

There may be no limits to growth, but there are limits to waste. There are also alternatives.

Progress for a Small Planet

BY SUDHIR SEN

Because of Barbara Ward's unflinching effort to uphold the highest values of Western civilization she has, in the eyes of many, become a conscience-keeper of the West. Her anxious call over three decades about the rich getting richer and the poor getting poorer has echoed widely. Although the call has fallen mostly on deaf ears in key policymaking circles, that detracts neither from its nobility nor from its validity.

Barbara Ward's work, then, rests firmly on moral values. Yet her approach is anything but romantic. Passionate pleas are supported by cold logic and hard facts. Soaring idealism is tempered by a down-to-earth realism. Ethics and economics, in her case at least, are never divorced. They are mutually reinforcing, as indeed they must be if economics as a social science is not to forfeit its *raison d'être*.

Recurring through her major works are a few basic ideas. In an age of overflowing abundance there is no need for a large segment of humanity to remain trapped in poverty, with about a quarter semistarved and steeped in unimaginable misery. This is intolerably wrong and also shockingly anachronistic, since science and technology have given us all the tools we need to stamp out hunger and poverty from the face of the earth, just as they have enabled us virtually to liquidate deadly diseases such as malaria, cholera, and other mass killers. Moreover, a world one-third super-rich and two-thirds desperately poor is a dangerously unstable place to live in, like regions with deeply faulted geological formations. The search for a stable and peaceful world must begin with attempts to heal this chasm and raise all of mankind above the subsistence level. If the present dichotomy of the world has grim implications, Barbara Ward believes it also has a brighter side. A crippling liability today can be turned into a valuable asset for tomorrow. The economies of the poor nations, once nourished and upgraded, will impart a new vigor to the world economy and, with their expanding trade, will help support the flagging economies of the affluent West.

There is nothing novel or fanciful in this last assumption. In the last few decades, national prosperity

in Europe and America grew enormously as efforts were consciously directed to raising the living standards of the masses of people. It is a commonplace that the New Deal, born in the depth of the Great Depression, laid the foundation for the widespread prosperity the U.S. has experienced since the 1940's. The same principle needs to be extended beyond the frontiers of the "North" to embrace the long-neglected "South." The poor nations have been waiting a long time for a New Deal, one tailored to their circumstances. Prosperity, when shared globally, will be more robust and more sustainable than the present dichotomy.

No other Western economist has grasped these fundamental truths so firmly and advanced them so fervently as Barbara Ward. Hers is a special niche in today's misty world of economic thinking. In recent years she has increasingly articulated another vital truth that had been long forgotten: the fragile character of the earth's ecosystems and its physical resources on which we depend for our survival. The words of Adlai Stevenson, spoken almost on the eve of his death, come to mind:

We travel together, passengers on a little space ship, dependent on its vulnerable reserves of air and soil; all committed for our safety to its security and peace; preserved from annihilation only by the care, the work and I will say the love we give our fragile craft. We cannot maintain it half fortunate, half miserable, half confident, half despairing, half slave—to the ancient enemies of man—half free....No craft, no crew can travel safely with such vast contradictions. On their resolution depends the survival of us all.

This was the keynote of Barbara Ward's *Spaceship Earth* (1966) and *Only One Earth* (1972); and it has remained the dominant theme of practically all her subsequent writings. Her latest work, *Progress for a Small Planet* (W.W. Norton; xii + 305 pp.; \$13.95), reflects the same overriding concern: how to handle the limited resources of this small planet—its land, water, minerals, forests, and air—with loving care; how to husband them, especially the nonrenewable treasures like oil, gas, and key minerals, with a spartan sense of thrift; how to tap the sun's unlimited gift of energy; how to produce, with the help of science and technology, the food, fiber, and manufactured goods needed to

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support the burgeoning human family; and to do all these things in ways that will not draw an undue draft on the future, but will preserve and, where possible, enhance the earth's resources.

