

# Asian Farmers Over-use Pesticides

**P**ESTICIDES, or residues of it, may be served with contaminated vegetables.

Asian vegetable farmers over-use pesticides. Pesticides are applied on vegetables, for example, up to harvest — a practice widespread in Indonesia, Malaysia and the Philippines.

In Malaysia, a 1985 survey found significant levels of residues on tomatoes. At least four tomatoes out of six samples analysed were found to contain pesticide residues in excess of safe limits. Most of the residues, however, were found on the peels and could be removed through washing.

In the Philippines, pesticide residues have been detected in 1988 on string bean obtained from various markets in Manila. About 16 per cent of 96 samples were found to contain significant levels of insecticide residues.

On cabbage, detectable residues were concentrated on the outer leaves. A considerable amount of the residues can be removed by washing a removing the outer leaves.

Early in 1987 in Malaysia, a rapid residues check found seven types of vegetables with excessive insecticide and fungicide residues. The vegetable — which included spring onions, Chinese celery and Chinese parsley — were declared unsafe for consumption.

"It is now indisputable that the problems encountered in

vegetables in the Asian region on pesticide misuse are generally widespread, acute and grave," says L. Guan-Soon of the Pest Science Unit, Central Research Laboratories, Malaysian Agricultural Research and Development Institute (MARDI), Selangor State, Malaysia.

No less than 100 species of vegetables are cultivated in Asia. On average, the yearly per capita output for vegetable production increased from 884 in 1975 to 967 in 1985.

Tropical Asia is conducive for the proliferation of pests. Severe attacks of cabbage by the diamond back moth may cause damage, anywhere from 40 per cent of crops in Vietnam to 100 per cent in Indonesia, Malaysia and the Philippines.

"In many parts of Asia," says Mr Guan-Soon, "an attitude of desperation exists, leading farmers to resort to rampant use of pesticides. Many feel vegetable cultivation is not possible without the massive use of pesticides, and the faster a chemical can kill an insect pest the better it is."

A common practice is frequent pesticide spraying. In Malaysia, at least 50 per cent of farmers surveyed spray two or three times a week against the diamondback moth. The continuous search for more potent products to replace less effective ones on use is common.

Another common practice is the use of pesticide

"cocktails." About 65 per cent of Malaysian vegetable farmers surveyed in 1977 commonly mixed two or sometimes more pesticides for spraying cabbage crops. In the Philippines, half of farmers interviewed in 1982 said they used pesticide mixtures.

Because of excessive use pests are developing resistance to pesticides. Resistance against fungicides has also been reported.

## The problems of over-using pesticides in Asian farms are now widespread, acute and grave

"Farmers are subtly trapped into the cycle of pesticide dependency and constantly forced to seek more potent and effective pesticide," says Mr Guan-Soon.

Pesticide poisoning is on the rise. In the Philippines, 97 cases of pesticide poisoning with 14 deaths were reported between 1980 and 1982 by Benguet General Hospital in the Mountain Province, a major vegetable-growing area. In Thailand, there were 4,046 cases of pesticide poisoning in 1985 alone. One alternative may be integrated Pest Management or IPM. In 1987 there were more than 107,000 hectares of vegetable in China raised under IPM. This meant

growing the vegetables naturally, using whenever possible insect predators to fight pests and using organic fertilisers. Pesticides and fungicides are used only when necessary — for example, if the number of pests cannot be controlled anymore by other means.

These vegetable farms (found in 200 cities in 22 provinces) produce 6.4 million tonnes of vegetables. By IPM, pesticide residues were maintained below the tolerance limit. About 85 per cent of losses caused by pests can be saved. IPM is estimated to fetch a net profit of 1.8 billion yuan a year.

In Indonesia, Thailand and Vietnam, IPM packages are also practised for some vegetables. An important part of these programmes includes the natural enemies of pests.

In Vietnam, it gives priority to using natural enemies, complete post-harvest clearing, periodical surveillance for pest every three to five days and intercropping cabbage and tomato.

In the Philippines, only limited testing of IPM for vegetables has been done, aimed at the diamondback moth on cabbage, late blight of potato, and thrips of cucurbit, tomato and sweet potato. The priority is to use resistant varieties as the first line of defence, the full use of natural predators

against pests and using safe pesticides when necessary.

