The Limits to Growth — Malthus Revived

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The publication of "The Limits to Growth — A Report for the Club of Rome's Project on the Predicament of Mankind" has resulted in a world-wide discussion of this vital issue. The following article reviews different aspects of the study.

The authors—Donella H. Meadows, Dennis L. Meadows, Jørgen Randers, William W. Behrens III—try to prove two things. One is the existence of global limits to growth, and the other is the already pressing importance of these limits for our present day behaviour. Their reasoning rests on the observation of past trends of population growth, of depletion of nonrenewable resources, of food production, of industrial production and of environmental pollution. On account of the exponential growth which characterised the development of these factors in the past it is hardly surprising that a model which is based on extrapolation and which allows for interaction between these elements predicts a collapse of the whole system: famines, decline of medical care and the adverse health effects of environmental pollution result in reduced life expectancy, in an absolute decrease of population and in a very much depressed standard of living. All this will happen within the next 100 years even under the most optimistic assumptions of the development of the key factors.

The intention of this demonstration is to mobilise counteracting forces which would help to reach a situation of global equilibrium. Such an equilibrium can only be attained if zero population growth becomes a reality. The possible level of wellbeing will then depend on the careful utilisation of the truly scarce factors: the limited capacity to produce food, the limited raw material supply, and the limited absorptive capacity of the environment for pollutants. According to the authors, even the prudent use of available resources—which includes widespread recycling—will allow for all mankind at best a standard of living which is equivalent to the present level of consumption of the highly developed European nations, and quite possibly even this standard cannot be reached by all people. If, for social reasons, a fair distribution is also desired, this necessitates a reduction of levels of consumption in some of the already industrialised countries.

It is the thesis of the study that this predicament of mankind can only be solved by conscious action to bring about this equilibrium. The sooner a determined effort is made, the better are the chances to reach the equilibrium state, and the higher will be the then possible standard of living for all mankind. An attitude of complacency, on the other hand, will result in disaster.

Interest to General Public

Although little of the arguing is new, the study deserves credit for having aroused the interest of the general public on a much larger scale than any other similarly apocalyptic vision that could be compared to this book. It is quite possible that a more sophisticated approach could have made the study useless for this important purpose. Even more refined methods would only have confirmed the resulting message of the book: To use Boulding's famous illustration—mankind has outgrown the time of the prairie-economy and has reached the period of spaceship economy—there is a need to adjust universal behaviour to these facts.

If one agrees with the objectives and the general conclusions of the study, criticism is difficult. There are, however, a few points that seem to require comment.

It can be argued that two of the basic difficulties—environmental pollution and exhaustion of indus-
trial raw materials—could be solved, or at least be very much alleviated, by utilising more energy. This leads to the problem of energy supply. Again there is a question of a possible exhaustion of the existing sources of energy. But here one can argue that nuclear fusion reactors are "just around the corner". And that could mean an end of the world-wide shortage of energy. An optimist may then conclude that this changes everything: With abundant energy the limits of growth can be extended.

But it is widely recognised that even this development would take the world only to another limit — given not any longer by the exhaustion of the energy supply, but by the fact that amounts of energy which reach the order of magnitude of the incident solar energy cannot be absorbed by the environment without endangering the universal ecological balance. Even an increase of temperature of 10° Centigrade would change living conditions intolerably. Although this issue is still being debated, there is a distinct possibility that we have here a more fundamental limit to growth than the ones suggested in the study for the Club of Rome. Of course this argument supports the main thesis of the book. But there is the danger that some people see only the possibility of extending the limits further by the utilisation of energy. Because they do not realise that this takes mankind to another limit they may dismiss the important conclusion of the book—the call for action—as premature because it is based on unjustified pessimism.

Ecological Dangers

The study gives the impression that the limits to growth can be determined by computer calculation. Such a view losess sight of another immediately imminent danger. This is the problem that we are now exposing ourselves and our environment to over half a million different chemicals, all of which must eventually be imposed on the earth environment. And this number is estimated to be increasing by 400—500 new chemicals per year. These new substances include since World War II synthetic pesticides, plastics, antibiotics, radio isotopes, detergents and industrially made hormones.

For most of these things the possible effects on the ecology are unknown, and many of them may be new DDT cases or may have even stronger destructive effects. The situation has been described by the American ecologist Cole as "playing russian roulette with biogeochemical cycles". There can be no doubt that the possibility of unforeseen, sudden and total disruption of ecological equilibrium means another limit to growth. This, however, is a limit of which we only know that in all probability it exists, but we do not know where it is. The apparent calculability of the limits given in the study has exactly this shortcoming: that it cannot take into account this limit which evades calculation, but which nevertheless could become effective before any one of the other calculated limits is reached. The fact that this point is barely touched upon in the book can either be attributed to the assumed irrelevance of the argument—in which case this should have been stated—or it is a major and dangerous neglect.

Necessary Self Restraint

It is one of the main arguments of the book that the equilibrium state can only be reached if mankind exercises a certain amount of self restraint. With other words, the present standard of living of the most highly developed countries is the absolute maximum thinkable if we envisage also a fair distribution. This argument leads to a remarkable characteristic of the book — which is, on the one hand, its strength and presumably responsible for its success but which can also be considered a weakness. This is the basically "technological" reasoning without many social considerations. At least to the ordinary reader the logical link between the limitation of industrial production and the impairment of the standard of living seems obvious enough. Apart from the shift in emphasis to services in the future pattern of consumption, which is dealt with in the book, there appears to be a definite possibility that a different supply of products—which in costs (raw material and energy consumption, environmental pollution, etc.) may be equivalent to the present supply—may result in a much higher standard of living.

To substantiate this reasoning: There is no question that increasing environmental pollution induces the production of certain items whose only purpose is to protect against the effects of pollution. Typical examples are a considerable proportion of expenditures for cleaning devices, most of the non-corrosive facade-coverings, traffic that is generated by the desire to escape into healthier surroundings, etc. Similar effects can be observed in the sphere of production: Pollution of surface waters leads to higher costs of water purification and necessitates the construction of swimming pools, although before it was possible to swim in the river, etc. Since the production and operation of these protective devices results again in pollution there is a positive feedback. The argument cannot be pursued here, but there is a good