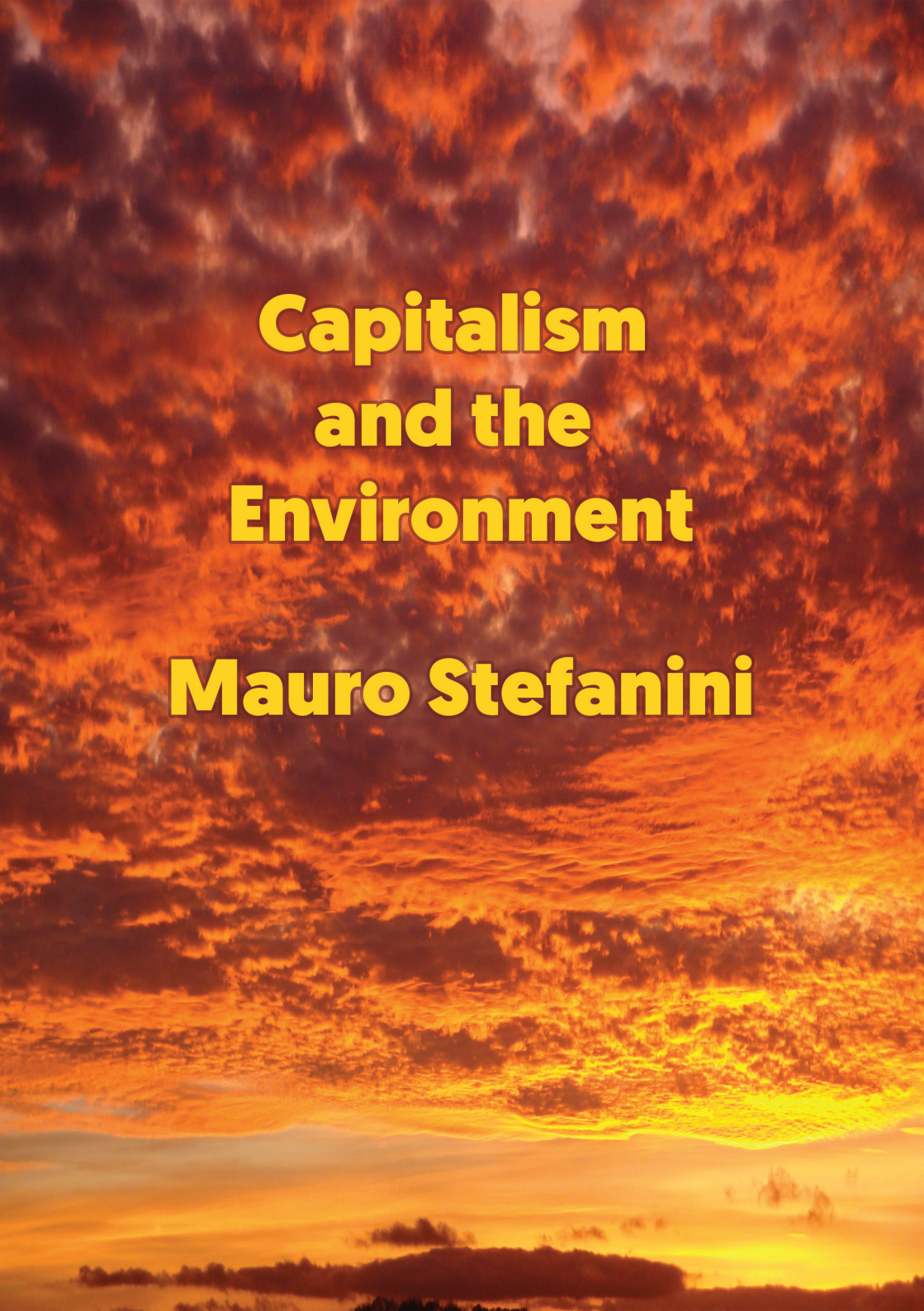

Capitalism
and the
Environment
Mauro Stefanini

Capitalism and the Environment
Mauro Stefanini

For correspondence write to:
CWO, BM CWO
London
WC1N 3XX
email: uk@leftcom.org

Or visit our website:
http://www.leftcom.org

Subscriptions to Revolutionary Perspectives (3 issues) and Aurora (at least 4 issues) are

UK £15 (€18)
Europe £20 (€24)
World £25 (€30, $30)

How to pay:
By cheque made out to the 'CWO' and sending it to the address above.
By emailing us at uk@leftcom.org and asking for our banking details.
By Paypal using the 'Donate' button on our webpage.
You can also take out a supporter's sub by adding £10 (€12) to each sum. This will give you priority mailings of Aurora and other publications including free pamphlets as they are published.

Introduction

Although the articles here were originally published in Italian in 1994 *(Humanity, Environment and Capital)* and 1998 *(The Climate's Reaction to Capital)* this is the first time they have appeared in English. The author, Mauro Stefanini, was a prominent member of the Internationalist Communist Party, more widely known outside Italy by the name of its paper, *Battaglia Comunista*, and not to be confused with the Stalinist/Euro-communist PCI of Togliatti and Berlinguer which was utterly opposed to a genuine communist organisation and eventually disappeared with the collapse of the Soviet bloc only to reinvent itself in the shape of Rifondazione Comunista. Mauro was a prime mover towards the creation of the International Bureau for the Revolutionary Party which eventually led to the consolidation of today's Internationalist Communist Tendency.

At a time when most of us were content to accept that the problem of degradation of the natural environment can only be solved once capitalist relations of production have been overthrown Mauro, who was very alert to the urgency of the situation, was more than ready to take on the arguments of the burgeoning Green movement and its sympathisers in various guises in order to demonstrate the validity of our claim. During the 1990s the post-war crisis of capital accumulation accelerated — with the demise of the USSR, the hammering of the old industrial working class in the metropoles and the strengthening of capital's trend towards globalisation (notably with the increased movement of production to areas of massively cheaper labour power) — it seemed to many one-time 'socialists' or 'communists' that the free market reigned supreme and that it really was the case that the driving force of history was no longer the struggle between capital and labour. As academic Marxists found the rungs of their career ladders breaking under their feet and while the Stalinist parties and the fellow travellers saw their funds and/or ideological guideposts disappear, many, including stalwarts and activists from *Rifondazione,* those *'with reformism in their DNA'* joined in the various campaigns and protests to limit capitalism's destruction of the environment. In the process the supposed goal of communism (perpetually increasing production at breakneck speed, in other words Stalinism) was often rejected, along with what is widely assumed to be one of the philosophical tenets of marxism (the idea that the destiny of humanity is to dominate nature regardless of the consequences) as just a bad a prospect as capitalism for the future of the planet. Mauro has no truck with this argument. His view of communism has nothing to do with a Stalinist world of increasing production for production sake and he is well aware that Marx and Engels saw the question of alienation not only as a matter of inter-human

relations but also as a question involving humanity's relationship with the natural world. Instead he turns the argument the right way round:

> *Production aimed at accumulation and therefore reproduction, in a cycle closed in upon itself where human beings appear as instruments of production on the one hand and on the other as consumers of the product; the subordination of nature to the requirements of such production. — This is the fundamental characteristic of the capitalist mode of production which no environmentalist wants to recognise and which instead is targeted for reform ... (p.6)*

And when it comes to the question of climate change and capital's attempt to reduce greenhouse gas emissions via carbon trading, first put forward at the Kyoto conference he is scathing. *('The central nub of the issue has not even begun to be dealt with but the principle of commodification of the right to ravage the planet is passed.')*

In fact the central nub is that a system based on alienated labour, devoted to growth (increased profits) and subject to periodic crises which exacerbate the drive to cut costs whatever the human or environmental price, cannot find an effective way of combating global warming.

In short, these articles are as relevant today as when they were first written. Their significance lies not in whether the figures are out-of-date or whether the reader agrees with the author's own predilection for cold fusion as an alternative to fossil fuels... They remain relevant because they provide a framework and give body to our argument that only when capitalist relations of production are eliminated, when money is a thing of the past and a world-wide human community produces for need instead of commodities for profit, can the environmental problems which capital daily exacerbates be seriously tackled.

ER

Environment, Capital and Humanity:
General Lines of Orientation and an Example

Even bourgeois thought itself recognises that the development (survival we would say) of the capitalist mode of production threatens the balance of the environment and has thus come up against its own limits. Certainly the narrow minded short-termism of the small industrialists who abound in Italy and whose immediate individual interests have come to the fore with the election of the new government do not reflect bourgeois thinking in general, or rather the ideology of a ruling class which aims to preserve its own domination.

If we want to understand the overall concerns of the bourgeoisie as an historically dominant class we have to turn to organisations like the Club of Rome or commissions of the UN or the World Watch Institute.[1]

The purpose of this work is not to analyse the mass of data and the ideological elaborations issued by such bodies but to indicate the broad outline of the Marxist critique and the general prospect for revolutionary action.

Let's start with the definition of some basic concepts.

