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Draft for world congress discussion

Report on climate change - 2009

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We are reproducing below the reworked version of the report on Climate change and Climate campaigns, drafted by Daniel Tanuro and given at the meeting of the International Committee (IC) of the Fourth International in February 2009. This report has been adopted as the basis for writing the resolution of the coming FI world congress on these issues.

We would like the report to call for other contributions – either from IC members who participated in the discussion of this text, or from activists engaged in Climate Change campaigns or working, notably, on the link between the ecological and the social. We wish to contribute to a collective reflection by publishing such contributions.

I. THE CLIMATIC THREAT: CAUSES, RESPONSIBILITIES, SOCIAL AND ECOLOGICAL IMPACTS

[https://internationalviewpoint.org/IMG/jpg/Lake_Kariba2.jpg]
The environmentally disastrous Lake Kariba in Zimbabwe (OpenDemocracy, Creative Commons)

1. Climate change is a fact without precedent

Climate change is a fact. In the 20th century, the average temperature of the surface of the Earth increased by 0.6Â°C, the sea level went up from between 10 and 20 cm, glaciers retreated almost everywhere in significant proportions, the violence of cyclones increased in the North Atlantic, and more extreme weather phenomena, such as storms, floods and droughts, were recorded.

It is not a question of periodic variations (such as, for example, the phenomenon of “El Nino”) but of profound, long-term changes, expressing an important overall imbalance of the climatic system. The motor of these imbalances - the rise in the average surface temperature - has been on a scale unprecedented for at least 1300 years. This rise is strongly correlated with another phenomenon, this time unprecedented for 800,000 years: the increase in atmospheric carbon concentration, in the shape of carbonic gas and methane - two gases whose contribution to the greenhouse gas effect has been well established for a long time by physics.

The explanation of present global warming by the rise in greenhouse gas emissions as the major cause is more than 90 per cent certain and is no longer the object of credible contestation on the scientific level. It is well established that the present global warming is unprecedented and differs radically from the other phases of global warming which the Earth has known in the course of its history. In the course of the inter-glacial periods in the past, natural variations in the position of the Earth in relation to the Sun, or in solar activity, caused global warming, which favoured the development of life, and this development in its turn led to a rise in the atmospheric concentration of CO2, which further accentuated global warming. Today the chain of causality has been reversed: natural factors explain only a very limited part of global warming (approximately 5 to 10 per cent); the essential part of the present rise flows directly from a very rapid rise in the atmospheric concentrations of CO2 and methane, due to human activities. In other words: previously climatic warming caused the increase in the greenhouse gas effect, today the increase in the greenhouse gas effect leads directly to climate change.

2. The expression “climate change” is misleading: we are confronted with a brutal swing, irreversible on the human scale of time.

The expression “climate change” is misleading: it evokes a gradual modification, whereas we are confronted with a

brutal swing whose speed is accelerating. This is due to three kinds of economic activities which increase atmospheric concentrations of greenhouse gases:

(i) Forests, natural meadows, soils and peat bogs stock carbon in the form of organic matter. Deforestation, the transformation of natural meadows into cultivated land, the draining of wetlands and bad cultivation methods have the effect of freeing this carbon. Moreover, the excessive use of artificial nitrate-based fertilisers (17.9 per cent of emissions) causes emissions of nitrous oxide, another greenhouse gas;

(ii) Any combustion results in the emission of carbon dioxide (CO2). But there is a great difference between the CO2 that comes from the combustion of biomass, on the one hand and the CO2 that comes from the burning of fossil fuels (coal, oil, natural gas). The first is recycled without any problem by the ecosystems (green plants and oceans) which continuously absorb and reject CO2 (the “carbon cycle”). The second, on the contrary, can only be recycled within certain limits. Now, for two centuries the burning of fossil fuels has been injecting into the atmosphere, very quickly and continuously, important quantities of CO2 (56.6 per cent of emissions);

(iii) Certain industrial processes, which are responsible for the emission of greenhouse gases (fluorinated gases) that are unknown in nature.

Carbon is only present naturally in the atmosphere in very weak concentrations. It is precisely for this reason that human activities can have such an impact on the climatic system. At present, the total quantity of greenhouse gases that we send into the atmosphere is twice as high as the capacity of natural absorption. The rest accumulates, leading to an increase in greenhouse gases, therefore of temperature, and this accumulation tends to increase with global warming. The principal mechanism of global warming can thus be summed up by a saturation of the carbon cycle by emissions of gas originating from human activities.

This warming is irreversible on the human scale. Even if the atmospheric concentrations of greenhouse gases were stabilised immediately, global warming would make its effects felt for nearly a thousand years, because the temperature of enormous masses of ocean water takes a very long time to homogenise. In the absence of any stabilization, the mechanism would inevitably speed up dramatically and would unleash extremely dangerous phenomena such as the disintegration of the polar icecaps or the release of the enormous quantities of methane contained in frozen ground (permafrost), indeed even in the depths of the oceans.

It would be erroneous and dangerous to gamble on the idea that the exhaustion of the stocks of coal, oil and gas will happen in time to protect humanity from these major risks. In fact, proven fossil fuel reserves (in particular of coal) are amply sufficient to cause an uncontrollable acceleration. In this event, the Earth would be likely to rediscover conditions that it has not known for 65 million years and that humanity has consequently never experienced: a world without ice, where the level of the seas would be about a hundred metres higher than the present level.

3. The climatic upheaval is not due to “human activity” in general but to the form of this activity since the capitalist Industrial Revolution.

The climatic upheaval is not due to “human activity” in general, as the media and the IPCC reports say, but really to the form of this activity since the capitalist Industrial Revolution, in particular to the burning of fossil fuels. The cause of the phenomenon lies basically in the capitalist and productivist logic of accumulation, whose historical centre of gravity is located in the imperialist metropolises.

The economic take-off of the Industrial Revolution could not have been carried out on a large scale without coal. It would however be simplistic to indiscriminately impute climatic change to “progress” in general. In fact, fairly quickly,

new possibilities of exploitation of renewable energies appeared, which would have made it possible to reconcile reasonable development and the protection of the environment. In this respect, there is a glaring contrast between the durable disinterest for the photovoltaic effect (or photovoltaism) (discovered in 1839) and the immediate infatuation of capitalist (and non-capitalist) countries for atomic fission. The development of the nuclear industry would not have been possible without considerable public investment, which was authorized in spite of the terrible dangers of this technology. The potential of solar energy never benefited from such interest.

As capitalism developed, the big energy groups acquired a decisive weight which enabled them to fashion the energy system according to their interests. The power of these groups results not only from the fact that energy is essential to any economic activity and that energy investments are long-term, but also to the fact that the limited character of fossil fuel deposits and the possibility of its private appropriation offers the possibility of imposing monopoly prices, therefore of obtaining a large superprofit, stabilized in the form of energy rent.

The key role of oil as an abundant and cheap source of liquid fuel with a high energy content has in particular enabled the increasingly concentrated and centralized capital which controls this sector to occupy a strategic position, on both the economic and political level. Together with the coal-producing companies, the electricity industry and the big sectors that depend on oil (automobile, shipbuilding and aeronautics, petrochemicals), the oil multinationals systematically prevented the use of alternative energy resources, technologies and models of distribution, while encouraging overconsumption and limiting progress in energy efficiency, on the level of systems and products.

In order to understand the mechanisms of climate change, we have to supplement the analysis by taking into consideration the tendency of capitalism in general towards concentration and centralization, the ceaseless replacement of living labour by dead labour, the standardisation of techniques and the overproduction of mass consumer goods for the world market. After the Second World War this tendency resulted in particular in the manufacture of millions of individual cars. While “pulling” the long expansive wave of the post-war decades this production contributed to an explosive rise in the use of fossil fuels, and therefore of emissions.

More recently, neoliberal capitalist globalization, the massive export of capital towards the emergent countries, lean production for the world market, the dismantling of public transport (in particular rail), and the spectacular increase in air and maritime transport have given fresh impetus to the phenomenon.

4. The countries of “really existing socialism” also bear a heavy responsibility: renouncing the world revolution, they aped productivism and copied capitalist technologies.

In the analysis of climate change, the responsibility of the countries which tried to embark on an alternative road to that of capitalism cannot be eluded. Because of their bureaucratic degeneration, mainly, these countries returned to productivism and took the waste of natural resources, in particular energy, to an unprecedented level.

Tsarist Russia was a backward country. After the war, the revolution and the civil war, it would not have been possible to get it back on its feet again without resorting to fossil fuels. This partly contributes to explaining the absence of forward thinking by Soviet theorists on the inevitable impasse of a system based on non-renewable sources, but other elements must probably be taken into account (cf. chapter 4 below). What seems certain is that the subsequent economic development of the USSR would have made it possible to explore other choices, but that the Stalinist dictatorship and the degeneration of “socialism in one country” blocked this possibility.

By abandoning the perspective of world revolution, by counting on peaceful coexistence with imperialism in the hope of safeguarding its own privileges, by stifling creative thought, the Stalinist bureaucracy chose both to follow in the

traces of the technological development of the developed capitalist countries – drawn forward by military technology - and to imitate the capitalist energy system – made to measure for the needs of capital. This logic culminated under Khrushchev in the illusion of catching up with and overtaking the USA. It led in particular to the senseless development of nuclear energy, which was to lead to the catastrophe of Chernobyl.

Based on a system of bonuses for the tonnage of materials consumed, the bureaucratic mode of material incentives to managers for the results of production constituted a specific factor of waste. The result was an energy system even more polluting and wasteful than the capitalist model that served as a reference, and even less efficient.

Lastly, the contempt for the needs for the masses, their exclusion from political decisions and the will to maintain them in a state of social atomization led to largely irrational choices in a whole series of fields (town and country planning, architecture, town planning…not to mention the forced collectivisation of agriculture). These choices had the result of aggravating the waste of resources and the energy inefficiency of the whole system, not to mention the serious consequences in other domains, in particular as regards pollution and public health.

It was thus that, after the Second World War, the CO2 emissions of the USSR and of some countries of Eastern Europe started to represent a significant share of world emissions. The comparison between the tonnages of carbon gas emissions per capita per annum in these countries with the tonnages of emissions at the same period in the developed capitalist countries clearly shows the specific responsibility of “really existing socialism” in the disruption of the climate. Just before the fall of the Berlin Wall, for example, Czechoslovakia was emitting 20.7 tons of CO2 per capita per annum and the GDR 22 tons per capita per annum. By way of comparison, the USA, Canada and Australia – the biggest emitters of CO2 in the developed capitalist world – were at that time emitting respectively 18.9, 16.2 and 15 tons of CO2 per capita per annum, for a considerably higher per capita GNP.

5. Climate change is bringing catastrophic consequences for humanity and for the ecosystems.

Climate change is bringing catastrophic consequences for humanity as well as for the ecosystems. There is no doubt that its negative effects are largely superior to the positive effects, even for a limited rise in temperature. According to the IPCC: [1]

– For any increase in temperature between +1Â°C and +5Â°C, drought should intensify in the subtropical regions and in the semi-arid tropical areas. From +2Â°C, millions more people could be subjected to coastal floods each year. From +3Â°C, approximately 30 per cent of coastal wetlands would be lost.

– As of now, global warming is reducing the harvest of small farmers and the catches of small fisher people, who produce the means of subsistence for local populations. From +1Â°C, it is anticipated that there will be increased losses of productivity of certain cereals in the tropical regions, and from +3.5Â°C, a loss of productivity for all cereals in these latitudes. In the temperate regions (high latitudes), it is estimated that there will be an increase in productivity for certain cereals, from +1Â°C, then a more and more generalised decrease in productivity from +3.5Â°C.

– Already also, health systems are confronted with an additional workload due to malnutrition, diarrhoea, cardio-respiratory and infectious diseases, whose increase is a consequence of climatic changes. Increased morbidity and mortality are already being manifested during heat waves, floods and droughts, as is the modification of the regions covered by certain vectors of disease (anopheles transmitting malaria, ticks transmitting Lyme’s disease…). What is more, the burning of fossil fuels contributes to air pollution, in particular by the fine particles which are a major cause of the extremely worrying increase in respiratory diseases such as asthma.

- From +1Â°C, it is estimated that 30 per cent of animal and vegetable species run an increased risk of extinction.

As for a rise of +5Â°C, that would mean significant extinctions of species in all regions of the world. These projections are all the more alarming in that other factors (such as land use) is contributing today to a wave of extinction greater and more rapid than that which Earth experienced at the time of the disappearance of the dinosaurs, 60 million years ago. Over and above its important aesthetic, emotional and cultural effects, this radical impoverishment of living matter constitutes a serious threat. It is in fact biodiversity which conditions the capacities of adaptation of ecosystems, in particular cultivated ecosystems, for example the possibilities of selecting plants for cultivation that are adapted to climatic changes.

