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## Introduction

“It always seems impossible until it’s done”

Nelson Mandela

In 2008 in a bleak conference room in Johannesburg, South Africa, a report of enormous scientific and political undertaking was finalized. The report, entitled The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) had the phrase ‘Agriculture at a Crossroads’ as its tagline and key focus. This book takes you, the reader, on a journey through the intervening ten years, offering thought provoking articles on the agriculture, nutrition and food production systems related to, and inspired by, this ground-breaking report.

A series of thirteen short essays, in chronological order, will delve into selected landmark reports that were inspired by the IAASTD and originated in the same concern for the urgent need to change how our food is produced. It highlights how a new food system narrative has been firmly established since 2008, which is distinctly different from the post-war chemical narrative that still dominates mainstream farming. In addition, the book contains a series of articles and updates on key topics of interest, written by authors from the original IAASTD report. These articles range from trade, corporate concentration and proprietary strategies to urbanization, innovation, and indigenous community-based research.

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The authors involvement took place in a rather passive, volunteering way, working with respondents to a broad call to the IAASTD authors and reviewers for action on a book to document the steps undertaken over the past 11 years. This led to a geographical and cultural imbalance and we do not claim to cover the full spectrum of views on the new paradigm for the agri-food system, even though we can safely assume that the progressive forces are closely lined-up to the basic principles of agroecology in its widest sense.<sup>1</sup> The Advisory Group, a subset of the book’s authors, does not have worldwide representation and recognizes that it does not contain many highly relevant advances in sustainable agriculture from areas outside their personal experience.

This book was written during the coronavirus pandemic, which served to remind us, in a terribly brutal way, of the direct link between industrial agriculture

and human health. This pandemic has brought into plain sight the shortcomings of the present food system, and the need to heed the warnings and options for action enshrined in the IAASTD report and many more to come. The 2015 report published jointly by WHO, UNEP and CBD was crystal clear about this link, stating that “Changes in land use and food production practices are among leading drivers of disease emergence in humans.”<sup>2</sup>

### IAASTD

The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) was initiated at the 2002 Rio+10 Summit on Sustainable Development in Johannesburg, South Africa, when the World Bank and the Food and Agriculture Organization of the United Nations (FAO) suggested that an international assessment of global agriculture should be carried out. In 2004, six UN Agencies, the World Bank and 60 nation states agreed to carry out the IAASTD, which would consist of: a global report, five sub-regional reports, and executive summaries for decision makers.

As the final plenary in Johannesburg was being held, with the adoption of the Synthesis Report and Executive Summary in April 2008, the world was not only dealing with a major food crisis, but also slipping into a new financial and economic crisis, which would have broad implications for food security. Today, twelve years on, as we are finalizing a book to document what has been achieved since the publication of IAASTD, we are deep into the COVID-19 pandemic, which

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will have even greater economic and social impact than the financial crisis of 2008. It is increasingly clear that this aggressive zoonotic virus highlights the general unpreparedness of our health services; our immuno-deficiencies triggered by a food system that leaves hundreds of millions of people obese, hungry and malnourished and exposes the public to cocktails of chemical residues in the water, air and food. A perfect storm has thus caught our leaders off-guard and scrambling for solutions. Resting on the laurels of food surpluses and a relatively strong economy is no longer an option. The key words, now and for the future, are as we are regularly reminded

by our governments, ‘foresight, preparedness and resilience’. This of course was the fundamental message detailed in the IAASTD’s “summary for decision makers”, now all the more urgent for leaders of global food systems to act upon. However, politics, vested interests and false promises still stand in the way.

Now that hundreds of millions of people, both in industrial and low and middle income countries are thrown back into poverty, hunger and homelessness, the early warning of the IAASTD report that “business as usual is not an option” should finally resonate with those leaders who should already have taken the lead in promoting the agriculture and food system transformation. As the COVID-19 pandemic was spreading, both the UN Secretary General<sup>3</sup> and WFP Chief<sup>4</sup> war-

ned that immediate and substantial aid was needed to avert a hunger crisis. The fragility of the present globalized, industrialized food system that we are now witnessing in the Covid-19 pandemic, was amongst the key warnings of the IAASTD report, that was itself following on the heels of the SARS outbreak of 2002/2003.