Human Beings and the Environment

Human beings began to change the natural environment from the moment they started to take control over natural phenomena and subordinate them to their own needs. The vital process of any species, whether plant or animal, involves an interaction between the species itself and the environment. The interactions can be of different beings and types.

A Special Relationship

Sudden and violent changes in the environment can induce changes in a species or even its disappearance. (Remember the obvious example of the dinosaurs.) On the other hand, "natural" actions of the species in turn cause changes in the environment itself: from the formation of the current oxygen-rich atmosphere by plants which encouraged animal life in primordial epochs of the Earth, to the diversion of the course of rivers through the work of beavers.

However, what distinguishes human beings from other animals in relation to the

ecosystem is their capacity to progressively become more conscious of this, and on that basis to modify the environment by bending it to their own needs.

Even when humans were systematising what they knew about stones and translating this into the search and manufacture of those most suitable for cutting, scraping or hitting from a distance, this involves a qualitatively different kind of action from the use of sticks by apes or stalks of plants by bears to dig out ants. When the human community passed from the nomadic state of pure hunting and gathering to early forms of livestock husbandry and agriculture their special relationship with nature becomes more evident.

However primitively it was done, the clearance of the land, for sowing and harvesting of plant species selected by humans in itself constitutes an intervention with nature that goes much further than the "natural" robbing of a bush of its berries as would a flock of birds or a swarm of insects.

It is with the Neolithic revolution, humanity's first great technological and scientific revolution, that production becomes the crucial, if not unique, form of maintenance for human beings and their collective existence. The interference with nature was necessary and was carried out in order to adapt to the environment, as a condition of production, and according to the demands of production itself.

> *The naturally arisen clan community or, if one will, pastoral society, is the first presupposition — the communality [Gemeinschaftlichkeit] of blood ties, of language and of customs — for the appropriation of the objective conditions of their life, and of their life's reproducing and objectifying activity (their activity as herdsmen, hunters, agriculturists, etc). The earth is the great workshop, the arsenal which furnishes both the means and material of labour, as well as the place which is the basis of the community. They relate intuitively to it as the property of the community, of the community which produces and reproduces itself in living labour.*[2]

We are still at the stage where human beings lack the concept of ownership. It is no coincidence that such an instinctive relationship emerges in the most varied mystical and religious forms where there is no defined border between human reason and the representations that the human psyche makes of nature and the forces acting within it.

Amongst these community forms can be found the deification of the pharaoh or the Asian despot who appears to be the creator of great works such as the regulation of the water supply, but which are the result of the collective appropriation

of labour.

Elsewhere (and we are in the cradle of classical civilisation) the community, as a result of historical events peculiar to this area, appears only as a first prerequisite,

but not as a body where individuals are mere accidents or where they are purely and simply natural elements, — that is, the assumed base is not the countryside but the city already created by the agriculturalists (founding occupiers). The agora is presented as the territory of the city; not the village as the mere accessory of the countryside. The land itself — in so far as it presents obstacles to this process and actual ownership — does not present any obstacle to the establishment of a relationship with it as inorganic nature of the living individual, his laboratory, means of work, the subject of work and the means of subsistence of the subject.[3]

In every case the aim of production — we note well — is still human beings and their needs. We have yet to reach the point where this is overthrown so that production is the aim (not for human beings but of capital to which society will be subsumed). With that overthrow came the domination of the capitalist mode of production.

However, before this, throughout the whole of the stage preceding the social and economic revolution of the bourgeoisie, the relationship of humanity with nature still tended to be dominated by this or that aspect of nature. It was a tendency bound by various conditions.

The first is as noted above: intervening with nature is restricted to the immediate requirements of production, which are in turn limited by the population's needs. Labour, the specific human activity of production, is still almost exclusively necessary labour but where, in addition to the necessary requirements of production, there must also be met the luxury consumption of the ruling classes and of the communities to which the merchants relate. The invention of the field rotation system alongside that of the shoulder yoke for animals (about the year 1000) brought a greater increase in agricultural production than would have previously been brought by expanding the area under cultivation (thus reducing the need to cut down more trees) and was sufficient to feed a growing population.

Another factor limiting human impact on nature, and connected to the first, is the limited circulation of goods and men. Trade, in so far as it had developed, was confined to whatever was exchangeable of the surplus product possessed by courts, aristocrats and clergy, and derived almost exclusively from agriculture. Limited circulation and transport meant limited impact on the ways and means of

transport, which translates into a disruption of nature but not yet to the extent that the global balance is lost.

Science And Technology

On the superstructural level, nature appears throughout the whole pre-capitalist historical arc as an element in itself and for itself, often regarded as sacred, albeit in ever more different ways (from the Egyptian sun god Ra to the nine celestial spheres of the holy Roman church). The thirst for knowledge, even though it has always characterised humanity, has also been marked by questions such as 'How did the world begin?' 'How was it made?' 'What is to become of it now?'. And always human beings, in the shape of priest, scholar or scientist, have answered in the form of cosmological myths that describe in the most fantastic manner how the gods created the world or brought order where previously chaos reigned. Then the myths, for the sake of harmony and according to the level of culture, had to provide explanations of the most simple phenomena: from the law of gravity to the diffusion of heat and light.

But science and technology proceeded on two distinct planes and were almost never connected. Science was for the scholars and philosophers (usually priests), technology for the peasants, the artisans, the merchants. The absence of any relationship between the latter and the philosophers was reflected by the little or no correspondence between the acquisition of practical techniques and the ruminations of the philosophers.

At the end of the Dark Ages, around the year 1000, the spinning wheel was invented, and shortly afterwards windmills came to be used other than for the sole purpose of milling grains (fulling mills for cloth, hammers for crushing, forged bellows) and almost simultaneously (1150 approximately) nitric acid was produced from the distillation of a mixture of saltpetre and alum where the distilled alcohol was used in the manufacture of perfume. There was much progress in all fields of technology, but still only relating to meeting the basic material needs of humans, something which scholars usually shun and which, in any case are foreign to the medieval world of 'virtue' and 'knowledge'. Alchemy was widely employed and resulted in many individual discoveries whose explanation, however, remained firmly within the theory of the transmutation of metals and thus limited to the search for the philosopher's stone, something that eventually came into conflict with the 'official science' of the Church which condemned it, although it remained in the realm of metaphysical knowledge as an end in itself.

Human beings eventually won through and the knowledge they acquired enabled them to curbs tame nature according to the understanding he has acquired of it. But his that knowledge is fractured on different levels and often conflicts.

Humans continued to modify their behaviour and adapt as necessary to the objective (and environmental) conditions of production, yet a wider understanding of nature does not really exist and where it does it is unrelated to the practical relationship with nature itself. The people who actually produce, who are producers themselves, reflect on and understand immediately what is needed for production. Scholars around the world daydream and read about nature, its composition, its relationship to the universe and with the divine being that creates and justifies everything. In other words, we can say that the real acquisition of knowledge about nature, knowledge that is actually pertinent to the world of production, travels independently of a supposed wider learning which neither impacts on nature nor wants to do so.

The scientists of today, tied as they are to the immediate form of 'their' history, say that the origin of modern science lies in two new factors which occurred a few centuries ago: the invention of lenses and the discovery of how to arrange them for making telescopes and microscopes. According to many scientists, this was the beginning of the systematic study of phenomena which oscillate like a pendulum and the movement of spherical bodies.

Here is an illustration from a distinguished physicist and astrophysicist such as Hannes Alfvén:

> *What could they find so fascinating in these trivial facts? Why not continue to explore the fascinating mysteries of the universe? It's simple enough: investigating phenomena so ordinary, they could, at least in one sector, free themselves from the inconsistency of myth and build a system of knowledge based only on verifiable observations. No experiment could be accepted unless it was 'reproducible', that is to say unless it would produce the same result no matter when, where, or by whom it was done.*[4]

This is true, but it's not enough. The other question that presents itself is: Why did those two factors arise only 'a few centuries ago' and in such a revolutionary way for the course of science?

It should now be noted that the systematic assembly and use of lenses in tele-scopes

spanned the Seventeenth and Eighteenth centuries, just as the work of scientists like Bacon and Galileo and their successors comes between the Sixteenth and Seventeenth centuries.

But more about lenses, it should be remembered that it was the Englishman Robert Grosseteste (1170-1253), Bishop of Lincoln and first chancellor of the University of Oxford, who studied and formulated a theory of refraction through a spherical lens and who also investigated how to practically utilise lenses to enlarge small objects and bring distant objects closer. Did this work therefore remain unheeded? No, it was continually read and studied by other scientists and scholars who had little or no interest in understanding it or in experimenting with the hypotheses. Until the Seventeenth century that is. What happened then? What had happened was that science and technology were beginning to come together.

A bourgeoisie comprising merchants and artisans, bankers and manufacturers, had arisen in physical proximity to each other. It was no longer just rich burghers on the one hand and the clergy and aristocrats on the other. In the big cities the bourgeoisie were the first to promote their own exponents in the cultural world of the universities which had hitherto been the exclusive preserve of the latter.

And the new students brought with them the cultural stamp of their class, more closely linked to the world of production, more contaminated by the basic necessity to acquire knowledge and apply it to the conditions of production that must, could and would grow.