– From approximately +2.5Â°C, between 15 and 40 per cent of terrestrial ecosystems start to emit more CO2 than they absorb, which signifies that the saturation of the carbon cycle would increase and that global warming would reinforce itself in an uncontrollable snowball effect (“runaway climate change”).

On a human level, according to certain projections, the number of additional victims of various disasters, diseases and shortages tends to increase more and more quickly according to the rise in temperature. For a rise of +3.25Â°C (compared to the pre-industrial period), situated more or less in the middle of the range of projections of the IPCC, coastal floods would be responsible for between 100 and 150 million victims between now and 2050, famines up to 600 million and malaria 300 million, while water shortages would affect up to 3.5 billion more people.

These estimates are obviously characterised by more or less high degrees of uncertainty. Moreover, the impacts are subject to social factors which can increase them or reduce them to a certain extent, especially if global warming remains limited. It remains the case that, with no change in policy, the general scale of the threats is considerable.

6. Today already, the peoples of the South are paying a heavy price for the climatic swing of which they are the principal victims.

On average, 326 climatic catastrophes have been recorded every year between 2000 and 2004: they were responsible for 262 million victims - nearly three times more than between 1980 and 1984. More than 200 million of them lived in countries which are not members of the OECD and which bear only a marginal responsibility for the increase in greenhouse gases. For the years 2000-2004, one inhabitant in 19 was affected by a climatic catastrophe in the developing countries. The corresponding figure for the OECD countries is one in 1500 (79 times fewer) in [2].

Unless adequate policies are applied, this climatic injustice will accentuate and attain dramatic proportions. The United Nations Development Programme recognizes that because of climate change, even the “Millennium Objectives” will not be carried out, whereas they are manifestly insufficient. In the event of climatic catastrophe, some of the poorest countries are likely to enter into a spiral of social and economic regression with no way out. For example, the vast majority of the hundreds of millions of human beings threatened by the rise in the level of the oceans are located in China (30 million), India (30 million), Bangladesh (15-20 million), Egypt (10 million) and other deltas - in particular the Mekong and the Niger (10 million)… For a rise of one metre in the level of the oceans, a quarter of the population of Vietnam would have to move.

The rise in food insecurity is another glaring demonstration of climatic injustice. According to certain sources, the potential for agricultural production of the developed countries could increase by 8 per cent by 2080 whereas that of the developing countries would decrease by 9 per cent. Latin America and Africa would be the worst affected continents, with losses of productivity higher than 12 per cent, even 15 per cent. In certain areas of sub-Saharan Africa and Asia, productivity of non-irrigated agriculture could be reduced by half in the next 20 years, according to the IPCC.

The consequences are likely to be seen in terms of reinforced dependence on capitalist agribusiness, increased

domination by latifundists, increasing poverty and famine hitting small farmers, rural migration and environmental degradation.

7. The example of Cyclone Katrina also illustrates the dangers for the workers and the poor of the developed countries.

In September 2005, the Katrina cyclone which struck New Orleans showed that the poorest sectors of the working class in the developed countries are scarcely better equipped to face climate change than the masses of the countries dominated by imperialism: they live in the zones most exposed to catastrophes, they do not have the means of fleeing or are afraid to do so from fear of not being able to return and losing everything, their belongings are not insured, or insufficiently so.

Katrina led to the death of 1500 people and the displacement of 780,000 others. 750,000 of them were not covered by any insurance policy. The population of New Orleans included 28 per cent of poor people (the US average is12 per cent) and 35 per cent of poor people among the Afro-American population (the US average is 25 per cent). The neighbourhoods where they lived were the most affected: 75 per cent of the population in the flooded districts were Black.

Because the public authorities did not organise evacuation, 138,000 of the 480,000 inhabitants of the city were caught in a trap. Without drinking water, without electricity or telephone, they waited more than five days before aid came. The vast majority of them were poor workers, unemployed, poor children, and elderly people without resources.

This balance sheet is inseparable from the class, imperialist and racist policies of the US ruling class in general, and the Bush administration in particular. From 2003, to finance the “war against terrorism”, the Federal state systematically reduced the budgets allocated to the department in charge of the maintenance of the dykes; for the year 2005, this department had received hardly a sixth of the resources it had asked for. This arrogant and brutal policy continued after the catastrophe, through a strategy of rebuilding aimed at driving the poor out of the city and attacking the social gains of the workers (in particular, the abolition of the minimum wage).

This balance sheet is also inseparable from the other social inequalities which characterize capitalist society, above all the inequalities imposed on women. It is no accident that Afro-American women (and their children) paid the heaviest price for the catastrophe. On the one hand, women are in the front line in the face of climatic threats because they account for 80 per cent of the 1.3 billion human beings living under the poverty line. On the other hand, because of their oppression, women are affected in a specific way. In the least developed countries, climate changes involve for example having to collect more the wood for heating and a decrease in income from agricultural work, two tasks carried out mainly by women. In more developed countries, precarious employment, part-time work and low wages affect women in particular, and as a result they have fewer possibilities of protecting themselves against the effects of climate change. In both cases, the consequences affect even more severely women who bring up children alone, and among them, especially young women.

II. THE PHYSICAL AND HUMAN CONSTRAINTS OF SAVING THE CLIMATE

8. There is maximum urgency. It seems that not even a very radical and rapid reduction of greenhouse gas emissions would no longer enable us not to cross the danger threshold.

According to the IPCC, the maintenance of the current trends as regards emissions would lead, between now and the year 2100, to a rise of the average surface temperature ranging between 1.1 and 6.4Â°C compared to 1990. The

width of the range is explained by the double uncertainty which comes from the climatic models, on the one hand, and the scenarios of human development, on the other hand.

Basing ourselves on the fact that the rise in temperatures observed between 1990 and 2006 was in the higher level of the range of projections, we are led to conclude that humanity, with an unchanged policy, is likely to be confronted in the relatively short term with a thermal variation of at least +4.5Â°C compared to the end of the 18th century.

Such a variation would represent a change in the conditions of existence at least as considerable as that which separates the present epoch from the last Ice Age, 20,000 years ago. But, far from taking millennia, the change could take place in several centuries, or even less. This rapidity seriously reduces the possibilities of adaptation, both for human societies and for ecosystems.

In 1996, the EU fixed a maximum rise of 2Â°C as the objective of its climatic policy. The decision was made on the basis of estimations at the time concerning the danger threshold. Since then, these estimations have been revised downwards, since the experts situate the threshold at rather around 1.7Â°C. We see in fact, that for such a rise the risks are already high, particularly in three fields: a decline in biodiversity, a rise in the level of the oceans, and agricultural productivity in tropical and subtropical countries.

The average surface temperature of the Earth has increased by 0.7Â°C since the pre-industrial period and a differed warming of 0.6Â°C is probably already in the pipeline. Consequently, the room for manoeuvre to save the climate is extremely narrow. The urgency of the situation must be regarded as maximum.

Greenhouse gases live for a more or less long time in the atmosphere (approximately 150 years for CO2). It flows from this that the stabilization of the temperature implies a reduction in emissions, all the more rapid and severe in that the objective of stabilization is low.

The most radical scenario tested by the IPCC in the framework of its fourth assessment report (2007) consists of a stabilization of the atmospheric concentration of CO2 of between 350 and 400 parts per million (ppm), corresponding to 445-490 ppm of CO2 equivalents [3]. This scenario implies: (i) reducing total emissions by 50 to 85 per cent between now and 2050; and (ii) that the quantity of greenhouse gas emitted on a world level starts to decline by 2015 at the latest.

The developed countries are responsible for more than 70 per cent of climate change, because they have been burning fossil fuels for more than two hundred years. The efforts of the developed countries and of the countries dominated by imperialism must therefore be verified in relation to their historic responsibilities. In this case, the former should decrease their emissions by 80 to 95 per cent between now and 2050, starting with a reduction of 25 to 40 per cent between now and 2020. As for the latter, their emissions would have to “deviate substantially compared to the scenario of reference” between now and 2020, according to the IPCC (2050 for Africa). [4]

CO2 is an inevitable product of any kind of combustion and the burning of fossil fuels provides 80 per cent of the supply of energy on a world level. So the above objectives represent a colossal challenge. They signify nothing less than a quasi-total abandonment of the use of fossil fuels, to be achieved in less than a century, which necessitates a profound socio-economic mutation.

Even if the above objectives were achieved, the rise in temperature would slightly exceed 2Â°C: according to the IPCC the figure balances out at between 2 and 2.4Â°C (over approximately a millennium). In other words, it no longer seems possible not to cross the danger threshold. We can draw only one rational conclusion: the most constraining objectives of reduction are necessary, not as a vague indication of a goal to be reached as far as it is possible, but as

an unavoidable “must”.

9. The objectives to be adopted are all the more imperative in that the reports of the IPCC underestimate certain parameters of climatic changes.

To fully measure the scale of the challenge, it is necessary to specify that the conclusions of the IPCC repose on conservative hypotheses, so that prudence should tell us to take the most pessimistic projections as bases for the action to be taken and to regard them as the minimum necessary.

The need for this prudence arises in particular from two elements:

a) The IPCC underestimates non-linear phenomena. One of the principal factors of uncertainty of projections resides in the great complexity of so-called non-linear phenomena such as the possible disintegration of the icecaps of Greenland and the Antarctic. Contrary to the melting of ice, which is a continuous process, the dislocation of the icecaps progresses by leaps and up until now, it has not been possible to construct a model of it. This no doubt helps to explain why the observed rise in the level of the oceans was 3mm per annum from 1990 to 2006, that is to say 60 per cent more than the projections of the models. The total quantity of ice accumulated in Greenland and in the Antarctic is the equivalent of a rise in ocean levels of, respectively, about 6 metres and about 60 metres. However, according to certain specialists, atmospheric CO2 concentration is in the process of crossing - in the other direction - the qualitative threshold corresponding to the formation of the Antarctic icecap, 35 million years ago. A partial brusque collapse is consequently possible in the short or medium term. It could lead to a rise in the level of the oceans of several metres in less than a century. This is one of the most serious threats that climate change is posing in the short and medium term.

b) The IPCC over-estimates the spontaneous decline in the carbon intensity of the economy. To produce one unit of GDP requires a certain quantity of fossil energy, therefore a certain volume of emissions, We can observe empirically that the energy intensity and the carbon intensity of the economy have decreased fairly regularly since the Industrial Revolution [5]. If this tendency continued, it goes without saying that the effort necessary to reduce emissions in a given proportion would be less great than if the intensity were stationary, or increased. The work of the IPCC is based on this hypothesis. However, it is contradicted by the reality observed in recent years: since 2000 we can see an increase in relation to the projections. This is due in particular to massive investments of capital in China and India, which have led to the construction in these countries of many coal-fired power stations, producing cheap electricity – and cheap products for the Western market. According to certain sources, 17 per cent of the rise in world emissions since 2000 is due to the rise in the carbon intensity of the economy, in other words to the use of more polluting technologies.

10. The reduction in emissions at the source is the only structural strategy. The reduction in emissions coming from the burning of fossil fuels is the priority.

Theoretically, mitigation can be envisaged in three ways: protection and development of carbon sinks, capture and geological sequestration of CO2, reduction of emissions at the source. Only the reduction of emissions offers a structural solution.

Since deforestation is the second cause of greenhouse gas emissions, the protection of existing forests is a means of not making climate change worse. But it is not a structural solution: (i) because a mature forest emits as much carbon (by respiring) as it absorbs (by photosynthesis); (ii) because global warming, from a certain point, leads, as we have seen, forests to emit more than they absorb.

Growing trees absorb more carbon than they emit. Under certain social and ecological conditions, planting trees can therefore be a means of fighting against climatic changes. But it is not a structural solution either, because: (i) the extension of forests is limited by the surfaces available; and (ii) the carbon that is stocked is freed when trees are felled (or a certain time afterwards, depending on what the wood is used for).

The “capture and sequestration of carbon” (CSC) consist of isolating CO2 from smoke as it comes out of polluting factories in order to subsequently inject it at great depth in airtight geological reservoirs. The possible sites for seem to have a great deal of capacity. The infatuation with these technologies is explained by the fact that it makes it possible to use the reserves of coal, which are much greater than the reserves of oil and gas. However, it is clear that CSC is not a structural solution either: the reservoirs have necessarily finite capacity and only the CO2 emitted by big enterprises can be captured.

The reduction at the source of emissions of greenhouse gases basically constitutes the only structural answer to the problem of the saturation of the carbon cycle. Strategies of reduction can be implemented for all the gases concerned, but the radical reduction of CO2 emissions originating from the burning of fossil fuels constitutes the strategic axis of the rescue of the climate: (i) because the burning of fossil fuels is the main cause of global warming; (ii) because CO2 is by far the principal greenhouse gas; and (iii) because its lifespan in the atmosphere is relatively long.

