

Stabilizing the global climate. A challenge to politics, economy and society

Working group
'Ecological Economic Policy'

1 Inleiding van de redactie

Het artikel *Stabilizing the global climate - a challenge to politics, economy and society* is een manifest van de werkgroep 'Ecological Economic Policy'. Het werd ondertekend door ongeveer honderd voor het merendeel Duitse economen, waarvan een belangrijk aantal zeer vooraanstaand. Ter introductie van de werkgroep aan de lezers van het Tijdschrift voor Politieke Economie schreef de coördinator, Hans Diefenbacher, het volgende.

De werkgroep 'Ecological Economic Policy' (Arbeitsgruppe Ökologische Wirtschaftspolitik) werd opgericht in oktober 1989. Enerzijds wil de groep een platformfunctie vervullen. Anderzijds wenst zij te werken aan gemeenschappelijke beleidsvoorstellen op het terrein van economie en ecologie. Tot op heden hebben zich ongeveer honderd economen, voornamelijk werkzaam aan universiteiten en research instituten, bij de werkgroep aangesloten. De groep wordt gecoördineerd door Dr. Hans Diefenbacher (Forschungsstätte der Evangelischen Studiengemeinschaft, Heidelberg) en Dr. Frank Beckenbach (Institut für Ökologische Wirtschaftsforschung, Berlin).

Momenteel werkt de groep permanent aan drie verschillende onderwerpen:

- Een economisch beleid dat gericht is op een ecologische herstructurering in industriële samenlevingen. Speciale aandacht daarbij krijgen de Duitse problemen, zoals die zijn ontstaan na de vereniging van de BRD en de DDR. De groep heeft in maart 1990 een beleidsverklaring gepubliceerd aangaande de ecologische problemen in de voormalige DDR, alsmede in oktober een discussiestuk met kritisch commentaar op de eerdere verklaring.
- Voorstellen ter verbetering van de onderwijsprogramma's voor economiestu-

denten als het gaat om de behandeling van ecologische problemen.

- Voorstellen voor een economisch beleid dat bijdraagt aan het voorkomen van klimatologische veranderingen. Het hier gepubliceerde artikel is de uitkomst van discussies binnen de werkgroep. In november 1990 werd de Duitse versie van dit artikel voor het eerst gepubliceerd.

De werkgroep verwelkomt kritiek, bijdragen en samenwerking. Haar adres is Kantstraße 1a, D-W-68 Mannheim 1.

De publikatie van dit manifest in het Tijdschrift voor Politieke Economie past in het streven van de redactie de lezer te informeren over internationale ontwikkelingen binnen de politieke economie (vgl. de bijdragen van Verhagen in no. 12(3) en De Klerk en Plasmeijer in no. 13(2).) Bovendien meent de redactie dat door zijn profilering het Tijdschrift in Nederland het medium bij uitstek is om bekendheid te geven aan de resultaten van werkgroepen als 'Ecological Economic Policy', 'Economen voor Vrede' en dergelijke. Het belangrijkste argument voor publikatie is evenwel, dat het manifest een zodanig kwalitatief hoogwaardig artikel is dat het ook in Nederland richting kan geven aan een economische discussie.

2 Introduction

The industrial societies today are charged with the heavy responsibility of having to be a model for global development. If this standard, which is almost naturally derived from the stimulus of industrial development paradigms, is to be accepted, a far-reaching change in ecological structures will have to be achieved in all countries of the northern hemisphere. For in no industrial nation on Earth is there a state of affairs which can be globalized, i.e. transferred to all other parts of the world. On the contrary: if all the nations of the world had turnovers in material and energy similar to those in the northern states, the Earth's ecological system would collapse within a few decades.

The threatening global warming effect is returning to the international agenda what has been known in principle, at the latest since the "Limits to Growth" and "Global 2000": the life style in the industrial countries relies on the exploitation of the world's natural resources, the people in the southern hemisphere and future generations. If this life style is to be upheld, it can only be achieved at the cost of the warming of the Earth's atmosphere, an aggravation of the North-South-Conflict and a loss of democratic freedom by world standards. The illusion that the industrial nations can consistently avoid being affected by global ecological deterioration is thoroughly destroyed by the climatic problem: if the current trends for the emission of trace gases relevant to climate were to continue, the average global temperature would rise by 3 to 5 degrees centigrade by the year 2100; sea-level would rise by about 70 cm within the same time span; various ecological systems and species, which over thousands of years up till now have been able to adapt to the respective climatic conditions, will disappear or die out; agriculture in today's high production areas will be severely impaired; human migration will increase all over the world.

