

# Acid News



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## POWER PLANTS

# “Global-warming factories”

THE PLANS NOW EXISTING for the construction of new power plants in the European Union will, if carried out to full extent, mean that the member states will be unable to meet any of the commitments they have made to curb emissions of the global-warming gas, carbon dioxide.

So says Greenpeace on the basis of a recent study,\* pointing out that power plants burning coal, oil, and gas already account for one-third of the Union's total emissions of this gas. Because they waste far more of the fuel's energy than they transform into electricity – an average power plant emits millions of tons of CO<sub>2</sub> per year while converting less than 40 per cent of the fuel's energy into electricity – power plants are, as Greenpeace puts it, virtual global-warming factories.

“Electricity is effectively only a by-product from a global warming

factory,” says Andrew Kerr, Greenpeace energy campaigner. “Current proposals to build more power plants would completely overwhelm the Union's goal of returning rising carbon dioxide emissions to their 1990 levels by 2000, and would conflict with member states' promises under the UN Convention on Climate Change.”

It is now three years since the Community energy and environmental ministers agreed to stabilize CO<sub>2</sub> emissions. So far however there has been no decision leading to measures that would ensure that happening – only far-reaching plans on the part of the power companies to go on building fossil-fuelled generating plants.

Greenpeace has compiled a list of 145 plants, with a combined capacity of 90,000 MW, which are under study, proposed to be built, or ac-

tually being built in the twelve member states. See table. Their potential yearly emissions of CO<sub>2</sub> are estimated to be altogether 377 million tons. In 1991 the Community total amounted to somewhat more than 3000 million tons, with power plants accounting for almost 1000 million.

Assuming a business-as-usual scenario, the European Commission's projections for the power sector point to an additional fossil-fuelled capacity of 60,000 MW by the year 2000. Investments in fossil-fuelled power plants are expected to be about four times higher than they were in the 1980s, with electricity consumption rising by 24 per cent, and emissions of CO<sub>2</sub> from power stations increasing by 17 per cent.

Greenpeace is therefore proposing that the construction of new power

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# Acid News

is a newsletter from the Swedish NGO Secretariat on Acid Rain, whose aim is to provide information on the subjects of acid rain and the acidification of the environment.

Anyone interested in these problems is invited to contact the secretariat. All requests for information or material will be dealt with to the best of our ability. Acid News is distributed free of charge.

In order to fulfill the purpose of Acid News, we need information from everywhere – so if you have read or heard about something that might be of general interest, please write or send a copy to:

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## THE SECRETARIAT

The Swedish NGO Secretariat on Acid Rain was formed in 1982 with a board now comprising one representative from each of the following organizations: The Environmental Federation, the Swedish Anglers' National Association, the Swedish Society for Nature Conservation, the Swedish Youth Association for Environmental Studies and Conservation, and the World Wide Fund for Nature Sweden.

The essential aim of the secretariat is to promote awareness of the problems associated with air pollution, and thus, in part as a result of public pressure, to bring about the required reduction of the emissions of air pollutants. The eventual aim is to have those emissions brought down to levels – the so-called critical loads – that the environment can tolerate without suffering damage.

In furtherance of these aims, the secretariat operates as follows, by

- ☐ Keeping under observation political trends and scientific developments.
- ☐ Acting as an information centre, primarily for European environmentalist organizations, but also for the media, authorities, and researchers.
- ☐ Producing and distributing information material.
- ☐ Supporting environmentalist bodies in other countries by various means, both financial and other, in their work towards common ends.
- ☐ Acting as coordinator of the international activities, including lobbying, of European environmentalist organizations, as for instance in connection with the meetings of the bodies responsible for international conventions, such as the United Nations Convention on Long Range Transboundary Air Pollution.
- ☐ Acting as an observer at the proceedings involving international agreements for reducing the emissions of greenhouse gases.

## EDITORIAL

# Start right away

EARLY IN MARCH twenty-nine countries agreed on a further step towards a reduction of their emissions of sulphur – in its full title, a Protocol to the 1979 Convention on Long Range Transboundary Air Pollution on further reduction of sulphur emissions. The new protocol will be officially accepted and signed at a meeting of environment ministers in Oslo, Norway, on June 13-14.

The protocol is in several ways an improvement on the previous one for sulphur. It is, for one thing, based on the principle of what nature can tolerate – expressly stating that the long-term aim is to bring down emissions to levels at which the critical loads will no longer be exceeded.

It also considers effects. In other words, the degree of reduction should concur with the potential damage. Through the use of computer models, the fallout in various places has been related to the emissions from sources elsewhere. The models have also been used to allot the reduction requirements for each country according as they would be most cost-effective.

Then, too, the protocol can be updated and revised relatively easily. It also includes better arrangements for control of its fulfillment. Its chief failing is that the reductions so far promised are altogether inadequate to check acidification. Since 1980 the European emissions of sulphur have in general decreased by about 30 per cent. By 2000 the reduction is expected to be no more than 40-45 per cent, as from 1980. But if acidification is to be stopped, depositions (and so emissions) will have to be brought down by at least 90 per cent.

The reductions so far undertaken by the various nations are also far from sufficient for attainment of the goal that was proposed during the negotiations for the new protocol – namely, to reduce the difference all

over Europe between the present depositions and the critical loads by at least 60 per cent (the so-called 60-per-cent gap closure, see AN 1/94, p.1).

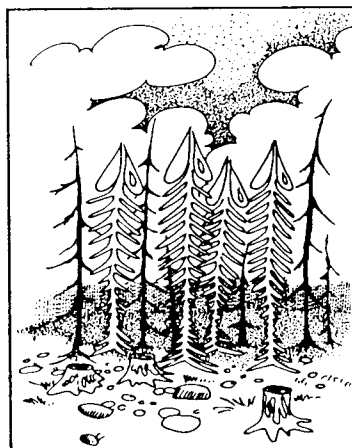
Obviously, then, there is a need for further measures, and it is to be hoped that Article 8 of the protocol (on reviews) and Article 11 (on amendments and adjustments) will be brought into use as soon as possible after the protocol has come into force. In the meantime it will be necessary, if there is to be any advance, to keep up pressure at the national levels.

The next step – a renewal of the 1988 protocol on nitrogen oxides – was discussed briefly at a meeting in March of the Working Group on Strategies for the convention. A majority of the countries are ready to see a protocol developed along the same lines as the new one for sulphur. The question is just how comprehensive it shall be. The main alternatives are either one based on the acidification and eutrophication effects, or one that would also include low-level ozone (photochemical oxidants) and thus VOCs as well.

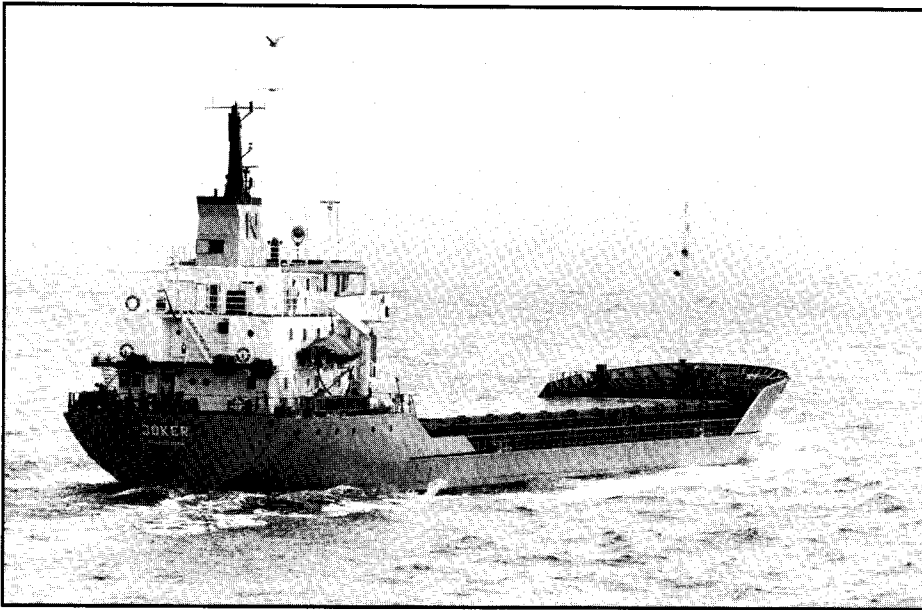
A surprising number of countries gave their support to the latter – despite the fact that the data and computer models needed for any serious negotiation will not, according to the report, be available before 1997. If that is so, no new protocol could be ready before 1998 or 1999. The present NO<sub>x</sub> protocol only specifies a freezing of emissions, and it expires this year.

Considering the serious effects that these pollutants give rise to, it is all the more important that measures should be taken as soon as possible to ensure a rapid reduction of emissions. There should therefore be no delay in starting negotiations, and the fact of negotiating should not be taken as an excuse for evading national measures.

**CHRISTER ÅGREN**



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## NITROGEN OXIDES

# Norway gives up

NORWAY WILL NOT be able to meet the objective of a 30-per-cent reduction of its emissions of nitrogen oxides by 1998. That is the essential content of an interview with the Norwegian minister of the environment that has been published in the environmentalist newssheet *Natur&Miljö Bulletin*. None of the other countries that signed the NO<sub>x</sub> declaration has given any sign of reneging on their undertaking.

