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A billion of us

by V. Siddhanta

Our population will nearly double by AD 2000. There will be one additional India. There will be a billion of us*. From the point of view of each individual, the environment will be composed mainly of other people competing for the same resources. People eating, if they can find the food; people washing; if they can find the water; people sleeping, if they can find the space; people moving, if they can find the transport; people working, if they can find work.

What kind of problems are in store for us - you and me - in AD 2000?

In order to meet our needs, it will be necessary to increase the production of food and other necessities and to ensure their equitable distribution. To ensure the survival of ourselves and our children, we will need to exploit more vigorously the resources we possess. Yet the further exploitation of our resources also threatens our existence because of the undesirable by-products of agricultural intensification and industrialisation. The very act of exploitation will cause changes in the environment which will make life difficult, if not unbearable for our grand children.

In order to feed a population of a billion at the present levels of nourishment - which are extremely low - we will need to produce between 200 and 250 million tonnes of foodgrains every year

* Unless pestilence, famine or war reduce our members in the meantime or we pursue a massive programme of compulsory sterilization after one child per couple.

or between double and three times what we are producing now. Half our land is already under cultivation. We have to reserve a quarter for forests. The rest is either desert or semi-desert of which only a small proportion can be cultivated through large-scale irrigation requiring enormous capital investments.

We thus have to ^{du} produce twice as much food as we are doing today from little more than the same cultivated land area. On these lands we have to plant the new varieties of rice and wheat which demand large quantities of water, fertilizers and pesticides. We will need to use well over 20 million tonnes of nitrogen fertilizer every year. This will leach into rivers and pollute them creating a shortage of drinking water, already in critically short supply.

With small populations, one can grow little patches of different crops and so lessen the threat from disease and insect pests. With large concentrated populations, you cannot do this; you have to grow big areas of the same crops. In order to protect these, you have to use massive quantities of pesticides. These are poisonous substances. We already have the highest concentration of DDT in body fat in the world (26 parts per million as against 12 parts per million in the USA, which has banned the use of DDT). Such high concentrations of DDT can cause hypertension, cirrhosis of the liver, liver cancer and other diseases. A period of prolonged physical stress - say by manual labour in the hot sun - which utilises these fatty food reserves could increase the levels of pesticides circulating in the body to fatal levels.

Pesticides are indiscriminate killers. They kill not only the pests but also their natural enemies. It frequently

happens that a resistant strain of the pest appears and because its natural enemy has been eliminated, the resistant pest rampages without warning through crops and destroys them. Thus, the very act of trying to protect crops can have the opposite effect of what was intended.

Thus we see the battle to produce and protect our food can have permanent scars on our environment; scars which will make it even more difficult to feed ourselves on the next round.

Everybody would agree that every family in our country must have electric light. If we assume that each family has the use of two 40 watt electric bulbs (one in the house and one for communal purposes), a simple calculation shows that we have to put up one 200 megawatt power station every four months to supply the power for this purpose alone for a population of a billion. One has only to think of all the machinery needed to produce and distribute this power and the organisation required to put the stations up at this rate to realise the magnitude of the problem. If we were ambitious and aspired to the same level of consumption of electric power by AD 2000 as people in the United States today, we would need to put up two 500 megawatt stations (like the Tarapur atomic power plant) every ten days! Even if by some miracle we could do this, we would not be able to dissipate the heat from these stations without causing every serious heat pollution.

The additional India will have to be schooled. Another simple calculation shows that we will need to put up one new school (accommodating 250 pupils) every five minutes just to school the increase in population!

But the two most frightening environmental problems we will be faced with on account of our population increase will be urbanisation and the depletion of our forest resources.

If the present rate of growth continues, which it clearly cannot, Calcutta will have a population of 60 million by AD 2000. Bombay will be only slightly less populated. As our cities grow haphazardly and more and more of its inhabitats exist in slums, services of all descriptions, from food distribution to sewage disposal from water supply to transport, will completely break down. As discontent spreads and unemployment rises, violence will become endemic with large-scale destruction of public and private property - the very capital that provides the services. Any attempt to improve living conditions and the provision of homes for slum dwellers only draws more people in from the countryside as they hear of jobs and a better life in the city. Then once again conditions begin to deteriorate as people flood in. It is an endless process.

It was mentioned earlier that we need to reserve 25% of our land for forests. This is the ecologically desirable figure. At present, no more than about 18% of our land is covered by forests and these are being cut down indiscriminately. The tree line in the Manali area is receding at the rate of 100 metres per year. At this rate there will be no trees left by the end of the century! The current drought in Maharashtra and elsewhere can be attributed directly to the indiscriminate felling of forests.

As the pressure of population builds up so will the pressure on the land. Attempts to preserve the forests will be

defeated by avarice and corruption. As the forests disappear, drought will follow and even those who abetted the crime of cutting down the forests - usually a privileged group - will have to search for drinking water.

If, by some combination of legislation and vigilance, we prevent people from encroaching on the forests, they will be forced to seek space and work in the cities, exacerbating the problem of urban break down. As the population density climbs to well over 500 people per square kilometre in some places, physical overcrowding will itself be the cause of innumerable stress diseases. Experiments with rats and monkeys have shown that when the population density rises beyond a certain point, social relationships break down and violence erupts. The bigger animals attack the smaller animals who in turn attack are still smaller ones. The females and the young ones suffer the most (nature's way of seeking to reduce the population), many members withdraw into non-activity and await death as they starve themselves (they do not eat even if food is provided). Much of the violence and wanton destruction in our cities may be attributed to sheer over-crowding. Imagine the situation when there will be two people for every one now.

Population increase swamps out most of our efforts to improve the quality of life. It is unlikely that human dignity and the elementary freedoms will survive much beyond the next

fifteen years. People are the prime pollutants. People are the biggest danger to the environment. Either we exercise our freedom to have children and it will be denied to our grandchildren by force; or we stop having more than one child per couple now. Perhaps you will think again before having any children at all.

A Billion of Us

V. SIDDHARTHA

*Department of Science and Technology,
Technology Bhavan, New Delhi*

OUR population will nearly double by A.D. 2000. There will be one additional India. There will be a billion of us*. From the point of view of each individual, the environment will be composed mainly of other people competing for the same resources : people eating, if they can find the food; people washing, if they can find the water; people sleeping, if they can find the space; people moving, if they can find the transport; people working, if they can find work.

What kind of problems are in store for us—you and me—in A.D. 2000?

In order to meet our needs, it will be necessary to increase the production of food and other necessities and to ensure their equitable distribution. To ensure the survival of present and future generations, we will need to exploit more vigorously the resources we possess. Yet further exploita-

tion of our resources also threatens our existence because of the undesirable by-products of agricultural intensification and industrialisation. The very act of exploitation will cause changes in the environment which will make life difficult, if not unbearable, for our grandchildren.

In order to feed a population of one billion at the present levels of nourishment—which are extremely low—we will need to produce between 200 and 250 million tonnes of foodgrains every year, or between double and three times what we are producing now. Half of our land is already under cultivation. We have to reserve a quarter for forests. The rest is either desert or semi-desert, of which only a small proportion can be cultivated through large-scale irrigation, requiring enormous capital investment.

We thus have to produce twice as much food as we are doing today from little more than the same cultivated land area. On these lands we have to plant the new varieties of rice and wheat which demand large quantities of water, fertilizers and pesticides. We will need to use well over 20 million tonnes of nitrogen fertilizer every year. This will leach into rivers and pollute them creating a shortage of drinking water, already in critically short supply.

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The views expressed in this article are those of the author. They are not to be construed as the views of any organisation.