In addition to these technical reasons, it should be stressed that, from the social point of view, we cannot put on the same level the reduction of fossil CO2 emissions resulting from automobile or air transport, on the one hand, and the reduction of methane emissions resulting from the cultivation of rice, or non-fossil CO2 emissions resulting from the slash-and-burn agriculture practised by indigenous people living in the forest, on the other hand.

11. The absolute lowering of energy consumption in the developed countries is the condition for the passage to renewable energies and the rescue of the climate.

The radical reduction of fossil CO2 emissions implies resorting at the same time to two levers: (i) the replacement of fossil energies by renewable energies; (ii) the reduction of energy consumption.

The technical potential of solar energy in its various forms (wind farms, solar thermal, solar photovoltaic, hydraulic, marine) is equivalent to between 7 and10 times the global consumption of energy [6]. It could increase very considerably in the next few decades, thanks to progress in scientific research and technique. The total decarbonising of the world economy without recourse to nuclear power is thus not an abstraction. In and of itself, it does not imply a sharp retreat in human development or in emancipation from heavy, repetitive or dangerous work.

However, this enormous technical potential does not validate a scenario in which renewable sources would simply replace fossil sources, everything else remaining the same. In fact, (i) solar energy is diffuse; (ii) it comes in various shapes and forms, more or less usable, in various regions of the world; (iii) most of these forms are intermittent, so that their use requires the development of storage systems, using new vectors and ad hoc infrastructures.

That means that the transition towards renewable energies implies the construction of a new international energy system, decentralized, diversified, economical, and oriented towards the maximization of efficiency, based solely on the exploitation of solar potential. It is a gigantic undertaking, which requires important investments; therefore it requires energy which, at least in the first phases of the transition, can only be of mainly fossil origin – therefore, a source of additional emissions – or...nuclear – therefore a source of unacceptable ecological, social and political dangers (see below).

We have seen, in order not to go too far beyond a rise in temperature of 2Â°C, world emissions should begin to diminish in 2015 at the latest. It flows from this that the supplementary emissions generated by the transition must imperatively be compensated for elsewhere. In other words, concretely, the urgency and the gravity of the climatic situation are such that the passage to renewable energies, in the present state of our knowledge, only offers a way out if it is strictly conditioned by a drastic reduction in energy consumption in the most “energivorous” countries. Such a reduction implies in its turn a reduction – not proportional but nevertheless considerable - of exchanges of matter, i.e. of production and material consumption.

The fight against climate change thus confirms in a decisive way more general environmental considerations on the unsustainability of the increasingly rapid rhythm at which the capitalist economy takes resources from the natural environment, without taking account of the time necessary for their renewal.

12. The reduction of energy consumption in the developed countries must be drastic. It can be synonymous not only with the maintenance of previous conquests but also with social progress.

The reduction of energy consumption concerns essentially the developed capitalist countries, where the potential for reduction of emissions by energy economies is very considerable. The differences between countries bear witness to this: for example, an inhabitant of the USA consumes on average 8 tons of oil equivalent per annum, an inhabitant of Switzerland 4 tons, for a comparable standard of living.

Although they are very high, the current estimates of the potentials for reduction are largely underestimated. In fact they do not take into account the majority of the structural mechanisms which make of capitalist society a machine for wasting energy and resources: tendency to overproduction and overconsumption, useless or harmful productions (the advertising industry, arms manufacturing, etc.), separate production of heat and electricity, poor energy efficiency of apparatuses of all kinds, massive delocalisation of production towards the emergent countries which produce for the market of the developed capitalist countries, hyper-development of transport due to just-in-time production for the world market, accelerated obsolescence of products, aberrations of destruction/reconstruction due to wars, absurd capitalist organisation of territory (expansion of the suburbs, industrial estates, etc.), not to mention the frenzy for material possessions of the rich and the compensation for mass social malaise by compulsive consumption.

To divide energy needs by two in the EU and in Japan and by four in the USA is a technically realisable objective. In view of the concrete mechanisms of energy waste, least we can say is that this objective is compatible with maintaining social conquests: it can be synonymous with considerable social progress. That depends on political choices.

13. It is no longer possible to save the climate without the participation of the South. The right to development of the peoples of the South can only be concretised by recourse to clean technologies.

Even the most drastic efforts on the level of the developed countries would no longer be enough to save the climate. Beyond a period of scarcely a few years, a certain participation by the countries dominated by imperialism, in priority the big emergent countries, has become indispensable. The figures of the IPCC, established on the basis of differentiated historical responsibilities, stipulate that these countries must
“deviate substantially in relation to the scenario of reference” by 2020 (2050 for Africa). A deviation of between 15 and 30 per cent in relation to the “business as usual” scenario of emissions could be achieved by a combination of protection of forests and a rise in energy efficiency. But, independently of social strategies, the concretisation of the fundamental right to social and economic development requires a massive transfer of clean technologies, so that these countries can jump over the economic model based on fossil fuels.

14. It is not enough to fight against climatic changes, it is necessary to adapt to the now inevitable part of the phenomenon. This is a major challenge for the people of the South.

Even an extremely radical and rapid reduction of greenhouse gas emissions would no longer make it possible any more to prevent climate change, whose effects are already being felt. Any strategy for struggle, whatever it is, must thus articulate mitigation of the phenomenon and adaptation to the part of its effects that is from now on inevitable, and do so on a world scale, according to the historical responsibilities of countries and their capacities.

In a general fashion, mitigation and adaptation are linked in such a way that, the more the former is strong and rapid, the more the second will be limited, and conversely. Beyond 2Â°C of rise in temperature compared to the preindustrial period, adaptation will become increasingly problematic and expensive. From a certain level, it will be impossible - except at the cost of human catastrophes with hundreds of millions of victims and ecological disasters on a very large scale.

Adaptation is not limited to the construction or the reinforcement of infrastructures for the protection of populations (dams against floods or a rise of the level of water, storm havens, drainage systems, etc), on the one hand, and to an increase in the means that can be mobilised in the event of a catastrophe, on the other. Climate change affects all spheres of social life and all ecosystems, and is likely to affect them even more in the future. Measures of adaptation must thus be taken in very many fields: management of water resources, town and country planning, agriculture, forestry, public health, environmental policy (safeguard of wetlands and mangroves, in particular), dietary habits, insurance against risks, etc.

Adaptation represents a major challenge for the countries dominated by imperialism, where the effects of climate change are already being felt in the clearest way. The developed countries are investing massively in adaptation at home. Since the developed countries are mainly responsible for climate change, it is up to them to pay the expenses related to the adaptation of the less developed countries. According to the estimate of the UNDP, that implies a North-South financial transfer of 86 billion dollars per annum by 2015.

Over and above the technical aspects, the most important measure of adaptation is actually the suppression of poverty and the drastic reduction of social inequalities. Indeed, the capacity for adaptation is directly linked to resources, social rights and the effectiveness of social protection systems. Adaptation represents a particularly important challenge for the women of the poorest countries, and as a result for society as a whole, since women’s work provides some 80 per cent of food production.

15. The level of population is a parameter of the evolution of the climate, not a cause of climate change. The continuation of the demographic transition is desirable, but no policy of population control makes it possible to take up the climatic challenge.

The evolution of the world population obviously influences the scenarios of stabilization of the climate: for a population of six billion, to divide emissions by two comes down to saying that each human being can emit 0.5 tons of carbon per annum; for a population of nine billion, everything else being equal, emissions should be divided by three, so that the annual carbon quota would be brought down to approximately 0.25 tons per capita per annum. But this aggregate presentation conceals the fact that a country like the USA, for example, with 5 per cent of the world population, consumes 25 per cent of energy resources and is responsible for a quarter of greenhouse gas emissions.

The developed countries emit between eight and twenty times more CO2 per capita per annum than do the countries dominated by imperialism. If we consider the period 1950-1990, we see that: (i) the increase in the population in the so-called “developing” countries contributed definitely less to the increase in CO2 emissions than the rise in

consumption in the developed countries, and even than the increase in the population in these countries; (ii) if the countries of the South had blocked their population at the level of 1950 while adopting the level of CO2 emissions per capita of the North, global warming would be much more serious than it is now; (iii) on the other hand, if the emissions per capita of the countries of the country of North had been equal to the emissions per capita of the countries of the South, global warming would definitely be less serious it is now, even in the absence of any policy of population control.

Thus demography, that of the developing countries in particular, cannot be designated as the main cause, nor even as a major cause of climate change. The increase in the population, firstly in the developed countries initially, then in the countries dominated by imperialism, is itself a product of the mode of production and consumption that was created with the Industrial Revolution. Relative overpopulation is a major feature of the law of population of this system, which permanently needs a “reserve army”. It is clear from the reports of the IPCC that this system threatens to cause a climatic catastrophe. So it should be contested, urgently. This is the only means of taking up the challenge of global warming, on the one hand within the very short timescale that we have, and on the other hand respecting human rights, in particular women's rights.

The demographic transition is largely underway in the developing countries, where it is progressing more quickly than had been envisaged. For a series of environmental reasons, it is desirable that this transition continues. That implies social progress, the development of social security systems, providing information to women and the extension of their right to control their own fertility (including the right to abortion in proper conditions). It is necessarily a long-term policy. Short of resorting to means of unheard-of barbarism, no policy of population control makes it possible to respond to climatic urgency.

III. THE CAPITALIST RESPONSE

16. The action of the capitalist lobbies has made us lose 30 years in the battle for the climate.

The first scientific warnings concerning the risk of global warming go back to 1957. In 1958 the Observatory of Mauna Loa (Hawaii) was founded and since its creation it has confirmed the accelerated accumulation of greenhouse gases in the atmosphere. We had however to wait more than 20 years for the United Nations to convene a first World Conference on the climate (Geneva 1979) and more than 30 years for the Intergovernmental Panel on Climate Change (IPCC) to be established. Two years after its foundation, the IPCC adopted its first assessment report (Geneva, 1990), whose conclusions have only been confirmed by the three subsequent reports.

A first symbolic step in the direction of the international action recommended by the IPCC was taken at the time of the Summit of the Earth (Rio 1992), during which 154 countries signed the United Nations Framework Convention on Climate Change (UNFCCC). The Convention adopted the important principle of “common but differentiated responsibilities” and fixed as an “ultimate objective” “to stabilize greenhouse gas concentrations in the atmosphere at a level which prevents any dangerous human disturbance of the climatic system”. But this level was not specified and the document contented itself with formulating the wish that states would voluntarily decrease their emissions so that they would return in 2000 to their level of 1990. We had to wait till1997 - forty years after the first warnings of researchers – for there to be concluded in Kyoto the first constraining climatic treaty.

The extreme slowness in understanding the danger could be explained initially by uncertainty and by the very much differed character of the effects of climate change. But subsequently, a key role was played by the capitalist lobbies. From the 1980s, in fact,

representatives of the sectors of US capital which are the most linked to fossil fuels set up and liberally financed lobbying structures which literally bought sceptical political scientists, journalists and political representatives in order to prevent the growing consensus among climatologists from spreading to the decision makers and to public opinion.

Sometimes valorising “Science”, sometimes playing on distrust of it, sometimes stressing the sacrifices required by the Kyoto Protocol, sometimes its insignificance, these lobbies did everything they could to systematically reduce the reality of climate change to the status of a dubious and disputed hypothesis, or even an apocalyptic religious fad or an international plot against the American way of life.

By their diversified action, these lobbies gained hegemonic influence on American political representatives at all levels. Considering the dominant role of the USA as imperialist superpower, this hegemony made it possible for them (i) to exert decisive influence at key moments in the international process of climate negotiation (the conference in The Hague, 2000); (ii) to provide “arguments” to many capitalist forces on the international scene.

In the final analysis, the “inconvenient truth” imposed itself, including on the American ruling class. But the action of the lobbies enabled the multinationals to gain 30 years of fossil energies, and made humanity lose 30 years.

17. The only constraining international treaty to date, the Kyoto Protocol is not only totally insufficient: the carbon market that has been established increases social and climatic injustice.

The first attempt by governments to come up with an overall response to climate change, the Kyoto Protocol (1997) enjoins the industrialised countries to reduce their emissions by 5.2 per cent in relation to 1990 in the course of the period 2008-2012. It would be trite to say that this treaty is totally insufficient. The 5.2 per cent of reduction in emissions do not put the developed countries on track for a reduction of between 25 and 40 per cent in 2020 and between 80 and 95 per cent between now and 2050. The non-ratification by the USA implies an effective reduction of scarcely 1.7 per cent. The objectives are weakened even further by the fact that they put on the same footing structural reductions in emissions, on the one hand, and on the other temporary increases in the absorption of carbon by the forests. Moreover, the emissions of air and maritime transport (2 per cent of total emissions) are not taken into account.