The beneficial impact of IPM can best be illustrated by the successful project of the Food and Agriculture Organisation for rice-growing in the Indian sub-continent and Southeast Asia. It was shown that IPM can guarantee that yields of rice will not go down even if pesticides use was reduced.

The project showed that IPM guarantee that farmers will save money, usually from reduced pesticides use. For example, insecticide costs were reduced by more than 50 per cent.

"On a national level, because almost all pesticides are imported, this much reduction achieved through IPM means a large saving to national economies, amounting to US\$5-10 million per year to the Philippines and Thailand, and as much as US\$50-100 million per year to Indonesia," according to Mr Guan-Soon.

Vegetables are increasingly an important source of food income for small farmers, especially near cities. Now that large areas of Asia are covered with new high-yielding varieties of cereal crops, vegetables could well be the next major frontier in the fight against malnutrition and hunger.

— DEITHNEWS ASIA

# DEADLY ASBESTOS USED IN VILLAGE HOUSEHOLDS

Asbestos fibre, known for its fire resistance but also for causing diseases like asbestosis, is rarely used in the industrialised world anymore in places where it will come into contact with people. In the developing world asbestos is still used for many commercial purposes with dangerous side-effects for people in contact with waste asbestos. Gemini News Service reports how asbestos waste in Ghana is being sold to villagers who unwittingly use it for things like filling potholes. by Gerge Frank Asmah

factory had contacted the Waste Management Department of the Accra Metropolitan Authority about disposing the waste.

Dorm-Adzobu charges that the department "sold the toxic asbestos wastes to households, communities and petty road contractors."

BM Laryea, principal environmental health officer of the Accra Metropolitan Authority, denies that Fulgrip had ever contracted his organisation to dispose of the toxic waste. But local residents say drivers from Fulgrip are still selling them asbestos.

In Ghana asbestos is used mainly for water and waste pipe products and roofing sheets. These products use as-

bestos fibres bound together with other raw materials like cement.

Environmental experts say landfilling is the safest way to get rid of asbestos. They recommend that a special landfill be put aside for asbestos, although no such facility exists in Ghana.

once landfilled, asbestos should be covered within 24 hours with a minimum of six inches of non-asbestos material, including heavy clay or cement. The waste should receive an additional 30 inches of fill after that.

Despite expert advice, Ghana still has an asbestos problem and the hazardous waste keeps mounting daily in several locations. — GEMINI NEWS

# Forest Standoff: the Sound of One Hand Clapping

by Philip Gorton

**B**ANGKOK: A monk who made popular the concept of ordaining trees with orange robes to preserve them in the eyes of rapacious authorities has become a barefoot urban refugee under threat of imprisonment.

Arrested on numerous occasions and accused by the government of destroying the forest himself, he is vowing to return to the jungle for another fight.

The monk, Phra Prajak Kutajitto, comes from the country's northeast Buriram province. He walks softly and carries with him the sentiments of thousands of disenfranchised Thai villagers — villagers whose tiny rice and tobacco plots are being confiscated in favour of large tree plantations.

The plantations are part of a government plan to make degraded land productive by planting fast-growing trees that are usually ground up for paper products. Critics claim the government is assisting private interests and taking the land away from villagers.

Prajak has stepped in front of club-wielding policemen to prevent harm being brought to his followers. He is opposed to confrontation and speaks in simple words about preservation.

"To understand the forest is to understand the nature of things," said Phra Prajak in a recent talk with journalists here. "Consciousness comes from the forest. Forests are the lungs of the world."

"Trees made the air pure and regulate the flow of water

that lets the rice grow." Prajak appears well aware of the publicity he is generating through his non-violent struggle. He says he will continue to keep villagers and officials or their henchmen from coming to blows.

"I have told the villagers not to fight, so when the authorities come they will only make the sound of one hand clapping," he said.

The venerable monk appeared to be saying about the same thing as many of today's young environmental zealots. The greatest difference is that Phra Prajak is a man who makes his home in the forest and has seen his greenhouse go from wet to dry in recent years.