Thus, even before it dreamt of the exclusive power it would have little more than a century later, the bourgeoisie began to bring its own preoccupations into the highest spheres of culture. In fact, this coming together and linking of technology and science in a dialectical relationship signalled the character capitalism would take as the newly triumphant mode of production.

It was no accident that, a few decades after Galileo, the great mathematicians of the Eighteenth century would find the machines sporadically used in manufacturing to be the practical stimuli for the encouragement and development of their science (or rather the tool of that science) and of the mechanics which would play such a role in the industrial revolution.[5]

The Key Issue

Production based on capital then, creates on the one hand universal industry — or rather surplus labour, that is labour which creates value — and on the

other hand creates a system of general exploitation of natural and human resources, a system of general utility, which is supported by science as well as all the physical and spiritual characteristics, while nothing is more elevated in itself, justified for itself, exists outside of this circle of production and social exchange ... Only with capital does nature become a pure object for man, a pure object of utility which ceases to be recognised as a force for itself; and where the theoretical understanding of its autonomous laws is itself presented simply as the clever ability to subordinate it to human needs whether as an object of consumption or as means of production.[6]

If in the primitive community natural conditions of production — i.e. nature itself — exist in unity with living and active human beings: in other words, the producers alongside the first forms of the state, it is within the classes of this society that there begins a process of

separation of the organic conditions of human existence from this active existence, a separation which is only fully realised in the relationship between wage labour and capital.[7]

Within this relation, labour appears as totally alienated from the conditions of production: it is a particular commodity because it is uniquely capable of creating value, and as such it is reduced to a factor of productive capital.

Just as the productive force of labour is developed historically, that is socially, so also the natural productive force of labour appears as the productive force of capital to which labour is incorporated.[8]

Production aimed at accumulation and therefore reproduction, in a cycle closed in upon itself where human beings appear as instruments of production on the one hand and on the other as consumers of the product; the subordination of nature to the requirements of such production. — This is the fundamental aspect of the capitalist mode of production which no environmentalist wants to see and which instead is targeted for reform in order to avoid impending eco-logical disasters.

The Egyptians and European Capitalists

Basically, for anyone who describes themselves as Marxist the concept is simple: human beings tend always to subjugate nature, as an objective condition outside themselves, to the requirements of labour. But…

So long as the purpose of that labour is to fulfil human needs, as a species, regardless of the extent and character of those needs or their growth, the relationship of

domination over nature does not disturb the internal balance, at least not to such an extent that it becomes impossible to rebalance the overall ecosystem.

Whilst the great hydraulic works of the Egyptians certainly involved a radical change in the nature of the sites concerned: the natural course of the flow of water, of the soil and plant and animal life in those areas were radically altered; where particular tree species would thrive between wetlands and desert, and where certain fauna prospered, there developed what is today's desert, with the resulting changes in flora and fauna; whilst over the centuries the great river itself found different routes, as it meandered more or less towards the sea. But the overall equilibrium was still maintained: certain fauna moved elsewhere, certain plant species prospered on other wetlands sites.

Equally certainly, medieval logging reduced European forest cover, but not in a way that significantly affected the generation of oxygen and the ability of forests to sustain the animal species living there.

However, from the moment, however, the that the aim of production becomes ... production ... and human needs are considered exclusively as possible targets for the production of capitalist commodities, which must produce a profit for capital, everything changes.

Production increases: both the quantity of each individual commodity and the variety of goods increases at rates never achieved before. Capital internationalises itself: first by extending the network of its interests to the whole world, colonising countries which are on different historical paths, whether pre-capitalist forms of subsistence or more advanced form of tributary societies (foolishly defined 'feudal' by certain leftists), then, as a consequence of this initial penetration, it imposes itself everywhere as the dominant mode of production, subsumes these other social formations to itself, exporting its contradictions everywhere and its mechanisms of exploitation of man and nature.[9]

In sub-Saharan countries, for example, the traditional subsistence crops which had been cultivated for several millennia in equilibrium with the environment were brutally replaced by the intensive cultivation of crops for export. The peasants, dispossessed of their possessions, mostly collective land, and deprived of the traditional means of subsistence, continued to work on the land in much-reduced ranks in exchange for the means of subsistence provided by capital itself. (It hardly matters whether this was directly in kind or in cash payments to purchase products on the market. Whatever the specific forms and variable patterns of recruitment and labour discipline the effect is the same.)

Here we witness a general disturbance of the natural equilibrium, when these crops (for example, cotton) dramatically impoverish the soil which is artificially maintained for cotton growing by fertilisers and soil improvers furnished by metropolitan industry.

Radical changes in the commodities market brought about by the sharp reduction in the price and consumption of cotton then led to the abandonment of those crops. Result: the mass of the indigenous population, with its traditional social structures and forms of production by now destroyed and artificially re-created around a bourgeoisie as ignorant as it was destitute, and as arrogant as it was eager to ape the metropoles (either East or West), brought poverty and unemployment, food shortages, and yet also the impossibility of returning to the traditional way of producing food.

Here the metropoles still intervene (and this time in the shape of governments, not individual entrepreneurs) with their "aid". Development aid, they say, or said. In reality these are once again speculative operations for the metropolitan entrepreneurs.

In fact, since the First World War capital has had the ability to affect the overall balance of the global ecosystem. Inadvertently at first, then more and more noticeably, every aspect of material and intellectual life (outside of production and the exchange of goods) has been conditioned to the production of surplus value and profit, giving new shape to the fundamental contradiction of capital: that of the incompatibility between capitalist development and the environment.

Environment: A Fundamental Contradiction

Why define it as a fundamental contradiction?

Classically the fundamental contradiction of capitalism is the same as in all previous modes of production: that between the relations of production and the development of the productive forces. That is capital itself becomes the limit to the development of the productive forces.

Stalinism's crude formulation of this thesis would give rise to the easy objection of various simpletons that if the development of the forces of production is harmful to capitalism, then we deduce that all development is harmful; or rather that an even greater development of the productive forces is certainly not desirable under socialism since capitalist growth already tends towards the catastrophic.

The Marxist theory remains very valid because the crucial point, as we mentioned

above, is the purpose of production, or rather the use of the productive forces. We know already that dealing with the environmental damage of capitalism will require a large amount of social labour just to meet the basic needs of humanity and to enable a thriving ecosystem of which human beings are a part. In other words we could say, in order that humanity returns to being part of the ecosystem.

For instance, just consider the need for transport systems to be radically changed so that they are accessible to the whole of humanity, while capital, on the other hand, is contemplating with cynical greed how to supply tens of millions of wealthy Chinese and Indians with a car. (Africa is now as regarded as too poor and hopeless.)

Or think about the need to drastically reduce waste. This is possible only on the condition that a massive development of new tools and techniques is embarked upon, something which requires a great new advance in science.

Basically, this need for 'new' guidance is felt by the bourgeoisie itself, which is making some effort in this direction, significantly in its concern about toxic waste. But the bourgeoisie cannot go beyond its concern for and the limitations of the need for growth: nor can it stop the growth in the production of toxic waste, or provide for its effective disposal.

It cannot reverse the tendency to produce more and more toxic waste because this is linked to the production of an infinite number of commodities which are now inherent to present-day capitalist society (consider only the production of petrochemicals).

It cannot effectively dispose of the waste because such an operation only makes sense to capitalism when it involves the entire whole of every country in which the miserable planet is divided. Otherwise the huge investment required would fall only on some countries and end up as an expense paid out of already declining profits. Such an expense could not be offset by price increases due to undercutting from rival countries which did not provide the service. Under such conditions a service like this, however much it has taken on the commodity form, is not an independent commodity: its use value is not universally recognised by the market and without state intervention it would have no exchange value.

Green investment can thus create jobs and can also provide hefty profits for the firms involved, but not only does it add nothing to the total surplus value, it constitutes a net subtraction from the overall amount.

Political pressure by reformers, environmentalists, and a more generally aware civil society could also result in the imposition of effective standards and controls within metropolitan national territories (such as the U.S. or an Italy without Berlusconi). However, this would result in the relocation of production involving toxic waste to more tolerant countries, with zero effect on the planetary balance of its production and disposal.

Even so — the environmental lobby urges — this would be a first step towards a comprehensive policy of prevention. That is, it would be a first step in the march which must lead to a global political solution to the problem. Magnificent superficiality!

It is absolutely not permitted to concede that this march is impossible, that the time required would be so much longer than the speed of the degradation of the planet. No account is taken of the disastrous wars which would occur anyway, probably under an ideological cover as happens with such political battles.

As for the possibility of such a march leading to the effective political control of environmental issues on a global level, suffice it to say that such control contrasts irreconcilably with the very essence of capitalism which is production for profit, not for the needs of humanity. And this aspect is not so much neglected as cunningly concealed even by James O' Connor. This American professor of sociology and economics investigates environmental problems masquerading as a Marxist and claims to have invented 'eco-Marxism', an ingenious innovation to what he calls classical Marxism but which is rather the 'Marxism' of the Stalinist and social democratic schools.