At the time of the signing of the protocol on nitrogen oxides under the ECE Convention in 1988, twelve countries issued a separate declaration in which they bound themselves to go further than prescribed in the protocol. Instead of merely freezing their emissions, the twelve undertook to reduce them by 30 per cent by 1998, calculated from any year of their choice between 1980 and 1986. Up to 1993, however, Norway's emissions had remained unchanged.

To Fredrik Thiesen of the Norwegian nature conservation society *Naturvernforbundet*, the minister's statement hardly came as a surprise. "It shows that there is a lack of any political will to reduce emissions," he said. "The Norwegian transportation and oil interests are both so powerful and influential as to be able to block any measures that might lead to achievement of the country's undertaking." In Norway 80 per cent of the emissions of nitrogen oxides come from the transportation sector.

Two years ago the Norwegian pollution inspectorate, *Statens Forurensningstilsyn*, proposed a number of measures for reducing NO<sub>x</sub> emissions (AN 5/92). A working party has since been going over its proposals, but there is still disagreement between the finance and communications departments and that of the environment as to the size of the reductions, and what will be necessary for achieving them. A plan of action that will bring in all sectors, and also be cost-effective, has been promised for the spring.

As the minister for the environment said to *Natur&Miljö*, "The Department of the Environment is up against those who think we are pushing too hard and wanting to put burdens on Norwegian industry and increase the country's costs."

The Central Office of Statistics had previously calculated that Norway would save some 89 kroner, by way of reduced pollution costs, for every kilogram of nitrogen oxides that was not emitted. Although the calculation did not include all the social costs, a 30-per-cent reduction would still have brought a saving of 7 billion kroner a year. The figures are now being updated for use by the environment department in its negotiations with the others.

PER ELVINGSON

Sources: *Natur&Miljö Bulletin*, January 28 and February 11, 1994.

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A new EU directive, setting limits to the emissions of pollutants from cars, is expected to be adopted this spring.

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A conference arranged by IASA concluded that such instruments should complement and not replace direct regulation. As successful examples were noted Sweden's charges on emissions and US tradeable permits.

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Environmentalists are concerned at the slowness with which the programs for improving the environment in this stricken area are proceeding, and are asking for direct participation.

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Small particles issuing from the tailpipes of motor vehicles, previously overlooked, are found to be a distinct cause of illhealth.

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First general meeting of the signatories to this convention will take place in March next year. German efforts to hasten real action have however so far met with little response.

## Global warming...

*Continued from front page.*

plants should be halted until the possibilities for energy saving at the customer level have been exhausted. The organization is of the opinion that if the construction program were carried out, it would jeopardize the existing potential for energy saving.

Furthermore, according to Greenpeace calculations, by redirecting into saving energy the Ecu 75 billion that the proposed plants could cost, about 4.6-6.6 million job-years of employment might be generated, Europe's infrastructure modernized, energy services for customers improved, and emissions of air pollutants prevented.

In a second study\*\* Greenpeace proposes a rapid introduction of new power-planning legislation at national and Union levels, so as to let the electricity industry become part of the solution rather than the problem. Introducing so-called Integrated Resource Planning (IRP) would effectively allow utilities to earn profits from helping customers to save energy, instead of from maximizing power sales with corresponding pollution.

Integrated resource planning has been used in the United States and Canada to increase the efficiency with which energy is consumed, to save billions of dollars for utilities and consumers, and reduce the environmental impact of electricity generating.

Integrated resource planning involves a set of regulatory policies designed to ensure that energy utilities plan for and develop energy resources that are in the best interests of society, economically and environmentally. It is based on three fundamental principles:

☐ Periodic, comprehensive assessments by utilities of all the resource options that are available to meet customer needs.

☐ The satisfying of customers' demand for electricity services through the promotion of highly efficient end-use devices as an important and cost-effective resource option and an alternative to the production of electricity.

☐ Consideration of the total costs and benefits of all resource options in order to determine the combination that is in the best interests of all the

parties concerned: the utility, its customers, and society in general.

"Energy efficiency programs for utilities have already created 80,000 jobs in the United States. If current trends in IRP continue, efficiency programs could reduce the total US electricity consumption by 20 per cent by 2010, thus cutting electricity

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### *Could be a win-win-win for the climate, the economy, and employment*

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bills by \$61 billion a year," says Andrew Kerr.

An evaluation of American experience that was commissioned by Greenpeace showed that investments in the efficient use of electricity did more to encourage economic growth, and consistently generated more employment, than expenditure on power stations did. It appeared moreover that each dollar spent on saving electricity made it possible to avoid spending \$1.75 on electricity supply.

The Greenpeace report also refers to two major studies concerning the potential for energy saving in Europe. Both of these studies show that there could be a marked fall in the demand for electricity even with continued economic growth. According to one of them, between 1986 and

2010 electricity consumption in Europe could lessen by 45 per cent. Looking at the matter from the point of view of CO<sub>2</sub> emissions, the other shows that if maximum use were made of the available measures for promoting demand-side energy efficiency, renewables, and gas co-generation, by 2020 the power sector could be emitting 85 per cent less CO<sub>2</sub> than it did in 1985. If only half of the potential for more efficient use of energy were to be exploited, the emissions could still be reduced by 55 per cent, in the same period.

"While the power sector is aiming to expand in the coming years, energy efficiency experts say that Europe could reduce power needs by between one-third and a half without compromising economic growth," says Andrew Kerr. "A moratorium on power-plant construction would be a strategic way of preventing significant amounts of pollution from a relatively small number of sources. Energy-saving programs also generate more employment while creating a more efficient modern infrastructure. This could be a "win-win-win" for the climate, the economy, and employment."

CHRISTER ÅGREN

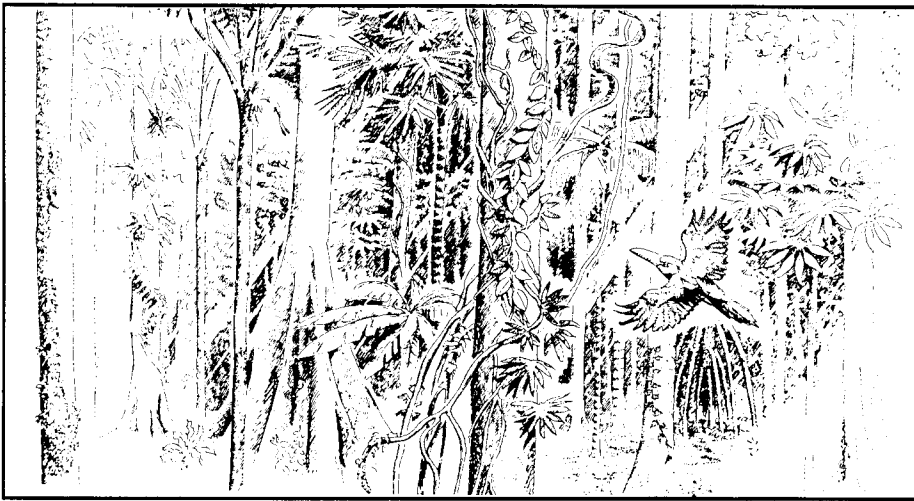
\* **The EC's next global warming factories.**  
\*\* **Integrated resource planning: Making electricity efficiency work in Europe.**

Both reports are published by and obtainable from Greenpeace International, Keizersgracht 176, NL-1016 DW Amsterdam, The Netherlands.

#### **Major new fossil-fuelled power plants in the European Union which are under study, being proposed, or already under construction.**

Country	No. of plants	Capacity (MW)	Potential CO <sub>2</sub> -emissions (million tons)
Belgium	5	2190	5.5
Denmark	2	779	3.4
France	4+	7300+	30
Germany	27	25910	150
Greece	9	3350	17
Ireland	2	590	2.5
Italy	36+	20280+	72.5
Netherlands	16	6093	19.5
Portugal	3	3100	11.5
Spain	21+	8114+	34.5
United Kingdom	20	12083	31
EU total	145+	89789+	377.4

Note: The + sign means "or more."



## WWF REPORTS

## Climate threat to tropical forests

IN THE DISCUSSION on global warming, the threat to the rain forests has so far received little attention. A recent report from the World Wide Fund for Nature shows however that tropical forests may be among the first ecological victims of climate change.

Climate threats to tropical forests will be mainly indirect, including changes in rainfall patterns and an increased frequency and severity of tropical storms and hurricanes. More extreme occurrences, such as flooding, landslides, and forest fires, will also affect the forests.

Forests that now lie outside the tropical hurricane and cyclone zones may experience devastating storms for the first time, as global warming widens the storm belt. Cloud caps may disappear from the tops of mountains in the tropics, threatening unique cloud-forest species in Peru, Costa Rica, Rwanda, Malaysia, Indonesia and China.

"Many rare plant and animal species find their last haven in these cloud forests. Climate change could condemn many of them even before the chainsaw arrives," says Adam Markham, head of pollution policy at WWF International.

The WWF report gives a general summary of what is already known about the likely effects of climate change on nature, showing that species survival is threatened in every major biological system of the planet. Whole ecosystems such as coral reefs and mangrove thickets

could collapse, and among the other ecosystems that are at risk are temperate and boreal forest, oceanic, mountain, and wetland.

