interests. To save the climate: 1) the oil, gas and coal companies should renounce exploiting four-fifths of the fossil fuel reserves that they own and which determine their listing on the stock market; and 2) the major part of the global energy system - which is worth almost a fifth of global GDP - should be scrapped before amortization. In both cases this destruction of capital would cause a huge financial crisis.

So we can make another Greek comparison: what do Schäuble and Lagarde have in common with climate sceptics? An iron determination to protect their system, that of the capitalist class to which they belong and which has built most of its power over two centuries on the exploitation of fossil fuels.

The Schäubles and Lagardes of all countries are prepared to maintain this system at the price of immense destruction, of the sacrifice of hundreds of millions of human beings, and even of precipitating the world into a chaos that would be unmanageable except by means which will have nothing to do, even remotely, with so-called "civilization".

When the damage is done, the Schäubles and Lagardes will shed crocodile tears over the victims, talking about "natural disaster". For those people, you see, think that the laws of the market are natural laws, as intangible - if not more so - than the laws of physics.

The bourgeois economist Schumpeter said that capitalism emerges from its periodic crises by "creative destruction". What Ernest Mandel called "late capitalism" cannot get out of its dual social and ecological impasse by "creative destruction."

So it really is a question of a struggle, not of an academic debate, and the example of Greece shows us on a small scale how merciless this struggle will be.

Explain, block, "commonise"?

"What is to be done?", as the man said... What must be done to minimize the climate catastrophe?

The first thing to do is to explain tirelessly, everywhere, the seriousness of the situation and its cause, especially in popular organizations, the trade unions, women's organizations and youth movements. An enormous and permanent work of education is necessary, in which we must participate. To speak is already to act, to sow the seeds of the great anger that is indispensable.

The second thing to do is to fight against all the major investment projects in the service of the fossil industry: the

new airports, new pipelines, new motorways, new drilling, new mines, the new madness of shale gas, the new fads of geo-engineers who dream of providing Earth with a thermostat ... of which they would have control.

Naomi Klein is absolutely right to call for strengthening everywhere this movement of contestation that she calls "Blokadia". She is right because this blocking is indeed of strategic importance: the present level of development of infrastructures does not allow capital to continue to burn the masses of fossil fuels that are putting us on the path to global warming of 6°C by 2100 [7].

Mobilizations like those of Notre-Dame-des-Landes, or the Keystone XL pipeline, or the Yasuni park, are like locks that block its path. Let us defend them and let us coordinate in order to defend them.

The third thing to do is to support all the collective, social and democratic alternative initiatives that take forward the concept of what is common, of common goods and common management of Earth "as good fathers and mothers." Let us not look down on groups that buy local produce from organic agriculture and other initiatives aimed at food sovereignty, for example. We obviously do not believe that capitalism can be overthrown in this way, by contagion. Nonetheless, these initiatives can be levers for developing consciousness, in particular when they organize dialogue and consequently break the separation - generalized by capital - between producers and consumers, or when they involve the trade-union movement.

However, it goes without saying that permanent education, blockages and initiatives for the conquest of common goods are not enough. The struggle requires a project of an alternative society, a programme and a strategy. I will quickly run through these three aspects.

Project of society: the ecosocialist aggiornamento

Let us call a spade a spade: the proposed alternative society can only be of a socialist kind. What is involved is suppressing the production of exchange values - for the benefit of the capitalist minority and replacing it with the production of use values - for the satisfaction of real human needs, democratically determined. There is no other possible choice, no other possible alternative to this mode of production. However, this alternative basically corresponds to the definition of socialism.

The autonomous women's movement challenges our organizations, to make us take the full measure of the fact that socialism involves not only the abolition of the exploitation of wage labour but also the struggle against the oppression of women. Unpaid domestic work in the service of the maintenance and reproduction of the labour force is a pillar of the system, carefully hidden by patriarchal power, which also oppresses gays and lesbians. Our movement is trying to draw all the conclusions from that in terms of the kind of socialism that we want.

