Ecologists Sound Population Alarm

by Ronald Lee

THE population of the world has multiplied by a factor of seven since 1750, tripled since 1900 and doubled since 1950. Its rate of growth accelerated throughout this century, peaking in the mid-1960s at 2.1 per cent per year and then declining to the current rate of 1.7 per cent per year. The rapid population growth since World War II, unprecedented in recorded history, caused grave concern and controversy about the ability of the global economy and ecology to sustain the increased numbers.

Classical economists like Thomas Malthus (1766-1834) believed that, as growing population made land increasingly scarce, rising food prices would eventually choke off further economic and demographic growth and that this would lead to what they termed the "stationary state". For them, natural resource constraints were at the heart of the problem.

Yet while the classical economists stressed the central role of land in the economy, the importance of land has dwindled in the modern world. The share of the labour force in agriculture is declining in most areas and the possibilities for increasing the output from a given amount of land, through increased inputs of fertilizer, pesticides, new seed varieties, irrigation and better training, appear very great.

By the 1980s, policy-makers were in a state of confusion. Was population growth good or bad? Did it matter at all? Would expenditure on family-planning programmes lead to more rapid economic development?

This uncertainty led to systematic attempts to assess our knowledge, including major projects by the World Bank and the United States National Academy of Sciences. In the mid-1980s, these assessments revealed a surprising degree of agreement among economists. While few of them accepted the view that population growth was good for development, the consensus was that it mattered less than had previously been thought. Earlier studies, it was believed, had failed to appreciate the flexibility of the economic system.

Sounding the alarm

While economists were playing down the effects of population growth, ecologists and environmentalists like Paul Ehrlich and Garrett Hardin were sounding the population alarm. They pointed out that the biosphere provided essential inputs to economic activity and warned that its limits and fragility placed bounds on sustainable levels of economic activity and that these bounds had already been overstepped. The global economy was consuming ecological capital with careless extravagance rather than living off the interest.

Ehrlich and Hardin had been expressing these views since the 1960s at least and their views were incorporated into a systems analysis model in the Club of Rome report "The Limits to Growth." This report, which attracted worldwide attention in the early 1970s, came to the conclusion that global collapse was imminent and inevitable unless fundamental changes were made and that catastrophe was inherent in the structure of socio-economic and ecological relationships.

Social scientists soon rejected the Club of Rome approach in favour of careful analysis of each relationship. In the 1980s, however, a flood of environmental problems added new urgency to the ecologists' position. Hot summers, drought, acid rain, polluted waters, famine and holes in the ozone layer seemed to confirm their predictions, leading to heightened concern about population growth.

Ecologists, however, had presented a broad array of reasons to end or reverse population growth; some of these were less solid than others. Many of the older ideas about the economic consequences of population growth were again put forward. These were unconvincing since they were not supported by the more recent research. Ecologists had also been issuing warnings about the impending exhaustion of minerals, but economists such as Julian Simon countered by showing that the real prices of most minerals had been falling historically, not rising, and that the total costs of natural resources had not been rising as a share of national output. Petroleum prices had also tended to fall, if increases causes by OPEC are excluded. In 1980, Simon wagered Ehrlich that mineral prices would decline in real terms during the following decade.

In 1990 Simon won this well-publicized bet and collected his money. The historical record illustrates the substitution of more abundant resources for scarce ones in response to relative price changes. It exemplifies flexible economics responding to incentives communicated through market prices.

Some of the ecologists' other claims have also appeared to be premature or exaggerated. For example, real food prices have historically fallen and per capita food production has increased. The incidence of famines has diminished, not increased, and modern famines often arise from wars or mistaken policies rather than from deficiencies of agricultural production due to population growth.

"The tragedy of the commons"

Yet may of the ecologists' most important warnings appear correct, particularly those concerning renewable resources–air, water, fisheries, land, forest cover, the ozone layer and species diversity. These resources can sustain a certain level of use without diminution, but over-use leads to their damage or destruction. Furthermore, most of them lie outside the market economy and may be used cost free.

This means that economic agents—individuals or firms—can benefit from cheap disposal of pollutants without bearing the costs of environmental degradation, the costs being passed on to society as a whole.

As a result, economic incentives encourage overuse. The automatic signalling mechanism of market prices is impotent and price changes were neither as an incentive nor as a signal of increasing scarcity.