The reduction quotas assigned to states are still further softened by three “flexibility mechanisms”: the Clean Development Mechanism (CDP), Joint Implementation (JI) and Emission Trading. The trade in rights enables the enterprises of the developed countries which are subject to objectives of reduction, and which exceed them, to sell rights to emit corresponding tons of carbon. The CDM (and accessorily JI) enable the developed countries to replace a part of the efforts to be undertaken by investments reducing the emissions in the countries of the South (and of the East). These investments generate “emission credits” (or certified rights) which are negotiable. This entire dispositive is presented as the proof that the climate can be saved by capitalist mechanisms, by creating a market for the exchange of emission rights and credits. In reality, a large part of the rights and credits do not correspond to any effort of structural reduction and more than 50 per cent of the credits of the CDM do not correspond to any real reduction in emissions. As for the exchange of rights, the experience of the system implemented by the European Union since 2005 (Emission Trading) shows that, in practice, devices of the type “cap and trade” have as a result that the objectives of reduction (cap) are fixed according to the imperatives of profitability of the groups, and that the biggest polluters are reinforced by making enormous superprofits (which they are not even obliged to invest in clean technologies).

By these mechanisms, the Protocol fits into the world offensive of the ruling classes against working people, into the offensive of imperialism towards the countries it dominates and into the capitalist battle for the appropriation and the commoditisation of natural resources. The imperialist countries can acquire carbon credits at low prices rather than reducing their own emissions, while handicapping the future capacity of the developing countries to reduce theirs; the CDM and JI, linked to the exchange of rights, make it possible for the multinationals to open new markets with their investments in the developing countries or those in transition and to intensify blackmail towards workers; the development of this market in carbon opens an additional field of activity to the International Monetary Fund and the World Bank. The bases are thus established for carbon neo-colonialism; the distribution of emission quotas between

countries on the basis of the volume of greenhouse gases emitted in 1990 ratifies the inequality of North-South development; the privatization and the commoditisation of the right to emit carbon as well as the appropriation of ecosystems capable of absorbing it constitute a capitalist takeover of the terrestrial carbon cycle, therefore a potentially total appropriation of the biosphere, which regulates this cycle; Kyoto does not take into account the efforts that big developing countries are already undertaking. The ruling classes of these countries thus have a convenient pretext for burning fossil fuels or destroying the forests for as long as possible, in the name of development.

At the same time, the Protocol comprises a certain number of measures of regulation: the reduction of emissions is quantified and linked to timetables; sanctions are foreseen in the event of non-respect; flexibility mechanisms can only be used as a “complement” to domestic measures; investments in nuclear energy are not eligible within the framework of the CDM; recourse to credits coming from investments in forest sinks is limited (even banned by certain states)… The constant pressure that the capitalist lobbies exert against these measures expresses the antagonism between the physical limits that need to be respected in order to stabilise the climate, on the one hand, and on the other the logic of accumulation for profit.

18. While sharpening inter-capitalist competition, the reality of climate change and the challenges of providing energy supply are forcing the ruling classes to envisage a global response to climate change.

Faced with the extent and the increasing solidity of the scientific consensus, with the increasingly obvious manifestations of global warming and under the pressure of public opinion, the ruling classes have had to envisage a constraining strategy, more ambitious than the Kyoto Protocol, and more long-term.

The fact that this turn started earlier in Europe and in Japan that in the United States is explained by the specific situation of the three big capitalist blocs. Japan and the EU seek to reduce their strong energy dependence by improving energy efficiency and by diversifying their resources. They hope to draw some competitive advantages on the carbon market that is taking shape, on the “green” technologies market and on the market for nuclear power, in particular. On the other hand, the oil and coal sectors have an extremely important weight in the structure of US capitalism, which moreover has built a geostrategic alliance with the oil monarchies of the Gulf.

The European Union is in the forefront. After the summit of The Hague (2000) it played a driving role in the implementation of the Kyoto Protocol, without the United States, by the negotiation of the Marrakech Agreements. In 2005 the European Emission Trading system was launched, an experience which will probably be used as model for a future world market in rights. The same year, at the G8 summit, Tony Blair put forward for the first time the proposal for a reduction of 50 per cent of total emissions between now and 2050, a proposal which was adopted at the summit of Toyako, in 2008.

In this context, the position of the United States and its allies on the climate dossier became increasingly untenable. While the Bush administration continued to refuse mandatory reductions related to precise timetables and deadlines and to contest differentiated treatment for imperialist countries and those dominated by imperialism, a growing number of sectors of big US capital started to plead for a policy of fixing emission quotas. Four combined reasons are involved in this progressive swing: (i) the fear that the cost of inaction exceeds in the long term the cost of action; (ii) the conviction that since a planned reduction of emissions is inevitable, it is better to anticipate it and to organize it according to global rules; (iii) the fear that the climatic policy of the EU and Japan would give a significant lead to competitors in the field of “green” technologies; (iv) the proof brought by the EU of the advantages of a strategy of “cap and trade” coupled with the CDM system.

This realignment of the US ruling class was concretized through very many initiatives on the level of companies, employers’ federations, municipalities and states. Gradually, the sceptics of climate change started to lose their

influence on elected representatives and on public opinion, so much so that eight private bills in favour of a more or less important fixing of emission quotas were tabled in the House of Representatives. This evolution was expressed, with nuances, in the programmes of the two candidates to succeed Bush.

A parallel evolution took place among the ruling classes of the big emergent countries, in particular China, Brazil, South Africa, Mexico and India (to a lesser extent). Initially, the bourgeoisies of these countries were content to affirm their right to development and to put the entire responsibility for the action that had to be conducted in order to save the climate at the door of the developed countries. This position became untenable because of the acceleration of climate change and its concrete socio-economic impacts, the increased importance of climate/energy problems in the general policy of imperialism and the growing concern of the population and of public opinion, in particular in certain countries… And let us not forget this double reality, which is impossible to circumvent: global warming is affecting and will affect more severely the countries dominated by imperialism, and stabilization on a level non-dangerous for humanity is impossible without a certain participation of these countries in the effort to reduce emissions. Led to accept the principle of collaboration with the world effort, the ruling classes of the big emergent countries are preparing for some tough negotiations with imperialism over the conditions, with the aim of defending their own capitalist interests. Certain governments (China, Mexico) are taking the initiative by unilaterally setting their own objectives for a reduction in emissions, so as to avoid, as far as they can, having too unfavourable conditions dictated to them by the imperialists powers.

In a general fashion, an evolution is favoured in all countries by the perspective of increasing tensions in the field of the supply of hydrocarbons, due to the decline in reserves. Beyond the ups and downs due to the conjuncture and to speculative movements, this tension will have the effect of maintaining oil prices at a high level, and consequently of leading to increases in the prices of other fossil fuels and of biofuels, and consequently of agricultural produce.

Taken together, all of these elements explain how the line of the American administration was outflanked at the time of the Bali conference (December 2007), and that this conference led to a relative unblocking of the negotiations in view of a new international treaty, which is supposed to take over from the Kyoto protocol.

19. The capitalist policies that are being developed for the period 2012-2050 are even more liberal than Kyoto and lead us to envisage a rise in the average surface temperature of between 2.8 and 4Â°C.

The “road map” adopted in Bali referred in a precise way to the quantified conclusions that should be drawn from the 2007 report of the IPCC (see above, point 8). The ink was not yet dry on this document when the G8 decided in favour of a reduction of global emissions by 50 per cent in 2050, without mentioning either the upper end of the range of global reduction put forward by the IPCC (85 per cent), or the reduction objective concerning the developed countries (from 80 to 95 per cent between now and 2050), or the intermediate reduction objectives for these countries (from 25 to 40 per cent between now and 2020), or the decrease in global emissions from 2015.

At the beginning of 2008, the European Commission proposed to the member states and to the Parliament an “energy-climate package” (20 per cent of reduction in emissions, 20 per cent of gains in energy efficiency and 20 per cent of renewable energy - including 10 per cent of biofuels in transport, between now and 2020). This “package” is lower than the recommendations of the IPCC and incompatible with the objective adopted by the Council in March 1996, of a maximum rise of 2Â°C [7]. In autumn 2008, in the context of the `financial crisis' unleashed by the issue of the subprimes and the capitalist recession, several member states (Italy, Poland and the Czech Republic in particular) and industrial sectors (automobile, iron and steel) contested the contents and especially the methods of the “package”. The Council of December 2008 maintained the symbolic formula 20-20-20 but, essentially, it is now nothing but a facade. The employers have very largely obtained satisfaction on two key points: exemption from payment for emission rights for sectors “exposed to international competition” and for the coal-fired power stations of the new member states, and the massive externalisation of efforts towards the developing countries, by means of the

CDM (nearly 70 per cent of reductions in emissions could be delocalized to the South).

A similar orientation is taking shape in the United States. Barack Obama's "energy climate" programme envisages reducing emissions by 80 per cent between now and 2050. The objective appears impressive but it hardly corresponds to the lower figure of the range of reduction proposed by the IPCC for the developed countries (whereas the USA should be in the upper levels of this range, considering its emission levels). By 2020, Obama has promised to bring back US emissions to their level of 1990, which implies a reduction of 20 per cent compared to the present. Once again, the objective seems impressive. Actually, it is clearly lower than the figures of the IPCC, and lower than the goal that the USA should have reached in 2012, if they had ratified the Kyoto Protocol. Obama has again announced a system of "cap-and-trade" with auctioning of all emission rights and use of the product of this sale to finance a reform of the energy system, on the one hand, and programmes to attenuate the costs of this reform for the most disadvantaged social layers, on the other hand. As in Europe, we can predict that US employers will exert maximum pressure on this project and that they will obtain satisfaction, in the name of competitiveness. Consequently, the social bill to be paid for the "energy-climate" policy can only become heavier, and its ecological effectiveness reduced. In the same way, it is probable that, as in Europe, the possibility for American companies to replace reductions in emissions by purchases of CDM carbon credits will increase as the climatic objectives become more ambitious and constraining. The bill proposed by Dingell-Boucher, for example, makes it possible for companies to buy so many carbon credits that they could differ any reduction in emissions until 2029.

The climate-energy policy presented by Barack Obama during the presidential campaign is a decisive element of an orientation that aims to try and safeguard the declining hegemony of US imperialism. The turn compared to the Bush administration is characterised in particular by the following points: (i) the desire for energy independence in relation to Middle East oil and to the unstable regimes of the region; (ii) the development of a mixture of alternative solutions whose main axes are coal, biofuels, nuclear power and energy efficiency; (iii) the acceptance of the need for constraining and quantified objectives of reduction in US emissions as an essential condition for playing a role in the negotiation of an international climatic agreement involving the big emergent countries; (iv) the aim of an alliance with the EU against the emergent countries, on the question of the participation of these countries in the climatic effort, and with the emergent countries against the EU on other questions, such as energy technologies; (v) massive support for US capital in the field of energy technologies qualified as "low carbon".

20. The conditions that need to be fulfilled in order to save the climate amount, for capitalism, to squaring the circle. Incapable of resolving the difficulty, it will try to put it off by a technological forward flight, coupled with a further extension of the commodity sphere.

To start to reduce total emissions by 2015 at the latest, reduce the emissions of the developed countries by between 80 and 95 per cent in a little more than forty years, radically reduce the energy needs of these countries, carry out a massive transfer of clean technologies towards the developing countries and finance, in these countries, the adaptation that is indispensable: these conditions that need to be fulfilled in order to stabilise the climate at the best possible level amount, for a productivist system, to the squaring of the circle.

Incapable of solving the difficulty, capitalism is preparing to try and put it off by a productivist forward flight. On the technological level, its response rests mainly on the following elements:

(i) Exploitation of the important known reserves of coal (approximately 200 years at the current rate of extraction) as an increasingly important source of energy for electrical production (with the development of the techniques of capture and sequestration of carbon), and even for the production of oil substitution fuels in the transport sector;

(ii) Massive development of first generation biofuels (ethanol based on sugars, diesel based on vegetable oils) and of second generation ones (ethanol based on cellulose) in the transport sector, implying an important modification in the

use of land, in particular in tropical and subtropical regions, which are more productive, as well as increased recourse to technologies of “genetic engineering”;

(iii) Development of deep offshore oilfields and exploitation of non-conventional oil resources (heavy oils, tar sands and bituminous shales);

(iv) Exploitation of the reserve of energy saving by a rise in energy efficiency, in priority in the sectors of production of electricity and industry (there is a big potential for reduction in emissions in emergent countries and those in transition), but also in the sectors of construction and transport (in function of the solvable demand). But the capacity of capitalism to exploit this potential is limited by the solvable demand;

(v) Combined development of nuclear, wind and solar (thermal and photovoltaic) power. De facto assimilation of nuclear power to renewable energies, big increase in the number of power stations and development of new nuclear technologies (fourth generation power stations, super-breeders) making it possible to face the limits of known uranium layers (approximately 60 years in the present state and number of power stations);

(vi) Maximum use of carbon sinks (tree plantations, protection of existing forests and wetlands, low carbon agricultural methods…), valorisation of waste as a source of energy.