As Adam Markham points out: "One of the climate convention's central objectives is to prevent the greenhouse effect from damaging ecosystems. The ecological limits to climate change revealed in the WWF report should act like yellow warning-light at a crossroads. Governments must jam the brakes on greenhouse-gas emissions, because running the red light of climate change could result in a fatal biological crash."

While stressing the importance of tackling the problems of climate change at source – by reducing the emissions of greenhouse gases – the report also reviews options for tailoring nature conservation and biodiversity management in such a way as to minimize the effects of climate change. An important element of a strategy for biodiversity in the face of global warming should be to identify and monitor indicator species or habitats, so that we can understand whether climate change is really occurring, how fast it is developing, and the scale of its effects.

PER ELVINGSON

**Some like it hot – climate change, biodiversity and survival of species.** By Adam Markham, Nigel Dudley and Sue Stolton. 144 pp. £11.99. Available from WWF International, CH-1196 Gland, Switzerland.

## BRIEFS

### Power plants pilloried

The European Commission's decision to give a grant of Ecu 40 million towards the construction of two oil-fired power plants on the Canary Islands is claimed by Greenpeace to run counter to the EU undertaking to stabilize emissions of carbon dioxide at 1990 levels by the year 2000. The environmentalist organization is therefore suing the EU at the European Court of Justice.

The proposal to take the money from the EU Structural Funds came hardly a week after it had been decided that the EU should ratify the UN Climate Convention. As Greenpeace points out, too, the EU emissions of CO<sub>2</sub> are expected, even according to the Commission's own analysis, to have risen by 12 per cent by 2000, and the two new plants will pump a further two million tons of carbon dioxide a year into the atmosphere.

Greenpeace also complains that no environmental-impact study had been carried out, as required by Directive 85/337/EEC, prior to the Commission's decision to fund these plants. It hopes that the Court of Justice will declare that no funds may ever be disbursed unless projects have been shown to comply with the Directive.

Source: **Europe Environment**, No. 423, January 6, 1994.

### Limits for small plants

The European Parliament has approved a directive setting new limits for small combustion plants (under 50 MW thermal input), final approval by the European Council being expected to be given in 1994. The proposed limit of 2000 mg SO<sub>2</sub>/m<sup>3</sup> or 1 per cent sulphur for new coal-fired power plants would bring them into line with that for plants in excess of 100 MW<sub>th</sub>.

Sulphur, No. 229, November-December 1993.

### Impoverishing the flora

Constant additions of airborne nitrogen are changing the face of nature. On Denmark's few remaining bogs several species of plant needing conditions that are poor in nutrients, such as heather (*Calluna vulgaris*) and some kinds of sphagnum, are now on the way out. Among the favoured species are pine and some bushes, which are now infiltrating the bogs and spoiling their open character. If changes of this kind are to be prevented, the depositions of nitrogen will have to be kept within 5-10 kilograms per hectare a year. That limit is presently being exceeded all over Denmark, in South Sweden, and the most southern part of Norway.

Source: **The Nordic Environment**. Swedish Environmental Protection Agency, 1993.



# Internalizing the costs

ALL TRANSPORTATION incurs costs to society, many of which are paid directly by the user, in the form of fuel taxes, vehicle taxes, road charges. Others that are not paid directly by the users are known as "external costs" – being usually paid by all members of society, whether they are users of transportation or not. But if the users can be made to pay for them, such costs are said to be "internalized."

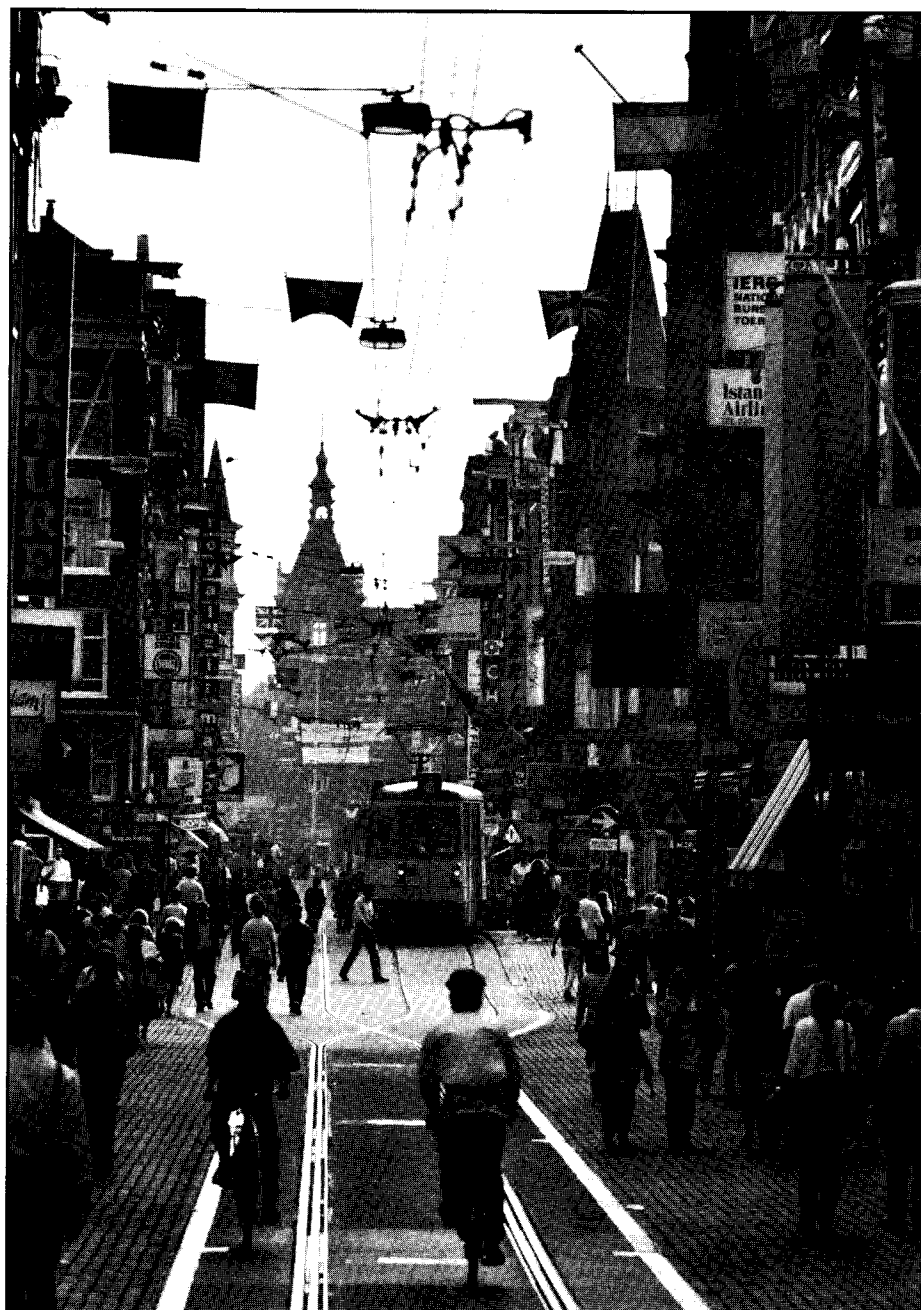
According to a study made by T&E, the European Federation for Transport and Environment, the costs to society that users do not at present pay amount annually in western Europe to about 2.5 per cent of GDP, the gross domestic product, or Ecu 110 billion. Besides assessing the external costs, the T&E also proposes ways of internalizing them.

Taxing transportation for its harmful effects would give users a proper idea of the true costs of personal travel or freight moving. Not letting users bear all the costs means that society is in fact subsidizing part of them – although that will only be visible in varying extent.

The dirtying and destruction of the fabric of buildings by vehicle emissions may be taken as one example of the way transportation is being subsidized – the cost of cleaning and repairs having to be borne by the owners of the buildings. Another example concerns the effects on the natural environment, by way of acidification and eutrophication. Here the effect may be irreparable; in any case the whole of society has to bear the cost in the form of a degeneration of environmental quality.

There are also obvious instances of subsidies distorting the true price of transportation, among them being company cars, tax deduction for travel to and from work, and free car parking.

Apart from making for a fairer distribution of costs – by removing, for example, the anomaly whereby non-motorists pay a part of motorists' costs through general taxation – and avoiding subsidies, hidden or otherwise, that distort competition, internalization of the external costs of



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transportation can also, according to the T&E, lead to:

- ☐ reduced emissions per vehicle; because higher fuel costs will provide an incentive for buying more fuel-efficient vehicles;
- ☐ the use of more socially and environmentally sound modes of transportation, since such modes will be cheaper than more polluting ones;
- ☐ a reduced demand for transportation, since people will make fewer journeys.

The great problem, when setting out to internalize costs, is to deter-

mine the external costs. How for instance are noise, injuries, deaths, and environmental damage to be assessed? Are the calculations to be based on average or marginal costs? These are matters that are discussed at some length in the report on the study, and four usable methods for arriving at the external costs are described in detail.

The T&E group has taken a close look at the external costs arising from the emissions of various air pollutants, and made rough estimates. The pollutants are nitrogen

oxides, volatile organic compounds, and carbon dioxide. Some estimates are also given of the costs for noise, accidents, and infrastructures.

Using data from its own studies as well as others done previously, the T&E has put forward calculations of the external costs for each mode of transportation in each country.