In order to stabilize the atmospheric concentration of greenhouse gases at the present level and to limit the rise in temperature to a "manageable" amount, it is necessary to reduce the following emissions relative to today's levels:

- CO₂ by at least 50 per cent
- fully halogenated chlorofluorocarbons (CFCs) by 100 per cent
- methane by 15 to 20 per cent and
- nitrous oxide by 70 to 80 per cent.

Future policies to stabilize the climate will be judged by these figures which are now virtually undisputed among scientists.

3 The responsibility of the industrialized world

The trace gases which contribute to the warming of the Earth's atmosphere are to a large extent released by human activities in the industrialized world. Two thirds of the carbon dioxide (CO₂), for instance, whose contribution to the man-made global warming effect is estimated at about 50% and which results mainly from the burning of coal, oil and gas, come from the chimneys and exhaust pipes of the industrial nations. Even more drastic is the discrepancy between north and south with regard to CFCs, which not only have a decisive effect on global warming - to about 17% -, but are also responsible for the destruction of the ozone layer in the stratosphere. They are produced almost exclusively by the industrial nations. The ground level ozone, whose contribution to the global warming effect is estimated at about 8%, also comes mainly from the industrial nations. Here the main offender is the individual motor traffic, whose emissions of nitrogen oxide, carbon monoxide and hydrocarbons are transformed by sunlight to form ozone. Of the approximately 400 million cars in the world two thirds are driven on the roads of Western Europe and the United States. Things are different with regard to the emission of methane and nitrogen oxides in trace gases which together account for about a quarter of the global warming effect. Here the developing countries also make a considerable contribution.

In summary we can state the following with regard to the responsibility for the current emissions of trace gases: the main offenders for the global warming effect are to be found in the industrialized world, where a quarter of humanity produces three quarters of all emissions that affect the climate, and also consume three quarters of all commercial energy and four fifths of all raw materials. If one adds up all the emissions released, the responsibility of the "wealthy north" is even more evident: between 1950 and 1986 almost 85% of all trace gases that affect the climate were released by the industrial nations. The truth is that the matter-of-fact enumeration of the individual gases and their shares in the man-made global warming effect conceals nothing less than the physical basis of the production methods and life styles of the industrial society:

- an extremely high energy consumption per capita;
- a constantly increasing (auto-)mobility;

- a "chemicalization" in virtually all areas of production and living;
- an industrialization of agriculture;
- a continual growth in the amount of waste products.

Sharing the burdens more fairly

No matter which indicator one uses to more justly distribute the burdens which will accompany a more effective policy to stabilize the climate, the industrial nations will have to bear the brunt of the responsibility. If one approaches the question of sharing the burdens by considering the emissions, either the current per capita emissions or the accumulated emissions of the past decades can be used. The latter would seem more just because they take into account the emissions released in the past which have contributed to the problem. The national product per capita would be a more "physical" indicator for sharing the burden, because the economic productiveness of the country would be reflected. Theoretically one could also imagine using the atmosphere's capacity for assimilation as a starting point. If this could be determined exactly, a "total volume of acceptable emissions" could be calculated - consisting of past emissions and "tolerable" future emissions. This amount, divided by the number of people living today, would give per capita units which express the extent to which each one of us can pollute the atmosphere. Countries, which have already (more than) exhausted their allowances, would be debtors to the atmosphere as it were. Without exception these would be the industrial nations. They would have to pay off their "debt to the atmosphere" to those who have waived their right to pollution by "saving" - even if it was unintentional: i.e. the developing countries. In short: if the industrial nations don't want the developing countries to make the same use of their "pollution rights" as they (the industrial nations) have already done and thus bring about disastrous ecological consequences, they will have to provide compensation and at the same time make credible improvements in their own efforts.