The implementation of these technological responses necessitates the creation of a world market in carbon with the fixing of a single price for it, an agreement on the equivalence between increase in absorption and reduction in emissions, trade agreements, the establishment of norms, quotas (including exchangeable individual quotas, if necessary), taxes and incentives, as well as mechanisms of measurement and reporting, etc. It also and especially implies a new international treaty even more neo-liberal than the Kyoto Protocol, associating the imperialist countries, the emergent countries and the rest of the world, fixing the contribution of each in the global effort and allowing maximum delocalization of reductions in the emissions of the developed capitalist countries towards the developing countries.

This delocalization constitutes a key component of the capitalist climatic policy. For imperialism, it is a question of attenuating to the maximum the costs of the energy transition while using the countries dominated by imperialism as exporters of biofuels and of cheap carbon credits. These can be generated either by the safeguard of existing forests, or by new plantations of trees, or especially by “clean” investments in renewable energies or energy efficiency. This project thus fits in with the general offensive of imperialism towards the developing countries, as conducted through the IMF, the World Bank and the WTO. But its implementation is complicated by the readjustment of world relationships of forces resulting from the strengthening of the position of the big emergent countries.

While reluctantly conceding that climate change is “the biggest failure of the market” (Nicholas Stern), the capitalist response, based on more market, therefore more goods, tends to reverse the priority completely: instead of being used to reduce energy consumption while satisfying real human needs, the development of renewable energy and the improvements in energy efficiency are used to open new opportunities for capitalist accumulation, hence for an increase in the supply of energy. The reduction in emissions is subordinated to the requirements of profit. In practice, the objective of an increase of the percentage of energy of renewable origin replaces that of a total decrease in greenhouse gas emissions.

21. Apart from the fact that it is completely insufficient for climatic stabilization, the capitalist response is heavy with other ecological consequences which are extremely threatening for humanity.

The nuclear option carries a major threat for the survival of humanity. The question of waste remains unresolved, the

risk of radioactive leaks is impossible to eliminate completely, and the danger of proliferation of nuclear weapons – and therefore of actual use of these weapons - is inseparable from the technology. It is necessary to add that nuclear technology represents a technically irrational choice, inefficient from the point of view of the protection of the climate, incoherent with the necessary energy revolution. The energy efficiency of a nuclear plant (30 per cent) is lower than that of a gas-fired power station; the carbon balance sheet, which is mediocre on the scale of the whole of the industry, can only worsen because of the exploitation of less and less rich deposits of uranium; resources of ore are limited (the known uranium reserves are equal to 60 years of consumption in the present state of the industry); a response to climate change that is based on nuclear power is completely impracticable, considering the number of power stations which would have to be built (one per week approximately for 50 years), the time necessary to build them and the cost; all-nuclear power is impossible, this technology (2.7 per cent of world power consumption, 17 per cent of electricity) could never cover more than a limited fraction of human needs; finally, the axis of the energy alternative can only be based on renewable energies and energy efficiency, but these imply a radical decentralization of the energy system, completely antagonistic with nuclear ultra-centralization

That also goes for the costly project of research on nuclear fusion (ITER). A completely useless project, since humanity already has the good fortune to benefit from a nuclear power station which carries no danger, is free, which will function for about 4.5 billion years and which recycles its waste itself: the Sun.

Although biofuels cover only a negligible fraction of energy needs in the field of transport, they have already amply shown their perverse effects. Inevitably, the logic of production for profit leads in reality to the production of ethanol and biodiesel for solvable demand coming before the satisfaction of the basic right to food, before the rights of the indigenous communities and before the protection of the environment. Here also, technical irrationality rears its head, insofar as the global energy balance sheet of the production of biofuels is negative in the majority of cases. The passage to second generation biofuels, in itself, does not eliminate the dangers. Even supposing that sufficiently strict rules prohibited giving over agricultural land to the production of cellulose-based ethanol, the demand from the transport industries is such that it would be necessary to devote enormous surfaces of other land - or marine zones - to productivist monoculture, with all the consequences which result from this in terms of pesticide pollution and destruction of biodiversity.

The criticism formulated in relation to biofuels goes, mutatis-mutandis, for non-conventional oil resources: the exploitation of heavy oils, tar sands and bituminous shales requires an enormous expense in energy as well as a great waste of other resources (water in particular) and its environmental impact is particularly serious. Moreover, in many cases, the deposits are located in areas inhabited by indigenous communities whose rights are thus threatened.

Given the urgency of the situation and for social reasons, the capture and sequestration of carbon could be acceptable as a transitional measure, in the framework of a strategy of a rapid abandonment of fossil fuels: it could, in particular, make it possible to plan the redeployment of miners. But it is not envisaged this way at the moment. It is, on the contrary, a new capitalist attempt to push back physical limits without caring about the consequences. Governments talk about “clean coal”, but it is a myth if we take into account the great difficulty of mining it, dust pollution, the consequences for health and the ecological impact of coal mines.

The fight against climate change is likely to give a major impulse to “genetic engineering”, involving a qualitative increase in the risks inherent to this technology. Thus the production of genetically modified trees (GMOs with rapid growth to increase the capacity of carbon sinks, GMOs with low lignin content or high cellulose content, etc.) increases the risks of allergies. The most dangerous threat could however come from “genetic engineering” in the production of second generation biofuels, where the development of bacteria and genetically modified microalgae multiplies the threats in terms of dissemination and hybridization.

22. The capitalist response inevitably implies redoubled attacks against workers, poor peasants, women, indigenous communities and the poor in general, as well as an accentuation of social inequalities.

Whatever the “energy mix” chosen, it will imply an increase in the price of energy which will hit working people in two ways: on the one hand, on the level of their own energy needs, and on the other hand on the level of consumer goods, since the employers will pass the increase in energy prices onto the prices of goods.

Energy being a component of constant capital, its increase will weigh on the rate of profit, which will lead employers to multiply attacks against wages, mechanisms of indexation, social protection and, in a general fashion, will encourage them even more to try to increase the rate of exploitation by all possible means.

As of now, we can see that the world market in carbon offers the capitalists new means of exacerbating competition between workers. Workers are in particular subjected to a new form of blackmail over jobs and investment, aiming either to make them give in to the neo-liberal diktats of the multinationals, or to manipulate them in order to try and impose protectionist measures or subsidies to business. On the other hand, the various incentives and other market instruments aiming at opening the market in renewable energy and at improving energy efficiency favour not only employers but also the well-off middle classes, the wage-earning petty bourgeoisie and the higher strata of the proletariat, thus aggravating inequality in the distribution of income, access to mobility, etc.

The still hypothetical introduction of individual and exchangeable carbon quotas would even further intensify this tendency to inequality, insofar as the poorest would be led to sell their quotas in order to acquire consumer goods.

In the countries dominated by imperialism, capitalist climatic policy gives fresh impulse to the separation of the producers from their traditional means of production – above all the land - with as a result either rural exodus or their transformation into rural proletarians (in energy plantations, hydrocarbon exploitations…) or else displacement towards less favourable zones or reconversion in the “tourist industry”. All these situations involve a lessening of autonomy and a worsening of the conditions of existence of the mass of the population - in particular of women, considering their key role in food production - as well as increased attacks against indigenous communities and their rights.

23. Incapable of creating the social conditions for a total reduction in emissions, the capitalist governments of the developed countries use the fight against climate change as a pretext for getting austerity accepted.

For the bourgeoisie, the thesis of climate change “caused by Man” comes just at the right moment to try to justify austerity and sacrifices in the name of science, while the popularization of the threats of global warming creates a favourable terrain for the promotion of the goods of the “green” sector of the economy. But, by imputing to “Man” something that is a product of the capitalist Industrial Revolution, bourgeois propaganda contributes to creating a morbid and irrational environment, combining misanthropy, fatalism, individualistic cynicism and reactionary nostalgia.

The most dangerous result of this deliberately orchestrated confusion is the renewal of Malthusian or neo-Malthusian theses imputing the “ecological crisis” mainly or exclusively to the population… and thus to the poor, since they have more children than the rich… and thus to the developing countries, since the fertility rate of women is generally higher there than in the developed countries. Formerly draped in religious considerations, these theses are today packaged in a pseudo-science which diverts concepts of scientific ecology (such as “carrying capacity”) in order to naturalize social relations. Moreover, some of these campaigns can count on the collaboration of scientists whose work in the field of ecology is actually only the expression of a priori bourgeois prejudices, as we see clearly in the case of the thesis known as the “tragedy of the commons”. Ultra-reactionary political forces thus try to use fear of

climate change to give a wider echo to their campaigns of hatred against immigrants, asylum seekers, against the right of women to have control over their bodies, or against aid to developing countries. Religious sects and reactionary religious currents integrate the climatic threat into an eschatological discourse that preaches submission to the established order.

It is to be feared that the foreseeable failure of its climatic policies eventually leads capitalism to opt for strong regimes conducting a dirigiste policy, so as to mobilise all available means, as in wartime. Such a policy would inevitably imply fresh attacks against social and democratic rights.

24. The capitalist answer to the climatic challenge multiplies the risks of war over resources.

In the countries most weakened by capitalist globalization and structural adjustment, the impacts of climate changes increase the probability of crises leading to chaotic situations, with armed conflicts between warlords. By aggravating shortages in a certain number of regions that are already subjected to intense water stress, climate change sharpens the importance of control of water resources and creates the conditions for wars over water between states. But the greatest danger could come from the exacerbation of competition for the appropriation not only of declining fossil energy resources, but also of new energy resources. The climate-energy challenge thus forms part of the much greater framework of the gradual transition from a bipolar world (imperialism-countries dominated by imperialism) under US hegemony towards a tripolar world (imperialism-emergent countries-least advanced countries) in which the battle for imperialist leadership rages.

IV. BUILD A MOVEMENT TO FIGHT AGAINST CLIMATE CHANGE

25. The fight against climate change will not be won by a combination of lobbying, spectacular media actions and campaigns in favour of changes in the behaviour of individual consumers, but by mass mobilisations.

The fight for the climate is political and requires in priority the building of social relationships of forces. This combat can be won, as is shown by the example of Australia, where mass mobilization (150,000 demonstrators in November 2007) led to a first partial success: the defeat of the conservative government which supported the policy of George W Bush and the ratification of the Kyoto Protocol by the new government. In the face of climatic urgency and the criminal policy of capitalist governments, we work in every country for the building of a powerful unitary mass movement, coordinated on a world scale, in the tradition of the mobilizations against war and the arms race (“single issue campaign”).

The goal of this movement is not to work out sophisticated platforms but to force governments to act at least in accordance with the most careful conclusions arising from the evaluation reports of the IPCC, to respect the principle of “common but differentiated responsibilities”, social and democratic rights and the right of everyone to a human existence worthy of the name. We defend this goal against the currents which lower the objectives of reduction in emissions in the name of realism, but also against those who denounce them as insufficient (we try to bring the latter round by asking “as a minimum” for the respect of the “most careful” conclusions of the IPCC). Our concern is to take advantage of the legitimacy of the IPCC in order to achieve the broadest possible unity of action, while exposing the duplicity of the governments - which adopt the “summaries for policy makers” in international conferences on the climate but do not take account of them in practice.

Mass mobilization in defence of the climate is a difficult task. The difficulty arises from the characteristics of climate change, in particular its present relatively progressive character, as well as the double spatial and temporal dephasing between causes and effects. A large-scale enterprise of diffusing scientific information on global warming and its impacts is therefore necessary. It must be aimed in particular at the groups of activists of the different social

movements and political formations of the left. These groups play in fact a decisive role: only they are able to establish the concrete link between the global climatic threat and particular social problems, in particular on the local level, and to deduce from that strategies making it possible to combine the social struggle and the fight for the rescue of the climate. That is to say that the building of the movement must be conceived of as a grid of social resistances existing on different terrains, with coordinated convergent actions and occasional pluralist demonstrations, on a common minimal platform. The work of establishing a grid will be facilitated by the setting-up of committees, fronts or coalitions for the climate, such as they can develop within the framework of the Global Climate Campaign.

26. Within the movement for the climate, it is necessary to build a left current, which links the fight for the climate to social justice.

The mutation that is necessary is on such a scale that it cannot be obtained without the mobilization and the active participation of the exploited and oppressed who constitute the vast majority of the population. Capitalist climatic policies make this participation impossible because they are unacceptable on the social level and harmful on the environmental level. These policies in fact imply the reinforcement of imperialist domination and capitalist competition and violence; and thus of exploitation, oppression, social inequality, competition between workers and the violation of rights and the private appropriation of resources.

In particular, capitalist strategy does not provide any answer to the major challenge of the jobs, wages and social gains of the millions of workers employed in the sectors that emit large quantities of greenhouse gases, such as the oil, coal, cement, glass, iron and steel industries, as well as the transport sector. Such a policy can only encounter legitimate social resistance. Instead of encouraging people to become conscious of the climatic danger, it is likely to throw certain sections of the population into the arms of the climate change sceptics. This risk is particularly important in those sectors of the working population who are sharply affected by the increase in the price of energy and where the social weight of small employers (farming, fishing, lorry drivers) could encourage violent and desperate corporatist reactions, exerting strong pressure on governments.

