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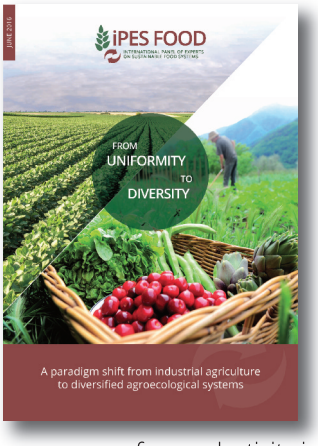
From uniformity to diversity

In 2016, IPES-Food published the report "From Uniformity to Diversity",[1] promoting a paradigm shift from industrial agriculture towards diversified agroecological systems. It identifies the key mechanisms that keep today's industrial food system in place, and recommends 7 pathways that would enable a transition towards diversified agroecological systems.

When I was appointed Director General of the International Plant Genetic Resources Institute in 2003, I recognized that it was the right moment to move beyond an exclusive focus on plant genetic resources; the time had come to fully embrace the complexity of agrobiodiversity that constitutes the reality of farmers' daily lives across the world. Understanding how agrobiodiversity contributes to better nutrition, resilience, stability and sustainability became a significant part of the research agenda at the Institute. This shift led to the Institute's name change to 'Bioversity International', reflecting the broadening of the agenda.



At the launch of the IAASTD process, because of the multi-stakeholder nature of the process, I volunteered to represent the CGIAR (Consultative Group on International Agricultural Research) Centres in the Bureau. Despite the participation of a number of CGIAR scientists as authors in the Assessment, there was little interest from the CGIAR leadership in the process. The food price spikes in 2007-2008 further distanced the majority of CGIAR Commodity Centres from the IAASTD process and saw a redoubled focus on breeding for productivity increases of the major cereals. When in 2008, the CGIAR Centres had to decide whether they would sign off on the IAASTD report, the majority of Centres voted against, on the basis that it was critical of genetic modifications and of unrestrained trade in agricultural commodities. As the then Chair of the Alliance of CGIAR Centres, I was obliged to convey the objections of the Centres and their withdrawal from the process, despite the fact that I was personally very supportive of the report.

I supported the recommendations of the report because of its pioneering recognition of the fact that agriculture and agricultural research needed a significant redirection, away from the high input monocultures of a narrow genetic base of a few commodities, towards greater diversity and the application of agroecology principles. The report was an inspiration for me and convinced me

of the need to take a broader systems approach and to deepen our work on the role of agrobiodiversity in improving the lives of smallholder farmers.

When in 2013, I stepped down from my position of Director General of Bioversity International, I decided to focus my efforts on sustainable food systems (SFS) and on agroecology as a significant component of SFS. With the support of the Daniel and Nina Carasso Foundation, I helped to set up an independent "International Panel of Experts on Sustainable Food Systems" (IPES-Food) whose focus was to bring the issue of sustainable food systems to the attention of decision makers. I was invited to join the Panel in 2015 and I took on the task of Lead Author of the first substantive report of IPES-Food entitled: "From Uniformity to Diversity, a paradigm shift from industrial agriculture to diversified agroecological systems" published in June 2016.

This was the first report that made a systematic comparison between the industrial model of agriculture (the dominant paradigm) and the emerging diversified agroecological system from an economic, environmental, nutritional, health, social and cultural point of view. The report pointed to the fact that the focus on productivity increases of industrial agriculture was at the expense of numerous unsustainable negative environmental, health and social consequences. Consequences that were being considered as 'unavoidable' negative externalities, paid for by society at large, and presented as necessary to 'feed the world'.

The report went on to highlight the potential that diversified agroecological systems offer in terms of their economic, environmental, nutritional, health, social and cultural performance, detailing the many positive externalities that are currently not being rewarded by the market.

The IPES-Food report is unique in the depth of its analysis of the political economy and the identification of eight 'lock-ins' that prevent, or are significant obstacles to, the necessary paradigm shift to diversified agroecological systems. These 'lock-ins' are described below.

Lock-in 1: **Path dependency**
Industrial agriculture requires significant up-front investments in terms of equipment, training, networks and retail relationships, and often requires farmers to scale up. Once these investments and structural shifts have been made it becomes increasingly difficult for farmers to change course.

Lock-in 2: **Export orientation**
As industrial agriculture has spread, generating abundant supplies of uniform, tradable crop commodities, trade has taken on disproportionate political importance. Specific supply chains (e.g. supply chains for animal feed or for processed food ingredients) have become increasingly export-oriented and export-dependent. Supporting these chains has often been prioritized over

other interests such as ensuring resources for local food production. In addition, in spite of the risks and problems associated with export orientation and regional monocultures, including price volatility, environmental degradation and competition for land, various policy measures have continued to incentivize export orientation.