Eco-Marxism? No Thanks

O'Connor writes:

> *In traditional theory, the development of higher social forms of the forces and relations of production is considered a necessary but not sufficient condition for the transition to socialism. In eco-marxism, the development of higher social forms of the conditions of production can be considered a necessary, but not sufficient, condition for socialism.*
>
> *However, it needs to be added immediately that an 'eco-socialism' would be different from that envisioned by traditional Marxism, firstly because — in terms of 'conditions of production' — most of the struggles assume a particularly 'romantic anti-capitalism', that is they are 'defensive' more than 'offensive'; second, because it has now become obvious that within capitalism*

technology, forms of work, etc.., including the ideology of material progress, have become part of the problem and not the solution.[10]

This conveys the reformist essence of the eco-marxist argument.

The first distinction O'Connor makes between traditional marxism and his own thesis is very confusing. Higher social forms of the forces and relations of production are a necessary condition for socialism only in the sense that they are a response to the essential manifestation of capitalism and its contradictions. (Leaving aside the fact that the social character of production is an inherent element of early forms of manufacturing, well before the industrial revolution, and is a major reason for the political ascendancy of the bourgeoisie.) Extensive arguments and evidence of this can be found in both *Capital* and the *Grundrisse*.

However, according to the self-defined eco-marxist the growth of these *"higher social forms"* is not the product of capitalist development, independently of the political activity of the proletariat, but the result of political action. Thus, despite being considered inadequate, these struggles themselves are deemed to be a necessary condition. It is the classical reformist formula by which something that is periodically regarded as necessary (and in fact it is, for capital!) pushes the 'final' goal forward to a tomorrow that is always postponed and eventually lost sight of.

Now that the proletariat is particularly inactive and in fact absent from the political and social scene as an autonomous force (the old social composition of the class having been materially broken up and ideologically disarmed by 70 years of Stalinist counter-revolution as well as the failure of the whole Stalinist experience as signalled by the fall of the Wall) the radical reformists are all looking for new subjects for their struggles. Eco-marxism, which is an expression of that radical reformism, has thus shifted its field of action to the conditions of production (in short, environmentalism) where, however, the same mechanism is repeated: immediate struggles to pursue "more highly organised social forms of the conditions of production" thus gradually getting closer to a more and more mysterious socialism. The evidence? O'Connor himself provides it on the first page,

The social relations accompanying the reproduction of the conditions of production (and that is the state and the family as structures of social relationships and also the relations of production themselves, to the extent that they attest to 'new struggles' within capitalist production) represent the immediate objective of social transformation. The immediate locus of the transformation is the process of reproduction of the conditions of production (i.e. the division of labour in the family, the models of intended use of the land, education, etc..) and the production process itself, always to the extent that new struggles occur in the capitalist workplace.[11]

In other words, therefore, any workers' struggle is seen in terms of a reformist

battle over the family, the environment, education, etc., which in turn are conceived as areas for immediate transformation.

The whole reformist trick is repeated in essentially the same forms: pretending that something which is the product of capitalism's own dynamic is the result of the class struggle;[12] imposing tactics and strategic objectives derived from that approach and which are attributable to the conditions for the sale and employment of wage labour, to the conditions of reproduction of the workforce, and to the conditions for the reproduction of capital.

At the same time, the transformation brought about by the struggles is seen as a systematic advance towards socialism which begins to look more and more as the point, in the mathematical sense, of the function of 'social struggles'.

The marxist approach (and there are no classical or modern versions) remains unchanged and incompatible with the reformist methodology. Let's recapitulate.

The development of a variety of social forms of the productive forces and/or the conditions of production, is part of the capitalist dynamic, necessary only in the historical sense, that is, in relation to pre-capitalist forms. Its contradictoriness relates to the ownership of the means of production and is an expression of the fundamental contradiction of capital, within which the proletariat can act as historical subject only in terms of its independent revolutionary solution. This, and only this, is the condition for human beings to reassert control over nature, as the objective condition of their own existence. This is something that will have to be dealt with more extensively in another article. Here, however, we can only point to some examples as indicated below.

Let's take a look at one of the biggest environmental problems; one that is recognised as such by environmentalists and bourgeois analysts in general: the problem of energy.

Energy: the Key Question

Throughout the whole period from the origins of man to the industrial revolution, human beings have used the energy that nature has presented them with regardless of the form that energy takes. Whether it be animal, wind or water power, humans have employed mechanical energy in its various natural manifestations.

Certainly hydraulic power was harnessed to canalise rivers or to create artificial waterfalls and in the construction of hydraulic wheels to power simple machines, as when animals were purposely bred to work on the land or for transport.

Certainly thermal and incandescent energy would be obtained through combustion, in order to be used for heating and cooking and for lighting. But this is always a question of the transmission of forms of energy: mechanical energy from the river to the machine via the wheel, or from the draw animal via the yoke and the plough; thermal energy from the fire to the water or the food, et cetera.

Early on in its revolutionary period the bourgeoisie made a huge revolutionary leap: they began to transform one form of energy into another. The steam engine (Papin's pressure cooker[13] even before Watt's machine) was the first manifestation of this new, decisive, and in some ways deadly, conquest: the transformation of heat into movement, thermal energy into mechanical. This was the founding moment of a new branch of science, of the awareness of natural phenomena, of thermodynamics. It was also the beginning of an extensive series of scientific discoveries and technical inventions in the field of energy and its transformation: of progress from the machine engine to the internal combustion engine, electricity and electromagnetism and thus the tram, the telegraph, the radio …

With little idea of what, much less how, energy transformations come about, each one of us lives a daily life which includes thousands of such conversions, involving a myriad instruments and devices to realise them: from the light switch to the blender, from the fridge to the Underground, from the lighter to the television, from the washing machine to the personal computer.

After the invention of the steam engine and before the spread of the internal combustion engine, the other great conquest of bourgeois society was electricity.

'At *the start of the nineteenth century electricity was a scientific curiosity, a plaything of the laboratory*', Landes writes. The enormous importance it assumed soon afterwards is due to two characteristics: flexibility and transferability. It is the form of energy that is most easily transferred, even over long distances, and it is easily re-convertible into another form (whether mechanical, thermal or incandescent). In short, it is the form that best lends itself to mass production in a few centres specifically designed to provide or sell energy over a wide market. The invention of the filament lamp, epitomised by the low-consuming arc lamp and working with the most efficient alternating current, created the spring board for the launch of power plants: the demand for energy began to spread from centres of production to the general public. The consumption and production of energy in the form of electricity began its spectacular growth, a growth which naturally brought an increase in the consumption of fossil fuels, those primary sources of energy: coal and oil.

World production of commercial sources of energy is estimated to have increased from the equivalent of 1674 million megawatt hours in 1870 to 10,840 million in 1913.[14]

Yet this upward course of the consumption of energy was soon accelerated by the introduction of the internal combustion engine, the primary motor of individual transport. It's obvious: now that — aside from all the electrical equipment we use daily and the central heating which is becoming indispensable — every family must have a car, energy consumption in the metropolitan countries is incomparably higher than only 150 years ago or by comparison today with the most impoverished people in the periphery. In fact, just one contemporary Italian's annual consumption of primary energy is many times greater than an entire family over a decade in Mali or of an entire Italian family at the beginning of the nineteenth century.

The problem is that the primary energy source favoured by capital is fossil fuels. In the worst hypothesis, burning fossil fuels involves:

* Pollution of the atmosphere with solid particles containing toxic suspensions;
* Pollution in the atmosphere itself by various solutions of gases not really useful to life, such as sulphur dioxide and sulphur, cyclic hydrocarbons, benzene compounds and other similar delights;
* Increased amount of greenhouse gases in the atmosphere.

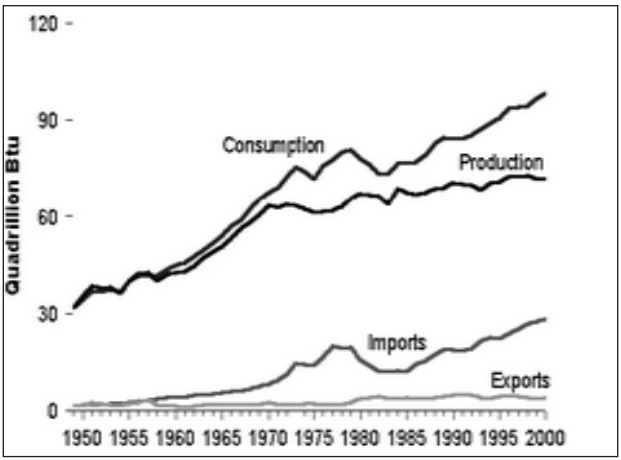
In the best hypothesis, the one that predicts perfect combustion of combustible emissions and of the primary by-products of combustion, we will only get increasing humidity and carbon dioxide, which is to say the planet will come dangerously closer to the feared greenhouse effect.

As we have noted, the most informed sections of the bourgeoisie at any rate recognise the seriousness of the problem. For the past twenty years they have been looking for solutions or at least ways of delaying the dramatic consequences.

