

Preface

Could we feed the whole world today? Strictly speaking yes, from the point of view of the quantities of food produced by agriculture (3,000 kcal/cap/day in 2003)—but this of course fails to take into account crises and wars, inequalities, speculation and unaffordable prices for the rural and urban poor, loss and waste, climate-related accidents and pest invasions which starve peasants in many parts of the world. Amartya Sen, in his book “Poverty and Famines” published in 1981, puts it in a nutshell: “Starvation is the characteristic of some people not *having* enough food to eat. It is not the characteristic of there *being* not enough food to eat”; hence the billion undernourished people in the world in 2009. What about in 2050 when 3 billion more human beings are expected to be living on this planet? This is the crucial question considered in this book; a question on which INRA and CIRAD decided to work together by launching the Agrimonde foresight project in 2006.

Although it may sound straightforward, in practice the question is difficult to address. The food and agricultural challenge cannot be limited to theoretically satisfying the nutritional needs of the earth’s population in quantitative terms only. It is also a matter of enabling everyone to have access to sufficient food that is safe from a sanitary point of view as well as being nutritionally balanced. Nor can the challenge be reduced to a basic equation of supply and demand of agricultural goods and food. Agricultural and food systems also have to be grounded in a logic of sustainable development, and to take into account the problem of energy induced by the gradual depletion of fossil fuel reserves, not to mention the growth of social inequalities. As well as producing more, the world’s farmers will also have to produce more efficiently, using practices and systems that make sparing use of fossil fuels and natural resources. Additionally, they will have to produce other things: energy and industrial goods as substitutes for petrochemical products, as well as environmental and territorial services (soil and water preservation, biodiversity protection, carbon storage, prevention and limitation of fires and floods, provision of open and diversified landscapes).

In view of the complexity of the question, we decided to adopt a foresight approach in which we first considered two scenarios describing possible, sharply contrasting futures. Both have the same timeline (2050) and the same assumptions of demographic growth in each large region of the world and of migrations between

regions. They differ however in their trajectories in the evolution of food and agricultural systems—trajectories that represent two contrasting visions of tomorrow's world. The first scenario represents a continuation of current trends in the production and use of various types of food biomass in a "liberalised" world where the priority is economic growth and the material well-being of current generations. The second trajectory sets the objective of satisfying global food needs, amounting to 3,000 kcal per capita per day, including 500 of animal and aquatic origin, in all the regions of the world. This implies less consumption and waste in developed countries and substantial increases in food consumption in many developing countries. Here the objective underlying the evolution of the food and agricultural systems of the world's regions is sustainability.

This book describes the construction and analysis process of these two scenarios, along with the conclusions that can be drawn from them. Without going into any detail here, three challenges are highlighted by this foresight exercise, concerning: diets and their impacts on major balances; technological and organisational choices in agricultural production and the feasibility of an agriculture that is both intensive and ecological; and international trade in agricultural and agri-food products, including the possibility of making it secure on a global scale. These three challenges are considered in the last chapters of the book.

This initial endeavour calls for follow-up in two respects: first, the setting up of a permanent, quantitative and qualitative platform in France that could serve to reinforce reflection on the future of food and agriculture; and, second, the identification of priority research questions put to international agronomic research. A platform for this purpose will be created by CIRAD and INRA at the end of 2010.

Before leaving you to enjoy this book, we wish to thank everyone who participated in this initial phase of the "Agrimonde adventure": the scientists from INRA, CIRAD and other research and education institutions, as well as all the experts who were asked to contribute and who offered us not only their advice and criticism but also their encouragement.

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