At this point it seems important to us to make two provisos. Firstly: due to the industrial nations' backlog of "debt to the atmosphere" a completely fair distribution of burdens is no longer possible. The truth is, we are talking about limiting the unequal sharing of the burdens. Secondly: although we are discussing the right to pollute the atmosphere, this should not provide the theoretical basis for tradeable emission permits. We are very sceptical about that kind of concept. Our aim is to ensure that both the atmosphere's capacity for assimilation and the present and past emissions are taken into account in the division of the ecological burden.

No matter which indicators are used in a specific distribution model, whether emissions and/or economic productivity, it is up to the industrial nations to lead the way in international climate protection. Their credibility in international negotiations will depend predominantly on whether they succeed in fulfilling effective ecological concepts within their own borders. The basic idea of an "effective development" is the general applicability of a specific course of development. A course, whose general application would lead to a global collapse, cannot be

either effective or lasting. These qualities can only be achieved by a course which guarantees that the natural capital funds at least remain constant over time and that nature is capable of regeneration.

Energy policy: decentralization and ecologically "real" prices

Above all, the consequence for the Federal Republic of Germany and all industrial nations would be a policy based on the prevention of waste, and on initiating a structural change. For the new quality of the climate problem is due to the fact that the necessary reduction of trace gases which cause global warming cannot be achieved by technical retention procedures such as filters or catalytic converters. This is particularly true for carbon dioxide. An appreciable restriction of emissions of this gas is only possible together with far-reaching structural changes in the areas of energy and traffic. Structural changes in this context should be understood in a general sense. In the energy sector, for instance, a combination of national regulations and instruments of the market economy could inaugurate a phase of decisive energy savings.

We therefore propose the following aims for a new energy policy:

- the consistent orientation on the principle of minimization of risk;
- the "Negawatt not Megawatt"-concept which places the rational use of energy at the centre of energy economy and policy and illustrates that "it pays";
- the promotion of combined heat and power generation, which improves the effectiveness of energy from an average of one third to an average of two thirds;
- the strengthening of decentralized structures, taking into consideration local conditions and the revitalizing of municipal enterprise as a factor in energy policy;
- extensive energy counselling to create energy consciousness at consumer level;
- establishing energy agencies to promote investments for energy saving projects in all businesses;
- the introduction of graduated linear tariffs according to time zones and the termination of the present system of indirectly subsidizing industry at the cost of private households;
- withdrawal from nuclear energy, which not only contains great risks, but also impedes the way to efficient and decentralized energy provision;
- the promotion of renewable energy by providing attractive conditions for feeding this kind of energy into the system, as well as for electricity from thermal power stations;
- the utilization of domestic energy sources, although this principle should not be followed too dogmatically (see below);
- the introduction of an energy tax (see below) to be used for measures to protect the climate;
- the introduction of consumption standards for household appliances as well

as;

- a European standard for home insulation against loss of heat, which should be rated according to climatic zones and based on the standard for a low-energy house.

Such an "internalizing of external costs" of energy consumption is a necessary condition for an effective policy for stabilizing the climate but is by no means sufficient. As a means of raising energy prices we recommend a tax for primary energy sources. But we are against a tax solely for CO₂:

- this would indirectly favour nuclear energy, which, due to its high risk potential, is no alternative to fossil fuels;
- this would reduce the environmental consequences of the use of energy to the "endangering the climate" aspect and ignore other ecological repercussions (from mining to the use and final storage of residues);
- this might further encourage taking environmental protection measures "after the event", because options for end of pipe technologies could again be brought into the discussion as alternatives.

