Foreword

The collection of essays brought together by Dr. G. Poyyamoli provides a unique opportunity to assess why agroecology is not more widely taught, and promoted, across the developing world.

Dr. Poyyamoli rightly highlights one major explanation: all too often, not least in academic circles, agroecology is seen in primarily or even exclusively technical terms, as a range of agronomic techniques that seek to reduce the use of external fossil-based inputs, to recycle waste, and to combine different elements of nature in the process of production in order to maximise synergies between them.

Agroecology is indeed also about such techniques. The contribution of Dr. B. Gangaiah to this book is exemplary in that it shows the many levers governments could use, and sometimes have used, in order to spread it more widely. In another illuminating chapter, Dr. Binayak P Rajbhandari shows the benefits of bio-intensive farming system, as compared to the poor performances of chemical-intensive systems that developed in the past century, and the massive environmental externalities that they produce. Dr. Joan P. Mencher discusses the benefits of the system of Rice/Crop Intensification (SRI/SCI) in India. Indeed, many other examples could be provided of the contribution of agroecology to the improvement of agronomic practices.

The authors brought together in this volume fully recognise, however, that agroecology is more than just about how to produce food sustainably. It is developing as a social movement bringing together not only food producers, but also consumers. The individuals and organisations involved in this social movement have become aware that the agroecological transition requires that we approach food systems holistically, and that we link sustainable production with sustainable ways of eating: farmers will only shift to agroecology if they receive a decent price for their produce and if they
have a reliable access to markets, and therefore what people eat, which food they purchase and from whom, have a decisive role to play in making the transition. To say that agroecology is not just a contribution to the science of agronomics, but also an idea that brings together increasingly large segments of the population in a wide range of countries, is not simply to recognise the rise of a new social movement rallying behind a slogan: it is to highlight a condition of success of the agroecological transition, which can only be achieved through a wholesale reform of the food systems.

The plural here is important. Conventional wisdom has it that we have one food system, and that it must be revolutionised — brought down and rebuilt again, piece by piece, into something entirely distinct — for the agroecological transition to become a reality. In fact however, the transition is occurring, from the bottom up, thanks to a range of social innovations that all contribute to this transformation: as convincingly discussed in a chapter by Dr. Ashok Kumbamu, who illustrates this by the example of the Deccan Development Society, a community-based organisation in Southern India, or in the chapter by Peter M. Rosset and Ashlesha Khadse, who focus on the Campesino-a-campesino (“farmer-to-farmer”) movement and peasant agroecology schools in Latin America, such innovations include farmer-to-farmer exchanges of practices in farmer field schools, community seed banks and seed fairs, short food chains such as in community-supported agriculture, or fair trade schemes that include environmental requirements. The emergence of such innovations is the result of the choices made by communities, sometimes at a very local level, who demand something else. Not a revolution: but a greater diversity of food systems, allowing both producers and eaters to choose how to produce, on which market to sell, and how to purchase food, with the possibility to circumvent the dominant players of the agribusiness industry and the standardised food that it provides us with.

It is in this regard that the motivations and interests of food sovereignty are closely aligned with those of agroecology. The links between food sovereignty and agroecology are not circumstantial, or a question of tactical alliances. They are based on a shared diagnosis and on a same impatience with the system we inherit. The mainstream food system, they note, is corporate-led, energy-thirsty, and so obsessed with low-cost that it treats as externalities — as costs to be borne by the whole of society — the ill-health, rural depopulation and ecological damage it is associated with. The time for alternatives to develop has come. Alternative food systems should allow to democratise, to relocalse, and to be guided in our search less by the imperative of efficiency demanded by the markets, and more by the quest for ownership that citizens demand. There is considerable resistance to be expected. Vested interests, neo-malthusian anxieties, sunk costs, growth-obsessed macroeconomics, a certain idea of “progress” or “modernisation”, shoppers’ routines and gendered division of roles — these are all major obstacles to change. But the conventional food system is not made of one piece only, and it can be transformed brick by brick. Alternatives can emerge bottom up, as social innovations conceived as experiments, increasing pressure for reform. That, ultimately — the broadening of political imagination — is what food democracy is about.