In what remains of Thailand's rainforests, he is leading standoffs between villagers and government "reafforestation" interests. More often than not, villagers are being ousted from forest reserves that they were once encouraged to occupy over a decade ago when the country was still battling a determined communist insurgency.

Thailand — which still had half of its land forested in 1961 — has less than 20 per cent left today. For three decades, Thailand lost trees to logging, encroachment from farmers and slash-and-burn agriculture.

Backed by a new breed of "conservation monks," some villagers are saying they can now protect the remaining forests against big business interests. But the government

**B**IRD trappers in Argentina fell trees with chainsaws to capture parrots for export. As part of the same trade parrots chicks die from force-feeding and diseases spread in overcrowded cages.

Now evidence of this cruelty and destruction is being used to urge a European ban on imports of wild birds. During a two-week visit, agents from Britain's Environmental Investigation Agency (EIA) saw only a dozen parrots flying free where once it was common to see huge flocks.

They also filmed thousands of beautiful birds crammed into crates and cages en route to the United States, Europe and the Far East.

Argentine wild bird exporters have asked that a previous ban on their imports into the European Community be lifted, claiming they had cleaned up their act, and citing changes in administration and the establishment of quotas. But the EIA team sent to check out their claim found regulations flouted at all levels, environmental degradation and the continuation of practices endangering wild population.

Campaigner Peter Knights headed the EIA team which arrived in Argentina at the height of the trapping season for the Blue-fronted Amazon. It is a popular species because of its colours and talking ability, and one which has seen its numbers devastated over the last 50 years in Argentina.

The team found trappers attacking prime nesting sites

wants their tiny plots planted with tracts of Australian eucalyptus trees.

Villagers who oppose the plans are alleged to be under the influence of Phra Prajak. They have told they will not receive compensation for their lost homes and plots as will villagers who go along with the scheme.

# Team Uncovers Horror of Argentine Parrot Exports

Argentine exporters of wild birds have asked for removal of a European Community ban blocking such imports. The exporters say they follow strict quotas and health regulations and should not be prevented from selling birds such as parrots to European buyers. But a British investigation team sent to Argentina found shocking evidence of cruelty and environmental degradation. Gemini News Service reports that many birds suffer during capture, choke to death through forced feedings or die in cramped cages. by Frank Nowikowski