The 400 IAASTD-authors from around the world – from farmers to academics and decision makers – sent a clear message, that there is a need to transform agriculture from its unsustainable industrial/conventional model relying on external inputs and large scale farms to an agroecological model, which is fully able to nourish a world population of 10 billion people by mid-century. There is ample peer reviewed scientific evidence for this as detailed in this book. In setting up the outline of the IAASTD, we paid attention to the three dimensions of sustainable development and addressed them to the fullest extent possible. The main objective was a thorough analysis of the lessons to be learned from the past 50 years and an outlook on the challenges of the next 50 years, even as that long view would remain challenging to predict. The central question asked of the IAASTD was 'could key principles be identified for a food system that takes into account not only production aspects, measured in yield per hectare, but also socio-cultural and environmental conditions of providing healthy nutrition for all? Looking back 50 years proved to be relatively easy, with the green revolution and a globalized food system that concentrated on the calories produced without including the nutrition and safety aspects. Envisioning the future and coming up with real solutions that tackle the cause of the problems rather than the symptoms proved, unsurprisingly, to be more complex.

The late introduction of the "K" for knowledge, which never made it into the acronym of the IAASTD, became a harbinger of one of the report's missed opportunities. The push for inclusiveness across the world's diverse agriculture and food systems remained incomplete. The authors' list was extracted from the nominations of governments and civil society by a bureau consisting of 30 government and 30 civil society, academia and private sector representatives. There were fair complaints that some groups central to the report's topics were seriously underrepresented such as indigenous people, livestock and fisheries experts, and the wider farming community. This was not least a result of English being the only working language, due to cost considerations.

It is noteworthy to recall that we did not write a review of agriculture, we were asked to write an assessment, which is a "critical evaluation of information, for purposes of guiding decisions on a complex, public issue". The topic of the assessment was defined by the stakeholders, in several regional meetings, who were typically decision-makers; it was to be policy relevant, not prescriptive; to be conducted by a credible group of experts with a broad range of disciplinary and geographical experience, in a balanced and transparent way; it should reduce complexity but add value by summarisation, synthesis and sorting what is known and widely accepted from what is not known (or not agreed); it should

relate to the situation at a particular time and in a given geographical domain and often repeated after a period of time.

Frustratingly, with the launch of the assessment reports in the midst of a financial crisis, little attention was paid to agriculture and food by the media. The main economic players and governments were busy implementing yet a new set of quick fixes to avert the worst impacts of the financial disaster they were facing, and were not ready for a report on the resilience and future of agriculture and the food system. This was not the case amongst Non-Governmental Organizations, where the IAASTD found fertile ground and was met with interest and an eagerness for its actions to be implemented. Unfortunately, the World Bank, the original initiator of the assessment, was an early critic of the report when it was still in its draft form, as were some industry representatives.

### Post-IAASTD

After a decade of working with the IAASTD results, this book takes stock of its impact by looking at what has been taken up directly, what follow-up reports and actions have been catalyzed and how policies from global to local have been influenced. There has been genuine pick-up of the IAASTD's "options for actions" by production groups, research organizations, NGOs and some foundations. There has also been a fair amount of co-opting our central message that 'business as usual was not an option' and 'the need of a paradigm change'

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for green washing purposes. However, an example of how little has changed where such change is most needed, is the fact that most public and private R&D investments are still going to conventional green revolution and industrial agriculture technologies and practices.<sup>5</sup> At the center of these money flows lies the fact that, through the ages control of food has always been, and continues to be, one of the most important tools used to enforce power over people.

This book presents the steps that will set the stage for the inevitable transformation. In the same way that steam engines paved the way for internal combustion engines, which are now about to yield to electric engines, in agriculture, outdated chemical and energy intensive technologies will either yield to modern agroecology, or simply go out of business.

The book's Advisory Board has reviewed and selected landmark reports, published since 2009, and inspired by the IAASTD. The reports address the same concerns as the IAASTD, filling some of its gaps and further elaborating its initial message. The corresponding thirteen essays in this book are presented in chronological order. This provides an interesting account of the further evolution in thinking and adoption of the IAASTD's main findings with a remarkable acceleration over the last three years.

In addition, authors from the original IAASTD report have contributed a series of thought pieces and updates on topics of interest and elaborated on areas that did not get the deserved attention in the 2009 IAASTD report. Many authors have reiterated the key place and value to society of the socio-cultural and spiritual aspects of agroecology, as practiced by indigenous and local communities. The disconnect between humanity and nature, a hallmark of industrial agriculture, requires diverse solutions in order to repair and heal the impact of previous policy.