That is not to say that change will come about easily. For, in addition to the vested interests that fear that alternative food systems will threaten their dominant position,
the agroecological transition faces a major cultural obstacle: it confronts directly a certain view of our relationship to Nature.

The so-called “modern” agriculture, which in fact is 20th century agriculture, has always sought to simplify Nature. What to do on the field was defined by whatever was prescribed by “science” developed in laboratories. The path from research to practice was unidirectional, and it was seen as unproblematic: since solutions were based on science, they were considered universally applicable. The experiential knowledge of the farmer was irrelevant at best; at worst, it was treated as “prejudice”, and as an obstacle to the top-down implementation of sound scientific prescriptions from “experts”. In this view from 20th century science, the complexity of Nature is a problem: simplify it if you can, and never mind if this means robbing the farmer from developing his/her art, and transforming that art into the literacy of reading instructions for use on the spray bottles and on the seed bags.

Agroecology does the exact opposite. It invites us to embrace the complexity of Nature: it sees such complexity not as a liability, but as an asset. The farmer, in this view, is a discoverer: he or she proceeds experimentally, by trial and error, observing what consequences follow from which combinations, and learning from what works best — even though the ultimate “scientific” explanation may remain elusive. This is also empowering. The farmer is put in the driver’s seat: it is he, or she, who constructs the knowledge that works best in the local context in which they operate. As a social movement, agroecology encourages peer-to-peer exchanges of information between farmers. It prioritises local solutions relying on local resources. And it transforms the relationship between the farmer and the “expert” from the department of agriculture or from the international agency, not in order to reverse it and to replace one hierarchy with another, but in order to move towards the co-construction of knowledge, as most clearly illustrated by participatory plant breeding. In the opening chapter of this book, A. Rosenberg notes that this approach is, in a way, a return to the sources of agriculture. It is important to add however that agroecology, although it does seek to harness the traditional knowledge from pre-fossil energy agricultural practices, is not simply a return to some mythified past: it is cutting edge agronomic science, meant for a 21st century in which we shall have to do more with less, and break from our addiction with cheap fuel and phosphorus. In an excellent contribution to this volume, Dr. Rakotondralambo shows the importance of encouraging the diffusion of knowledge about agroecological practices across farmers, in order to allow them to grasp the alternatives to the dominant “Green Revolution” model they are generally being proposed. It is not simply a matter of rescuing traditional ways of doing things: it is also a matter of accelerating the transition, in order to win the race against time that is engaged.

It is only if we see agroecology as something else than a particular set of agronomic techniques that we can understand the opposition that it faces. Indeed, as a branch of agronomics that borrows from ecology to replace the act of farming within the ecosystems in which that acts takes place, agroecology is particularly well-suited to meet the challenges of the day. Some of the most pressing challenges are environmental. In our still dominant industrial farming system, it takes about 10 calories of fossil energy
to produce one calorie of food, a clearly unsustainable approach as we reach peak gas and peak oil. This system is a huge emitter of greenhouse gases: at least 13.5 per cent of total man-made greenhouse gas emissions come from agriculture, and this rises to up to one-third once we factor into that calculation the deforestation to create pastures and expand cultivated areas, as well as the various stages of food processing, packaging, transport and retail. This volume also shows (in a chapter by Dr. Parthiba Basu) the extent to which the decline in pollination services is becoming a threat to the viability of agricultural systems, and (in another chapter by Dr. H. Hamadani) how certain technologies associated with the industrial farming system, such as transgenic crops and animal breeds, can threaten existing agrobiodiversity by contaminating landraces or wild species.

Other challenges are social. Small production units are systematically put at a disadvantage, since they are less well equipped to mechanise and to achieve economies of scale, and since they are less competitive in a world in which farmers are asked to become suppliers of raw commodities -- of large volumes of uniform stuff -- for the food processing industry: the impacts on rural development are considerable, as small family farms are disappearing en masse.