Making the users of transportation pay the full costs can broadly, according to the T&E, be done in four ways:

- ☐ By removing subsidies.
- ☐ Through qualitative regulation (exhaust technology, seat belts, air bags, etc.).
- ☐ Through quantitative regulation (e.g. speed restrictions).
- ☐ Through fiscal and financial instruments, such as road charges and vehicle and fuel taxes.

The present study concentrates mainly on the fourth option, although it is stated that the others are also important, not least as means of keeping external costs down to levels where the corrective taxes and charges can be set as low as possible.

It is also emphasized that care must be taken not to "overharmonize" internationally when introducing general European taxes on transportation, since the real costs vary from country to country and from region to region. Overharmonization would, consequently, only create fresh distortions. While there may be good reasons for harmonization when dealing with transboundary problems, such as air pollution, in the case of such things as medical costs for accidents and the value of lost production, internalization should, T&E says, reflect national costs, rather than the average European level.

For internalizing the costs of road traffic, the T&E would give preference a) to an annual charge related to the fixed costs of the road infrastructure, and b) to traffic charges corresponding to the variable costs. The latter comprise charges for road maintenance, traffic surveillance, and accidents, as well as carbon-dioxide and energy taxes, charges for air pollution (including NO<sub>x</sub> and VOCs) and a basic noise charge.

The annual charge would take the form of a vehicle tax. For heavy goods vehicles (HGVs) this should be differentiated according to size and

weight, and for light-duty ones and passenger cars according to emissions-related criteria, with, say, different rates for vehicles with and without catalyzers.

Traffic charges for cars and light-duty commercial vehicles should, in the T&E proposals, be levied as part of the fuel tax, and for HGVs both as part of the fuel tax and, in a lesser degree, as a kilometre tax.

Recommendations are also given as to how to internalize the external

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### *No reason to delay starting the process of internalization*

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costs of rail transportation and air traffic, as well as of shipping on short sea routes and on inland waterways.

The tax on petrol should, in the T&E view, with variations between countries, be raised to between two and four times the current levels, all within ten years. For diesel fuel for passenger cars, the tax should be raised even more.

There is also the question of how to use the resulting revenue. Some of it should of course go to paying the direct costs of transportation, but the remainder would be government income from transportation which has so far not been earmarked for anything. That part could be used for reducing other taxes. It could also be returned to the public through reductions in income tax. In this connection the report mentions the Eco-Bonus system that is presently being considered in Switzerland, under which the money raised by a levy on pollution would be redistributed equally among the whole population.

Among the possible consequences of internalization as proposed in the T&E report are changes in demand for the transportation of passengers and freight, in the accident rate, in emissions of air pollutants, and noise, as well as its effects on GDP and burden spreading, and also the infrastructure – the pros and cons in each case being discussed in some detail.

As regards the consequences of internalization for passenger trans-

port, the T&E notes that the main factor influencing motorists' behaviour will be the cost of running a car, and especially the price of fuel. It calculates that an average increase of 65 per cent in fuel tax, with real incomes unaltered, would make the demand for fuel go down by 33 per cent.

The effects on demand for other kinds of passenger transport, and how great the modal shift might be, are, T&E says, much more difficult to estimate. But in view of the present dominance of car use, even a minor shift from road to rail (or buses) would mean, in absolute figures, a big increase for the latter modes.

Even harder is to predict what would happen to freight transportation. Fuel and vehicle taxes account for a relatively small part of the costs, around 10 per cent on average, but if they rise to about 20 per cent after internalization, the increase would lead to a drop of 7-9 per cent in road freight over ten years.

Emissions of air pollutants and carbon dioxide could be markedly affected. With the higher energy/CO<sub>2</sub> tax that T&E recommends, they could go down by as much as 34 per cent, compared with a reference scenario.

The T&E admits to shortcomings in its calculations, saying that they are due mainly to gaps in the available data. Consequently certain assumptions have had to be made on a conservative basis, which is to say that the calculations of external costs are probably too low. In other words, there is no risk of the users of transportation being theoretically overcharged. Moreover, with the gradual phasing in of taxes and charges, such as the group proposes, there will be plenty of time for correcting mistakes.

The T&E therefore maintains that there is no reason to delay starting the process of internalization, urging the EU to get going straight away with a gradual internalization of the external costs of transportation.

CHRISTER ÅGREN

**\* Getting the prices right – A European scheme for making transport pay its true costs.** T&E report 93/6. By Per Kågeson. Also available in a short version (T&E report 93/7). Both are in English and can be obtained from the European Federation for Transport and Environment, Rue de la Victoire 26, B-1060 Brussels, Belgium.

## Swiss dig in their heels

IN A REFERENDUM the Swiss recently said No to all truck transit through their country. In ten years all goods in transit will have to go by rail.

There has long been a regulation in Switzerland limiting the total weight of trucks passing through the country to 28 tons, and the noise from them at night has not been allowed to exceed 80 decibels. Most new vehicles can meet the latter requirement, but the weight limit will in any case effectively eliminate a great many, since the EU permits 40 tons.

When negotiations were going on for EES membership – which was also rejected in a referendum – the Swiss government agreed to open a “corridor” for long-haul freight through the country, with an annual quota of transit permits for vehicles from other countries. In return the Swiss were to be favoured in other respects by the European Union. One result of the last referendum will however be that these quotas will eventually disappear. The next twenty years will also see a great expansion of rail facilities for the transit of freight through the Alps.

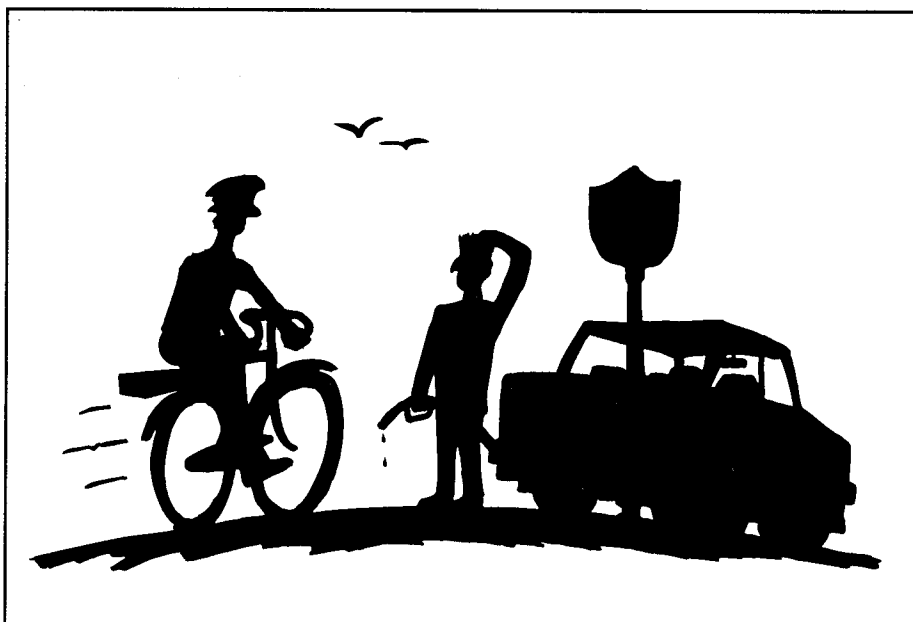
Under the Swiss system of direct democracy any matter can be made subject to referendum if someone has been able to collect 100,000 signatures in support of it. If the proposal is to be accepted, it must then gain a majority of the voters and also be supported by a majority of the country's cantons. In the referendum on February 20, freight transit by road was opposed by 52 per cent of the voters.

Source: **Dagens Nyheter**, Swedish national daily, February 21 and 22, 1994.

## Thwarting the bridge

THE MATTER OF A BRIDGE over the Öresund between Sweden and Denmark is still threatening to split the Swedish government. The Centre Party, which holds the post of minister of the environment, has now come out in open opposition to the project, which was started while the Social Democrats were still in power, and carried so far as to end in a formal agreement with the Danes.

To avoid making the decision that it had promised for the year end, the Swedish government has chosen to await the result of further studies to try and determine the effect of a bridge on the flow of water between the North Sea and the Baltic. The Water Court that has now taken up the matter is expected to hand down a decision at latest during the summer. In the meantime the work on the approach that had already started on the Danish side has been broken off. □



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SWEDEN

## Better petrol

IN JANUARY environmentally classified petrol began to be sold in Sweden – despite the fact that there is still no official decision in the matter. The OK oil company was the first to start marketing petrol that meets the Class 2 requirements proposed by the Environmental Protection Agency. Others are however expected to follow.

A year earlier, in February 1993, the Environmental Protection Agency had already put forward, at the order of the government, a proposal for a system of classification. This would call for four classes of petrol, with Class 3 representing the unleaded type presently sold in Sweden. Class 2 was to have lower contents of sulphur and benzene (max. 0.03 and 3 per cent respectively), and to give a lower evaporation of volatile organic compounds. No proposals for Class 1 have yet been made. Class 4 would be the same as the old leaded petrol, which the Agency would like to see banned in Sweden sometime during the second half of 1994.

The Agency also proposed a general tax increase of 7 öre per litre in 1994, with a further increase of 2 öre in 1995, combined with a rebate of 10-12 öre for Class 2 and 4 öre for Class 3 – the idea being to encourage the oil companies to go for the cleanest types. This would give neither an increase nor a decrease in the state

revenues. No objections have been forthcoming either from oil or automotive interests, but the government has still chosen not to pursue the matter.