But for us it is also unacceptable that the "national source of energy", coal, should be exempt from a tax on primary energy, as proposed by interested parties. Pit coal and brown coal should not be put at a disadvantage by a simple CO₂ tax, but at the same time should not be favoured by being tax-exempt. Socio-political or structural goals cannot be achieved by an energy tax. Using coal in a way that is more in harmony with the environment, especially by decentralized and efficient thermal power station technology, is feasible and necessary in the immediate future. At least as important as raising the price of energy is the greatest possible decentralization of energy supply. The most efficient technologies for energy production are at present small and medium scale technologies, whose nearness to the consumer facilitates high efficiency. But the monopolistic structures in today's energy industry are a massive barrier to these very technologies' gaining market penetration. Therefore, a policy of decentralization is also a policy of stabilizing the climate. For not only can the most efficient technologies best be realized "in situ", the best way to succeed is to transform an energy company that wants to sell energy into a service company that wants to satisfy the demand for energy services with the least possible waste of non-renewable energy sources: Customer proximity is the key to ecological success. Clearing away the barriers to innovation on a path to efficiency, above all a change in the energy laws and the "Bundestarifordnung Elektrizität" (German federal regulations for electricity tariffs) complies with the demands on an ecological restructuring of the market economy. Basically the towns and communities are adequate agents for an energy supply that is based on the principles of efficiency and climate compatibility, even though there is room in this concept for private energy businesses and service companies. The stigma of being inflexible and opposed to change that is often associated with municipalities, can best be overcome by introducing modern management and planning techniques - e.g. "Least-Cost-Planning".

Transportation Policy: Avoidance, relocation, slowing down, efficiency

An ecological "turn-around in transportation" should be based on the following ideals:

- avoiding traffic;
- relocation of traffic;
- the slowing down of traffic;
- technical optimization of traffic.

This sequence of events can be considered as a programme.

To even begin to charge the road traffic of passengers and goods with their respective social and ecological costs and to remove the competitive advantage over rail traffic, it is necessary to:

- raise the tax on mineral oil in stages by 2 DM per litre by 1995;
- levy a mileage tax for heavy road transport which provides a price advantage for long-distance rail transport;
- provide state financing of mileage costs for railways;
- instigate far-reaching new investments to extend the railway network with special attention to compatibility with the environment.

We also consider it important:

- to establish exacting consumption standards for new registrations for cars and heavy vehicles from 1992 onwards; already it would be technically possible step by step to introduce a maximum permissible consumption of 4 litres per 100 km (59 mpg);
- to remove tax advantages for motor traffic and promote participative use of automobiles (car pooling);
- to introduce consistent speed limits on all European roads.

Even though in transportation policy as in energy policy there are limits to a mere substitution between the components of the system (road-rail) and the main concern must be the reduction of the total volume, changes like these would be a preliminary contribution to an ecological rethinking in the transportation sector. In the light of past experience a radical change will be needed in this area, too. It would be absolutely illusory to believe that simply making the transportation of passengers and goods by rail more attractive without restrictions on road traffic would effect sufficient relocation. In today's world an ecological transportation policy means: promoting public transport for passengers and goods while simultaneously doing away with all the privileges of motor traffic. This means that as with the energy policy the towns and communities will assume a leading function. Banning as much private traffic as possible from the towns always increases the attractiveness for walking, cycling or using the public transport system. Similar methods can be used for the transportation of goods: closing specific routes (especially for trans-alpine roads) to heavy vehicles, limiting the tonnage to a

maximum of 28 tons, the introduction of a night driving ban and of better employment protection regulations for the drivers, the introduction of speed limits (80 km/h on motorways, 60 km/h on country roads) - all these are measures which will be to the advantage of the railway and therefore to the environment.

In the long term the most effective approach is the avoidance of traffic by spacial planning, by geographically integrated production processes and by merging hitherto separated living spaces. This is a challenge to regional policy, regional and town planning authorities as well as managerial logistics to develop innovative concepts. A lasting improvement in the transportation sector is closely linked to changes in the forms of economy and to individual life styles. Transportation policy is therefore primarily social policy rather than technological and infrastructural policy.

Chemical policy: the focus must be on the products

In the sphere of chemical policy it cannot be enough simply to ban halogenated CFCs by 1995 as Germany has decided to do. As long as there are "loop-holes", there remains the danger that ecologically undesirable substitution processes can be instituted, and, at worst, it would be like jumping out of the frying-pan into the fire. Even today it can be seen that the halogenated CFCs are being replaced by partially halogenated substances (e.g. F22), which, although they are potentially less damaging to the ozone layer and are less relevant to the greenhouse effect, are by no means "compatible with the climate". The massive use of these substances would not further the cause of climate protection at all. The fixation on chemical alternatives all too often obliterates the view of non-chemical options such as the use of non-synthetic substances.