As we work to transform the food system, the goal is to go beyond the overflowing plate and profit maximization, which is still the central driver of many in agribusiness. The voices we are increasingly hearing from many sides of the debate is for policy to be rolled out that allows for a society to live in harmony with its environment. The concept of “Buen Vivir” and the corresponding transition to a sustainable economy, rather than development, confirms the need for a new economic system, which can handle all dimensions of sustainable development. Much has been learned in the past decade about nutrition and the way food is produced, transformed, marketed and consumed. Several contributions highlight the agriculture and health nexus, and the cost of ignoring how, where and by whom food is being produced, processed, transported and distributed along the value chain. How we produce both crops and animals has major implications regarding climate change. The reader will thus be provided with the key data relevant to carbon sequestration and the much-disputed impact of grazing modes.

The title of the 2019 FAO-HLPE report “Agroecology and other innovations” carries a major contradiction, given that agroecology is not just a technology but a holistic system, integrating science, knowledge and skills as well as technologies and innovations. This should of course all be in the service of the farmers (not the input industry) and preferably sourced from the pool of public goods. Two contributions cover controversial technological developments: digitization and biotechnology. While digitization had not yet played a major role in the IAASTD, biotechnology, GMO’s in particular, had been a major bone of contention in the final plenary and drove some countries and industries to distance themselves from the report. In digitization, ownership of information is as controversial as in the seed sector. For GMOs, ten years on, we are still waiting for compelling proof that they make any significant contribution to resolving problems that could not be achieved more effectively, and with more resilience, regeneration potential, and at lower costs than with other technologies. Almost superfluous to mention that GMOs, by their nature, deal with the symptoms rather than the causes of the problems they are intended to solve. Good for business, bad for farmers.

In **2011**, a landmark report from the EU’s Standing Committee on Agricultural Research (SCAR) defined scarcity as the new mantra in times of humanity exceeding the planetary boundaries of natural resources as detailed by Rockström et al. The report spelled out two competing narratives of “productivism” and

“sufficiency” and warned that the complexity of interconnected drivers and their non-linear feedback loops prevented reliable scientific predictions. This required robust and precautionary reactions prioritizing sufficiency-oriented research, innovation and communication in an ever-accelerating combination of crises.

UNCTAD took a different line with its report “Wake up before it’s too late” in **2013**, which strongly promoted organic and agro-ecological farming practices in relation to trade. UNCTAD had already called for more resilience in the face of climate change by shifting the green revolution paradigm to ecological intensification and the use of regenerative production practices with an emphasis on the small-scale farmers.

The **2015** Sustainable Development Goals (SDGs) or Agenda 2030 of the United Nations were probably the most comprehensive and significant global agreement on the future pathway to sustainability. Civil Society Organizations dealing with agriculture and related disciplines from health to environment gathered and in a common effort produced a manifesto: “Time to Act”, which greatly influenced the development of SDGs targets and their approval by all governments. The manifesto was based on the key findings and options for action from the IAASTD report. The consultation process leading to the SDGs was a catalyst for a flurry of additional reports. As a result, the framing of the SDGs marked a key global step towards the new systemic approach to food, health, agriculture, climate, soil, water and biodiversity, within the realm of the three sustainable development dimensions.

Amongst all the UN agencies, The United Nations Environment Programme (UNEP) took the greatest interest in the IAASTD during the drafting phase and at the final plenary in Johannesburg, where the UNEP’s then Director General, Dr Achim Steiner made a passionate speech about the linkages between agriculture and the environment. A chapter dedicated to agriculture in UNEP’s Green Economy Report (2011), based strongly on the IAASTD spirit, modeled the costs for a global transformation of agriculture at US\$142 billion until 2050, equivalent to one third of the present annual subsidies to agriculture.

UNEP’s **2016** report “Linking Food Systems and Natural Resources” strongly contradicted a food systems model assuming that there is no limitation to the substitution of nature with chemicals to grow the food needed by an increasing and ever more demanding population.

The UNEP’s **2018** TEEB-Ag report assumes, as a leverage point for the transformation of food systems, that consumers’ education about the environmental, social and economic consequences of their choices at the supermarket or market, and their wallets, can have an important impact as a driver for change. Calculating the price of food as a cascade of savings due to reducing pollution, addressing climate change impacts and biodiversity loss, along with related health

care and research costs shows that these savings would make up more than the price of supporting the poorer segment of the population.