The reason is thought partly to be disagreement between the environment and finance departments. Raising taxes, especially on motor fuel, is always a sensitive matter. Possible reactions within the European Union are also a reason for caution, some believing that the Swedish proposal is incompatible with EU rules.

But now an oil company has acted on its own by starting to sell petrol that meets the proposed Class 2 requirements. This fuel has the further advantage – over and above a reduction of the emissions of benzene, sulphur, and VOCs – that it lessens wear on the vehicles' catalyzers. In other words, it gives an improved and longer-lasting cleaning effect.

According to the OK company, this new type of petrol costs 4 öre per litre more to produce. For the time being, at least, it is however being sold at the same price as the ordinary kind.

CHRISTER ÅGREN

Source: **Petrol with better environmental characteristics. A proposal for classification.** (Only in Swedish.) Environmental Protection Agency, S-171 85 Solna, Sweden.



# Proposed new limits for car emissions

LAST DECEMBER the EU Council of Ministers unanimously agreed on a "common position" regarding a proposal (COM/92/572) for new emission requirements for passenger cars. The present requirements date from January 1, 1993, and it is proposed that the new ones shall be applicable from January 1996 for the new year-models, and from January 1997 for all new cars.

According to this draft directive there would be different requirements for petrol-driven cars and diesels. For the former the emission limits will be 2.2 grams of carbon monoxide (CO) per kilometre, and 0.5 grams for nitrogen oxides (NO<sub>x</sub>) and hydrocarbons (HC) combined. For diesel-driven cars they will be 1.0 g CO, 0.7 g NO<sub>x</sub>+HC, and 0.8 gram of particulates, all per kilometre. For diesel cars with direct-injection engines the limits will be higher for NO<sub>x</sub> and HC (0.9 g/km) as well as for particulates (0.10 g/km).

For petrol-driven cars the proposed limits will amount to a lowering of 55 per cent for NO<sub>x</sub> and HC, and 30 per cent for CO.

The proposed regulations will, unlike the Swedish and American, include no requirements for control of the durability of the cleaning equipment, or for a manufacturer's guarantee.

The Netherlands managed to get a stipulation regarding incentives inserted in the preamble to the draft directive, which met with considerable support. This says that the provisions of the directive shall not affect the member states' "right to include emissions of pollutants in the basis of calculation of road taxes on motor vehicles." If they want to employ fiscal incentives to encourage the use of vehicles that meet future standards before they become compulsory, member states must however notify the Commission in accordance with the procedure adopted under Directive 93/59/EEC on emission standards for vans.

The Commission did, however, in response, issue a declaration saying it was reserving the right to examine such systems of taxation in the light of their effect on the functioning of the Single Market.

The Council also decided that the Commission should, during 1994, present proposals for a further tightening of emission requirements, for introduction in 2000.

It is expected that the new directive will be adopted this spring.

CHRISTER ÅGREN

Sources: *Europe Environment* Nos. 422, 424.

## Tighter standards for light trucks

LAST SUMMER the EC passed a directive (93/59/EEC) on emission limits for light commercial vehicles, called vans. This was opposed by the Netherlands government, on the grounds that it lessened the possibilities of employing tax incentives to promote more stringent emission standards.

The new directive applies from October 1993 for new year-models, and from October 1994 for all new vehicles in the various categories – the Community having divided vehicles of this type into several categories according to weight, each with different emission standards.

The directive also lays down that the Council of Ministers shall, at the latest by December 31, 1994, decide on still

tighter emission requirements, to be brought in during 1996-97.

Source: *Europe Environment*, No. 414.

## Now road charges

AS FROM NEXT YEAR trucking companies will have to pay up to DM2500 per vehicle each year for the right to use the German motorways. In February the German government approved a bill to introduce, together with Denmark and the Benelux countries, road charges for trucks. Vehicles will have to display a card showing that the charge has been paid.

The minister of transport, Matthias Wissman, added that in future the system might well apply to passenger cars as well.

Source: *Dagens Nyheter*, February 10, 1994.

## Recent publications



### Choosing an alternative transportation fuel – air pollution and greenhouse gas impacts (1993)

Presenting a new, comprehensive analysis of the ways in which the entire production-and-use cycle of current and alternative transportation fuels contributes to air pollution and the emissions of greenhouse gases. Gives recommendations as an aid to policy makers in forming a strategy for the use of alternative fuels.

150 pp. Available from OECD, Rue André Pascal, F-75775 Paris Cedex 16, France.

### OECD environmental performance reviews: Germany (1993)

Part of a new OECD Environmental Performance Review Programme, conducting peer reviews of environmental conditions and progress in each member country. Scrutinizes efforts to meet domestic objectives as well as international commitments. The analyses are supported by a broad range of economic and environmental data.

227 pp. Available from OECD, address as above.

### Environmental status reports 1993: Estonia, Latvia, Lithuania

This volume, the fifth in the series of IUCN East European Programme environmental status reports, looks at the current situation in the formerly Soviet-occupied countries, Estonia, Latvia, and Lithuania. Describes the current situation and trends in regard to environmental protection, emissions of pollutants, energy use, etc.

200 pp. Can be ordered from IUCN Publication Services Unit, 181a Huntington Road, Cambridge, England CB3 0DJ.

### Greening international law (1993)

Edited by P. Sands. Assesses the extent to which the international community has so far adapted to addressing environmental problems, and examines the fundamental changes needed in the structure and organization of the legal system and its institutions.

260 pp. £15.95. Published by Earthscan Publications Ltd, 120 Pentonville Rd, London, England N1 9JN. ISBN 1 85383 151 4.

# Use for pollution control

ECONOMIC INSTRUMENTS, such as emission charges and tradeable permits, have a great potential for advancing the work towards a cleaner atmospheric environment.

A previously widespread resistance to the use of economic instruments for the achievement of environmental aims has now largely dissipated. A conference arranged by IIASA\* last October to discuss and evaluate experience of economic instruments for air pollution control drew well over a hundred participants, including delegates from government departments and agencies as well as professional economists.

One of the general conclusions from this conference was that in order to find an optimal solution when selecting economic instruments, as many aspects as possible of the problem at hand need to be taken into consideration simultaneously. An interesting consequence is that the more pollutants and external effects are included, the greater will be the advantage of promoting energy saving and the use of energy from renewable sources. Cutting down on the use of fossil fuels leads to a simultaneous reduction of the emissions of carbon dioxide, sulphur, nitrogen oxides, and volatile organic compounds.

Another general conclusion was that if they are to be practical, the chosen instruments must be simple and readily comprehensible, so that the signals can reach all the actors. There are however no instruments that are applicable in every circumstance – each must be adapted to the problem in question. From a session on national experience it appeared that so far there was little to go on. As successful examples were noted Sweden's charges on emissions of sulphur and nitrogen oxides, and tradeable emission permits in the United States (AN 3/93, 5/93).

Swedish and American experience has shown that the instruments functioned as they should according to textbook economics. In Sweden especially, charges have led to a marked reduction of emissions. It is, however, still too early to decide whether economic instruments alone can

hasten the development of a cleaner technology, or whether that needs compulsory requirements. The strong belief in economic instruments that was held in the United States during the eighties was reported to have become modified, the view now

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## *Should complement and not replace direct regulation*

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being that such instruments should complement and not replace direct regulation. Economic instruments have in any case been applied on top of existing regulations, both in the United States and Sweden.

Many of the conference papers and much of the discussion centred on the possibilities of cost-effectively reducing the emissions of sulphur dioxide. It was evident that as far as Europe was concerned, the proposed sulphur protocol would allow little room for trade in emission permits, either between business companies or nations, since there are relatively small differences from country to country in the costs of reduction. One thing that would make such trading especially complicated is the fact of it being unthinkable that an agreement between two countries

should result in added fallout over a third.

The emissions of carbon dioxide also came in for attention. There seems to be a widespread interest in so-called joint implementation as a means of bringing about reductions, although the details of such schemes remain to be worked out. Joint implementation means that one country could for instance pay for reafforestation or the installation of low-energy lighting in another, and be credited with the resultant gains, as though they had come from taking measures at home.

In comparison with tradeable emission quotas between countries on a free market, bilateral swaps of the latter kind have various disadvantages. Theoretically it would be relatively simple to design a system of free trade in emission permits, at least for carbon dioxide, since it matters little where the emissions occur. The difficulty lies in deciding how the permits are to be distributed. That is a problem that may be very hard to solve.

PER ELVINGSON

\* International Institute for Applied Systems Analysis. A selection of papers from the conference will be published both in a special issue of **Environmental and Resource Economics**, and together with other papers in an edited volume. Further information can be obtained from Ger Klaassen, IIASA, A-2361 Laxenburg, Austria.

## **Success for charge on NOx emissions**

The charge on emissions of nitrogen oxides from combustion plants that has been in operation in Sweden since 1992 has already proved to be effective – the emissions from the affected plants having become reduced by about 35 per cent.

The charge, amounting to 40 kronor for each kilogram of nitrogen dioxide (NO<sub>2</sub>) that is released, is thought to be mainly responsible for this result (see also AN 3/93, p. 9). The amount paid is returned to the plant owners in proportion to the quantity of energy they produce and use. The system thus also acts as a stimulant to greater efficiency in the use of energy.

