

# Alternatives to Doomsday

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## The second report to the Club of Rome presents scenarios on how to avoid global disaster

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by John H. Douglas

When the informal group of internationally known scientists and businessmen who call themselves the Club of Rome first commissioned a study of what the world was likely to become over the next generation or so, the resulting report, *The Limits to Growth*, presented a gloomy picture of mid-21st century doomsday caused by sudden collapse of the previous cycle of exponential growth (SN: 3/11/72, p. 165). The study was immediately attacked for its assumption that pollution growth could not be controlled enough to prevent a literal poisoning of earth's people (SN: 3/25/72, p. 202). One researcher who borrowed the computer program used to generate the predictions contended that a simple data error had rendered the report's conclusions invalid (SN: 10/20/73, p. 245).

Now, the Club of Rome, with funds from the Volkswagen Foundation, has sponsored a new study, involving some 50 researchers in nine countries, to examine the world's future in greater detail and present some options on how to avoid doomsday. The report has just been published in the United States by E. P. Dutton/Reader's Digest Press as *Mankind at the Turning Point*, written by Case Western Reserve University systems researcher Mihajlo Mesarovic and professor Eduard Pestel of Hannover University, Germany.

From the outset, the authors disassociate themselves from the results, assumptions, world model and basic data of the earlier study. Rather than treating the world as a single unit, they divide it into 10 regions so that developed and underdeveloped, controlled and free economies can be treated separately. Rather than predicting a monolithic collapse for the whole of mankind unless economic growth is immediately curtailed, the new study proposes a program of balanced, differentiated growth that would be different for each region, but nevertheless warns of possible regional catastrophes whose impact would surely be felt throughout the world.

The authors also reject what they see as two oversimplified approaches

commonly used in prognostication. The "accountant's approach," used by economists, holds that increasing the world's economic output by about four percent a year will enable less-developed countries to be fed, but takes no account of the environmental limits or social costs of such a policy. Many scientists, on the other hand, subscribe to a "greenhouse approach," theorizing that perhaps as many as 30 billion people could be sustained on earth under laboratory-like conditions of productivity—conditions that will certainly not be met. Only a systematic approach including possible technological advances, political realities and ecological limitations can provide a realistic world view, Mesarovic and Pestel contend. The present situation is unique, they say: Historical crisis have tended to be locally contained, while only a global solution is now adequate; when previous problems arose, time to find a solution was available, but only rapid action will now suffice.

After developing the new computerized world model they hope will be useful as an analysis tool for government and industry, the researchers applied it to various scenarios involving two present crises: food and energy shortages. In both cases, the analysis showed that anything short of full international cooperation would prove counterproductive, if not disastrous, for industrialized and developing countries.

If oil prices had remained at their previously low level, for example, waste would have been encouraged and alternate energy sources not developed until the petroleum gave out, around the turn of the century. At the present extremely high rates, however, the developed world may invest so much of available petroleum energy in opening up alternative energy sources for itself that the developing countries will sink into relative depression. Even the Middle Eastern countries would not be as well off after their oil is depleted as they would if they joined a cooperative effort to define an "optimum price" for industrialized countries and aid the development of the poorest countries.

(The authors do not specify what that "optimum price" should be, but in answer to a question from SCIENCE NEWS, Mesarovic said that \$9 per barrel—substantially below the going price—would be about right.)

Even if the United States, for example, could succeed in attaining energy self-sufficiency by using nuclear reactors, the effort might prove a "Faustian bargain." Departing from their own projections for a moment to simply extend those of the Atomic Energy Commission, the researchers conclude that by 50 years from now, there would have to be some 50 nuclear power installations, on the average, for each state. The environmental effect, they say, could be devastating, particularly if other nations were driven to desperate action. To attempt to provide the whole world's energy needs with breeder reactors would necessitate, under "optimistic" assumptions, the construction of two reactors per day.

Regarding food, the options are even more limited. Continuing present trends would lead, according to the model, to unmanageable dependence of underdeveloped countries on food-exporting ones—to the extent of 500 million tons of grain a year. More likely, catastrophe would intervene, beginning in the early 1980's and resulting in the deaths of 500 million children. Even if developing countries devoted all their energies to expanding agricultural output while controlling population, industrialization would be sacrificed and unemployment would become critical.

The study concludes that the "only feasible solution" is full global cooperation in allocating energy resources while helping the developing world build a solid agricultural and industrial foundation. Aid would take the form of substantial investment rather than occasional gifts, and solar energy and hydrogen fuel (SN: 4/13/74, p. 242) would power the world. The authors do not suggest how to persuade giant multinational corporations to make these risky investments, nor how to overcome the shortcomings of solar power (SN: 2/2/74, p. 69). □