Consume Less?

In a study commissioned by the Ford Foundation in 1974,[15] not long after the Yom Kippur war and the subsequent energy crisis, albeit remote-controlled by the Americans themselves, three different scenarios were drawn up for the growth in energy consumption. The most optimistic prediction for the USA was that between 1970 and 1987 there would be an increase of 20%. However, the State of the World 1988 by the World Watch Institute states:

Since the publication of the report (by the Ford Foundation, above) the economy of the United States has expanded by more than 35%, but the consumption of energy has registered a clear drop.[16]



US Annual Energy Consumption

The body most highly respected by environmentalists, that is the World Watch Institute, revealed six years ago that previous American projections had been wrong because they had underestimated the possibility of conserving energy. At the same time, however, the WWI reproached that:

Acid rain is spreading death and destruction in the forests of central Europe, while the increasing rates of carbon dioxide in the atmosphere could be leading to catastrophic alterations in the climate.

Far be it for us to criticise the WWI for over-estimating how much energy has been saved.

It is true that it is possible to save energy and truly with a fine sense of business that the 'guardians of the world' recognise that energy saving and the pursuit of energy efficiency can also prove to be useful to them in terms of openings for new production and jobs. Nevertheless the fact remains that, whatever the savings, the process of capitalist accumulation always implies an increase in consumption. The fact that consumption in the USA has clearly declined is simply testimony to previous squandering.

1971 1973 1975 1977 1979 1981 1983 1985 1987 1989

EU Annual Energy Consumption [million tonnes of oil equivalent, corresponding to 4404.5 kWh]

Yet even the less profligate Europeans show a similar story, as can be seen from the data. From these figures, highlighted by the graph, there is a clear drop in consumption in 1975 and again in 1983. Undoubtedly, as in the case of the USA, this was due to a more rigorous energy saving policy and subsequently less waste: but not enough to reverse the tendency. In fact the reductions were soon 'compensated' by substantial rises, with the overall balance showing a clear increase between 1971 and 1988.

The Alternative

The problem therefore has a double aspect. Increased consumption of fossil fuels in itself implies all the consequences we have described above whilst — it should not be forgotten — increasing the danger of reserves running out with all the dramatic political, diplomatic and military consequences that the bourgeois institutes and bodies we have already mentioned speak often enough about.

It is now almost universally accepted that the nuclear option as conceived up to now is not an alternative, which leads to the question as to whether there really is a way out.

Our reply is this: inside the capitalist mode of production, no; once production is directed towards human needs, then, yes. Let's look at the reasons. The scientific know-how which would enable the massive deployment of alternative technology to energy certainly exists today, but capital cannot and does not want to consider it. Take, for example, the suggestions of the reformist environmentalists: renewable sources such as solar or geothermal or tidal energy.

The official view regarding solar energy is that this is difficult to utilise because of the massive amount of energy, amounting to several gigawatts, needed to be generated by present day power stations. This is true, since energy is a commodity and, like any other commodity tends to become under capitalism, it is produced on a large scale in order to be sold more profitably. The same goes for all the other forms of primary energy we have mentioned. The idea of producing energy where it is needed and in the quantity that it is needed, either in civil life or for production, never enters the head of anyone who is subject to the fetishism of commodities. Well, this is exactly what the communist programme proposes for the period of transition.

The availability of energy has now joined the objective conditions, not only of production, but also of the life of the community. First of all it is a question of getting rid of the commodity form of energy. 'Commodification' of the conditions of production and of life are a direct obstacle to human beings having real control over them. This would immediately allow the possibility of 'abandoning' — albeit progressively — the massive production of energy in mega-power stations and passing over to local production by the most appropriate means, selected from a variety of globally available options. This in turn means being able to utilise every possible technological application of the already wide scientific knowledge in order to:

* develop systems of production of electrical and thermal energy for community and industrial use;
* radically and comprehensively restructure individual and collective transport systems;
* re-balance all the environmental and anthropological factors involved in the production and consumption of energy.

Either products will cease to be commodities or the production of commodities will destroy the conditions of existence of humanity. This is the same as saying: either the proletarian revolution is victorious or capitalist barbarism will destroy humanity.

Footnotes

1. A synthesis of the arguments put forward in the various UN publications since the 1970's can be found in the reports of the 1992 Conference of Rio. As for the Club of Rome, its first report, *The Limits of Development*, is significant as well as its subsequent reports, all published in Italy by Est Mondadori. For the World Watch Institute, an American foundation financed by UN agencies and various US ministries, the *Report on the State of Our Planet, 1984* is notable.
2. K. Marx, *Fundamental Lines of the Critique of Political Economy, (Grundrisse) Vol. 2* p.96. *La Nuova Italia* 1970. (In English, see Pelican 1973 edition, p. 472.)
3. Ibid p.99.
4. Hans Alfvén, *Due Mondi Speculari, Il Saggiatore 1971*, p.11.
5. On this issue, see chapter 12 of the first volume of *Capital*.
6. K. Marx op.cit. p.11.
7. ibid p.114.
8. K. Marx *Il Capitale, Volume I Section V, chapter 14*, Editori Riuniti, p.229.
9. On this issue, see '*Modes of Production and Social Formations'* in *Prometeo 12, Vth Series.*
10. James O'Connor, *Ecomarxism*, Datanews, Rome 1989, p.17.
11. loc.cit.
12. We note here in passing that O'Connor is also explicit about this in his other work to 'update marxism', *Marx Addio?*, Datanews, Rome 1986. "... The theory proposed here belongs to the family of theories of crisis based on the class struggle. " (p.55).
13. Denis Papin, 1647-1712. Invented the pressure cooker in 1679, going on to publish two works on the steam engine, an example of which he designed for the Landgrave of Hesse-Kassel in order to pump the water supply for his palace fountains.
14. David S. Landes, *The Unbound Prometheus,* p.292 English edition, Cambridge University Press 1977. (See pp 368-381 of Italian edition, Einaudi Paperbacks 1978.)
15. A Time to Choose: America's Energy Future, The Energy Policy Project of the Ford Foundation, translated and published in Italy in 1975 by the Club di Roma dalla Mondadori-EST .
16. Lester Brown and others, *State of the World 1988*, Isedi 1988 p.58.

The Climate's Response to Capital: On the Margin of the Kyoto Conference

As this article is being written the most serious environmental catastrophe in Mexican history is underway. Millions of hectares of forest in the south east of Chiapas are burning while from the northern states of Nuevo Leon and Chihuahua monstrous amounts of smoke have reached the United States (Texas). Huge fires have hit other central zones with the result that the fumes over Central America have even prompted the closure, due to insufficient visibility, of various airports in Honduras and Guatemala.

A few months ago it was Indonesia that was enduring the destruction of huge areas of forest by fire and for the country to be covered in smoke. Then the media gave relatively large coverage to the event. This time it is passing almost unnoticed.

At the same time in early June a powerful cyclone hit the Indian state of Gujarat, leaving 420 dead and 150 missing (official statistics) and again in this case the press and television gave it little attention. We will leave it up our readers to imagine the reasons for this unseemly behaviour by the scribblers and their publishers as we limit ourselves to the topic at hand: the climate, its upheavals, the causes and the possible (or impossible) remedies.

El Niño

First of all, the set of factors that triggered the disaster in progress in Central America is well known and undisputed in scientific spheres. The peasants' traditional practice of setting fire to the fields to prepare for the Spring sowing has got out of control due to the long, hard droughts that Mexico has suffered for 70 years now. Even when they are surrounded by forest, burning has always been the practice in Mexico's fields.

Just a strip of bare soil is left to prevent the fire extending to the trees: the humidity of the latter — this is the rain forest — would be enough to smother any sparks. Now, if the flames have spread with such great fury this is due to the exceptional drought, itself an expression of the serious climatic disruption that is linked to El Niño.

The name was coined long ago by the fishermen of Pacific Latin America since the combination of an increase in surface temperature of the ocean waters and a

reversal of currents is usually felt around Christmas, and El Niño is what we would call Baby Jesus. The phenomenon itself is natural, in that it has been documented since 1567 and recurs with varying regularity from 2 to 7 years. But the importance of its influence on global weather patterns came to light only at the end of 1960, to be subjected to systematic study only in the last two decades.

Thus the latest El Niño which in fact began last year had been predicted for some time by scientists. Yet, back in May 1997 a Congress of these same scientists concluded:

It seems like an El Niño, moves like an El Niño, but it is too early to say how much it will grow and how 'bad' it will become.

> *And why so much uncertainty about a phenomenon already in progress? Because the phenomenon itself is caused by the interaction between ocean and atmosphere and the behaviour of the atmosphere is now unpredictable.*[1]

The most perceptive meteorologists and climatologists maintain that the dynamics of the upper atmosphere and stratosphere have radically altered, upsetting previously valid models of climate patterns which had taken a laborious and painful process to understand. This change has occurred as a result of the warming of the Earth. Not only was 1997 the warmest year recorded, but "global temperatures during the first months of this year are unprecedented," Al Gore, Vice-President, admitted at a meeting of scientists and journalists in the White House on 8 June. At the same meeting the National Oceanic and Atmospheric Administration (NOAA), outlined a new analysis which indicates that the most significant El Ni–o events have become more frequent and more severe over the past two decades. Preliminary data suggest that this phenomenon may be related to the increase in global temperatures, although the exact relationship between the two phenomena is not yet known.