Only plants with a minimum capacity of 10 MW and an output of more than 50

gigawatt-hours (GWh) per annum are subject to the charge. Such plants now account for less than 5 per cent of the country's total NOx emissions.

A government commission is now proposing that the net for charges should be cast wider – on the one hand by lowering the output figure to 25 GWh/yr and extending the liability to pay to all combustion plants with a capacity of more than 1 MW, and on the other by including a number of energy-hungry processes, in particular chemical recovery in pulpmaking, re-heating at steelworks, and coking, as well as petroleum refining.

Source: **Morot och piska för bättre miljö – förslag om utvidgad användning av ekonomiska styrmedel mot kväveoxidutsläpp**. SOU 1993:118. Miljö- och naturresursdepartementet.



CHINA

## Heavily polluted air in steel city

"BENXI SENDS OUT excellent finished goods and semi-manufactures all over China, but keeps the muck to itself."

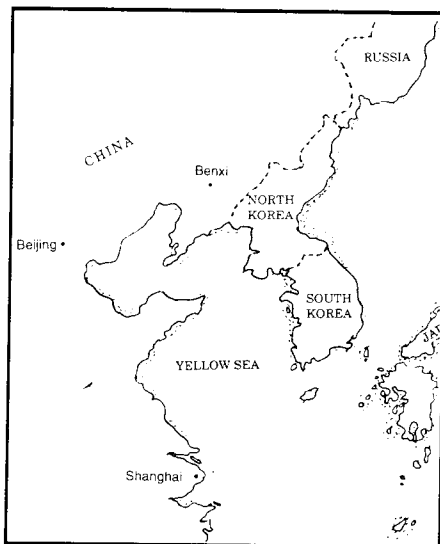
That's what they say about Benxi, a town of one million population in northern China that regularly appears smudged out in satellite photographs – so thick is the layer of dust and smoke hanging over it.

As a centre for iron and steel, Benxi rates sixth in China, with 140,000 employees in the industry. Its two iron and steel works are enormous installations, pouring out clouds of grey-black, rust-coloured, and variegated smoke – an indication that all sorts of pollutant are being released directly into the atmosphere. Among the other industrial undertakings that go to making up the sad picture of Benxi as a place of heavily polluting industry are four cement plants and a variety of engineering works.

The pollution is intensified by the fact of Benxi lying in a depression, with mountains all around. Unless the wind blows hard, a pall of smoke and dust hangs over the town. The dust particles in the air are said to amount to 740 micrograms per cubic metre, as against the 90 recommended by the World Health Organization as the highest admissible value. The yearly fallout per square kilometre is about 540 tons, or five times as much as the country's offi-

cial limit. Every cubic metre of air contains 230 micrograms of sulphur dioxide, almost three times more than the nationally permitted standard.

This bad state of the air is reflected in the statistics over the causes of death. The death rate from



respiratory illnesses is 52.85 per 100,000 of population, 30.5 of the cases being due to lung cancer – far above even the Chinese average, and about double that of the industrialized West.

There is however some glimmer of hope in the general darkness. The Chinese government has singled out Benxi as a test area for environ-

mental measures, having adopted a seven-year plan in 1989 with fifty-six separate items. Two of the five blast furnaces at No. 2 steelworks have for instance had gas-cleaning equipment installed. The plant's environmental officer still complains however of lack of finance. "We should need 200 million yuan (over \$30 million) to bring the whole works up to national environmental standards," says Wei Guoxing. "But for some years to come there will be little hope of getting it."

Increased road traffic is now adding to the general problem. When asked if anything was being done about it, Ma Zhenghua of the municipal environmental department replied: "No, we shall have to look at that when we have dealt with the problems from industry."

Benxi is hoping for outside aid. The World Bank has certainly agreed in principle to provide it, but any actual improvement will depend on the way the Chinese arrange their priorities. For the second year in succession the country's GDP has risen by 13 per cent, while industrial growth has been 21 per cent. Unfortunately many Chinese think they must pay the price for development – economic growth must come first, the environment can be attended to later. The bureaucrats who are aware of the extent of the problems are finding it difficult to influence the trend, since the central authorities are losing ground to the onrush of a market economy.

Benxi is indeed an environmental catastrophe, although far from unique. According to an undisclosed report from the World Bank, the most common cause of death in China as a whole is now respiratory illness brought on by air pollution. About 80 per cent of the coal, which is often of low quality, is burnt in furnaces with poor combustion. With coal accounting for about 75 per cent of the energy supply, China is now No. 3 in the world as emitter of greenhouse gases, and is well on the way to becoming No.1. Reckoned per capita, however, its use of energy is still less than half the world average, and no more than 8 per cent of the American.

GÖRAN LEIJONHUFVUD

Adapted from an article in the Swedish national daily Dagens Nyheter, January 9, 1994.

# Black Triangle still unaided

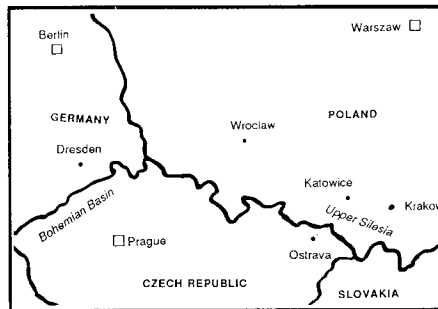
THE HEAVILY INDUSTRIALIZED area of southwestern Poland, the northern part of the Czech Republic and southern East Germany has long been known as a region of ecological crisis. (See Acid News 4/93.) The Katowice district, Cracow, Ostrava, and Most-Chomutov-Teplice are well known to environmentalists as places where the people, and especially children, are suffering badly from pollution.

This whole area is moreover responsible for large amounts of border-crossing air pollution, affecting Europe and especially the Baltic States, Russia, and the Scandinavian countries. It has, over the years, acquired a variety of names, such as Black, Death, or Sulphur Triangle. Following an international NGO meeting organized in 1990 in Katowice by environmentalists from the three countries involved, the whole region has finally come to be called by the NGOs the Sulphur or Black Triangle. But nobody really liked that description, because it was felt it would blacken the reputation of a whole region, which would be wrong, since it also has areas of natural beauty, fine national parks, and many beautiful towns.

On the other hand NGOs know that if it is to solve some of its environmental problems, it will need foreign aid, and so calls for international

attention. Consequently NGOs are trying to organize a campaign for international assistance for the Sulphur/Black Triangle region.

Following the political changes in eastern Europe in 1989-90, western governments reacted to public opinion and promised financial assistance for environmental programs, and especially for environmental



hot-spots such as the Black Triangle. Governments divided the region into different administrative areas for the coordination of foreign aid. The EC PHARE Project includes for instance a Regional Environmental Programme for Upper Silesia, a Black Triangle Programme which deals only with the border region of Germany, Poland, and the Czech Republic, and a special program for the Ostrava region. The World Bank and EBRD have chosen other administrative forms.

Environmentalists NGOs are much concerned that western environmen-

tal assistance should be developing so slowly after many promises and innumerable visits of western political delegations and experts to the Black Triangle region. Already in 1990 the EC was talking of environmental assistance, but whereas people living in the region want to see short-term improvements for their local environmental problems, what they see is aid being used for theoretical master plans and feasibility studies prepared by expensive foreign consulting firms, and proposals for environmental monitoring programs that take years to install.

Local environmentalist NGOs are therefore beginning to openly criticize these programs. The Polish Ecological Club has for instance started a special unit at their national office in Cracow to monitor World Bank projects. During a meeting in Most, northern Bohemia, last October (called EkoMost) environmentalist NGOs from the region met representatives from the EC PHARE project to discuss the reasons for the slow development of EC aid programs, such as the PHARE Black Triangle Programme (see box). At this meeting an NGO Black Triangle working group was formed to monitor environmental aid programs and to try and lobby for NGO participation.

REINHOLD PAPE

## Environmentalists ask for participation

The PHARE program includes several projects that are independently organized, with consequent overlapping of aims. It appears that at this stage aid under the PHARE program consists mainly of carrying out various studies, and that there is a danger that funds will be dissipated in duplicated and uncoordinated activities. The system of management of the entire PHARE program, and the long periods required for approval of projects, tend to diminish the effectiveness of the program. Moreover doubts are starting to arise in the mind of the public as to its usefulness.

The Black Triangle project, financed with means provided by PHARE, is among the possibilities for assistance that is aimed at improving the most environmentally devastated parts of cen-

tral and eastern Europe. Unfortunately this project has, during the two years of its existence, failed to fulfill its mandate. Not one of the specific projects that were intended to address the improvement of the environment in the Black Triangle has been completed to date. As admitted in official statements, the study carried out by the Fichtner firm, which was meant as a framework for environmental revitalization, has had no practical significance, and a substantial amount of money has been unnecessarily expended.

We, the non-governmental organizations of the Black Triangle, realizing the catastrophic state of the environment in this region, feel a responsibility to actively take part in the PHARE

project. We are seeking the attention of the program administrators, and especially of the representatives of the environmental ministries in these deteriorated areas, in the hope that they will heed our advice to create a functional and realistic program of renewal, which will benefit our common lands and start an improvement of their environmental conditions as soon as possible. We also request the leaders and administrators of the PHARE program to permit non-governmental organizations and the general public to participate in the management of this program.