In the same way, we need to explore what the seriousness of the ecological crisis means for our socialist project. Here too, an aggiornamento is necessary. I will briefly mention three points:

•Euros Technology. Lenin said that "socialism is soviets plus electricity." It is clear today that this definition is inadequate. How will the electricity be produced? From coal, oil, natural gas, nuclear energy? A socialism worthy of the name demands an electricity that is generated solely from renewable energy sources and used with maximum efficiency. In other words, the "ecological crisis" leads us to conclude that technologies are not neutral;

•Euros Limits. Engels exalted "the unlimited development of the productive forces" that would be possible, he said, once humanity had got rid of "capitalist fetters." We can discuss the exact interpretation of this phrase of Engels, the

importance he accorded to non-material productive forces such as knowledge, etc. But one thing is clear: the socialist project is cluttered up with what Daniel Bensaïd called "productivist dross." Let us eliminate it. We are fighting for a socialism that respects the limits of resources, the rhythms and the modes of functioning of ecosystems and the great natural cycles. A socialism which applies the precautionary principle and abandons the "domination of nature";

âEurosç Decentralization. Marx said of the Paris Commune that it was "the political form, at last discovered, of the emancipation of labour." On the basis of this revolutionary experience, he abandoned more centralist conceptions, announced that he was in favour of a federation of communes as an alternative to the state and began to study the communal forms of pre-capitalist societies. A real democracy of the associated producers is not in fact possible without the destruction of the state and its replacement by a decentralized federation of structures of self-organization, which coordinate among themselves. The energy transition that is necessary encourages us to opt for this conception in a much bolder way, because renewables involve decentralization, which facilitates management by communities or under their control. We can therefore complete Marx's formula: "the commune is the political form, at last discovered, of the emancipation of labour and environmental sustainability" (in the true sense of the term).

These three points are sufficient, I think, to show that ecosocialism is something other than a new label on an old bottle: it is an emancipatory project that integrates the new challenges with which humanity is confronted because of the capitalist destruction of the environment and the disastrous experience of "real socialism".

Programme: an inescapably radical character

Concerning the programme, I would say that those who think that the ecological question risks diverting us from anticapitalist responses with which to counter austerity are seriously mistaken. The opposite is true: in reality, the urgency and the gravity of the environmental crisis give strong legitimacy to an extremely radical, revolutionary programme, whose keystone is the double expropriation/socialization of energy and of the financial sector, without compensation or buyback and under workers' control.

These two sectors are very profoundly intertwined, particularly because the gigantic investments of the fossil sector (exploration, drilling, mining, refineries, power plants, power lines, etc.) are long-term investments, financed by credit. Given what has been said above on the scrapping of the energy system before amortization and on the fossil reserves that must be left underground, nationalization is the prerequisite for the collectivity to dispose of the levers and the means that make it possible to organize the energy transition independently of the imperatives of profit, in a decentralized framework.

Under this keystone, we can organize many more immediate demands, which I will not detail here. I will only say that two issues seem of great importance, in a double perspective of response to austerity and of spreading the idea of common property:

âEurosç The first is that of free access: for example, free basic services which correspond to socially necessary needs for access to water, lighting, mobility and heat (combined with a rapidly progressive pricing system beyond these needs);

âEurosç The second is that of the reduction of the sphere of the market in favour of a democratic public sector, with mechanisms of control by and participation of the population: public companies for the insulation and renovation of housing, public transport companies, etc.

Strategy: convergence of peasant, indigenous, workers' and feminist struggles

I will conclude with strategy. It is clear that humanity can only break out of the impasse into which capitalism has dragged it by revolutionary means. It is also clear that the anticapitalist struggle that must be conducted implies necessarily a central role of the working class (that is to say all those whose existence depends on the direct or indirect exploitation of their labour power by capitalism - in production, in services or in the reproduction of labour power).

But the revolution is not two well defined armies - the working class and the bourgeoisie - who line up face to face on the battlefield. Every revolutionary situation is the product of a crisis of the whole society, of a confused ferment of initiatives by classes, but also by fractions of classes, social layers, etc. Within this ferment, the working class must conquer hegemony by demonstrating in practice that its programme provides answers to the problems and the aspirations of all the exploited and oppressed.

Making this clear is particularly relevant here because the "ecological crisis" is like the threat of atomic war: it challenges and sets in motion millions of men and women from all strata of society, because they are worried about the future of the planet and that of their children.

This is why the great ecological mobilizations, like the great pacifist demonstrations, often have an inter-classist dimension. Admittedly, workers are in the majority there (at least in the "developed" countries, where the working class forms the majority of the population), but they do not participate as workers, with a consciousness of their specific role.

In my opinion, the task of revolutionaries in this context is not to stay on the side of the road distributing leaflets calling for a socialist response. These leaflets are certainly useful, but our task is also to build the mass movement and orient it towards anticapitalist solutions.

This discussion on strategy is all the more important in that the working class is now in the rearguard of the struggle over the climate, while peasants and indigenous peoples are in the front line with anticapitalist demands - with women playing a key role in both cases.