Today, progress on this small planet is proceeding in a dismayingly chaotic fashion. If God created the earth out of chaos, it seems that mankind is returning it to its original condition. Barbara Ward offers an explanation for this perversity. Historically, the periods of collapse between imperial systems have been the most tumultuous. Was this, after all, the real meaning of the Buddha's "melancholy wheel," she wonders, symbolizing his concept of life with the "deadly repetition of imperial rise, conquest, decline and fall," rather than the revolving constellations and returning harvests? She hastens to add that the present "imperial interregnum" is without parallel in human history because of the convergence of several unique factors. Imperialism itself has been ostentatiously ostracized; the clock cannot be turned back. The liberated colonies, as was to be expected, are increasingly wielding their newly won political independence to dismantle the lopsided economic system they inherited from the colonial era; the struggle for their economic independence, as reflected in their demand for a new international economic order, is bound to dominate the world scene for years to come. Superimposed on this is a runaway population growth, with the virtual assurance that by the century's end the total will reach six billion, compared to two billion in 1930 and three billion in 1960. Meanwhile, an amazing revolution in transportation and communication has knit the world more tightly than ever before; knowledge and ideas travel with incredible speed and, inevitably, they kindle hopes and aspirations all over the world.

This postimperial epoch has yet another aspect, more far-reaching and sinister in its impact: the cold war and, as its concomitants, intense superpower rivalry and ideological bloc-building. This has vitiated the entire world climate and fueled a frenetic arms race diverting huge sums of money, currently estimated at \$400 billion a year, into destructive channels. It has in effect pushed even the most pressing development work to a secondary place. It is at least arguable that, but for the lethal fallout of the cold war, the brighter side of human nature—its idealism, rationality, and creative genius—might have prevailed in the tasks of building a better world. Is it still possible for mankind to end hunger and poverty, to support the swelling human family on a reasonable standard of living with the limited physical resources of the planet, and do so on a sustainable basis? Or are we about to hit some inexorable limits to growth that would spell stagnation in the industrial nations and perpetuate mass poverty in the developing countries? These are the seminal issues Barbara Ward addresses in her latest book with her characteristic genius for simplifying complexities, isolating causes from symptoms, and mingling economics with science and technology to promote science-based, resource-oriented development.

The central idea of the study is as follows: There are *no limits to growth*, at least not yet. But there are *limits to waste*, which are already very real and in some

instances dangerously so. The waste may stem from abuse, nonuse, or sheer neglect of physical resources. This is true of both developed and developing countries, although its causes and the forms it assumes are often quite different in the two cases.

The limits-to-growth thesis has enjoyed a certain plausibility largely because of the looming energy crisis. Yet the genesis of this crisis and the remedies it calls for have been widely misunderstood, largely because it is a progeny of unsuspected parents. The crisis has been mothered by what Barbara Ward calls "bone-cheap oil," less than two dollars a barrel, gushing out of the Middle East and fueling a dizzy rate of growth in the industrial economies for about twenty-five years, thus killing many promising lines of research for developing alternative energy sources, especially research in coal technology. The crisis has been fathered by a commitment, both excessive and obsessive, to nuclear power, which, it was assumed, would open a limitless cornucopia of low-cost energy in plenty of time to offset any shortfalls when oil and gas wells began to run dry.

Today we know better. In six years the price of crude oil has gone up ten or twelvefold; supply is already precarious and threatens to be even more so in the coming years, while the price curve shows no sign of flattening out. Meanwhile, the dream of a nuclear bonanza has been dashed. It is nowhere near as cheap, or as safe, as had been assumed. Its future is further clouded by the unresolved problem of disposing of



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nuclear wastes and the multiplying risks of weapons proliferation.

Barbara Ward refuses to join the fashionable ranks of those who lament the passing of the glorious era of cheap oil. On the contrary, she believes the Arabs have unwittingly rendered a valuable service by boosting the crude price now, rather than, say, in twenty years, plunging the complacent industrial nations into a truly calamitous shortage. The quantum leap in price, however troublesome, has helped "wonderfully to concentrate" their minds, has given them time to reflect and sort out their options and to develop new energy sources on an adequate scale.

Such reflection, as the study points out, should lead to four major conclusions. First, the nuclear option has been dangerously overestimated for various reasons—a subconscious desire, after the "atomization" of two large cities, to "redeem" the bomb for peaceful purposes; a sense of triumph and excitement over man's ability to split the atom and control its energy; an honest belief that it opened the door to energy abundance at a minimal cost per kwh; and just because, in the nature of the bureaucratic world, commitment breeds commitment. Whatever the reasons, in the light of the experience already accumulated it is clear that reliance on nuclear power must be downplayed. It may still be an option, especially where alternatives are unavailable, as in Japan and France. But it should be the last and not the first resort.