Green House Litvinov, Czech Republic  
Polish Ecological Club, Poland  
Grüne Liga, Germany

# Bad for health

THE EFFECTS of small particles emitted from the exhaust pipes of cars and heavy vehicles have long been overlooked. Recent research in the United States has however singled them out as a serious threat to health. Joel Schwartz, an epidemiologist at the US Environmental Protection Agency, puts the number of deaths from this cause in his country at 60,000 a year. Calculations made by Schwartz for the *New Scientist*, a British periodical, indicate a total for England and Wales of 10,000.

The particles do in fact come out mostly with the exhaust gases from cars, trucks, and buses. This particulate matter goes by the name of PM10 – so called because each particle is less than 10 micrometres across. It has now emerged as one of the most worrying ingredients in the cocktail of pollutants emitted from road vehicles.

Relatively little is however known about these particles' effects. Until recently it has even been difficult to make accurate measurements of their concentrations in the air. The bulk of the evidence against PM10 has come from American cities, where studies have been made to see whether there was correlation between daily readings of PM10 levels and the number of deaths each day. The first of such studies, conducted by Schwartz in Detroit and published in 1991, showed that as the levels of PM10 increased, so did the number of deaths. A similar relationship has since then been detected in six other cities.

These results have been confirmed by subsequent studies carried out in the United States. Although it is difficult to exclude the effects of other factors, the findings have proved remarkably consistent. Higher levels of particulates have been found to be accompanied not only by more deaths, but also by more hospital admissions and more reports of symptoms from asthmatics. Although the mechanism remains obscure, doctors suspect that the smaller the particles are, the more dangerous they can be, because if small they can penetrate further into the lung. Those measuring less than 2.5 micrometres

can reach the deepest recesses of the lungs and stick there.

Little research has however been conducted into the effects on the lungs. It seems unlikely that the particles themselves have a chemical effect on the lung cells, seeing that their chemical make-up has been shown in the American studies to vary widely, from that of the wood-smoke in Seattle to the omnipresent traffic fumes. But there is a possibility that the particles may carry damaging chemicals deep into the lung, since more than eighty different molecules have been found attached to particles in urban air.

The concentrations of PM10 are highly dependent on traffic levels, and consequently are highest in cities. The vehicles most obviously belching out smoke on the roads are diesel-engined trucks and buses. Nevertheless, estimates made in Britain in 1991 showed that about one-third of the emissions came from petrol-driven vehicles.

In 1986 the Environmental Protection Agency set the safety limit for PM10 in the United States at 150 micrograms per cubic metre. The latest studies suggest however that there are no safe levels of PM10, and that when the concentration in a city increases by  $10 \mu\text{g}/\text{m}^3$ , the death rate rises by one per cent. On those few days of the year when concentrations are high, there are peaks of mortality, but most of the deaths take place during the rest of the year, when the levels are nearer the average, so reducing only the peak levels would have little effect on total mortality.

The emissions of PM10 could be reduced by decreasing road traffic, as well as the use of cleaner vehicles and fuels. Measures for reducing the volume of traffic, and especially of private driving, are however political dynamite. "But," says the *New Scientist* in a critical comment, "the Department of Transport needs to wake up and start thinking about imaginative solutions to city problems, rather than behaving like a lobby for motorists."

PER ELVINGSON

Source: *New Scientist*, March 12, 1994.

## BRIEFS

### Washing their hands

Some sixty forest-owning farmers are suing the petrochemical industries in Stenungsund, on Sweden's west coast, for damage to their properties – deeming extensive investigation to have given them proof that the emissions of sulphur dioxide, nitrogen oxides, and volatile organic compounds are the cause of damage and diminished growth in the forests on the windward side of these plants. But the five companies so accused are denying all responsibility. The case is expected to come up at the earliest during the coming autumn.

Source: *Göteborgs Posten*, West-Swedish daily, November 12, 1993.

### All electric

Zinc and air will soon be replacing petrol and diesel as a driving force in the German postal service. From next year, 40 electric postal vans will take to the streets, carrying the novel zinc-air batteries. The main advantage of these batteries is their relatively high energy density, which is ten times better than that of conventional lead-acid batteries, combined with the fact that they can be recharged in three minutes by changing the electrodes.

In the long term, the postal service aims to convert 80 per cent of the hundreds of vehicles in its fleet to battery power. German Telecom, Siemens, BMW, and some German city councils have also announced their intention of using this new technology, developed by Electric Fuel Ltd, a Jerusalem-based company.

Source: *New Scientist*, January 22, 1994

### Clue to disappearance

Scientists believe they may have found a clue to the mysterious disappearance of frogs and toads all over the world – in the damage to the ozone layer in the upper atmosphere.

From a survey of several species of frogs and toads in the Pacific Northwest, scientists from Oregon State University found that species that do not appear to be declining have high concentrations of an enzyme that helps them withstand the effects of ultraviolet radiation.

One frog species, the Pacific tree frog, was found to have six times as much of photolyase, the protective enzyme, as the Western toad, and three times as much as the Cascades frog. All three species lay their eggs in open water, exposed to the sun. The Western toad and the Cascades frog are known to be markedly declining, while the Pacific tree frog is not believed to be in decline. Hatching rates were improved, though, if the vulnerable frogs' eggs were shielded from the sun.

Source: *The Guardian*, March 4, 1994.

## Further publications

### From "dirty man" to "drittsekk" – UK acid rain policy (1993)

By Fiona Weir. An up-to-date summarizing of the state of acidification in the United Kingdom and what is being done to reduce emissions, as well as an analysis of the way the UK has been acting in international negotiations.

£6.00. 28 pp. Published by Friends of the Earth, 26-28 Underwood Street, London, England N1 7JQ.

### Energy use and air pollution in UK road freight (1993)

By D. Taylor and M. Fergusson. Describes the environmental problems that will arise if the growth in road traffic is allowed to proceed as the forecasts indicate. Points to the need of an integrated transportation policy, nationally and internationally.

85 pp. Published by WWF UK, Panda House, Weyside Park, Catteshall Lane, Godalming, Surrey, England GU7 1XR.

### Current and projected global warming potential of passenger cars in the UK (1993)

By J. Wade, C. Holman and M. Fergusson. Examines the accretions to greenhouse gases from cars and ways of reducing them. Discusses among other matters the future development of road traffic and the connection between the advent of catalyzers and emissions of nitrous oxide.

85 pp. Published by WWF UK, Panda House, Weyside Park, Catteshall Lane, Godalming, Surrey, England GU7 1XR.

### Efter murens fall – om västs reaktioner på sammanbrottet i öst (1993)

By N. Sundström, M. Andersson and S. Gullgren, of the Institution for East European studies at Uppsala University. A summary of the West's reactions to the collapse of the socialist systems in East Europe. Examines developments from the ecological as well as the economic point of view.

252 pp. In Swedish. Published by Nerenius & Santérus förlag, Box 3105, S-103 62 Stockholm, Sweden.

### Survey on the legal situation of renewable sources of energy in Europe (1993)

By Climate Network Europe. A run-through of renewable energy sources in the twelve member states of the European Union, with recommendations for action addressed to EU policy makers.

48 pp. Obtainable from Climate Network, 44 rue du Taciturne, B-1040 Brussels, Belgium.



© DAN RAPP

## Get ready for May 15 Climate Action Day 1994

INTERNATIONAL environmentalist networks such as Action for Solidarity, Equality and Development (SEED) and International Alliance of Northern Peoples for Environment and Development (ANPED) are calling for a day of international action to protest against global warming. This is to be a decentralized campaign, with each local group itself deciding what to do.

Last year actions took place on May 15 and December 10 in seventy countries all over the world. The theme for this year's day of action and common postcard campaign is again the need to reduce emissions of greenhouse gases.

The main demands will be for governments to adopt, during the Climate Convention Conference in Berlin in March 1995, a protocol for the reduction of emissions of carbon dioxide by industrialized countries by at least 20 per cent by 2005 (as from 1990), and to prevent the use of joint implementation as a means of avoiding fulfillment of this obligation.

Further information regarding the proposed action day can be obtained from the Environmental Federation (*Miljöförbundet*), Box 7048, S-402 31 Göteborg, Sweden.

REINHOLD PAPE

## Cleaner Kola

THE TIME has now run out for bids for the installation of flue-gas cleaning equipment for two of Norilsk Nickel's plants on the Kola peninsula. The company had asked for bids for equipment to reduce the emissions of sulphur dioxide from its roaster at Zapoljarnij and the smelter at Nickel to a total of 40,000 tons a year, instead of the present 250,000 or so tons. A number have, according to industry sources, come in – specifically from Finnish, Norwegian, and Swedish companies.

The total cost is thought to be somewhere around \$300-350 million. The Nordic Investment Bank is said to be still interested in providing fi-

nance, as when the matter first came up in 1992, but again provided the Russian government and Norilsk Nickel itself will also put up money. What it would do if the contract should go to companies outside Scandinavia is however uncertain.

Although the Kola peninsula did not appear among the priorities for the European Bank of Reconstruction and Development in a recent review of its Russian strategy, sources within the bank say this does not exclude it from involvement. They add however that any EBRD participation is likely to be contingent on support by the Nordic Investment Bank.

Source: *Sulphur*, No. 229, November-December 1993. See also *Acid News* 2/93, p. 13.