At that same meeting in the White House the director of the NOAA, D. James Baker added, "*The wetter and hotter than usual winters we have just experienced gives us an idea of the prospect that awaits us in a world warmed by the greenhouse effect.*" Thus the highest political representatives of present-day society (bourgeois capitalist) now accept what many scientists (ecologists, climatologists, meteorologists) have been saying for twenty years: that the continued massive emission of carbon dioxide (CO_2) and other 'climatic' gases (including many compounds such as methane and fluorine) will lead to a warming of the planet whose consequences are in many ways unpredictable but which in any case will be catastrophic for the climate.

According to two scientists whose political conclusions we absolutely do not share, M. Scalia and G. Mattioli:

> *The rigorous theory of stability ... shows that the 'small' disturbance generated in the bio-genetic carbon cycle — which goes under the term greenhouse effect — as a result of the continuous emission of CO2 by the multiple activities of industrial companies, may result in severe consequences in terms of climate change.*[2]

This kind of information has entered so far into the consciousness of the world's political leaders and such is the pressure of the scientific community that the United Nations has seen fit, ten years after the conference on the ozone layer, to hold a special international conference on climate change. That meeting was held in Kyoto, the ancient capital of Japan, between 1st and 10th December 1997.

Kyoto: Capital Laid Bare

As far as the proceedings of the conference go we refer readers to the abundant documentation available, in order to concentrate on the essential points of the protocol signed by the 153 countries attending Kyoto.

We willingly give Giorgio Nebbia the credit for an effective summary:

> *The Kyoto meeting ended with statements of good intentions: Some countries have promised to reduce, but gradually, slowly, in one or two decades, emissions of carbon dioxide and other "greenhouse gases" to 1990 levels, leaving the developing countries to increase their consumption of energy as they please with the subsequent climatic changes. Just to get an idea, if you think that in 1990 about 25 billion tonnes of carbon dioxide per year were released into the atmosphere, from then until now about another 260 billion tonnes of carbon dioxide have gone into the atmosphere, if emissions stabilise by 2020, there is time for another 600 billion tonnes to enter the atmosphere. Consider that the total amount of carbon dioxide in the atmosphere today is 2600 billion tonnes. An increased content of carbon dioxide by 2600-3200 billion tons in a few years will have dramatic effect not only on the climate but on the water cycle, on agriculture, on geochemical balances and on the biological productivity of the seas.*[3]

We can add that at Kyoto, after lengthy discussions, it was agreed to postpone the definition of the terms of sale of pollution allowances amongst the various countries involved to a future meeting (December 1998). However, the principle has been accepted.

In a world where health and the right to life itself have been turned into commodities it is natural for the right to emit greenhouse gases to become a commodity. The mechanism would be (will be) this: If a country succeeds in reducing its emissions below an assigned quota, it can sell this "surplus" to another country, obviously in exchange for hard cash.

Thanks to strong opposition from the peripheral countries, led by India and China, for the time being they have no obligation to reduce, despite the initial determination of the U.S. to impose the "egalitarian" principle: "If we have to cut then everyone else must cut and in the same proportions." The game was simple: since many countries have very low emissions of greenhouse gases, they can cede their quota to the U.S. (the biggest energy guzzlers and polluters in every sense) which thereby would be spared the cost and headache of a substantial reduction in emissions.

It was also easy enough for India and China to get support from Europe in rejecting this outrageous principle and instead apply another, in some ways more equitable, obligation to reduce in proportion to emissions per head of population. Thus the USA, at least for a while, will have to bargain with the developed countries over reduction levels. Amongst these, however, there is Russia, which in recent years has drastically reduced its total anthropogenic emissions as a result of tens of thousands of chimneys being put out of use, rampant poverty and the general decline in production. Some people, including the irreparable reformists at *Le Monde Diplomatique (LMD)* applaud the success of poor countries and the defeat of the U.S.[4]

We do not find anything to rejoice about. The central nub of the issue has not even begun to be dealt with but the principle of turning the right to ravage the planet into a commodity has been passed. At the December meeting that principle will be consolidated and trading will become concrete practice.

Meanwhile, in Bonn on 12 June a first round of negotiations over the details of the Kyoto Protocol came to an end. Here, on the one hand, the U.S. was criticised by European delegates as well as environmentalists observing the talks for its insistence on the need to define the mechanism for the sale of emissions ... *"something the Administration considers essential to reduce the cost to American industry of required emission reductions"*.[5]

On the other hand, the Clinton administration itself is the object of attacks and criticism from the powerful industry lobby, who have "succeeded" in winning over the Senate Committee on the Budget. The outcome of this was the promise of a "No" to funding the $200 million proposed by Clinton's climate initiative with

the monstrous assertion that it is not convinced *"of the existence, magnitude and effects of global climate change"* and it deems *"inappropriate"* the proposals to cut carbon emissions made in Kyoto.[6]

The representatives of the fossil fuel industry demonstrate how the good intentions (albeit insufficient) of Kyoto immediately clash and fracture in the face of the imperatives of capital. They claim that the proposed cuts in emissions will devastate the economy by inducing dramatically higher energy costs. Promptly the "Committee for the Survival of Small Business" (SBSC) issued a statement criticising the Administration's delay in responding to its requests, essentially asking for the econometric analysis conducted by the White House in support of its negotiations and the Kyoto Protocol to be published. This body, which in a way is representative of 'wider capital', denies the validity of the alarm bell of Kyoto and screams about the threat to business. It is interesting to note that the Council of Economic Advisers in the White House, headed by a certain Janet Yellen, has already said that some documents could be viewed by members of Congress, but only under the supervision or surveillance of the Office of the Council of the President, and this for "reasons of national security." The SBSC in turn issued a statement to protest against this "ploy" of the Administration, also arguing that:

> *the Treaty will result in unjust, unnecessary unprecedented damage to the small U.S. company and its workers, while countries not party to the agreement such as China, India and Mexico avoid any mandatory cuts in energy consumed in relation to this problem, even theoretically.*[7]

Here is the essence of the situation in which the world finds itself in relation to its environmental future: on the one hand the intellectuals of the bourgeoisie are aware of the irreparable damage that "the economic activities of man" (we say this usually means 'them', i.e. capital) do to the environment; on the other, an active part of the bourgeoisie deny the danger and run towards the disaster.

Emissions Reductions: The Criteria Adopted By Capitalism

Apart from the overall figures referred to in the passage by Nebbia above, specifically human emissions are today estimated at 7.1 billion tonnes per year. Of these, 2 billion tonnes are absorbed by sea and ocean surfaces and 1.8 by land surfaces (in particular by the forests, in so far as they remain). That leaves 3.3 billion tonnes which are not recycled and which are increasing every year and which should be stopped. *"Reducing them is an urgent task for the survival of futures generations"*, says LMD.

And we must reduce them, the Kyoto Protocol also states. But, and it is an extremely important "but", the declared aim of the reduction is not the re-establishment of environmental equilibrium and restoring the balance between man and nature, but the "promotion of sustainable development."[8] This is a widely used international precept when referring to the environment and in official resolutions, whether by the UN or European meetings or the various state committees. It is also the criterion adopted and defended by the more or less green political environmental associations and organisations.

It implies and in theory realises, a compromise between the urgency of the environmental situation and capitalist accumulation, something we deem to be impossible.

Capitalist accumulation requires the continued production of individual means of transport, while we try to make the least possible pollution; capital imposes the character of commodity on energy, we try to produce energy at the lowest possible environmental cost; the production of certain more or less innovative commodities involves using a growing amount of hazardous substances, we take every possible precaution to avoid them; and so on.

Consider, for example, energy production. Along with motor vehicles this is primarily responsible for the release of CO_2. No environmentalist or green can disagree with the experts who argue that alternative sources of energy are definitely more expensive than today's dominant source (oil). Even less have they objected to the nature of the energy market itself, and thus the necessity (for capital) of it being produced to sell. So if it is true that: *"A more sophisticated and more widespread solar technology will have a beneficial impact and may make the problems of air pollution and global climate change less serious,"*[9] it is also true that we are talking about "less serious" problems, or a possible extension of the time of global warming and climate change, not a real solution.

In any case, solar technology will become more widespread only when the cost decreases dramatically.

So what are the possibilities of compromise between capitalist accumulation and the prospect of environmental disaster? None. There is indeed a problem, highlighted by the environmentalists themselves (mostly scientists) but soon forgotten in that terrible pursuit of compromise that is peculiar to everyone who has "reformism in the DNA." The problem can be summarised as follows: damage to the environment runs faster than the containment measures capitalist reality allows.

