

A CONCEPTUAL FRAMEWORK FOR SUSTAINABLE FOOD PRODUCTION: THE ENVIRONMENTAL NUTRITION MODEL

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Background and Aims

Climate change is emerging as a major challenge of the 21st century. Agriculture both affects and is affected by climate change, yet agriculture and food production has been largely overlooked in discussions on climate change policy. A new paradigm is needed for sustainable food system development and climate change mitigation. Central to this new paradigm is a comprehensive understanding of how food systems shape and are shaped by biological, social and environmental relationships and interactions.

Methods

Research was conducted along several consecutive strands: 1) Current food production practices; 2) Life cycle analysis on multiple foods of plant and animal origin; 3) Quantification of food systems waste generation, including greenhouse gas emissions; 4) Determinants of food consumer demand; and 5) Population food eating patterns. These and other lines of inquiry established the need for a framework and led to the development of the Environmental Nutrition Model.

Results

The Environmental Nutrition Model is a graphic conceptual framework that encompasses the multifaceted associations of the food system with the physical and social worlds, and its intended and undesirable consequences in the environment and in the health of populations. It delineates the inputs and outputs of the food system, showing desirable (food) and undesirable (waste) products. The lifecycle of foods, determined by the processing, transportation, storage, retail and waste disposal practices are defined and affected by consumer demands in a given society.

Conclusions

This Environmental Nutrition Model will be a useful didactic and research tool to explain, understand and ultimately contribute to the necessary modifications and changes of the current food systems to achieve more sustainable practices. The graphic model will be presented.