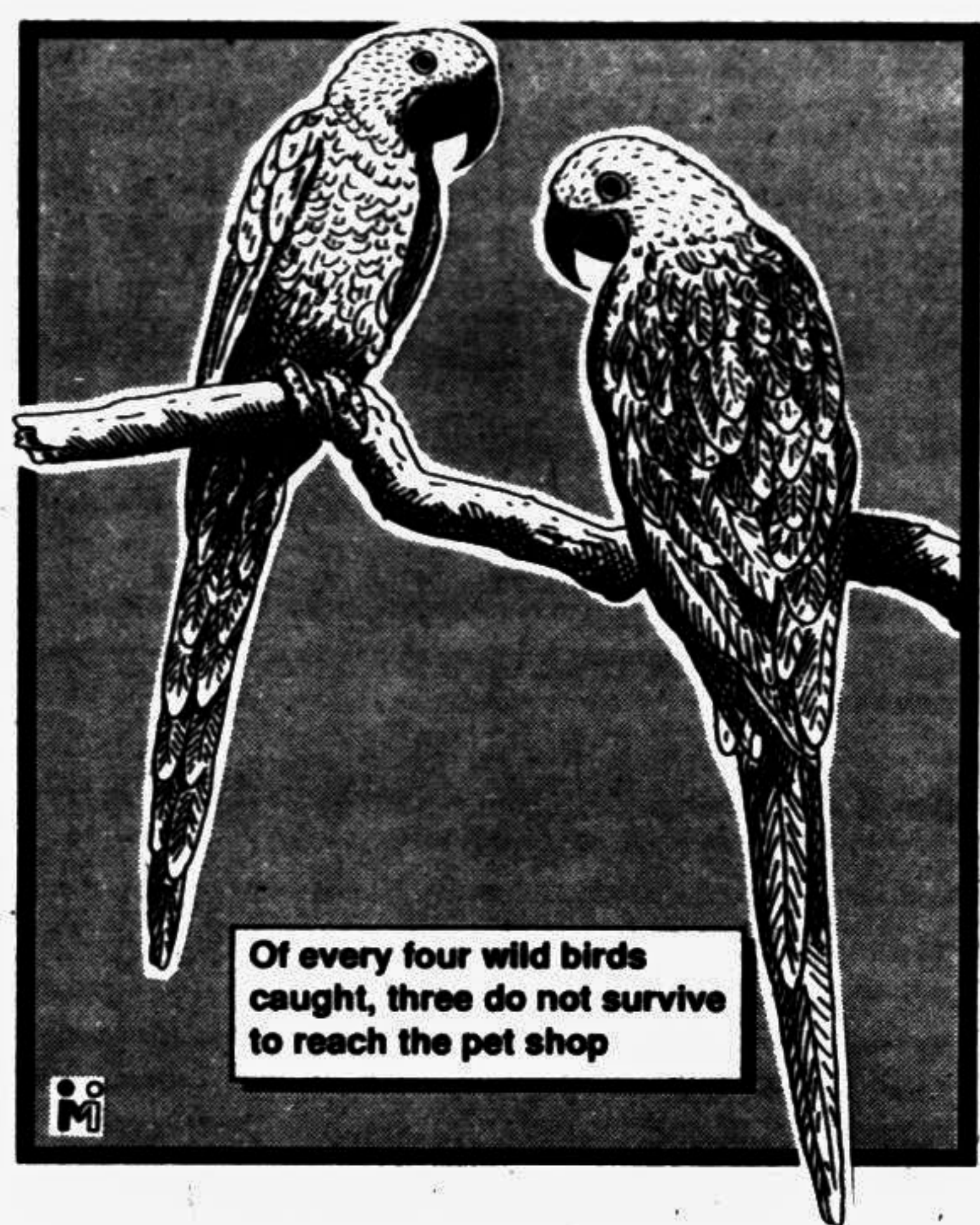
with chainsaws. The Blue-fronted Amazon lays its eggs in hollow tree trunks over 100 years old. Many chicks do not survive the crash to earth.

Traditionally foresters have felled trees for charcoal-making — finding parrots for sale is a sideline. Over-mature trees make poor charcoal but good nesting sites, so conservationists have asked foresters not to fell them. The team saw 150-year-old trees chopped down just to see if they contained parrots. Peter Knights says unskilled handling of birds at this stage led to high mortality.

Local peasants also hunt for the Blue-fronted Amazon. Rather than fell the tree, they will cut a hole around the nest, remove the chicks and sometimes even re-seal the nest for next year. This saves many trees but does little good for the birds.

The peasants still take all the chicks from all the nests they can find. The result is a shortage of young birds of breeding age. The long-term survival of the species is now threatened.

Collectors take the birds from peasants and foresters and prepare them for exporters to collect. The birds are gathered together to await



the arrival of exporters. Some of the most disturbing footage shot by the EIA crew came at this stage during a feeding session.

Collectors used plastic ketchup dispensers to squirt mashed maize and rice down birds' throats. During a filmed feeding session for 425 birds, six birds choked to death when the mixture was squirted into their lungs. A few more were revived by violent shaking.

Many birds die of diseases such as avian pox which is common among Blue-fronted Amazons. In the unsanitary and overcrowded premises of one collector, 4,500 birds died from one outbreak of the disease.

Although there is supposed to be an official quarantine period to prevent the exportation of disease, this was not observed. Of the original 431 trapped birds followed by the EIA team another 56 died before the exporter could ship them, so he was keen to avoid further delay.

Fifty birds were shipped immediately to Taiwan — a country with a wildlife protection record worse than Argentina's. Argentina has been cited as the fourth worst in the world — the others are Spain and Thailand.

A veterinarian told Peter Knights that birds come in and out without checks. Under Argentine law, the director of Government quarantine is required to sign a health certificate for exported birds. At the airport the EIA watched as the health certificate was signed — without any kind of inspection.

Knights said that at every stage of the trade in Argentina, he saw officials sign certificates without inspecting the birds. Numbers of birds exported were under-declared. Of the 425 live birds received by one exporter, only 350 were declared.

