

OPTIMIZATION OF THE ETHIOPIAN FOOD CONSUMPTION STRUCTURE- SUSTAINABILITY AS AN APPROACH

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Nowadays, humanity face with a creeping crisis related to food security. Climate change, rapid growth of the population and decreasing reserve of natural resources occur in the same time and this phenomenon mainly affect Africa. According to predictions, recent food system will not be capable to feed the world population. Sustainable Nutrition (SN) is an approach that aims to prevent the crisis of food security by respecting physiological, environmental, cultural, social and economic aspects. While there is a growing number of scientific publication on SN focused on developed countries, there is a gap among publications that are focused on African countries.

We analyzed and optimized the food supply structure of Ethiopia. We obtained data on food supply and price from FAOSTAT, on food nutrient composition from USDA, on carbon, water and ecological footprint from Barilla Center for Food & Nutrition, and on dietary recommendation from FAO and WHO. We applied linear programming by using What's Best software of Lindo[®]. Our chosen methods was multifactorial optimization by using supply and dietary recommendations as constrains while calculating with the lowest possible environmental impact and price.

After the optimization of the Ethiopian food supply, our results showed an increased proportion of animal-based food (meats: 250%, milk and products: 200%, eggs: 1000%), cereals (150.7%), nuts (1000%) and maize and products (199.1%) and decreased proportion of roots (50%), fruits (50%), pulses (50%) and other vegetables (50%).

Contrary to the researches on SN that focused on developed countries, our results showed an increased proportion of animal-based food that is probably because its initial level of supply is critically low. According to our initial results, price and supply are the main limiting factors to optimize the food consumption to be physiologically and environmentally adequate in Ethiopia. Further development of the method and reasearches are needed on this globally important topic.

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