The big environmental NGOs try to radicalize the climatic objectives of governments without seeing that this radicalisation involves at the same time an accentuation of the attacks against the exploited and oppressed. This is a dead end. We defend the need for a combined fight for the climate and for social justice. Within the broad movement, we work for the constitution of a left pole which links these two dimensions and which consequently argues against proposed solutions that are based on market mechanisms (carbon prices, bonuses and tax incentives in favour of renewable energies, purchase of rights and credits, etc.), accumulation, neo-colonial domination and technological forward flight. This pole seeks to regroup elements of the trade-union, ecologist, global justice, feminist, third-worldist lefts, the “decreasing” left, members of organizations of the radical left, critical scientists, etc. It contributes to the building of the broad movement, practically and on the political level, by taking every initiative that makes it possible to take forward the idea of an alternative climatic policy.

27. The defence of the climate must take on an important place in the platforms and the struggles of the social movements.

In the perspective of a broad mobilization rooted in existing struggles, we act so that the defence of the climate becomes a major concern of the social movements and that it finds a concrete expression in their platforms of demands, on every terrain. For example:

(i) the fight for peace: the production and the use of weapons constitute an unacceptable madness regarding climate change… which is itself an additional possible cause of conflicts;

(ii) the fight against poverty, for the right to development and to social protection: the capacity of adaptation to climate change is directly proportional to the level of resources and development. Social inequality increases vulnerability and handicaps energy change;

(iii) the struggle of women: the requirements of adaptation to climate change, in particular, reinforce the importance and the urgency of the specific demands of women for equal rights, for social responsibility for children, against the double work day, for the right to abortion and contraception;

(iv) the fight for jobs: to radically reduce energy consumption, for town and country planning, to protect biodiversity, to develop public transport and to substitute renewable sources for fossil energies offers a gigantic reserve of employment;

(v) the fight for the access to land, water and natural resources, and for organic peasant agriculture: rural communities which practise labour-intensive organic agriculture are the most capable of increasing the capacity of carbon sinks and reducing the greenhouse gas emissions of the agricultural sector;

(vi) the fight against the globalization and the liberalization of agricultural markets: as well as being the cause of the ruin of rural populations, famine, rural migration and/or plundering of ecosystems, the liberalization of agricultural markets is also an important source of emissions, direct (transport of products for export) and indirect.

(vii) the fight for the right of asylum: faced with the increase in the number of environmental refugees, in particular climatic, freedom of circulation is essential and constitutes the only answer worthy of humanity;

(viii) the struggles of indigenous communities for their rights: by their knowledge and their mode of exploitation of ecosystems, in particular forest ones, these communities are the most capable of preserving and developing carbon sinks;

(ix) the fight against flexibility and precariousness of work, against the lengthening of working time: staggered and flexible working hours and capitalist campaigns in favour of increased mobility of labour force workers to use cars. “Just in time” production is a major source of greenhouse gas emissions in the transport sector. The reduction of working time is a pre-condition for the emergence on a mass scale of alternative models of consumption and leisure activities;

(x) the fight against privatizations, for a public sector of quality in the fields of transport, energy and water. Only a public sector of free quality transport can reconcile the right of everyone to mobility and the reduction of emissions. The liberalization of the production of electricity complicates the introduction into the network of intermittent renewable sources. Only a state enterprise not working for profit can take up the challenge that consists of completely eliminating within two or three decades emissions in the housing sector. For free individual quotas of water and energy, fixed according to vital social needs, non-exchangeable, coupled with rapidly increasing tariffs if the quotas are exceeded, and with an absolute ceiling on consumption.

28. The climatic challenge is essential for the trade union left. It implies going beyond the struggle for the redistribution of wealth.

The leaderships of the big international trade-union confederations have an orientation of accompanying capitalist climatic policies in exchange for the possibility for them to negotiate certain of their modalities. This orientation is concretized in the proposal of a “Green Deal” based on the illusion that green technologies would make it possible to

absorb unemployment and serve as the motor for a new long wave of prosperity and capitalist expansion. The social conditions and the environmental repercussions of a durable revival of capitalism are not taken into account. On the contrary, the trade-union bureaucracies assimilate the requirements of capitalist productivism and profitability, as well as the instruments of the dominant climatic policy: government aid to “green” companies, “ecological taxation”, Clean Development Mechanism, Emission Trading, even support for nuclear energy and biofuels. This co-managing policy is likely to make the trade union movement, in particular the trade union movement of the developed countries, co-responsible for climatic catastrophes and their effects on the poor in the poor countries. It can only sow division among workers on the international level, and between sectors within the different countries. Considering the importance of the climatic and energy challenge, it is decisive for the trade-union left to seize this challenge and to make it a central element of its fight for workers’ organizations to change course. This struggle is all the more difficult since, from the strategic point of view, it does not at first start from the development of new types of production, new products and new markets in the field of green technologies – therefore, from an economic re-launch - but from the priority fight for a reduction in the consumption of energy, the suppression of useless or harmful production, the reconversion of the workers employed in these sectors, etc. This represents a considerable obstacle, which illustrates the drama of workers being chained to the capitalist mode of production, on which they depend for their daily existence. This obstacle can only be surmounted by challenging capitalist ownership by means of demands such as: (i) according public status to activities that are decisive from the double point of view of the rescue of the climate and the satisfaction of fundamental human needs, i.e. in priority the expropriation without compensation of the capitalist companies which control the extraction, the conversion and the distribution of energy; (ii) according public status to research and the results of research, coupled with a refinancing in the framework of international programmes aiming at the development, as a priority, of technological alternatives, above all in the field of renewable energies and energy efficiency; (iii) a plan of transition on all levels (global, regional, national, local) towards a society without fossil fuels, where production and consumption are relocated as far as possible and where the workers of fossil sectors are provided with reconversion, with maintenance of their social gains, under workers’ control. Faced with this challenge, the trade union left must free itself from a narrow vision centred on the redistribution of wealth to contest the conception of wealth itself and the way in which wealth is produced, in other words the foundations of the mode of production. Only then will it be possible to liberate the resources of imagination and creativity necessary for the mobilization of workers around concrete objectives. This approach gives increasing importance to demands such as the reduction of working time (with reduction of the intensity of work rhythms, with no loss of wages and with proportional hiring of new workers) and workers’ control (over work rhythms, production, energy, etc).

29. The massive transfer of clean technologies towards the countries dominated by imperialism and the financing of adaptation to the effects of climate change in these countries necessitates the cancellation of the debt and the establishment of a special fund, provided with the necessary means from substantial taxing of capitalist profits. These means must be placed under democratic control by the populations of these countries and their social organisations.

Since it implies the participation of the countries dominated by imperialism, the rescue of the climate necessitates a sharing of resources and knowledge, on a world scale. It must be linked to:

(i) the cancellation of the debt of the Third World and restitution to the peoples of the assets that dictators of the countries of the South have placed in Western banks;

(ii) the lifting of banking secrecy, suppression of tax havens, taxation on property and inheritance, a tax on speculative movements of capital, etc;

(iii) a substantial increase in the budgets of the imperialist countries that are devoted to public aid to development;

(iv) the creation, in addition to this aid, of a single world fund for the adaptation of the developing countries to the inevitable effects of climate change and for the transfer of clean technologies to the public sectors of these countries,

without financial conditions;

(v) finding the resources for this fund by taxing the profits and the superprofits of the economic sectors most responsible for climate change (oil, coal, cars, electrical production, in particular);

(vi) abolition of the system of patents in health and in technologies that make it possible to produce consumer goods and essential services (transport, light industry, water and energy, communications) so that all the populations of the world can have access to basic goods;

(vii) a system of financial compensation for countries of the South which give up exploiting their fossil fuel resources, this compensation to be administered by the populations concerned.

However, the redistribution of wealth between North and South is not, either, enough to take up the climatic challenge. The capitalist model of development, which subordinates the economies of the countries of the South to the demands of accumulation, in the framework of the globalization of production and exchanges, is rigorously incompatible with the necessary deviation in emissions by between 15 and 30 per cent between now and 2020 (2050 for Africa). This objective can only be reached by an endogenous development, responding to the needs of the great mass of the population, therefore linked to an agrarian reform in favour of peasant agriculture and to a reorientation of production towards the domestic market. Reconciling the right to human development and the rescue of the climate therefore requires taking measures against the local ruling classes, who use the right to development as a pretext to refuse any obstacle to the burning of fossil fuels, to plunder natural resources, appropriate the forests for themselves, act as intermediaries for the sale of carbon credits, produce biofuels and export agricultural, food and industrial products at low prices to the markets of the developed countries. In order to prevent them acting to reinforce this socially and ecologically harmful model of development, the financial resources and technological means that are placed at the disposal of the countries of the South must be put under the democratic control of the populations of these countries and of their social movements. Thus the fight against climate change validates the theory of permanent revolution in the colonial and semi-colonial countries.

30. The response to climate change must integrate all the major ecological challenges into a perspective of really sustainable development.

The history of capitalism is marked by environmental crises that were “solved” without an overall ecological vision, by the implementation of partial technological answers subordinated to the requirements of profitability, whose harmful environmental effects appeared only later. The total destruction of European forests was avoided by coal mining, which was a major cause of climate change; the exhaustion of soils was avoided by the massive use of fertilisers, a source of greenhouse gases, a cause of pollution and of the eutrophication of water; the development of the hole in the ozone layer has been slowed down by the recourse to cooling gases which contribute to a significant degree to the increase in the greenhouse effect. Etc… To solve the climatic/energy crisis while following the same sorcerer’s apprentice method is likely to have even more dangerous consequences, in particular in two fields: increased recourse to nuclear power and to genetically modified organisms. Opposing these technologies is one of the most important tasks for the left. We must denounce them as symbolizing the madness of unlimited capitalist growth, and as the absurd attempt of the system to jump over its own head in order to maintain in spite of everything the accumulation which generates profit.

In a more general fashion, the climatic challenge brings together all environmental questions. The response must thus integrate all the great ecological challenges, in particular: (i) the defence of the tropical forest, with respect of the rights of the indigenous communities which live on its resources (carbon sinks); (ii) the defence of biodiversity; (iii) the rational and public management of water resources; (iv) the fight against the poisoning of the biosphere by the some 100,000 molecules resulting from petrochemicals, which do not exist in nature and thus, in some cases, cannot be broken up by its reducing agents; (v) the elimination of gases that destroy stratospheric ozone and their replacement

by compounds not having other dangerous ecological impacts; (vi) the fight against atmospheric pollution and its consequences for human health (asthma, cardiovascular diseases,) and for ecosystems (acidification, tropospheric ozone).

31. We have to denounce the gap between the capitalist plans and the recommendations of the scientists. Starting from social movements, we have to build links with critical scientists. We must pose the questions of the ownership of knowledge and of the social role of research.

The pretention of governments which try to make people believe that their capitalist and liberal climatic policy is founded on “science” must be fought vigorously. To do this, we have to denounce the gulf separating the objectives of governments from the most prudent conclusions of the IPCC. This denunciation implies assimilating the essence of the scientific expertise while criticising the dominant ideological and social presuppositions which are conveyed by the great majority of specialists. The left must thus establish relations with scientists, invite them to communicate their expertise to the social movements, challenge them from there on their general political positioning, push them to express themselves on the contradiction between the global rational solutions that the fight against global warming requires, on the one hand, and on the other the ultra-compartmentalisation of science in the service of partial capitalist rationality. Considering the place occupied by scientific expertise in the development of climatic policy, it is of considerable importance to establish relations between the social movements and critical and humanistic researchers, laboratories and associations.

Within this framework, we develop a more general point of view on the role of science and research in the fight for the rescue of the climate with social justice. We do not refuse technological solutions, or the concepts of development and progress. We argue on the contrary that scientific research and technique should be freed from the influence of capital so that their potential can be massively and rapidly placed at the service of the sustainable development of renewable energy sources, of progress in energy efficiency and of rational management of resources. For this reason, we demand massive public refinancing of research, the ending of contracts which link universities to industry and financial capital, the democratic definition of research priorities according to the transition, with social justice, towards an ecologically sustainable society.

32. We must combat culpabilisation, but advocate a sober approach to energy, in the measure of what is socially possible.

The left combats the guilt-loaded discourses of governments, which attribute the responsibility for global warming and the rescue of the climate to the individual behaviour of each and everyone, all classes together. These discourses seek to conceal social inequality and the responsibility of capitalism and divert attention from the profound structural changes in the mode of production that are necessary. But it does not flow from this that the left could avoid posing the question of individual behaviour, or refuse any action in the sphere of consumption, on the contrary.