Knights returned to Britain with a warning that the Blue-

fronted Amazon is under threat: "After 15 years of relentless exploitation for the pet trade, scientists warn that the species may be on the verge of a population crash in Argentina."

As Argentina's wild bird populations diminish, trappers are turning to neighbouring countries. Brazil, Paraguay and Bolivia have banned the export of their wild birds, but certificates signed by Argentine officials disguise the fact that birds trapped illegally in neighbouring countries are being laundered through Buenos Aires airport.

Knights wants a European ban on wild-caught birds. The EIA, together with the Royal Society for the Prevention of Cruelty to Animals (RSPCA) and the Royal Society for Protection of Birds (RSPB), is lobbying the European Commission with some hard facts: more than four million birds are trapped for Europe alone, but three million do not survive to reach the pet shop.

Last year a KLM flight containing 8,000 birds for a dealer in the United States, passed through Heathrow airport in London where 1,200 birds were discovered to have died already — among them flamingos in crates too small for their bodies.

Caroline Jackson, a British Member of the European Parliament, has prepared a report for the European Commission outlining the cruelty of the trade and the threat to the survival of over 40 species of birds — 30 of them parrot species.

The Indian government has passed laws severely restricting the number of species that can be trapped. But practically all the restrictions and licensing schemes agreed by 119 countries over the last 15 years, are simply being ignored — nothing less than a total ban will do, says Knights. In the US a bill has been introduced to end the trade. — GEMINI NEWS

**S**WITZERLAND'S laws relating to the environment compare well with international regulations on the subject: its rules are more strict than in the European Community, and limit its imposed on toxic products are more rigorous and more widely applied than in many other countries. For example, taking the number of its inhabitants into account, Switzerland has the weakest dioxide emissions: its rules on exhaust fumes from motor vehicles are, along with Austria's, the strictest in Europe. Its air protection regulations drastically limit the emission of harmful fumes from industrial production. In world terms, Switzerland belongs to the small circle of states which are the most advanced in the fight against chlorofluorocarbons (CFCs). In June 1990, it launched a programme aimed at banning CFCs and other substances suspected of destroying the earth's ozone layer. The government has announced its firm intention to reduce chemical products and eventually ban them within a matter of a few years. Aerosol sprays containing gas in which CFCs are used will already be banned from 1991.

## Towards International Harmonisation

Switzerland has no intention of seeing itself limited to strict rules only on its own territory. It is actively and successfully involved in moves towards harmonising environ-

mental measures at the international level. It played a key role in working out details of the Geneva Convention on cross-border atmospheric pollution in the long term, and in the finalising of the 1987 Montreal Protocol on products threatening the ozone layer. The Basel Convention on toxic wastes is another example.

## Water: Some Success but New Problems

The fight against water pollution in Switzerland can be regarded as successful. During the past 25 years, nearly 800 purification stations have been opened, and 90 per cent of the water now passes through these stations, thanks to the expenditure of more than 30 thousand million Swiss francs. The result has been a considerable improvement in the state of health of Swiss water, although the situation is still not perfect. Despite the prohibition of phosphates in washing products from 1986, some lakes on the plains continue to suffer from high concentrations of phosphated products. The main culprits are farmers, due to their excessive use of liquid manure and other fertilisers which pass through the soil and eventually end up in the lakes and streams. Some lakes now need artificial ventilation, by means of injections of air and pure oxygen, in order to avoid their effective

# Environment Protection : Could Switzerland be a Model Pupil?

## Switzerland — 700 years after

The Swiss minister of the interior and the environment, Flavio Cotti is surprised to see "how much Switzerland successes in protecting the environment arouse admiration (abroad)". This is a fact: according to surveys conducted by the Swiss National Tourist Office, such qualities as tidiness, clean air and general environmental concern are part of the image of Switzerland in many countries. So could this small country in the heart of Europe serve as a model pupil where environmental protection is concerned?

death. Nitrates contained in fertilisers as well as pesticides, can also end up in the waters. Some communes have had to advise their inhabitants to refrain from consuming tap water, an unpopular measure bearing in mind the country's abundant water resources. Luckily however, Switzerland is not lacking sources of mineral water....