We must build the mass movement with the strategic preoccupation of drawing into it the working class, whose role will be decisive. But to do this we need to understand the specific reasons that explain the relative under-participation of the workers' movement in the ecological struggle in general, especially over the climate.

The explanation is not complicated. Today, when small farmers are fighting for their livelihoods against agribusiness, the immediate demands that they put forward largely coincide with the agrarian programme that needs to be applied in order to save the climate. Moreover, they know that they need support in the general population in order to confront a very powerful enemy who wants to destroy them; therefore they lean more towards the "worker-peasant" alliance than towards a petty-bourgeois programme. The same applies, *mutatis mutandis*, with the indigenous peoples in defence of their way of life, based on symbiosis with the forest, for example.

In these two categories, it is not surprising that women play a key role. Not because of an ecological "feminine essence", but because on the one hand women are responsible for 80 per cent of food production in the world, and on the other hand the role of "nurturing" that patriarchy assigns to them in the division of labour confronts them directly with some of the most brutal impacts of climate change, such as the increasing scarcity of water resources.

Things present themselves differently for workers. Indeed, there is no coincidence, but tension or even apparent

opposition - at first - between the immediate demands that they pose spontaneously to defend their livelihood, on the one hand, and the programme that should be applied from an ecological point of view, on the other.

It goes without saying that this opposition is only apparent, but it represents nonetheless an obstacle, especially in struggles that are conducted enterprise by enterprise. Often moreover, workers in polluting enterprises say that they are torn between the consciousness of the ecologically harmful nature of their work and the fact that they need to keep their jobs.

This tension can only be overcome by anticapitalist responses, which alone make it possible to respond to both social needs and environmental constraints. Such is the overall strategic approach of ecosocialism.

I am not going to draw up a catalogue of these demands - they need to be largely invented in concrete struggles, starting in particular from battles over health in the workplace - but there is one that seems to me to be crucial: a radical reduction of working hours without loss of pay, with compensatory hiring and a sharp reduction in the intensity of work, under workers' control.

This is a decisive demand because a radical reduction of working time with a lower intensity of work is the best way to fight against unemployment while also combating productivism. In order to understand the strategic importance of this demand from an ecological point of view, it is necessary to know in particular that the reduction of industrial production and transport is a prerequisite for a transition to renewable energy, taking into account the climate constraint.

There are many obstacles to the dissemination of these ecosocialist demands in the workers' movement. One of them is obviously the existence of a trade-union bureaucracy that practice class collaboration and hopes that in this way - one more illusion! - it can accompany a "just transition" towards a social and ecological capitalism.

Committing ourselves to the building of a mass movement in defence of the environment in general, and of the climate in particular, enables us to become capable of indicting the logic of capitalism by starting from this movement, in action, on a mass scale. This can only encourage workers to join in the fight with their weapons and to play the decisive role that will be theirs in the end.

Revolutionary strategy is not the workerism or economism that was denounced by Lenin. There is no question of tail-ending the Greens. What is necessary is to provide a comprehensive response to the global impasse of capitalism, on every terrain and in every milieu. It means renewing with the best revolutionary traditions of the workers' movement, as expressed in this beautiful song of the Viennese workers, an ecosocialist song that was ahead of its time:

It is we who are the builders of the new world

We are the fields, the sower and the seed

We are the reapers of the next harvests

It is we who are the future, who are life.

This is a transcript (in a form that has been somewhat abbreviated by the author) of the exposé given on July 28, 2015 as part of the 32nd International Meeting of Youth of the Fourth International, which was organized in Belgium. The author would like to thank all those whose contributions led him to modify and clarify the text on some points.

[1] http://www.nytimes.com/2014/05/13/science/earth/collapse-of-parts-of-west-antarctica-ice-sheet-has-begun-scientists-say.html?_r

[2] <http://www.realclimate.org/index.php/archives/2013/08/the-inevitability-of-sea-level-rise/>

[3] http://www.washingtonpost.com/national/health-science/world-on-track-for-nearly-11-degree-temperature-rise-energy-expert-says/2011/11/28/gIQAi0IM6N_story.html

[4] Corinne Le Quere, Tyndall Centre for Climate Change Research, University of East Anglia "The scientific case for radical emission reductions." <http://tyndall.ac.uk/communication/news-archive/2013/radical-emissions-reduction-conference-videos-now-online>

[5] James Lovelock, *La Terre est un Âtre vivant, l'hypothèse Gaia*, Flammarion, coll. Champs, Paris 1999.

[6] <http://www.esrl.noaa.gov/csd/assessments/ozone/2010/executivesummary/#fig1>

[7] Corinne Le Quere, op. cit.