It is an illusion to believe that the climate could be saved by a movement of “cultural contagion” against overconsumption: in the absence of structural changes, individual ruptures can lead only to a monkish lifestyle, not very “contagious”. But it is also irrational to gamble on hypothetical revolutionary scientific breakthroughs in order not to question overconsumption and the individual practices which result from this. Climatic urgency forces us to take here and now the necessary decisions on the basis of known technological solutions and existing scientific diagnosis. An attitude based on faith in progress, the belief in a technological deus ex machina, serves only used to justify inaction, whereas the defenders of the concept of cultural contagion have at least the merit of acting to save the climate.

Instead of counterposing actions in the sphere of consumption to structural changes in the sphere of production, the left must conceive the former as a means of underlining the need for the latter. On the one hand, the consciousness

of the gravity of global warming and its impacts is incompatible with the continuation of certain ways of behaving which express an obvious and cynical contempt for the environment: as far as is socially possible, an elementary ethical requirement requires that those whose basic needs are satisfied should demonstrate a sober attitude towards energy and act in a consequent way to avoid contributing to climate change. On the other hand, alternative social practices, democratic campaigns and mobilizations, even minority ones, which contest productivism and consumerism, can also play a positive and important role in the formation of the collective consciousness that structural changes are necessary, in the sphere of production.

We thus support democratic campaigns and actions against the advertising invasion, the capitalist appropriation of public space, the waste of natural resources, the omnipresence of the automobile, the explosion of air transport, for the boycott of products resulting from the destruction of the equatorial forest, etc.

33. We must develop a practice of popular emergency aid when there is a catastrophe.

Climate change considerably increases the risks of droughts, floods, landslides and other catastrophes, striking more particularly the workers and the poor. In the developing countries, these catastrophes could in certain cases become extremely widespread. Faced with this threat, we must prepare to intervene with the social movements on two different terrains: the terrain of demands, which consists of placing states before their responsibilities; and the terrain of direct, popular and solidarity-based aid, taken charge of by the local populations and their organizations, with the assistance of networks of activists on a world level. The experience gained in the case of natural disasters shows in fact that this popular aid provides help more quickly, at lower cost, and is more directly oriented towards the poor and towards real needs. Moreover, they favour the development of a different kind of social relations and of contestation of the established order.

V. OPEN THE WAY TO THE ECOSOCIALIST ALTERNATIVE

34. The inability of governments to take the measures that are necessary to save the climate is rooted structurally in the fundamental laws of capitalism.

Competition pushes each owner of capital to replace workers by machines which, by increasing labour productivity, make it possible to obtain a super profit over and above the average profit, and thus to gain a competitive advantage. This race for technological rent, which accelerates with further development, accentuates the tendency of the system to overproduction, and consequently to overconsumption. Overproduction and overconsumption inevitably imply an increase in the volume of material production. This in its turn requires increased appropriation of resources (in particular energy), on the one hand, and more extensive dumping of waste, on the other hand. The tendency to dematerialization, to efficiency in the use of resources and to the transformation of waste into raw materials can slow down this overall movement, but not prevent it. A stationary capitalism is a contradiction in terms: since capitalist economy has as its goal the production of value, i.e. in a general and abstract form of exchange values, it flows from this that capitalism, according to Marx’s formula, knows no limit other than capital itself.

It is within this framework that we must analyze climate change. Throughout its some 200 years of history, the system has taken from the natural environment the abundant fossil energy resources which have guaranteed it an element of constant capital at a low price. An invisible waste product of this productive consumption, CO2 has accumulated in the atmosphere to such an extent that the global quantity currently emitted is equal to twice the capacity of absorption by the ecosystems. Over a long period, we logically observe a strong correlation between tonnages of emitted CO2 and long waves of capitalist expansion or stagnation. Thus the period of post-war expansion driven forward by the massive production of cars and other mass consumer goods coincides with a rise in emissions so great that the atmospheric concentration of greenhouse gases was taken to a level durably close to that which would lead to a large-scale climatic catastrophe. After a slight drop and a stabilisation in the 1970s and 80s,

total emissions started to rise again, because of capitalist globalization of production and transport, of the transformation of China into the “workshop of the world” and of the debt-fuelled re-launch of the US economy. Global warming and the exhaustion, inevitable in the long term, of fossil resources then appear as physical obstacles, limits that the machine comes up against without being able to admit their existence and, especially, to draw all the indispensable practical conclusions from them. Climate change demonstrates that the capitalist system, based on the potentially unlimited accumulation of value leading to accelerated circulation of capital, reveals itself as incapable of effectively integrating the concepts of physical limits and ecological rhythms.

35. Climate change takes the crisis of contemporary capitalism to an unprecedented level of globality and contributes to making it a major systemic crisis, a crisis of civilisation.

Global warming expresses in physical terms the thesis formulated in political terms by revolutionary Marxists, more than 60 year ago: the objective conditions for a non-capitalist society are not only ripe, they have begun to rot. The climatic crisis is the most glaring and most global manifestation of this rotting. Because it has not been eliminated and replaced by a non-productivist system, “late capitalism” has led humanity to take decisive and irreversible steps towards an extremely serious degradation of the environment, which threatens to worsen the conditions of existence of hundreds of millions of human beings. If the radical measures capable of stopping this process are not taken in the very short term, humanity will have to face a series of large-scale catastrophes, with incalculable social and political consequences.

On the economic level, the brutal austerity policy pursued in the framework of the long recessive wave that started at the beginning of the 1970s led to a situation without precedent, which has been prolonged for 25 years: a revival of the rate of profit without a revival of the rate of capital accumulation, with the maintenance of mass unemployment, the growth of poverty, an explosion of inequalities. This prolonged incapacity of the system to open a new long wave of expansion represents its historical exhaustion, which comes down in the last resort to the increasing difficulty of compensating for the tendency of the average rate of profit to fall by an increase in the rate of exploitation, and to the contradictions which result from that for the realization of surplus-value.

On the social level, capitalism was only able to get out of the Great Depression by the crushing of the workers’ movement, fascism, war, and at the double price of permanent inflation and an irreversible imbalance of the climatic system. The opening of a new historical period of prosperity of capitalist society would necessitate going through an “exogenous shock” on a scale at least comparable with this drastic remedy of the 1930s. The recession opened by the question of the subprimes indicates that, in spite of the defeats of the workers’ movement, the conditions for a new long wave of expansion are not present.

On the environmental level, even on the assumption that massive government aid to business (in other words, a new transfer of wealth from labour towards capital) would accelerate the diffusion of clean technologies, a durable capitalist revival – on the model of the post-war boom - would inevitably imply several years of increased consumption of fossil energies, therefore an acceleration of greenhouse gas emissions more than sufficient to precipitate a climatic catastrophe. In other words, the fight against climate change poses a fundamental choice of civilization: the continuation of capitalist productivism at the expense of the environment and the social majority, or a non-capitalist alternative?

36. It is only possible to resolve, conjointly and structurally, the climatic crisis and the social crisis by breaking from the logic of the accumulation of value, by substituting the production of useful goods (use values) for the production of commodities.

The stabilization of the climate on a level coherent with the principle of precaution makes it necessary for global emissions to begin to decrease in 2015 at the latest and to be reduced by between 50 and 85 percent between now

and 2050, and by more than that between now and the end of the century. This objective has to be attained without nuclear power, without the massive production of biofuels for the world market and by having recourse only marginally to the capture and sequestration of carbon. In the present state of our knowledge, this is only possible, as we have seen, by significantly reducing the total consumption of energy, which is the condition for the introduction of renewable energies. To do this, an increase in energy efficiency and a decrease in the fossil carbon intensity of the economy are not sufficient. Independently of the socially and politically decisive question of the sharing out of efforts (North-South, North-North, South-South) a certain decrease in material production is therefore necessary. However, capitalism is fundamentally productivist. It is only able to meet social needs, in its own fashion (perverted by the commodity) when the exploited and oppressed force it by their struggles to drop crumbs of growth from the table of accumulation. Within the framework of this system, a decrease in material production and consumption can be concretized only temporarily, by means of crises of overproduction which involve the aggravation of the social crisis, poverty, unemployment, the growth of inequalities. That means that the climate challenge objectively makes the anti-capitalist alternative a matter of imperious urgency, and disqualifies the strategies of participation in bourgeois institutions with the aim of achieving a hypothetical gradual transformation, In reality, it is only possible to break the spiral of accumulation, incompatible with the rescue of the climate, by substituting the production of use values for the satisfaction of human needs (which are necessarily limited) for the production of commodities for the accumulation of value (which is potentially unlimited). Structural changes in the sphere of production (and of transport as a productive activity) are therefore decisive. It is these changes which will create the material base for changes in the sphere of consumption. These changes require not only a massive transfer of wealth from capital towards labour, but also challenging capitalist property rights. These two dimensions come together in the demand for nationalisation without compensation of the whole of the credit sector (banks and insurance companies) which now takes on major strategic importance. The fight against climate change thus opens the possibility of revitalizing the method of the transitional programme: on the one hand by refounding humanity's need for of a non-capitalist solution, on the other hand by giving a solid objective justification for a whole coherent series of concrete demands which, taken overall, are incompatible with the normal functioning of the capitalist system.

The precise demands can vary greatly from country to country, and from one region to another, depending in particular on the level of development, the social formation, the characteristics of the ecosystems, the specificities of the energy systems, etc. In a general fashion, their transitional character will be determined by the fact that they will appear as being able to contribute effectively to solving both the ecological/climatic crisis and the social crisis. The creation of jobs in socially useful activities, the right to energy, housing and mobility (free public transport), the fight against pollution and its impacts on health, the responsible use of the resources of the seas, forests and lakes,… these are so many key domains where proposals can be put forward which articulate reduction in emissions, rational management of flows of energy and matter, reduction of social inequalities, an increase in democratic rights and a weakening of the grip of the commodity over society.

In this articulation, the question of ecological/climatic efficiency (reduction in emissions) is not a passing detail. It must on the contrary receive special attention. Because of the objective importance of the fight against global warming as precisely a global question, with major social implications, but also because anti-capitalist proposals are more climatically efficient than capitalist solutions, something which can only deepen the crisis of legitimacy of the system in the face of a challenge that it is itself forced to recognize as decisive.

37. Because of the very fact of its nature as a gigantic global problem, which needs to be resolved in order to avoid even more serious catastrophes, climate change presents an exceptional opportunity to introduce directly the necessity of an anti-capitalist alternative, in terms that are eminently practical, rational and immediate.

In the face of climate change, the colossal scale of the measures that need to be taken within a very short time (two generations) can have contradictory effects on the frame of mind of the masses: reactions of blame and incredulity, cynical responses, exacerbation of the latent anguish generated by the insecurity of existence in late capitalism. These sentiments can be taken up and manipulated by bourgeois governments, but also by mystical currents offering

irrational and eschatological pseudo-solutions. They can also be exploited by reactionary currents which naturalize the relationship between humanity and its environment and, from there, invariably tend to lead to potentially barbaric neo-Malthusian conclusions. These risks are all the more real in that the level of the class struggle is low, with a strong prevalence of conflicts of a defensive character (in which environmental considerations generally tend to be marginalized).

It would however be erroneous to take this difficult situation as a reason to be satisfied with very immediate demands concerning climate change (or even to simply ignore the question, putting it off until better times, or to a brighter future). On the contrary, the situation makes it necessary to boldly combine agitation on immediate demands with broad, radical, global, simple and direct anti-capitalist propaganda. This is essential in order to rise to the objective level of the challenge, in its double ecological and social dimension, and thus to present ourselves as offering a solution. And it is possible because, due to its very nature as a gigantic global problem, which needs to be urgently resolved in order to avoid even more serious catastrophes, climate change offers an exceptional opportunity to introduce the need for an anti-capitalist alternative as a way forward, in eminently practical, rational and immediate terms. Because of its urgency, it is in fact possible to directly appeal to the ethical dimension, the conscience and the reason of broad masses of people on fundamental questions such as the essential need, in order to fight climate change effectively, to implement all the relevant means that are available, independently of their cost; to consider the atmosphere, water, land, genetic resources, solar radiation and energy in general as the common property of humanity; to redistribute wealth and to develop the public sector in order to mobilize all the means available. It is possible to do this with great authority, by basing ourselves in a critical way on the scientific conclusions of the experts, which confer an additional legitimacy on the anti-capitalist alternative.

The crisis of the socialist project, including the very negative ecological balance sheet of “really existing socialism” is an element that it is impossible to circumvent, and which weighs heavily on the capacities of resistance and counter-attack of the exploited and oppressed. By fully using the possibilities that climate change offers to refound an anti-capitalist perspective, while rooting it in a global problematic, both ecological and social, revolutionary Marxists can contribute to the recomposition of the international workers’ movement around a global project of society, and even of civilization.

38. The saturation of the carbon cycle and the exhaustion of non-renewable resources signifies that, unlike in the past, the emancipation of the working class can no longer be conceived without taking into account the principal natural constraints.

