

Soil science and the capacity to feed the world: a historical overview

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Human population grew very fast in the past century and much of this growth occurred in tropical regions. There is no doubt that the concentration of people had environmental implications and in many cases it is likely that the environment has degraded. There are also cases whereby the environment is improved. Various studies in the past predicted gloom: more people, less to eat, scarcity, starvation, misery, war, environmental devastation etc. Obviously, these studies need to be examined against the available information in their times, but it could be argued that the political and emotional content often exceeds the scientific content including the uncertainties in the predictions. On the extreme, there are two groups in the world that either believe that food production and yield increases have reached a plateau (the pessimists) or those who argue that sufficient food can be produced for many billions to come (the optimists). The pessimists, and followers of Malthus, believe that the world is approaching its carrying capacity, that no more cultivable land is available and land degradation is widespread, and that production cannot be sufficiently increased to decrease the 800 million or so who are chronically malnourished. They also believe that socio-economic constraints limit the adoption and spreading of improved cultural practices. The optimists believe that there is room to grow more food by taking new land under cultivation, that the green revolution has not run out of steam and that biotechnology has great potential to feed the growing population. They further believe that future generations would produce enough geniuses to solve the problems that more people would cause. Both pessimists and optimists have non-scientific motives in their baggage. It can be argued that the preaching of gloom is fruitless unless it is underpinned with science, and is harmful as it encourages fatalism instead of much needed determinism. Given the many unknowns it is fortunate that the discussion on the carrying capacity of the world continues. The discussion should be based on the collection and careful interpretation of facts and figures. Science can provide much needed answers and guide the future focus of the political and research agenda. Since agricultural production is largely depending on the soil's productive capacity, soil science should be providing the much needed data on soil resources and scenario studies how the soil and land-use change affects food production. It seems that interests of the developed world moves to human ageing instead of population growth. This, in combination with reduced funding for soil research and the apparent inability of the soil science community to clearly demonstrate the importance of soil science, leaves not much room for optimism.

Keywords: soil science, history, food production, population growth