CLIMATE CHANGE AND THE WORLD PREDICAMENT:
A Case Study for Interdisciplinary Research

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Abstract. The relationship between climatic change and issues of population, food, resources, environment and the human condition i.e., the world predicament, are explored. It is concluded that society is dangerously vulnerable to natural climatic variability at times of depleted food reserves (such as now) and that massive use of technologies (especially energy) to improve the human condition could well cause significant climatic change as early as the year 2000. Therefore, these problems cannot be addressed in the sole context of disciplinary research, and the obstacles and opportunities for interdisciplinary research at academic institutions are explored. Criteria for interdisciplinary research quality review are suggested, and contrasted to traditional peer review processes.

1. Introduction

Climatic change is one of the natural environmental factors that constrains the human condition. This is apparent, in the most elementary sense, by the physical tolerance of our bodies to the range of states of elements we define as the weather. However, since the advent of technology, shelter and clothing, for those who possess it, have mitigated our physical vulnerability to the elements. Therefore, the primary impact of climatic variability on people today is through its influence on food supply. Thus, even for the seemingly limited issue of human vulnerability to climatic variations, we are, at the outset, faced with a problem of enormous complexity and one whose dimension is rooted in many disciplines: agronomy, botany, chemistry, engineering, ethics, economics, meteorology, oceanography and sociology—to name but a few. Furthermore, the problem is complicated by the fact that in the near future we may be subject to climatic fluctuations not only of natural origin, but also to those which are a consequence of human activities.

Therefore, a case study of the need for interdisciplinary analyses and solutions to problems of climatic change are raised, and a view of the relationship between climatic variability and the 'world predicament' is offered. Since this is a personal outlook, some of these views can and should be challenged. It is hoped that they will serve as a catalyst to a broader debate and as an example of the urgent need for an interdisciplinary approach to problems of climatic change and global survival.

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2. The Case Study of Climatic Variability and Human Affairs [1]

2.1. Climate Change: No Longer a Subject for Small Talk

Considerable concern and attention has recently been focussed on the prospect of a world food/climate crisis. Its concern was heightened by the disturbing weather events of 1972, which resulted in a halving of global food reserves and more than a doubling of some food prices. Fluctuations in world food production are the most obvious manifestations of climatic variability, yet despite the clear message from the events of 1972 the potential seriousness of a world food/climate crisis is still a controversial issue. For example, Reid Bryson of the University of Wisconsin has stated that there is climatic change in process, and if the trends continue perhaps as many as half a billion people could starve in the next few decades. On the other hand, U.S. Secretary of Agriculture Earl Butz had intimated that such statements are at best without scientific basis and at worst apocalyptic nonsense. As we explore here some of the issues which lead to this controversy, one element becomes clear: issues of climatic change are fraught with tremendous uncertainties and it is crucial that those uncertainties be narrowed as quickly as possible if we are to avoid potential disasters.

In addition to the obvious connection between climatic changes and food production, climate problems are deeply implicated in other aspects of the ‘world predicament’ (i.e., problems of world population, resources, environment, and the condition of humankind). It is important to study climate-related aspects of these problems for a variety of reasons:

(1) Climate change can be both a global and potentially irreversible consequence of human indifference to natural systems.

(2) The climatic system does not conform to the prevailing concept of ‘national sovereignty’; thus, the possibilities of climatic shifts in one area being connected to changes elsewhere provide an opportunity for international cooperation; these possible relationships could even serve as a symbol of global inter-dependence to encourage greater world unity and movement away from the often selfish and short-sighted goals of nation-states. On the other hand, the interconnections of the climatic system could also provide a cause for international conflict.

(3) Climatic processes are not well understood, yet potential climatic changes could be serious; this case exemplifies dilemmas that will arise with increasing frequency over critical political issues that contain an important, but uncertain, scientific component. That is, the climate may well be understood ‘enough’ to begin immediate and perhaps extensive actions to prepare for possible but uncertain dangers that present knowledge suggests may be ahead – particularly with regard to the maintenance of a stable food supply.

(4) Considering their immediate importance, problems of climatic change, while having received some attention, have generally been given relatively little detailed attention in most of the debates on the world predicament.

Let me emphasize at the outset, however, that I am not forecasting the ‘end of the