Opposition to growth, in itself, does not constitute a project of society or of civilization, nor a strategy for broad social mobilization in favour of another society (especially not if decreasing is measured by the reduction of Gross Domestic Product, which considers only the quantity of value, independently of the quality of human and ecological needs). A reduction of production and material consumption is immediately necessary for the rescue of the climate, because capitalism has taken humanity too far down a road with no way out. On the one hand, such a reduction in no way prejudges the future possibilities of development. On the other hand, it constitutes only one quantitative criterion of the necessary transition towards an economy without fossil carbon. In order to avoid leading on to reactionary conclusions, this quantitative criterion must be accompanied by qualitative criteria: a redistribution of wealth, a reduction of working time and the development of the public sector. If these criteria are fulfilled, and provided that it targets useless or dangerous production, the reduction in material production is compatible with an increase in wellbeing, wealth and the quality of life of the immense majority of humanity, through social investments in the sectors of education, health, culture, community activities, public transport, town and country planning, and free vital services.

The capitalist system is certainly inseparable from the growth of material production and consumption, but this is an effect, not a cause. It is the production of value, as an abstract form of exchange values, which leads to the permanent tendency to unlimited accumulation of wealth at one pole, and causes at the same time uninterrupted

accumulation of poverty at the other. A climatic policy which did not take into account this double reality would almost certainly be doomed to failure. The crucial point and the lever of the anti-capitalist alternative thus remain basically those that the socialist project has defined: the mobilization of the exploited and oppressed against a system based on the race for profit, private ownership of the means of production, the production of commodities, competition and the wages system. But this crucial point and this lever are no longer sufficient to define the alternative. The saturation of the carbon cycle in fact constitutes the most obvious and most global demonstration of the fact that, unlike in the past, the emancipation of the working class is no longer conceivable without taking into account the principal natural constraints: the limits of stocks of resources that are non-renewable on a historical scale, the speed of replenishment of renewable resources, the laws of energy conversion, the operating conditions of ecosystems and biological cycles, their rhythms. The short definition of Lenin - socialism is soviets plus electricity - is thus obsolete: electricity produced how (from renewable or fossil energies?), in what quantities, with what environmental impact?

If it wants to represent a global alternative at the height of the double challenge, ecological and social – in reality a single ecosocial challenge - the socialist project must elucidate these questions. To do that, it is not enough to affirm that socialism must integrate ecological questions, in other words that socialists must better include the ecological dimension, develop ecological demands and take part in mobilizations in defence of the environment. The real challenge lies rather in integrating the socialist project into the global ecology of the terrestrial super-ecosystem. That means that development must be conceived of not only with the aim of satisfying human needs but also according to its sustainability by the environment, and by furthermore accepting that the complexity, the unknown factors and the evolutionary character of the biosphere confer on this undertaking a degree of irreducible uncertainty.

To integrate socialism into ecology implies on the part of socialists a “cultural revolution”. This is indispensable in order to go beyond the compartmentalised, utilitarian and linear vision of nature as the physical platform from which humanity operates, as the store from which it draws the resources necessary for the production of its social existence and as the rubbish dump where it leaves the waste from this activity. In reality, nature is at the same time the platform, the store, the dump and all the living processes which, thanks to the external supply of solar energy, make matter circulate between these poles, constantly reorganizing it. Waste and the way it is disposed of must thus be compatible in both quantity and quality with the capacities and the rhythms of recycling by ecosystems, in order not to compromise the good functioning of the fine film that the biosphere represents. However, this good functioning depends on the number and the diversity of the operators, as well as the quality and the complexity of the multiple chains of relations which link them, the balance of flows determining in the final analysis the provisioning of humanity in resources. In this context, the concept of “human control over nature”, full of positivist assurance, must be abandoned. The only socialism that is really possible from now on is one which satisfies real human needs (i.e. needs freed from commodity alienation), democratically determined by human beings themselves, taking care to ask ourselves prudently what will be the environmental impact of these needs and of the way in which they are satisfied.

39. The major ecological error of Marx is thus not to have regarded nature as an unlimited reserve of resources to be exploited, but not to have applied his own concept of “rational management of exchanges” to the particular domain of energy, whereas he had applied it to the domain of land.

In the 19th century, the work of Liebig on the exhaustion of soils following the rupture of the cycle of nutrients due to urbanization and the internationalization of agricultural markets led Marx to postulate that, work being the necessary mediation between human beings and nature, the only possible freedom lay in the rational management of the exchanges of matter between humanity and the environment. This idea that the “metabolism” between society and nature is historically determined and that mankind, because it produces its social existence consciously, must assume the responsibility for a “rational management” of exchanges with the Earth, is of a remarkable topicality and can compete with the best contemporary conceptualizations of global ecological problems. It attests that Marx, in spite of certain ambiguous formulations, was not ignorant of natural cycles and that he was aware of the finite character of resources in a finite environment.

Concerning the “rational management” of land, this consciousness had a strong programmatic expression: it was in

fact to restore the cycle of nutrients, in particular, that Marx and Engels argued for the abolition of the separation between town and country. This demand was as important in their eyes as the abolition of the separation between manual and intellectual work to which it is, moreover, linked.

The major ecological error of Marx is thus not to have regarded nature as an unlimited reserve of resources to be exploited, but not to have applied his own concept of “rational management of exchanges” to the particular domain of energy, whereas he had applied it to the domain of land. In his analysis of the Industrial Revolution, Marx did not understand that the transition from wood to coal meant the abandonment of a renewable energy of flux in favour of an exhaustible energy of stock, whose exploitation could only contravene the “rational management” of the exchanges of carbon between society and its environment. Whereas they had clearly seen the tendency of capitalism to exhaust the only two sources of all wealth - “the Earth and the worker”, whereas this framework of analysis had enabled them to anticipate in masterly fashion the dynamic which would lead big industry and capitalist agriculture to work together to impoverish at the same time the worker of the cities, the worker of the fields and the fertility of the land, the authors of the Communist Manifesto did not see that the capitalist rush to exhaustible fossil sources would inevitably lead humanity into an energy path with no way out.

In the materialist conception of history, technologies do not escape the rule which stipulates that all human activities are socially and historically determined. We can quote in particular the fact that Marx himself violently denounced the class character of capitalist mechanization. However, the fact of not having seen the importance of the transition from wood to coal led him to leave unclear the question of the class character of energy sources. At the time of the Industrial Revolution, this lack of clarity hardly led to any practical consequences: the same steam engines were used to transform the chemical energy of wood and coal into mechanical energy and heat. But the situation changed with the use of oil, and especially with nuclear energy. That really obliges us to take a clear position: either the technology is to be rejected, and the energy sources are not neutral; or else the energy sources are neutral and technologies to exploit them are not to be rejected as such. In the second case, we find ourselves in contradiction with the thesis that was our starting point, on the historical/social determination of technologies, which amounts to saying that we allow the technocratism that Marx put out through the door to come back in through the window.

The successors of Marx bear an important responsibility for the fact that the concept of “rational management of the exchanges of matter between humanity and nature” and the related problems of separation between town and country were forgotten in the 20th century. From the end of the 19th century, the invention of synthetic fertilisers seemed to have solved the problem of the fertility of soils, a key component of the ecological reflexion conducted in Capital. However, no Marxist author sought to know whether this solution was compatible with the “rational management of the exchanges of matter” between humanity and nature. Above all, none of them, including among the revolutionaries, understood the concepts that Marx had applied to the question of soils to analyze the burning of fossil fuels (or the plundering of other non-renewable resources) from the point of view of the “social metabolism”. The causes of this astonishing deficiency remain to be analyzed in detail. The backwardness of Russia, the Stalinist counter-revolution, social-democratic productivism and a certain distancing by Marxists of the 20th century in relation to the evolution of the natural sciences played a part. But it is also necessary to criticize an exaggerated optimism, an irrational hope that science and technology will always make it possible to find a “way forward” from the capitalist ecological dead ends. Climate change radically questions this faith in progress, which is the most important reason why Marxists, since the 1970s, had and continue to have considerable difficulties in positioning themselves in relation to environmental challenges. That is why integrating the socialist project into ecology is the fundamental condition of the revolutionary vitality of Marxism.

40. The energy question is at the centre of the alternative. We can situate the perspective of a “solar communism” in the continuity of Marx’s thinking on “social metabolism”, rendering, developing it more profoundly and drawing new conclusions from it. This more profound development substantially justifies the use of the new concept of ecosocialism.

The energy question is at the centre of the climatic challenge and of the question of an alternative. It is therefore decisive for Marxists to go beyond the ambiguities and the dead ends of their predecessors (including Marx) in this matter. The concept of energy system - defined as the mode of production considered from the angle of energy transformation - makes it possible to postulate that the capitalist system is characterized by:

(i) the quasi-total appropriation of energy sources, of converters as well as vectors, and their transformation into commodities (including the commoditisation of the labour power placed at the disposal of the employers by human converters);

(ii) the preponderant use of fossil fuels which generate rent and greenhouse gases;

(iii) the centralization and concentration of the capital which owns the sources as well as the converters, leading to an increasingly greater centralization of the system itself;

(iv) poor energy efficiency and a considerable level of waste, due to the priority search for profit, but also to the centralized structure, the separation of the production sites from the principal markets, to useless production, to the lack of economic planning between sectors, to completely excessive mechanization;

(v) the globalization of supply, military protection of access routes to energy sources and the imperialist policy of controlling the producer countries;

(vi) the formation of increasingly inter-connected and centralized networks;

(vii) the constitution around fossil sources, mainly oil, of a powerful energy-industrial complex, involving the automobile and aeronautical industries, shipbuilding and petrochemicals;

(viii) the growing integration of agribusiness into this complex through fertilisers, the production of energy biomass and the implementation of technologies of “genetic engineering”;

(ix) the tendency, inherent in the logic of accumulation of capital, to ceaselessly increase supply and demand, which is expressed in the energy field by the recourse to nuclear technology, in particular.

Considered from the energy point of view, the socialist transformation of society imperatively requires the destruction of this centralized system, which is anarchic, wasteful, inefficient, dead labour intensive, based on non-renewable sources, and oriented towards the tendency to overproduction of commodities. It must be replaced by a system that is decentralized, planned, economical, efficient, living labour intensive, based exclusively on solar energy and oriented towards the production of real, durable, recyclable and reusable utilities. This transformation does concerns not only the “production” of energy in a narrow sense but the entire industrial system, agriculture, transport, leisure activities and town and country planning.

The energy/climatic challenge leads to conceiving the socialist revolution not only as the destruction of the power of the bourgeois state, the creation of a proletarian state which starts to wither away as soon as it is created and the progressive introduction of self-management by the masses, but also as the beginning of a process of destruction of the old capitalist productive apparatus and its replacement by an alternative apparatus, employing other technologies and other industrial processes in the service of democratically decided goals. This extremely profound historical upheaval can only really start after the victory of the socialist revolution on a world scale, once the abolition of the principal inequalities of development will have made it possible to satisfy the basic right of each human being to an

existence worthy of the name. It postulates in particular the preliminary achievement of autonomy in food and energy by the different countries. Far from being synonymous with stagnation, or the stopping of human development, it implies on the contrary an important progress in science and technique as well as in the social capacity to implement them democratically, with the active participation of everyone, in the framework of a culture of “taking care with prudence” of the biosphere, for which the contribution of indigenous communities will be invaluable.

Revolutionary Marxism has generally considered that, once fundamental human needs had been satisfied, the qualitative development of humanity would take precedence over its quantitative development. This conception is coherent with that of Marx, for whom true wealth resides in free time, social relations and the comprehension of the world. The perspective of a “solar communism” is in logical continuity with this non-productivist thought, while deepening it and drawing new conclusions in terms of demands, tasks and programme. This deepening substantially justifies the use of the new concept of ecosocialism. As the concentrated expression of the common struggle against the exploitation of human labour and the destruction of natural resources by capitalism, ecosocialism does not proceed from an idealistic and chimerical vision of “the harmony” to be established between humanity and nature, but from the materialist need to manage the exchanges of matter between society and nature, according to ecological reason, in other words in the most compatible manner possible with the good functioning of the ecosystems.

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[1] SPM, IPCC 2007. NB: the variations in temperature are given compared to 1999 and must therefore be increased by 0.7Â°C in order to indicate the variation compared to the pre-industrial period.

[2] UNDP, World Report on Human Development, 2007/2008

[3] “CO2 equivalents” take into account the entirety of greenhouse gases, as if they were all CO2.

[4] A “substantial deviation” corresponds to a variation of between 15 and 30 per cent compared to the scenario of reference.

[5] Energy intensity and carbon intensity designate respectively the quantity of energy consumed and the quantity of carbon emitted in the form of gas in order to produce one unit of GDP.

[6] We should add geothermic energy, the only non-solar energy source, but its potential is marginal

[7] The objective was raised to 30 per cent in the case of there being an international agreement including analogous reductions by other industrialised countries and a signification participation of the emerging countries in the effort. This objective would however remain in the lower part of the range of the recommendations of the experts