Second, the energy gap, disquieting as it may appear at first, can be bridged without any real sacrifice of sound growth. The reason for this is paradoxical. There is so much waste of energy in the industrial economies, especially in the United States, that growth can be maintained for years through waste control and management; that is, through conservation. The technologies needed for the purpose are already available, and they can be further refined and supplemented. European experts believe that as much as a third of the energy used in the U.S. could be saved without sacrificing production. This book provides ample data in support of that belief.

Third, the least beneficial use of oil is to burn it merely for its BTUs. It makes poor economic sense, since the same oil can be used as feedstock to turn out such essential (and higher-valued) products as fertilizers and drugs. In other words, the "opportunity cost" of oil as a fuel is far too high. That is what the former shah of Iran had in mind when he stressed off and on that "oil is too noble to burn." He was right in his perception, though unwise in his husbanding of this resource and of the enormous wealth it fetched from the world market.

Fourth, if today's energy gap can be gradually narrowed and then closed through "painless saving" of oil and gas—that is, without sacrificing real growth—the risk of a new gap emerging after a decade or so can be forestalled through timely actions to develop alternative sources of energy such as heavy crude, shale oil, tar sands, and coal, all of which, though nonrenewable, are available in abundance. Then too there is water power, which even in a developed country like the United States still offers substantial scope, and nonconvention-

al renewable sources such as solar power, geothermal, waste heat, firewood, wind, plant and animal wastes, and alcohol. Together these can make a significant impact. For most of them the technologies are already in place.

The twenty years of hectic economic boom propelled by cheap Arab oil brought in its wake an explosion of consumption along with extravagant waste and wasteful habits. The mindless march of a "throwaway" civilization could not continue indefinitely. Industrial growth was bound to run up against the built-in constraints of a small planet, and it did so with a sudden jolt in 1973, when the oil price quadrupled overnight. Now the recycling revolution is catching on; its benefits to industrial societies have been demonstrated by countless examples, and new technologies are being developed to aid the process. It will surely continue to gain momentum.

A COMPARATIVE ADVANTAGE

As we turn to the Third World, we are confronted with a far more formidable set of problems: hunger, poverty, soaring population, overcrowding of cities, denuding of forests, which aggravates erosion and floods, the pellmell rush into modern industrialization, which spreads pollution and damages the environment. The tasks, intimidating in themselves, have been greatly complicated by confused priorities, faulty planning, hasty commitments, and glaring omissions. This tragedy of errors reflects a combined failure of the developing countries and of the external expertise they have been liberally supplied with under the various aid programs.

"Imitation is suicide," said Emerson. These three words should have been emblazoned across the Third World as it belatedly started on the long march to the modern scientific age. The last thing they could afford to do was to imitate the Western pattern of progress, far less the furious pace of industrial growth that characterized its postwar phase. The reasons for this should have been obvious. Their problems are radically different, and so also are their physical endowments and their opportunities. England began its industrial revolution two hundred years ago with coal and iron. The developing countries, on the other hand, must begin their economic transformation with land and water coupled with sunpower and manpower—that is, with the agricultural industry—because that is where, under nature's scheme of things, their comparative advantages are overwhelmingly concentrated.

But they can, as late-comers, enjoy two unique advantages: They have access to a vast pool of scientific knowledge and technology, and they can benefit enormously from the experience of the West. As Barbara Ward rightly points out, if history has denied them a "pioneer's" role for two hundred years, as a compensation it now offers them the "follower's" advantages—they can avoid many of the pitfalls and costly errors the West has made.

The hunger-poverty-population problem has escalated dangerously for three decades while we have laboriously tinkered with development problems. By far the best, if not the only, hope of the developing countries

(barring of course oil-rich desert lands) lies in capitalizing on the spectacular productivity of tropical agriculture as fast as possible. But as I have explained elsewhere (see *Worldview*, October, 1978, and June, 1979), they can shift to science-based, high-productivity modern agriculture only when they do two things: first, abolish the feudal, or semifeudal, system dominated by absentee landlords and crowded with tenants-at-will and sharecroppers-at-will, giving land to the actual tillers and turning them into owner-cultivators to the maximum possible extent; second, end the physical isolation of tiny villages by linking them to readily accessible market towns with all-weather roads. These are inescapable imperatives. Once they are fully satisfied, and farmers are freed from their double bondage, feudal and spatial, the stage will be set for a grassroots upheaval that will propel traditional agriculture irresistibly toward the modern age.