Returning to the example of alternative energy sources and solar energy (but it could be biomass or tidal or wind power), the cost could only be brought down to the same level as traditional energy sources (fossil fuels) over a long period or if there were a rapid and dramatic rise in the price of the latter. Given that oil still "enjoys" low prices despite the cries of alarm over declining supplies, and since the discovery of huge new deposits means oil stocks fluctuate on the "positive" side, measures to limit emissions which are based on the cost-effectiveness of capital will not have time to contain the disaster.

Now the situation is made even worse by the all-out fight that the "rampant bourgeoisie" are leading against the proposed containment measures which is well exemplified by the controversy in the USA mentioned above and even more by the imminent Multilateral Agreement on Investment (MAI).[10]

The extravagant neo-liberalism which the bourgeoisie is resorting to worldwide in its attempt to cope with the crisis in the rate of profit and the cycle of accumulation is the political manifestation of the very concrete necessity/tendency of capitalists to save on all costs of production: labour costs first and foremost, but also the cost of raw materials as well as anything connected to conditions of production. And amongst those costs are environmental protection and job security.

Beyond Sustainable Development: Emissions Reductions: Human Criteria

Let's re-examine the key issue:

> *The question for the economy is not growth or no growth, the question is how to grow and to what purpose. Growth as an end in itself often proves to be contrary to human interests: it can depress the quality of life, rather than increase it. Economic growth should be at the service of human objectives and should exist only when it fulfils that function.*[11]

These are the words of Ervin Laszlo, not a revolutionary internationalist but adviser to UNITAR, the United Nations Institute for Training and Research. They well express the mind of a thinking being who puts human interests first.

The question, then, is how to rectify the damage already done and which is already having a substantial negative impact on a consistent portion of humanity. (As well as the examples mentioned above, we should remember such phenomena as the process of desertification in vast areas of China, the serious depletion of Central European forests as a result of acid rain, disruption in the dynamics of the upper

atmosphere which limits the scope of forecasts to no more than three or four days when otherwise, given the improved data collection and processing techniques, there could be accurate predictions of the climate). Thus the immediate question is how to eliminate the 3.3 billion tonnes of carbon dioxide which nature cannot recycle.

Again, as G. Nebbia puts it: There is only one solution: ***stop releasing the gases that are responsible for the greenhouse effect into the atmosphere***. [emphasis added].

It is now clear that we have to act on two fronts: on the one hand, to reduce emissions drastically and immediately, and on the other to enhance the capacity of nature to recycle: afforestation, rather than destruction of forests; reviving the absorptive capacity of oceanic zooplankton rather than allowing its destruction by water pollution, which in turn greatly increases the amount of "toxic algae", and so on.

Reducing emissions is only possible if there is a drastic cut in the production of electricity from oil. Limiting ourselves to the Italian case, this would be possible — without serious loss of electricity — simply by reactivating and strengthening the dozens of small hydro power stations within the vicinity of the Alps, as well as making use of any alternative form of electricity production that is already available. And for those countries which, without any sense of the ridiculous, are often referred to as "in the process of industrialisation", would it not be logical, just, humane, to skip the stage of fossil fuel-fired power plants, instead of allowing an unlimited increase in emissions? And in the USA, the foremost economic and technological power, are we expected to believe that if it were not for economic considerations, the US would not be able to do with less oil and produce energy by other, clean technologies?

The fact is that posing this as the goal for an indefinite future by a long march through whatever is compatible with capitalism only means that nature's capacity to recycle will continue to be exceeded. More damage will be piled onto the damage that has already been done, which will provoke even more rapid and dramatic natural reactions over the planet. —It is worth emphasising this again.

From the angle of improving the capacity to capture and recycle carbon dioxide — the smaller the reduction in emissions the more this is necessary — the first requirement is an absolute ban on cutting down and damaging forests, large and small. It is shameful that the Scandinavian countries can boast of a doubling of forested areas due to skilful management policies while the paper-producing industries (even in these countries!) import cheaper wood pulp taken from the Amazon forests which are indiscriminately under attack. How shameful too is it that ever year, in order to create grazing land for the immense herds of cattle of

the big hamburger chains, thousands of hectares of the same forest are razed to the ground.

It would then be necessary to go on to the recovery and reforestation of desert areas in various regions of the new world (from China to the African Sahel).

The oceans still have some capacity for recovery so long as they are not further beset by pollution. The question would then be how to immediately stop the huge flow of pollutants which go along the rivers to reach the seas and oceans: strict controls would be necessary on industrial emissions and blocking of all of pollutants. Many techniques already exist for controlling pollution and cleaning up sewage. If they are not implemented it is due to the usual reasons of cost-effectiveness: the state protects them, not human interests.

> *If governments were to act pro bono publico, in the interests of citizens, of life, of nature and of future generations, there would have been no need for the Rio Conference of 1992 [remember the "Earth Summit"?] nor the recent Kyoto conference, and there would be no need for those to come.* [12]

Very true. But why is this so?

Because governments are not the expression of the interests of the public at large, but of the ruling class whose self-preservation interests today come into direct conflict with the interests of humanity.

This is the fact that environmentalists and Green reformists are unable to get into their heads and even when it does seem to enter it is immediately distorted by the thought that with more time to put pressure on capital, the environment can be put right.

Revolution and Socialism

How else to explain the following propositions?

> *... The fact cannot be underestimated that for the first time an international agreement imposes environmental constraints to economic activities, thus establishing the principle that markets should take into account the environmental consequences of their activities ...* [13]

Yet the constraints of that agreement are a) completely inadequate compared to the urgency of the situation; and b) are not even certain since they await ratification by the states and the White House and already the news is that there is not enough time to submit such a programme to the Senate.

The application of the human criteria described above imply a radical change of political framework and the elimination of the bourgeoisie as the ruling class. As long as this condition does not occur, the capitalist world will continue to run towards environmental disaster.

Once these conditions exist, that is, once the proletariat succeeds in destroying capitalism and capital and controls, not the economy but production for human needs, major new opportunities will open for re-establishing the balance between man and nature.

After that, the main reason why energy production is harmful today, i.e. its commodity form, will have disappeared.

This means that energy will be produced according to the need for it and not simply according to its distribution as a commodity. Once freed from the constraint of the economic cost, that opens up the possibility of implementing more flexible technologies which are responsive to environmental conditions.

An Aside On Energy and Physics

At this point it is worth adding something on the nuclear question.

Many will recall the uproar at the time (1989) generated by the experiment of two scientists who said they had achieved electrochemical cold fusion.

Fusion is the process of joining two atomic nuclei of a chemical element to form another nucleus of a different chemical element. It is something like the chimerical "transmutation of matter" of the medieval alchemists.

Modern atomic physics postulates this possibility only under the conditions of plasma: a cloud of protons and neutrons at a temperature of several million degrees centigrade. In practice,

> *... the hot fusion community seeks, without success, to increase the kinetic energy of deuterium nuclei to such a point that the speed will overcome the considerable barrier that stands in the way of their merger, and to do this they try to reach a temperature at least a hundred times the temperature that is estimated to exist inside the sun.*[14]

Such a process of fusion releases large quantities of energy because, for example, the energy content of two atoms of hydrogen is considerably greater than the

content of a helium atom which is formed by the merger of the two.

At any rate, to date, the energy consumed in maintaining the plasma for enough time to allow some sort of nuclear fusion to occur is much higher than the amount of energy released by the merger itself.

The problem is not insignificant, for both the physicists and the energy companies.

Professor Rubbia is heading a research project at the mega-laboratory of CERN in Geneva which aims to solve the problem. It will take years and is funded to the tune of billions of dollars per annum by the European Community.

Fleischmann and Pons, the two electrochemists mentioned above, have called into serious question the usefulness and validity of such expensive research, but they also question the validity of the most complex theoretical framework of modern physics. In so doing they have opened up the possibility, all still to be explored, of something that is truly revolutionary and which therefore could be a useful tool for revolutionising society. The exciting possibility is to produce energy that is almost completely clean (no waste) and to produce it in the quantity and place it is used, even in individual units, using simple equipment and with a low social cost of production. (By social cost of a good or service we mean the sum of: the amount of energy consumed; the quantity of raw materials and quantity of labour required; the impact of pollutants on the environment and waste production; the environmental impact of the good or service once disposed of as waste.)

It goes without saying that the experiment of Fleischmann and Pons, although repeated in various research centres round the world, including Italy, was initially dismissed as a fake — and the two researchers accused of being frauds. Then their results were simply denied on the basis of the non-recurrence of some inconsequential phenomena, but only in hot fusion, and then the whole issue has simply been ignored and brushed aside by mainstream science. In fact, though, this is now being seriously called into question by the substantial success of the cold fusion experiments and also by the progress made in verifying the event.

In essence it is this. The beginning of this century (a time of gigantic clashes between the classes which remain antagonists to this day, and before, during and shortly after the greatest event of all which was the October Revolution—though it was then, tragically, lost) saw an extraordinary scientific vitality as epitomised by names like Nernst, Planck, Einstein, Heisenberg. In what emerged as a new vision of the world where,

the two fixed systems of classical physics, particle and wave theory, theoretical

> *paradigms of the discrete and those of the continuum, somehow become arcane and incomprehensible as they merge into a single whole ['unicum'] in which the discontinuity and continuity of the quantum field transmute continuously into one another, depending on the interaction with the observer.*[15]

This is fixed in the Heisenberg uncertainty principle, something foolish people like to present as anti-Marxist and anti-determinist, only because he, politically, was a fine reactionary.