Finally, industrial food systems are now increasingly considered to bear an important responsibility in the public health crisis resulting from the spread of non-communicable diseases. As they have been shaped in the 20th century, industrial food systems have encouraged the shift to highly processed foods, including ready-to-eat “convenience” foods and ultra-processed “junk” foods. The consequences of such “modern technologies” are well known. Worldwide, the prevalence of obesity doubled between 1980 and 2008. More than 1 billion adults are now overweight, and 400 million other are obese. Combined with more sedentary lifestyle and tobacco and alcohol consumption, inadequate diets are resulting in the rise of non-communicable diseases: type 2 diabetes, heart disease, or gastro-intestinal cancers, all directly related to diets, are now fastly growing in all regions, and not only in rich countries, as was the case in the past.

Agroecology provides a number of answers to these various challenges. As convincingly argued by Dr. G. V. Ramanjaneyulu in a chapter in which he demonstrates how agroecology can favor resilience in the face of climate change, agroecology provides a pathway for a gradual transition away from the fossil-energy-based farming of the earlier generation, and it seeks to preserve soil health and to reduce soil erosion: in fact, it is mostly because of its environmental benefits that it is now considered with interest by governments and international agencies. Dr. Arun K. Sharma illustrates the importance of agroecology to low rain-fed regions, such as the desertifying parts of Northern India. Dr. Carey Clouse, in her study of agroecology in Cuba, also notes its important contribution to urban and peri-urban agriculture: through agroecology, we can make cities greener, cooler and healthier.

Although agroecology can be practiced on a large scale, its insistence on intercropping techniques, and on various combinations of plants, trees and animals — in order to re-establish the agro-sylvo-pastoral complementarities that “modern” agriculture has negated, make it especially suitable when practiced on relatively smaller farms: as such, increased support to agroecology shall contribute to re-balancing a competition
between large, industrial-size farms, and smaller farms, that is for the moment significantly skewed in favour of the former. And agroecology favors better nutrition, both because greater diversity on the farm results in greater diversity in the plates for the communities who produce their own food, and because of the proven benefits to health: organic crops, recent studies show, have up to 60% higher numbers of key antioxidants than conventionally-grown ones, and of course show much lower levels of pesticide residues and of toxic heavy metals, such as cadmium, than industrially grown crops. Most importantly, agroecology represents a shift away from the quasi-exclusive focus on growing large cereals in monocultures, which over the past thirty years has in fact reduced the diversity of the plants on which our diets are based, and has favoured an ever-increasing reliance on heavily processed foods that are richer in saturated fats and in added sugars and salt. The health benefits of an agroecological revolution would be significant.

Why is it, then, that despite all these benefits it may provide, agroecology remains marginalised? Four major lock-ins still form major obstacles to the agroecological revolution. First, technologies and infrastructures are biased in favour of achieving economies of scale through the reliance on large monocultures that can be more easily mechanised. Second, dominant agribusiness actors — the large commodity buyers and food processing companies — are better positioned to supply markets with low-priced foodstuffs, against which other actors, using other, more sustainable modes of production, are unable to compete: until industrial farming methods will be obliged to fully internalise the social and environmental costs they impose on the collectivity, this will not change. Third, the lifestyles or the urban middle class have evolved with the industrial way of producing food that we have been encouraging. Once limited to rich countries, the phenomenon has now reached the tropics: people today have less time to cook, they have relegated food to a secondary place in their lives, and many families have lost even basic culinary skills that are required to reduce the dependency on heavily processed foods, including the convenience foods that we have become so accustomed to. Fourth and finally, political obstacles remain: large agribusiness actors veto any significant change that would threaten their position in the system, and that would question, in particular, the relegation of the farmer to the position of a captive buyer of inputs, and a provider of raw materials to the food processing industry.

These obstacles are formidable. This is why food democracy — the ability for people to make real choices about how to produce food, what to produce, and how to eat — is key to unlock the system. The agroecological revolution is much needed. It will succeed, however, only if we overcome the political economy obstacles to change. This book, and particularly the concluding chapter by Dr. G. Poyyamoli, in which he identifies under which conditions the agroecological transition may succeed, makes a major contribution to this ambitious and urgent undertaking.

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