For some resources, such as forest cover, there is little incentive even for national policies, because the costs of policies are borne locally while the benefits are shared globally. Hardin called this type of problem "the tragedy of the commons," and the name has stuck. Although traditional communities with common property resources have typically managed them effectively, these arrangements are vulnerable to the forces of economic development. In any event, modern environmental problems transcend local communities, nations and even continents.

Damaging over-use of renewable resources is intensified by population growth. Although, in principle, over-use can be prevented by appropriate policies and institutional arrangements, in practice this has been difficult to achieve.

The situation is complicated because population is only one of several contributory factors. Per capita income growth and changing technologies, for example, also play important roles, but in a given situation it is difficult to assess how much is due to their influence and how much is due to population growth.

Nevertheless, whether renewable resources are well managed or not, population growth means that less of their services will be available to each individual.

Worries about population growth have thus come full circle from the classical concern for limited land, to emphasis on physical capital, to more recent emphasis on human capital and the ameliorative influence of competitive markets and back once again to the natural constraints.

This time, however, the concern is for renewable resources, most of which fall outside the market. For some, the urgency of population control on ecological grounds is obvious. Others remain sceptical. Research on links between population growth and the environment is under way, and there is hope for a better understanding of these links in coming years.

Because many of the ecological costs of population growth are global, the ecological incentives to restrain population for national gain may be weak. This is another tragedy of the commons, which can only be removed by international collaboration.

Without Incentives, Trees Just Don't Get Planted

by Nestor R. Cervantes

INCREASING severe fuelwood shortages are now starting to cripple economic economic growth in a vide are of countries in Asia and Pacific.

Despite this energy crunch, legislators of this region lag in dismantling obsolete laws and administrative decrees that obstruct efforts to plant trees for spiralling fuel needs.

The Food and Agriculture Organisation (FAO) cites these problems in report by a regional wood energy development project. The Netherlands funded the 10-country project, now well into its second phase.

FAO estimates over a billion people today depend on fuelwood. They burn "biomass" (animal and other waste matter) both in households as well as in farms and rural industries. The urban poor use charcoal. Despite the high profile oil commands, wood provides about 40 per cent of energy consumed in Asia and the Pacific.

Fuelwood dependence varies by country. In Bangladesh and Nepal, for example, nine out of every 10 families use biomass for fuel. In India, 76 per cent of rural households collect and transport fuelwood.

"Acute scarcities are now widespread in the mountain regions of Nepal, as well as in the arid and semi-arid regions of India and Pakistan," FAO's forestry plantation specialist Raj S Gujral explains. "As fuelwood becomes increasingly scarce, women and children walk longer distances and expend even more time in collecting fuelwood, at the expense of productive agricultural activities."

In recent years, heavy population pressure has accelerated forest degradation. China's fertility rate rebounded in the 1980s. Within the same decade, India's population surged surged due to a continuing decline in death rates. Faltering demographic transitions, in such large countries have translated into heavier demands for just about every thing — including fuelwood.

Studies prepared under the regional project show that wood energy supply problems are compounded by interlocking factors. These include : maldistribution of land, skewed land tenure systems and lack of incentives.

"In most countries, government policies, laws and regulations relating to land tree ownership and to forest management responsibilities do not favour tree planting by local communities and individuals," Mr Cujral observes.

The FAO Regional Wood Energy Development Programme states : "Policies need to be adopted and measures taken to ensure that producers of fuelwood, often bypassed in economic programs, share in the benefits and profits. Tangible incentives for the poor are the best spur for planting."

Plans to combat Asia's increasing shortage of fuelwood will only succeed if real rewards, effective at ground level, are built into them.

In India, Nepal and the Philippines, a start has been made on securing people's participation, an evaluation report notes. "Policies have been adjusted to allow for the transfer of forest management responsibilities to local organization..."

Over 776 key officials from the 10 participating countries were trained under the project in its first phase. The has now started to pay off. They are training others in nationally funded courses.

Crucial gaps also noted. For example, the involvement of women non-governmental organisations remains minimal.

The waring against the continuing exclusion of women and NGOs was reinforced in a blunt address to the Asia Society in New York by Dr Dioscoro Umali : "Environmental action withers away in a vacuum," the former FAO Regional Representative said.

"Grassroots groups will have to interlock with governments, private companies and international agencies — which too often excluded NGOs in the past. We work together or we die separately."

A number of countries have now prepared national energy plans. These emphasise development and conservation of fuelwood resources through community forestry programs. But planning and implementation are hampered by shortages of trained staff.