In general we are arguing for a change in chemical policy that not only looks at the emissions, but also considers the products themselves. The greatest emissions of the chemical industry are its products. Ecological criticism of the chemical industry has concentrated on chlorine compounds, whose products damage not only the atmosphere but also the land, ground water, flora, fauna and finally mankind itself. A complete view of ecology which is not reduced to just one aspect - such as the climate - must lead to the conclusion that these products should be abandoned as soon as possible. If the chemical industry wants to achieve long-term social acceptance it will have to be open to new approaches such as ecological analyses of product lines, and the evaluation of environmental and technical consequences.

Agricultural policy: stopping the process of industrialization

The contribution of agriculture to the warming of the atmosphere is above all a result of large-scale livestock farming (release of methane), of the extensive use of mineral fertilizers (release of nitrous oxide), as well as of high direct and indirect energy consumption (above all the release of CO₂). In addition to this we must consider how and to what intensity the developing countries make use of the land,

because to a great extent fodder is imported from these countries. A change in the ecological structure in the agriculture of the industrial nations is not only necessary to prevent a climatic collapse. Pesticides and nitrates in the ground water, erosion of the land, monotonizing of the landscape and the dying-off of species are reason enough to change course:

- determination of stock limits for farm animals according to surface area;
- tightening up agricultural environmental protection regulations;
- banning specific pesticides;
- promotion of ecological farming;
- imposing taxes on the use of nitrogen, pesticides and the import of fodder

These should all be measures which deserve priority in an agricultural policy that is adjusted to the climate. The industrial nations' introduction of agricultural methods that are in accordance with nature would have a positive influence on the developing countries. For the cultivation of "cash-crops", meant exclusively for the export market, often demands a high price in land erosion and deforestation. If this compulsory integration into the world market were eliminated and other farming alternatives were offered in its place, forms of cultivation that are compatible with nature may have a chance in the developing countries.

Prevention and minimizing the risks

A policy which emphasizes the preventive measures as we have demonstrated in the four problem areas chosen here would be an exemplary model. In spite of any remaining insecurity it would be orientated on avoiding irreversible climatic damage. It would take into account the escalation of costs in the worst case and provide a prudent course to stay on the safe side. And, above all, it would at the same time reduce other ecological hazards; produce "positive external effects" as it were. The fact is that consistent energy-saving or reducing private motor traffic doesn't only contribute to reducing carbon dioxide but also to limiting acid forming pollutants, to improving the quality of urban life and to reducing the number of accidents on the roads. A chemical policy which is adjusted to the climate will also protect the ozone layer and - if rigidly applied - the land and the ground water.

Using the principle of minimization of risk as a general guide eliminates policy options which amount to substituting or even accumulating the risk. In this category we must mention nuclear energy, which is commended again and again by interested parties as a contribution to protecting the atmosphere. Apart from the high costs of this technology and its limited availability for today's tasks because of the long planning phase which is necessary, it conceals plenty of risks. The list goes from low level radiation and the potential "Super-GAU" (worst possible nuclear accident) to the unresolved question of the disposal of atomic waste and the possible proliferation of materials from which atomic bombs can be made. "No-risk" nuclear energy is impossible now and in the future. But technologies which aggravate rather than reduce these problems must be seen as inadequate.

This is the case with atomic energy. Abandoning this technology as fast as possible is therefore part of a responsible global strategy for stabilizing the climate.

Social innovations and new alliances

Protection of the climate is not only a function to be delegated to "the state", "politics" or "business", but at least as much a social challenge. It affects everyone; industry, trade unions, environmental agencies, the churches and the consumers. Therefore social innovation is required to deal with the global environmental problem, the "greenhouse effect", in a civil rather than in a command and control way. This means rethinking on all fronts. The manufacturer of highly efficient block-type thermal power stations for instance is definitely closer to the conceptions of the environmental agencies than to those of the large energy suppliers. The conscientious consumer will not automatically want to sit in the same boat as cut price suppliers who obviously ignore ecological aspects. It is absolutely possible for the trade unions' interest in job security and the environmentalists' demands for ecological conversion to combine if society can no longer accept a specific product, as in the case of CFCs.