In many parts of the world farming must become essentially a kind of gardening. Output and income can be substantially stretched when they are combined with cattle, poultry, and pond fishery, which can go a long way to meet the crippling shortage of protein foods. Those who worry about the tiny size of holdings in Asia should consider the productivity of farms in Japan, Taiwan, and South Korea, as well as the private plots in China and Soviet Russia. If small is ever beautiful, it should above all be a small, family-owned tropical farm, intensively cultivated for mixed crops and aimed at maximum production, income, and jobs per acre.

Barbara Ward, unlike most Western economists and their Third World counterparts, understands these facts. She understands that developing countries can escape from the bondage of poverty using agriculture as the "lead factor," provided they carry out "land-to-the-tiller" programs to ensure intensive cultivation of farmlands with genetically improved seeds and other essential inputs. Only light mechanization is needed to raise productivity without displacing labor. Agriculture will then throw up surpluses whose multiplier effects will spill over in many directions. They will create a solid base for rural industries, expand the market for manufactured goods, and help counteract the rural "push factors" that are now responsible for the heavy exodus of people to the overcrowded cities. As an added bonus, a rising living standard will dampen the population growth, especially among the rural poor, who traditionally have the highest fertility rates.

Non-oil-poor nations can also meet their basic energy needs by turning to the sun. The possibilities are many: quick-growing plants and trees, including "fuel trees," along with reforestation of wastelands and better management of forests; crop wastes and dung turned into "biogas" (mostly methane) in small low-cost plants, supplying gas for fuel and organic manure for the fields; and ethyl alcohol derived from sugarcane and cassava, as in Brazil, which has launched a national program to "grow its own fuel." These are all within easy reach of most developing countries. Besides, solar energy can be tapped directly to serve many essential needs. For example, the use of solar-powered water pumps, water desalinization units, air-heating units in

crop-drying sheds, water-heating units in workshops and health care centers, and even small refrigeration units are coming into vogue in some countries. Not too far down the road is the prospect of photovoltaic cells.

THE TWENTY-YEAR PLAN

This is the context of Barbara Ward's overriding concern, her *cri de coeur*: Can the West repeat the vision and generosity that marked the Marshall Plan, which paid off so handsomely for all concerned? Can it—wallowing in "fat-dripping prosperity" and investing every year some \$200 billion for perfecting and stockpiling the means of destruction—divert just 1 per cent of its combined GNP, say, for twenty years, to develop the Third World? Such an act will be more than twice blessed. It will rescue two-thirds of humanity from the grip of dehumanizing poverty; it will create vast new markets and save the rich nations from the stubborn stagflation they are now saddled with; it will help save the planet—and its fragile biosphere and ecosystems—from the injuries that are being recklessly inflicted on it at countless points through both overdevelopment and chronic underdevelopment; it will help steer man's mind away from today's arms race toward the nobler challenges of building a better world; and it will bring the dream of a stable, peaceful, and harmonious world community closer to our reach.

Last August, on the occasion of the 16th World Conference of the Society for International Development, held in Sri Lanka, Barbara Ward, as chairman of SID, made an impassioned appeal for such a twenty-year food, forest, energy, and resource plan. On the eve of the 1980's, she declared, "The world economy is working badly, indeed dangerously, for practically every group of nations." She offered this recipe for curing inflation while ensuring steady growth in the industrial economies: "If you deal with inflation simply by cutting demand, you hurt the poor most—the unemployed in the North, the marginal men and women in the South. We must fight inflation by the opposite route—a vast increase in resources, above all the renewable resources of harvests and forests and water power and solar energy and the incredible plant fertility—the biomass—of the tropical belt." Productive capacity harnessed to this expansion is the only way to ensure non-inflationary economic growth in the North.

This *cri de coeur* is also a voice of reason. There are signs that the West, driven by energy crisis, stagflation, and the restive mood of the developing nations, is stumbling toward a sounder global economic policy. The work of Barbara Ward has already helped us to stumble in some of the right directions and, if heeded, can turn our stumbling into a measured pace toward a more humane global future. **WV**