In 2011, The Food and Agriculture Organization of the United Nations (FAO) presented its own concept of the transformation that was needed, with the publication of their “Save and Grow” report, to present “sustainable intensification” as the “new paradigm”, again taking cues from the IAASTD report. This report can be seen as a first example of co-opting agroecology while pursuing a business as usual agenda. However, the IAASTD still worked its way slowly into the FAO policy development process. The culmination of the changes brought to the thinking at FAO by the then Director General, Jose Graziano, is best illustrated by the series of conferences convened by FAO from 2016 to 2018 on agroecology. In 2014, he stated that the cathedral of the Green Revolution had opened at least a window to agroecology. This led to the Committee on World Food Security (CFS) commissioning a report from its High Level Panel of Experts (HLPE) on “Agroecology and other innovations”, first presented in 2019, which outlines a transformation of agriculture and food systems and lists policies leading to the expected changes.

The 2019 IPCC special report on Climate Change and Land has given a major boost to the food system change debate. Although it does not reference the IAASTD report, its authors have clearly drawn from it with messages that point in the same direction of transformational changes, with an emphasis on the role of biodiversity in the food chain, agroecological practices, inclusion of local knowledge and empowerment of women and youth. It is a rewarding read for those who have been waiting for this report over the past decade.

The Beacons of Hope Report, published in 2019 by the Global Alliance for the Future of Food and the Biovision Foundation, has searched around the globe for practical examples that could accelerate the transformation process. The main criteria were impacts of these new food systems on the environment, livelihoods and health. The report also outlines key elements of successful transformation pathways, and how to grow them to scale.

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In this book, the authors of the essays and short stories are illustrating, in a narrative form and their own words, the “behind the scene” stories about these and other landmark reports that have emanated from the IAASTD. It is hoped that with this book we attract the further attention of decision makers to the challenges, the solutions, and the actions necessary to address them. Food is a human right, and it is the responsibility of governments to ensure that all have access to the right quantity and quality of healthy food at an affordable price, which has been produced for the long-term from resilient systems, many of

which must be rebuilt on the ruins of degraded soils, lost biodiversity and impoverished farmers. It's high time that our food systems pay attention to the word regenerative, as sustainable and resilient systems can only function as such in fully restored ecosystems. Time is ripe to move from exploitation to management of our life supporting ecosystems.

With a major gathering planned under the auspices of the UN Secretary General, Food System Summit in 2021, managed by private foundations and private sector representatives, this book could not be timelier, bringing a strong warning that "business as usual is not an option", and that if this is not heeded, it's not people but the irrevocable damage to nature that will destroy our civilization. One could ask where were the initiators and leaders of the 2021 Food System Summit over the past 11 years? It is clear that food systems and the value of a "systems approach" has been suddenly (re)invented and re-interpreted. We must defend the narrative we have developed in 2009 and refined since, which is now very much in jeopardy again and keenly aware of the impacts of the co-optation of language while continuing on the same path. History has a tendency of repeating itself.

This book is a treasure trove for decision makers with any kind of responsibility across the food chain. It is also relevant to the general public as it explains clearly what the consequences of their choices are. Our hope is that decision makers, NGO officials and the wider public read this book and do their absolute best to implement its lessons – our current and all future generations will be eternally grateful if they do.

It is our common future, and our common duty to act fundamentally differently.

### Endnotes

1 Steve Gliessman (2018). "Defining Agroecology". *Agroecology and Sustainable Food Systems*, 42:6, 599-600. See also Clara Nicholls and Miguel Altieri (2016). "Agroecology: Principles for the Conversion and Redesign of Farming Systems". *Journal of Ecosystem and Ecography*

2 <https://www.cbd.int/health/SOK-biodiversity-en.pdf>

3 <https://www.weforum.org/agenda/2020/04/covid-19-coronavirus-could-double-acute-hunger-un-warns/>

4 <https://insight.wfp.org/wfp-chief-warns-of-hunger-pandemic-as-global-food-crises-report-launched-3ee3edb38e47>

5 [http://www.ipes-food.org/\\_img/upload/files/Money%20Flows\\_Full%20report.pdf](http://www.ipes-food.org/_img/upload/files/Money%20Flows_Full%20report.pdf)



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