# Leading up to Berlin

ON DECEMBER 21, 1993 the UN Climate Convention, adopted at the Rio Conference, was ratified by Portugal as the fiftieth signatory country, thus enabling the Convention to come into force in March 1994. Governments now have to start deciding about the agenda for the first official meeting of the members of the Convention, called the Conference of the Parties (COP), which will take place in Germany, in Berlin, at the end of March 1995. According to the Convention they have among other things to review the adequacy of commitments made under the Convention, to come up with proposals for criteria for handling the concept of joint implementation, and to make proposals for further development of the convention, such as by preparing protocols for the reduction of specific greenhouse gases.

At a meeting of the International Negotiating Committee last February (INC 9, one of those in preparation for the Berlin conference) the German government outlined its proposals for the coming negotiations. Since Germany will be the host country, and sees itself to be one of

the driving forces for reducing greenhouse gases, these proposals may give an indication of the direction that some governments will take during the period leading up to Berlin.

In a statement on February 7, 1994 the German delegation said: "Germany is convinced that COP 1 can only come to the conclusion that, in the light of current scientific knowledge, the present commitments of the industrialized countries will not by any means suffice to achieve the objective of the Convention." The statement continued: "Germany is convinced that more far-reaching action is urgently required, and as regards the instrument for the necessary reduction we would suggest a protocol, to be adopted already during the first COP. Germany favours a comprehensive protocol for greenhouse gases, their sources and sinks, and for all sectors, rather than several individual protocols, and not only for a reduction of CO<sub>2</sub>. The first COP should also adopt specific commitments to limit emissions of methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). Requirements should be formulated

for each gas individually and implemented at the national level. The concept of joint implementation can however provide an effective additional incentive for the achievement of ambitious commitments for reduction."

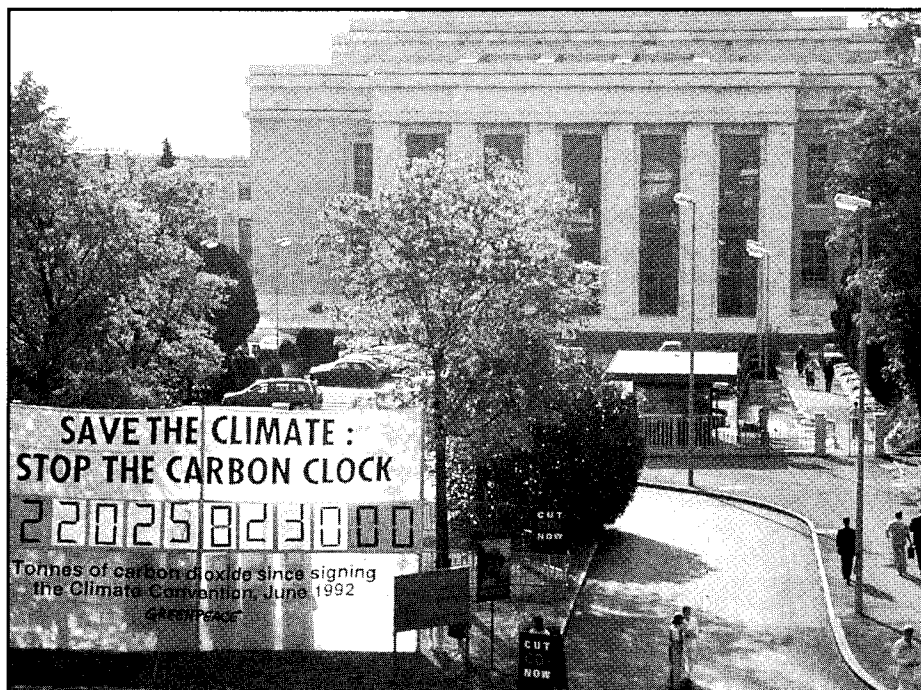
The statement continued: "Such a protocol should also lay down specified strategies, including among other things the application of economic instruments such as a CO<sub>2</sub>/energy tax, the increasing of energy efficiency, an increased use of renewable energy sources, the preservation, sustainable management, and improvement of existing forests as well as reforestation, the reduction of unnecessary traffic and transportation, a shift to more environmentally sound means of transport, and specific strategies in the agricultural field, such as a modified use of fertilizers."

Unfortunately these optimistic suggestions are finding no echo in the INC negotiations, which are proceeding rather slowly. No concrete steps for negotiating a protocol have yet been taken. Countries such as Denmark, the Netherlands, and Switzerland appear to sympathize with the German proposals, while Denmark, alone among industrialized countries, has volunteered a 20-percent reduction of CO<sub>2</sub> by 2005.

Oil-producing countries, as well as many developing ones such as China and India, are trying to dampen any ambitions for the further development of the convention. The latter are concerned that the industrialized countries are not providing sufficient financial commitments to assist them in their efforts for abatement, and they mistrust the concept of joint implementation. The oil and gas producing countries, in cooperation with industry lobbyists, are trying by all the means at their disposal to postpone the start of a shift away from the use of fossil fuels.

If the first COP is to adopt a CO<sub>2</sub> protocol, NGOs and the public will have to put a lot of pressure on their governments.

REINHOLD PAPE



During the UN Climate Negotiations in Geneva last August Greenpeace organized a public action outside the UN Conference building, with a "carbon clock" to remind the government delegates of the amounts of carbon dioxide released during the last year.

**AIR POLLUTION PROJECT**

# Bringing it home to the kids

THE Air Pollution Project Europe, which was announced in Acid News 2/92, is nearing the end of its second year, during which it has engaged 150,000 schoolchildren in selected classes in thirteen countries of northern and east-central Europe. As originally stated, the aim is to "give pupils as well as teachers a deeper insight into the causes and effects of air pollution, and to show what can be done to reduce it."

Last fall all the participating school classes measured the acidity of the local precipitation during one and the same week. The results, culled from the reports of 3250 classes, have been catalogued by the Norwegian arrangers and redistributed to all concerned in an inclusive report, which also contains maps as well as suggestions as to how the figures can be interpreted.

Attention will now be turning from acid rain to low-level ozone. During the spring, classes will start cultivating tobacco plants, which are especially sensitive to this pollutant. From the extent of damage to the leaves it can be seen how much ozone there is in the surrounding air.

Each class normally has a twin in another country with which to correspond and exchange experiences,

and some classes have also visited their twin – one of the main aims of the project being to create bonds so as to make pupils more aware of the fact that pollutants emitted in their

environmental subjects are also being held for teachers and pupils.

For each country, too, the teaching manual has been translated into the local language. Besides telling how to conduct the common international projects, it gives suggestions for other activities – such as investigation of lichens, forest damage, and water conditions – that classes could carry out either independently or in collaboration with a class in another country. The next common subject, after ozone, will in any case be lichens.

"We know that increased knowledge will influence pupils' attitude to nature and conservation. Our aim, in putting the subject matter in a Euro-

pean perspective, is to engage schoolchildren internationally. We hope in this way to incite both pupils and teachers to work for a better environment," says Aase Johansen, project leader at *Naturvernforbundet*. "In furtherance of this aim, we also give pupils suggestions as to how they can spread their knowledge to all and sundry, from members of their nearest family to the prime minister."

**PER ELVINGSON**



own country are likely to fall down in another, and that air pollution is an international problem that can only be solved through international cooperation.

The organizer of the project, the Norwegian Society for Conservation of Nature (*Norges Naturvernforbund*) is naturally working in close collaboration with environmental organizations in each of the participating countries. In each case there is a coordinator who is responsible for adapting the classwork to local conditions. In eastern Europe seminars on

**PARTICIPATING ORGANIZATIONS**

**Czech Republic:** Tereza, Czech Union for Nature Conservation, att. Dana Votápková, Senovážné náměstí 24, 11647 Praha 1.

**Denmark:** Kaskelot — The Biological Association, att. J.O. Ravn-Nielsen, Østergade 9, 8450 Hammel.

**Estonia:** Estonian Youth Nature House, att. Maris Laja, Mustamäe tee 59, 0006 Tallinn.

**Finland:** Finnish Youth Association for Environmental Protection and Education,

att. Jaana Hinkkanen, Tallberginkatu 1 D Lok 114, 00180 Helsinki.

**Great Britain:** Watch, The Green, Witham Park, Waterside South, Lincoln, England LN5 7JR.

**Hungary:** Ministry of the Environment, Research and Education Dept, att. Enikő Szalay-Marzsó, Fő utca 44-50, 1011 Budapest.

**Iceland:** Landvernd, att. Svanhildur Skafadóttir, Skólavörðustíg 25, 101 Reykjavík.

**Latvia:** University of Latvia, Ecological Centre, att. Diana Sulga, Raina Bulvaris 19, 1586 Riga.

**Lithuania:** "Zvejone", Lithuanian Green Movement, att. Antanas Kontautas, Danės 17, 5800 Klaipėda.

**Norway:** The Norwegian Society for Conservation of Nature, att. Aase Johansen, Postboks 2113 Grünerløkka, 0505 Oslo.

**Poland:** Polish Ecological Club, att. Zdzisław Matyniak, Okręg Dolnoslaski, 50-020 Wrocław, ul. Marsz J Pilsudskiego 74 p. 207.

**Sweden:** Swedish Society for Nature Conservation, att. Ingemar Zachrisson, Box 4625, 116 91 Stockholm.