In Germany the organization of interests is still mainly centered around social distribution conflicts and all too often ecological aspects are at a disadvantage. Social innovations which break down the ancient structures and allow ecological thinking to penetrate all levels of society would be an important contribution to the necessary ecological change. Can anything be said against all firms whose company policies coincide with the demands of stabilizing the climate joining together to form an ecological association? Can anything be said against ecological matters being included in wage negotiations or against environmental agencies participating in inter-company climate protection measures, or against a "round table" - nationally and regionally - at which all the socially relevant groups could discuss strategies to protect the atmosphere and perhaps also to make specific commitments themselves. There are no limits to creativity on this subject. To avoid any misunderstanding: we are not advocating abstinence of state authorities. The government should not only adopt comprehensive measures itself, but also create the conditions for civilizing ecopolitics. Participation, democracy and decentralization are the key words. Environment impact assessment, technology assessment and extended participation rights for NGOs are elements of such an "open policy". Government policy alone will not be enough to meet the challenge. There is every indication that a civil and therefore social "atomistic" ecopolitics, if it does not fail because of the omnipresent preference for consumption, is more stable, sounder and requires less intervention than one that is only decreed by the government.

Climatic stabilization and the western industrial nations

It is impossible for one country alone to implement a climatic stabilization policy. Even if the United States, who are responsible for at least a quarter of the artificial greenhouse effect, were to reduce their emissions to zero, it would be much less than is globally necessary. Due to their historical responsibility it is the western

industrial nations' special duty to make joint global efforts to protect the atmosphere. In the past decades they have formed functioning supranational structures like the EC and the OECD, which present themselves as a basis for coordinated action. Because of the economic potency they also provide the best possibilities for increasing efficiency in industry, energy economy, transportation and households. Reliable estimates indicate that even under the present conditions a 30% reduction of trace gases is possible by the year 2005 in the OECD countries. In the forefront there are measures that provide a net social profit which means that they amortize within a few years. Basically they are energy saving investments which "pay off" after a relatively short time because of the energy saved. If the level of energy prices could be raised, for instance by an energy tax in all the OECD countries, the profitable realizable savings potential could increase by up to 50% by the year 2005. Moreover that would remove the tiresome arguments about competitive disadvantage, because the energy tax would be imposed simultaneously in all the western industrial nations.

Both by opting out of using CFCs either immediately or by 1995 at the latest and by immediately bringing the available saving technologies in the energy and traffic sectors on the market, the OECD nations can achieve a reduction of trace gases of at least 40% by the year 2005. Further measures would indeed be possible but can only be viable if the change in ecological structure is accompanied by social innovations which extend to changes in individual behaviour. This would also enable a 60% CO₂ reduction by the year 2015, which coincides with the goal set by the world umbrella organisation for environmental associations in its "Statement of Policy Options to Curb Climatic Change".

Climatic stabilization and Eastern Europe

In the countries of the Comecon which is actually in the throes of being disbanded the average energy intensity is twice what it is in the OECD countries. For the production of one unit of the social product they require double the amount of energy used in Germany, for example. It is therefore not surprising that the Comecon countries are responsible for more than 20% of the energy-related CO₂ emissions. The first thing that is necessary here is an efficiency-orientated rebuilding of the energy economy and of industry. Eastern Europe's national economies will not be able to finance this rebuilding process on their own. Over the coming years they will urgently require a transfer of capital and technology as well as credit loans from the western industrial nations. In this area bilateral measures should be accompanied by an EC programme to promote energy saving in Eastern Europe. However, from an ecological perspective it is very important to make sure that this does not simply result in transferring the dominant energy producing structures that exist in the western industrial nations.

All the Eastern European economies have extensive new investments in energy on their agendas, because most of the decaying and inefficient power stations will have to be replaced by combined heat and power generation techniques. In addi-

tion there is a vast need for funds to invest in reducing consumer energy utilization. The main priority in this area is the energetic reorganisation and the renovation of buildings and equipment. This presents a once-in-a-lifetime chance to build up a modern and efficient system of energy production and consumption which is, to a great extent, adjusted to the atmosphere and avoids the mistakes of the western industrial nations. Transferring West German energy structures to the former GDR, as seems to be the present intention, can bring about short-term improvements to the status quo, but at the same time impedes a decentralized ecological energy supply. The access for West German monopolists, enabled by the acute capital shortage of the GDR suppliers, must be blocked. Government bonds and favourable credit conditions could pave the way for an energy economy which is friendly to the environment, the social system and the market and in which the communities and municipal enterprise play a decisive role.