Trained people are critically needed to analyse policy options are well as plan and implement the programs. In the implementation stage, shortages of suitably trained extension workers are particularly noticeable.

There is an urgent need to coordinate a mishmash of programs plans and projects, says the report. And Mr Gujral adds : "There is also a need to improve procedures for systematic monitoring and evaluation of the programs."

The cooperative network established by the project has resulted in substantial improvements in the exchange of information. Yet not all of the important institutions concerned with wood energy have been linked as of today.

The battle to untangle the fuelwood crisis could be boosted by greater technical cooperation between member countries, FAO states. In fact, the wide variations in the stages of development reached by different countries provide considerable scope for inter-regional technical cooperation, the report concludes.

— Depthnews Asia

In Defence of 'Uselessness' in Pakistan

by Chng Soh Koon

HE has been branded an American agent, trying to import Western ideas into an Islamic country. He has also been told that he will end up in hell. All this because he was trying to save a tree many considered 'useless.

Dr Amin Ul-Haq Khan, assistant professor with the Botany Department, Government College in Lahore, Pakistan, is used to such allegations and attacks.

Ever since he started on a project sponsored by WWF to study Pakistan's indigenous plants, Dr Amin has been regularly criticized, but he is undeterred. Instead, he is more determined than ever to save the "wan", a species commonly found in tropical desert thorn forests or "rakhs", as they are known locally.

Wan has been described by many, including governmental planners, as "little more than an uneconomic bush devoid of interest and wildlife."

Dr Amin has, however, found that this evergreen tree not only gives shelter for hibernating reptiles like lizards and snakes and rodents such as hedgehogs and mongooses, but also provides forage.

In addition, the fruit of the tree — tiny red and yellow berries called "peelu" — is tonic and lifesaver during famines. A sturdy tree, wan needs very little water and can survive under very harsh conditions such as drought.

Even today, people come in truckloads to Rakh Khairewala, 325km west of Lahore, to collect its berries. This is the only part of the Thal Desert in the Pakistani state of Punjab, where there is still a significant amount of wan.

Like the other trees of the rakhs, the wan also provides fibre, construction material, fodder and fuel wood, mainly for brick kilns. The villagers also use the wan roots and twigs as toothpicks. Ironically, because of its uses, the trees were overexploited.

"A hundred years ago, the whole of the Punjab plains was covered with rakh trees such as the wan," said Dr Amin. "But people started coming in, cutting the trees and clearing the land for agriculture use and irrigation."

Dr Amin found that the natural thorn forests in the semi-arid tract of Punjab — in Lahore, Sahiwal, Faisalabad, Jhang, Mianwali and Sargodha divisions — have been totally wiped out. They have been replaced by fast growing trees such as Dalbergia, Eucalyptus, Acacia and Prosopis species.

In other areas where large scale extraction of woody tree species have taken place, these forests appear as open scrubs and deserts.

Today, less than four percent of Pakistan's total land area is under forest cover. It has to import over 30 percent of its timber requirements and uses about 13M tonnes of firewood every year. In addition, the government spends large sums of money each year reclaiming saline and waterlogged land caused by poor agricultural and irrigation practices.

Dr Amin Ul-Haq Khan, Assistant Professor of Botany at Government College, Lahore.

Indeed, the Thal Desert, where Dr Amin carries out most of his field work, is largely a man-made desert. Temporary cultivation and heavy grazing are two of the factors cited which have turned the Thal into a barren land.

"It is a great pity that rakh trees such as the wan are not conserved," Dr Amin said. "As these trees can actually prevent further desertification."

Rakh trees have evolved under semi-arid conditions. Mostly spiny, the trees are especially adapted to survive bad conditions. They are also able to colonize the dry and saline soils, thus providing cover to the soil, and discouraging the progressive trends of desertification.

When Dr Amin first started his study, he had to look for the indigenous plants in graveyards. Apparently, these were the only places where the plants were left undisturbed.

"People should not have to go to graveyards to see the trees," said Dr Amin. "There should be parks where these trees are exhibited like in a museum."

If Dr Amin had his way, he would declare Rakh Khairewala a national wilderness heritage area, as it is the least disturbed region, with an extensive patch of about 12,140ha of natural tropical desert thorn forest.

But Dr Amin is realistic enough to know that such a proposal might not be acceptable to both the range land and livestock departments, which own Rakh Khairewala. So he proposes that instead of making it a strict nature reserve, it should also be managed for wildlife, with productive zones such as grazing land on a sustained and semi-intensive basis. This would make the reserve economically viable.

