

Part I: The world models and their sub-systems

1. MALTHUS WITH A COMPUTER

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Take for instance Malthus' book on Population. In its first edition it was nothing but a sensational pamphlet and plagiarism from beginning to end into the bargain. And yet what a stimulus was produced by this libel on the human race!—(Karl Marx, in The Poverty of Philosophy).

THE MIT *World Dynamics* and *The Limits to Growth* models* represent the most ambitious attempt so far to bring together forecasts of population growth, resource depletion, food supply, capital investment and pollution into one general model of the future of the world. In view of the wide interest this MIT work has attracted and the importance of the issues it raises, it deserves thorough and constructive criticism. That is the purpose of this publication. Since the criticism is extensive, and sometimes severe, it is essential to make several points quite clear at the outset.

First, although the authors of the essays disagree strongly with much of the MIT analysis and also disagree with each other about some of the issues raised, we are in complete agreement with the MIT authors and their sponsors, the

* *World Dynamics*, by Jay W. Forrester, was published in 1971 (Cambridge, Massachusetts, Wright-Allen Press). It contains the first description of the world model, called World 2, as well as commentaries on the various runs of the model. *The Limits to Growth*, by Donella H. Meadows, Dennis L. Meadows, Jørgen Randers and William W. Behrens III, was published in 1972 (New York, Universe Books, and London, Earth Island). It outlines a more elaborate world model, called World 3, built under the direction of Dennis Meadows and based on Forrester's original. The detailed description of this model is contained in a separate Technical Report. This Technical Report has gone through several (mimeographed) editions. The final revised version will be published in the spring of 1973 under the title, *The Dynamics of Growth in a Finite World* (Wright-Allen Press). The papers published here are concerned with *World Dynamics*, *The Limits to Growth* and the early versions of the Technical Report, which are the most relevant in considering the arguments advanced in *The Limits to Growth* and the computer runs presented in that book.

The following papers are concerned with all these publications. When the comments and criticisms pertain to all of them, the publications are referred to either as the MIT model (or models), or as the work of Forrester and Meadows. Otherwise, reference is made to the specific publications and/or their authors. The use of MIT as an adjective is purely a matter of convenience, to indicate the geographical origin of the research team. It does not of course imply any institutional responsibility for the models. We are well aware that many members of that institution do not share the views expressed in these publications.