The view held in Germany and the other OECD nations, that the great energy saving potential of Eastern Europe makes their own efforts unnecessary, is quite inappropriate from the viewpoint of climate protection. The main concern should not be to transfer the technical structure from Group of Nations A to Group of Nations B, but to bring about a technological transition both in A and B: from a highly centralized technology with high levels of resources, energy, emissions and risk to an economical, intelligent and error-forgiving ecotechnology.

North-South cooperation and a climate convention

What is partly true for the eastern European countries, that they are not in the position to finance their own course to climatic stabilization, applies to a much greater extent to the Third World countries. They have even more pressing problems: poverty and underdevelopment, high population growth and exploitation of their resources, soil erosion and water scarcity are at the top of the agenda. This makes it obvious that there can only be a climatic stabilizing policy together with the poor nations if their legitimate development interests can be combined with the ecological requirements.

It is not possible to design a climatic policy without the Third World countries because of their share of the climate problem, which, although it is small at the moment, will increase dramatically in the coming decades if no countermeasures are taken. Just the population growth in Africa, Asia and Latin America will lead to a considerable rise in energy consumption. Given a world population in the year 2020 of about 8000 millions, 83% of these will live in the developing countries. Their endeavour will be to overcome poverty and underdevelopment. The World Energy Conference in Montréal in September 1989 predicted an increase of about 80% in the consumption of fossil fuels by 2020, with the Third World countries' share growing constantly. In 1985 this share was 25% and it is expected to grow to 35% by the year 2000 and to over 40% by 2020. Together with the emissions from the burning down of the tropical forest they would then outstrip the CO₂ emissions of the industrial nations.

This means that climate protection policy can only be conceived in cooperation with the developing countries - or it is bound to fail. Therefore we advocate a "dual strategy" towards the Third World which comprises a policy to stabilize the climate in a narrower and wider sense. For the former we mean a climate convention and a related fund, for the latter a change in the general conditions of the global economy and cooperating in development schemes.

With regard to a climatic policy in a narrower sense: To achieve global joint action and avoid "jumping on the bandwagon" a mandatory treaty for the protection of the Earth's atmosphere is required which should be signed by many, preferably by all, nations. Above all the treaty should lay down the general goals and principles for the signatory powers. The main points to be mentioned here are the reduction of emissions, banning the relocation of risks, the preservation of "CO₂-sinks" - especially forests - and the willingness to cooperate and to exchange information. From an ecological point of view it will be of utmost significance whether the principles of prevention, avoidance of risks and ecological acceptability can be laid down in the treaty. If this were to succeed, the decisive step towards "a right of the atmosphere" would basically have been made. The specific reduction goals could then be defined in protocols as was already done for CFCs in the "Montreal Protocol". Of primary importance in this case would be protocols for CO₂ and the tropical rain forests. If the commonwealth of nations could agree on a global reduction of CO₂ of 20% by the year 2005 as suggested by the climate conference in Toronto in 1988, this would require considerably higher target figures from the industrial nations: at least 30 to 40%, if not more.

Whether or not a treaty will be realized depends mainly on the industrial nations' being able to immediately demonstrate their credibility to the Third World by committing themselves to crash-programmes and declaring their willingness to pay into a fund to rectify the damage they have previously inflicted on the atmosphere. This kind of fund could be fed from different sources:

- by taxes on the present energy consumption in the industrial nations, part of which can flow into this fund;
- by a type of "reparation tax" on the economy, the amount of which could depend on the accumulated emissions of the past decades;
- by using funds gained from cancelling international debt for ecological motives; the creditor nation waives its rights, part of the debt is cancelled and the other part goes to the climate fund instead of to the creditor;
- by the reallocation of military expenditure, which could flow into the climate fund in the form of an "ecological peace dividend" and thus indicate the transition from confrontation to cooperation.

The funds thus released could be used for selective measures for an ecologically acceptable development in the countries of the Third World. To implement the tasks resulting from the treaty a UN environment council should be established

with the authority to institute controls and sanctions. Moreover, the World Bank, whose long experience is an advantage, should participate in the handling of the financial transfers. On the other hand, extending the World Bank to becoming a sort of global environmental authority, as has been suggested by several western industrial nations, would not be acceptable.