Dr Amin would also not recommend a conservation programme based solely on scientific knowledge. He believers that a good conservation programme should link cultural heritage with biology.

"History suggests that in the past, human populations have played a crucial role in creating and maintaining the habitats being conserved," said Dr Amin.

Hence, during the course of his study, Dr Amin has frequently consulted historical records, and interviewed local villagers.

"I have learnt a lot about Pakistan's flora, especially those of the Punjab plains, since I started this project," pointed out Dr Amin. "I now have to ensure that this knowledge is passed on to others. Hopefully, it will help to clear up all those baseless allegations — and save a "useless' tree," he added. — (WWF Features)

From Death Zones to a Vision of The New Europe

by Omar Sattaur

ONCE they were "death zones" — stretches of no-man's-land separating the former Eastern bloc countries from each other and from the West, occupied only by guard dogs and soldiers.

With the tearing down of the Iron Curtain the zones, totalling more than 2 million hectares (5 million acres), are being promoted by conservationists as the building-blocks of a new ecologically sound Europe.

For more than 45 years these borderlands have been untouched by industry of agriculture. They have evolved into natural wildlife sanctuaries, containing plants and animals extinct elsewhere in Europe.

Unless action is taken now to preserve these examples of Europe's nature heritage, conservationists fear that the borderlands will become another of Europe's environmental casualties.

In February 1990, Professor Dr Hans-Peter Durr, director of the Munich-based environment group Global Challenges Network, called for the newly opened frontiers to be protected or at least exploited in an ecologically sound way.

Durr calls the areas "ecological bricks" with which to build "the new house of Europe" : "It sounds crazy but it could have tremendous consequences."

To save the border areas from Eastern Europe's rapidly developing commercial sector, more than 50 environmental organizations have now become members of the Vienna-based action alliance "Ecological Bricks for Our Common House of Europe".

The Ecological Bricks alliance has pinpointed 24 areas from Finland to Greece that should be designated protected areas or allowed to develop according to long-term development plans that offer protection of natural resources.

One of the coordinators of the alliance, Alexander Zinke, says : "We think that these areas are the most appropriated in which to realise a model of sustainable development. They could become examples for the rest of Europe.

But Eastern Europe's shattered economies are forcing policy-makers to open the borderlands so that their natural resources can be exploited.

Such is the case with the densely forested Sumava Mountains separating Czechoslovakia and Germany.

Along with Germany's Bavarian National Park, the Sumava Mountains form the largest block of protceted forest in Central Europe. They contain pine, birch, spruce, round-earned willow, heather, round-leaved sundew, cotton grass, sedge and sphagnum moss. There are populations of lynx and otters, black storks, capercaillie and back grouse, now extinct in Germany.

"I have received reports that the Czech Ministry of Forestry, Water Management and Timber Industry is logging the forests and that there is now intensive agriculture in some areas," says Zbigniew Karpowicz of the World Conservation Union's Eastern European Programme. "The effects were already noticeable in October last year."

Wolves, brown bears and lynx roam the remote areas of the Rhodope Mountains that divide Bulgaria from Greece and Turkey; 60% of all European species of flowering plants grow there.

Greece has protected part of the area within its territory, the Rhodope Virgin Forest. Pirin National Park in Bulgaria is also protected. But these areas are small compared with the potential 700,000 hectares (1.7 million acres) that could be protected in a single trans-border international park.

President of Bulgaria's Wilderness Fund Jeko Spiridonov says that the threat of environmental degradation is already apparent from overgrazing, excessive hunting and tourism.

Zinke pins his hopes of saving Europe's "ecological bricks" on the public. While he hopes to receive funding from the World Bank or the European Commission, ordinary people have been quick to respond to the calls for conservation.

Last year, the Austrian branch of the World Wide Fund for Nature funded a loan to save 411 acres (1015 hectares) of the Austrian Danube floodplains from commercial development by selling parcels of land to the public at 20 schillings (US$1.60) per square metre (11 square feet). Within the year, the loan was repayed and an important wildlife habitat, forming part of a larger "ecological brick" area, was preserved.

Plans are now underway for a national park on the Danube, funded in the same way.

"We began in February 1990 with nothing but a vision," says Zinke. "Now more and more people help and have become members of the movement. The whole thing is very promising."

Durr, however, is less optimistic: "More than a year has gone by and we still have no funding." — PANOS

East Europe's 'ecological bricks'