## The Invisible Poisoning of the Air

There is great concern about the quality of the air. This despite the fact that Switzerland no longer has old factories releasing filthy clouds of black smoke towards the sky, visibly polluting the environment. Present-day pollution may be invisible but it can still be harmful: in 1986 alone, 43 million tons of carbon dioxide

were emitted. Since 1960, emissions of nitrogen dioxide have tripled, and emissions of carbon dioxide have doubled. Three-quarters of the nitrogen dioxide comes from motor vehicles: in the larger towns and cities, the annual average of the concentrations represent twice as much as the permitted level. Compared with abroad, the set limits are very strict, but they do conform with World Health Organisation recommendations. Only a small proportion of carburetted gases, which are very volatile, is due to road traffic (incomplete combustion): most of these gases come from industry (burning, solvents, cooling etc).

The precarious state of the air in Switzerland is one of the factors behind the decay of the forests — the scientific com-

munity is almost unanimous on this subject. A particularly serious phenomenon for the mountain regions, the eventual disappearance of protective forests, could increase the risks of avalanches or landslides on inhabited areas, roads and railways. For its part, the medical profession says the worsening state of the air is a factor in the increase over the past few years of illnesses affecting the throat and lungs. What makes the situation all the more worrying is that the pollutants are mobile, and do not remain confined to the regions from where they are emitted: surprisingly high concentrations have been recorded in very remote areas of the Alps.

## A Deterrent Tax Envisaged

The authorities are not

standing idly by. Detailed legislation, which went into force in 1985, is between now and 1995 aimed at giving back to Switzerland the quality of the air it knew in 1960. But this objective will not be easy to achieve: for example, the rules on motor exhaust emissions have required a catalytic converter to be fitted to every new car since 1987, and less nitrogen dioxide will most certainly be emitted by 1995. But even so, its total concentration will still be one-and-a-half times higher than was the case in 1960. Environmental protection organizations, the federal office for the environment, forests and the countryside, and even a private study by experts, have unanimously predicted that measures on exhaust emissions and legal limits for air protection will not be enough to meet the "1960" target. Ecologist groups are calling for the introduction of a quota system for the consumption of motor fuel, but such a drastic measure is opposed by the automobile organizations and parliament.

The government nevertheless foresees that it will have to resort to further measures. It intends to introduce so-called deterrent taxes on certain pollutants (volatile organic compounds, sulphur in extralight heating oil and in diesel fuel, fertilizers and pesticides).

By increasing the price of these products, the government hopes to reduce their consumption. It would be something new: economic measures as part of environment policy. In the past, this policy has relied on obligations and restrictions. Furthermore, money raised by the special taxes would be spent on waste disposal. Manufacturers and importers of such products as batteries and the containers used for drinks, lighting, and motor oil, might be made to pay taxes to finance their collection, transport and eventual elimination, when they require special treatment after use.

## Coping with a Mountain of Waste

There is no lack of motivation for adopting such measures: every year, per inhabitant, Switzerland produces 50 kilos of special waste, 600 kilos of waste material from construction sites, and 600 kilos of sludge. Added to that are 400 kilos of household waste per inhabitant. The 40 incineration plants, spread throughout the country, manage quantitatively at least, to more or less deal with this mountain of waste.

By 1992, they should all be equipped with a modern installation to cleanse their fumes. Little by little, a

separate collection of waste is also making headway: organic waste is taken away to be made into compost, while old paper, glass and metals are re-cycled. Special waste is the biggest problem. For the time being, it can not be treated and disposed of in this country.

## Developing Cleaner Production Methods

"Prevention is better than cure" is a saying which applies to environmental protection. This explains why the government wants to support the development of technology which is more environment-friendly, and thus encourage industry and business to favour "cleaner" production methods. The Confederation intends to provide grants of up to 50 per cent towards the cost of developing new installations or of improving old ones, which will reduce the strain on the environment.

Swiss environmental policy has in recent years made use of an important means of prevention: an impact study, to which 70 per cent of all new installations — including nuclear power stations, highways and funicular railways — have to be submitted before construction can go ahead. The aim of this study is assess the eventual impact on the environment of a future installation, and where necessary to find ways of reducing any nuisances which may be caused. — Jürg Muller.