However, this came to a halt,

> *After about a century, these ideas have still not developed into a world view completely antipodal to the mechanistic one of classical physics.*[16]

Capitalism won, having revived in the Soviet Union from the mid-to-late 1920s, it 'stabilised' itself and strengthened its direct hold everywhere in the scientific world and over the "people who do science."

For over seventy years there was nothing to seriously disturb society's existing equilibrium and it is this, in its multiple forms, which determines the 'serious' validity and therefore the practicability of a theory or a scientific paradigm.

It follows that any theory which somehow fractures or radically questions the relationship between science and capital can never be peacefully asserted. In the field of physical sciences the academic establishment, with its research centres entirely funded by capital, performs the duties of guardian. Dissidents can only lay the foundations for a rebuilding of the sciences and their method, which will be able to manifest itself as social knowledge when society itself is liberated from the chains of capital. And we give them all our encouragement.

Once Again on Socialism and the Environment

The rapid elimination of greenhouse gas emissions from energy production would still not be enough to reconstruct a beneficial relationship between human beings and the environment so long as the present trend of increased individual transport based on the combustion engine continues. The debates on energy saving and the possibility of new 'non-polluting' engine technologies are ridiculous compared to the projected motorisation of the Indians and Chinese. This would mean that fewer than 30 per cent of consumers would account for 70-80 percent of this

single means of pollution with the obvious consequences for global pollution.

Thus, a radical re-think of travel and transport is required, again based on real human needs. Individual methods are permissible only on condition that:

a) they are generalised to all;
b) they are absolutely non-polluting and non-greenhouse gas emitters (i.e. powered by something other than internal combustion or electric engines, which is to say without the massive production of energy by today's methods);
c) they are used exclusively in forms of collective or public transport.

Basically this means a fundamental reappraisal of the forms of human mobility. It is an area of research that could inspire legions of researchers, once they were freed from the bourgeois constraint of economic costs and 'conditioned' only by the social cost as we defined above. And because movement is a form of energy, it is 'only' a matter of using the most appropriate form of energy, the one that can most efficiently be transformed into means of transport.

Given that for years there have been more emissions than nature can absorb and recycle, there also remains the significant question of how to enhance the absorptive capacity of nature. The environmentalists have already indicated how this can be done, despite the essential reformism that foolishly characterises them: large-scale re-forestation, cleaning-up rivers, lakes, groundwater and oceans. The Greens see this as a great opportunity for employment within capitalist relations of production. Supporting them in these ramblings are all the radical-reformists in Italy who gather in and around Rifondazione. However, aside from all of that, one detail remains: reforestation and de-contaminating oceans and rivers is unprofitable as a once and for all activity. Eco-business makes sense as such precisely because it assumes a growth market: by providing more resources and services as pollution itself increases. But a market in polluting the planet is not acceptable even on the loosest theoretical level, since once the goal of de-pollution is reached the market itself is undermined.

Furthermore, reforestation is a typical public act where the state provides a service to the community, drawing from its own funds. Thus the only chance of this being taken up on a large scale is if there is large state involvement. Anyone with common sense knows that is not the case with the bourgeois state, either today or tomorrow. The only exception would be in the case of a new cycle of accumulation which we know is impossible without the appalling destruction of a new world war.

Instead, cleaning-up the planet and re-establishing the balance between man and nature will probably be amongst the priority tasks of the workers' semi-state. Surveying where remedial measures are necessary, organising them on a scale of priorities, studying how and what to do and their social cost, planning how to make them and how to deploy the labour required, these are tasks that can and should be undertaken by horizontal and vertical organisations of the councils on an international scale. It will require all the scientific and technical expertise that is available, once the proletariat has been elevated to the agent of history and has, by the fact of revolution, opened up new horizons about what can be done.

The working class no longer has simply a world to liberate, it will also have a world to clean up, and so much more to clean up the longer it delays its own emancipation from capital and wage labour.

Footnotes

1. See Hillary Mayella, *'History of El Niño: Tracking a Global Mystery'*, Environmental News Network, September 1997.
2. See *'Media and Government Without Energy'* in the special energy supplement entitled The Battle of Kyoto, *Il Manifesto*, 14 December 1997.
3. In particular it is worth noting the energy supplement in the previous note.
4. See *'Les enjeux de la conference de Kyoto'* in *Le Monde Diplomatique* , January 1998.
5. 'Clinton's climate plan under attack', H.J. Hebert of the Associated Press of 12 June 1998 (AL).
6. ibid
7. *No Response to FOIA Request*, press release of the Small Business Survival Committee on June 9, 1998.
8. *"... in order to promote sustainable development .."* Article 2 of the Kyoto Protocol.
9. William Hoagland '*Solar energy into clean'*, Quaderno n. 96 *Le Scienze*, p.47.
10. See *Battaglia Comunista* 3, 1998 (MAI Treaty: *Greater Freedom for Capital to Exploit the Proletariat*). Negotiations towards implementation of the MAI were abandoned in April 1998 in the face of international opposition to the US proposals.
11. Unnamed source.
12. See *Les enjeux* ... op. cit
13. *Objectives for Humanity*, the fifth report to the Club of Rome, Library of EST, Mondadori 1978, p. 161.
14. G. Nebbia, op. cit.
15. Hermes Realacci, president of Lega Ambiente in the supplement of *Il Manifesto* cited above.
16. See Giuliano Preparata, *'From quarks to Cold Fusion'*, speech at the Lagopesole Conference on cold fusion, 6 October, 1996.

CWO Articles on Capitalism and the Environment

Over the years the CWO's journal *Revolutionary Perspectives* has commented on the question of capitalism and the environment. Back issues of the latest series (4) are still available to purchase while individual articles are on our website, as are issues 25 onwards of series 3. Copies of earlier articles can be obtained individually from the CWO for the cost of postage or a pdf forwarded via email. (Details inside front cover.)

***Revolutionary Perspectives* Series 3** (Winter 1995/96—Summer 2012)

RP 56, Winter 2011: *Cancun World Climate Conference, Another Predictable Capitalist Failure*

RP 53, Spring 2010: *After All the Hot Air at Copenhagen, Global Warming is Set to Continue*
Haiti Earthquake, A Disaster For Capitalism

RP 52, Winter 2009: *Environmental Disaster or Communism, There is No Third Way*

RP 46, Summer 2008: *Fuelling the Food Crisis: Biofuels and Imperialism*

RP 45, Spring 2008: *A World to Win:* Debate with Sussex University students: *Do you have to be Red to be Green?*

RP 40, Autumn 2006: *Global Warming: Socialism or Ruin*

RP 38, Spring 2006: *Global Problems Need Global Solutions* (a propos James Lovelock)

RP 27, Winter 2002: *Earth Summit: Capitalism Fails to Save the World*

RP 17, Spring 2000: *Incineration Plants: The Fight Against Capitalism's Burning Issue*

RP 3, Summer 1996: *Capitalism's Crisis and Disasters (editorial)*

Series 4:

RP 7, Winter/Spring 2016: *Paris Climate Conference: Another Failure*

Our Pamphlets

The Platform of the Internationalist Communist Tendency **£1**
Revised English version (including postage in UK)

For Communism **£3**
An Introduction to the Politics of the CWO.

Class Consciousness and Revolutionary Organisation **£4**
"Consciousness" is one of the most important issues for the working class and for revolutionaries. Our approach is unashamedly historical and attempts to draw out the real experience of the working class in its struggles of the last two centuries.

Trotsky, Trotskyism, Trotskyists **£3**
How Trotsky, who made an enormous contribution to revolutionary practice, ended up giving his name to a movement which returned to the counter-revolutionary errors of Social Democracy.

Stalin and Stalinism **£1**
The lie that the former USSR was "really existing socialism" remains a potent weapon against the working class. Here we examine the origins of the regime that came out of the defeat of the October Revolution as well as the motivations of Stalinism.

Holocaust and Hiroshima **50p**
Examines how the nature of imperialist warfare comes to inflict mass murder on the world through an examination of these seminal events.

Spain 1934-39: From Working Class Struggle to Imperialist War **£3**
Reprint of key CWO articles long out of print and translations of contemporary documents from the Italian Left in exile. New introduction.

Platform of the Committee of Intesa 1925 **£3**
The start of the Italian Left's fight against Stalinism as Fascism increased its grip.

South Africa's New Turmoil **£2**
Analysis of class relations in the period after the fall of apartheid thrown into relief by the strike wave which followed the Marikana massacres.

1921: Beginning of the Counter-Revolution? **£1**
Kronstadt, adoption of the NEP, banning of factions, the failure of the March Action in Germany and the adoption of the united front policy, made 1921 a highly significant year in the degeneration of both the Russian and international revolution.