The world economy and climate protection

Policies to stabilize the climate will not achieve long-term success if they ignore the economic reasons for the global environmental crisis. In many ways the global economic structures are directly and indirectly responsible for the development of ecological problems. Very often they result in a compulsion to ruinous exploitation and to the sellout of natural resources on the world market. The poor nations are often caught up in a vicious circle from which they can hardly free themselves on their own because of these structures. Because of their high international debt they are forced to export on the world market, which in many cases over the past years has even led to a net transfer of resources from south to north. Due to the necessity to make high returns as quickly as possible on the world market there is not enough consideration of ecological production methods. In the long run this leads in turn to a dramatic deterioration of the natural capital, which in many cases has proved to be a severe handicap to development.

The General Agreement on Tariffs and Trade (GATT), which is also known as the "constitutional law for world trade", completely ignores ecological matters. The sole aim of this agreement which has existed since 1947 is still the expansion of world trade by breaking down barriers like customs duties and import quotas. The current negotiations in the so-called "Uruguay Round", for instance, deal with the expansion of the free-trade concept to service industries and farming. The latter sector is particularly relevant to climatic problems, because it determines a continuing world market orientation for agriculture in Africa, Asia, and Latin America.

However, the integration of ecological considerations into GATT would be an important component of an effective climate stabilizing policy. Basically it must be possible to intervene in free trade for ecological reasons. The introduction of environmental standards, the banning of trade in specific goods - e.g. toxic wastes, which between north and south are more often "bads" than "goods" - and the fixing of contingents for specific products are absolutely legitimate measures to attain ecological goals. Over and above the consideration of ecological interests within GATT it would be important to establish a greater interdependence between ecopolicy and trade policy under the auspices of the United Nations, unlike the present situation, where they are separate entities. Once the long-term development concept is taken seriously, the separation of the two areas is unacceptable either nationally or internationally.

Socio-economic implications on a world scale

The successful realisation of a climate stabilizing policy is not only dependent on the availability of sufficient techno-economic CO₂ potentials, on effective instruments and a catalogue of measures, or on the creation of the necessary structural reforms of the energy economy. In the final instance the decisive factor will be whether or not a worldwide mass movement "Save the Earth" will be able to develop and politically prevail in time.

In the light of the traditionally reactive decision-making of a curative environmental policy, qualitatively a completely new type of problem arises: it is imperative that climate stabilizing policies are preventative or they will fail in their objectives. But that is not all: on one hand a successful climate stabilization policy means political measures requiring unprecedented intervention in the economic and probably in the social system. On the other hand this restructuring cannot be achieved only by control of the market, but will have to be supplemented by new forms of state intervention and regulation. But more direct regulation measures in a profit-orientated market economy are subject to special authorization: such "legitimation" relies either on the social interests of democratic mass movement or on the demagogic populism of an eco-dictatorship.

As already mentioned, the political problem is that a democratic mass movement against the global destruction of the environment and insidious climatic change can only - because of the demonstrated delay in effect - be based on forecast information and public-relations and not on specific experience and dismay. There are certain parallels with the development of the disarmament and the peace movements: it is true that the former resulted from the terrible experience of two world wars. But the force of the disarmament movement was probably ignited - in spite of Hiroshima and Nagasaki - by the conjured vision of a nuclear inferno. It is a similar thing with the battle against a climatic catastrophe.

If it does actually come to a virtually irreversible warming of the earth, this would be the apocalyptic result of an ever increasing "war against nature". But nature would strike back: the Toronto climate conference compared the consequences of the threatening greenhouse effect to those of a nuclear war. It follows that the "war against nature" has got to be stopped before the disastrous effects become obvious, just as nuclear weapons must be destroyed before even one more atomic warhead can be deployed.

As a political objective, global climate stabilization is at least as important as peaceful disarmament. An international popular movement contributed to a global breakthrough in disarmament. Stopping the war against nature and stabilizing the climate require a radical restructuring of the industrial societies. As with military disarmament, this ecological disarmament does not require sacrifice. It is perhaps a last historic chance.