Lock-in 3: **The expectation of cheap food**
Industrial agriculture and shifting consumer habits have helped to facilitate the emergence of mass food retailing, characterized by the abundance of relatively cheap highly-processed foods, and the year-round availability of a wide variety of foods. In many countries, consumers have become accustomed to spending less on food. In this context, farmers have received clear signals to industrialize their production in order to respond to the increasing demand for large volumes of undifferentiated commodities.

Lock-in 4: **Compartmentalized thinking**
Highly compartmentalized structures continue to govern the setting of priorities in politics, education, research and business, allowing the solutions offered by industrial agriculture to remain at centre stage. Agricultural ministries, committees and lobbies retain a privileged position relative to other constituencies such as environment and health in setting priorities and allocating budgets for food systems. Increasingly privatized agricultural research and development programmes remain focused on the handful of commodities for which there is a large enough market to secure significant returns. Educational silos remain in place, and sectoral 'value chain' organizations share knowledge vertically (by product) rather than encouraging a wider, food systems approaches.

Lock-in 5: **Short-term thinking**
Diversified agroecological systems offer major benefits for farmers and for society. However these advantages will not be immediately visible, given the time needed to rebuild soil health and fertility, to increase biodiversity in production systems, and to reap the benefits of enhanced resilience. Unfortunately, key players in food systems are often required to deliver short-term results. Politicians are often locked into short-term electoral cycles that encourage and reward policies that deliver immediate returns and publicly-traded agribusiness firms are generally required to deliver rapid returns to shareholders.

Lock-in 6: **'Feed the world' narratives**
Despite the fact that food security is recognized primarily as a distributional question tied to poverty and access to food, achieving food security continues to be framed by many prominent actors as a question of how to 'feed the world', or in other words, how to produce sufficient calories at the global level. These narratives and approaches have been particularly prominent in the wake of the 2007-2008 food price spikes.

Lock-in 7: **Measures of success**
The criteria against which farming is typically measured - e.g. yields of specific crops, productivity per worker – tend to favour large-scale industrial monocultures. Evidence in recent long-duration studies suggests that diversified agroecological systems can compete well on productivity grounds. However, they are still disadvantaged by the predominant measures of success. Diversified systems are by definition geared towards producing diverse outputs, while delivering a range of environmental and social benefits on and off the farm. Narrowly-defined indicators of agricultural performance fail to capture many of these benefits. Current systems will be held in place in so far as they continue to be measured in terms of what industrial agriculture is designed to deliver, at the expense of the many other outcomes that really matter to, and directly impact society.

Lock-in 8: **Concentration of power**
The way food systems are currently structured allows value to accrue mainly to a limited number of actors. This reinforces their economic and political dominance, and thus their ability to influence the governance of those systems. The interests of these powerful actors converge to support industrial agriculture.

Finally, the IPES-Food report identifies a set of coherent steps designed to strengthen the emerging opportunities while simultaneously breaking the vicious cycles that keep industrial agriculture in place. Together, these steps will shift the centre of gravity in food systems, allowing harmful dependencies to be cut, agents of change to be empowered, and alliances to be forged to sustain change.

Recommendation 1: Develop new indicators for sustainable food systems.
It is essential to adopt a broader range of 'measures of success', covering long-term ecosystem health; total resource flows; sustainable interactions between agriculture and the wider economy; the sustainability of outputs; nutrition and health outcomes; livelihood resilience; and the economic viability of farms with respect to debt and climate shocks.

Recommendation 2: Shift public support towards diversified agroecological production systems.
Governments must shift public support away from industrial production systems, while rewarding the positive outcomes of diversified agroecological systems. Governments should implement measures that allow farms to diversify and transition towards agroecology. In particular, policy makers must focus on supporting young people to enter agriculture and adopt agroecological farming – before they are locked into the cycles of industrial agriculture.

Recommendation 3: Support short supply chains & alternative retail infrastructures.
Governments should support and promote short circuits in the supply chain in order to make them a viable, accessible and affordable alternative to mass retail

outlets, e.g. by repurposing infrastructure in cities to favour farmers' markets. More attention should also be paid to the role of informal markets, and policy measures ought to be put in place that empower emerging initiatives linking farmers to consumers.

Recommendation 4: Use public procurement to support local agroecological produce.
Public procurement should be used with increasing ambition to provide sales outlets for diversified agroecological farms, supplying fresh, nutritious food and diversified diets for the users of public canteens, particularly schoolchildren.

Recommendation 5: Strengthen movements that unify diverse constituencies around agroecology.
Governments can support farmers' groups, community-based organizations and social movements which encourage the spread of agroecological practices and advocate sustainable food systems. In addition, governments must encourage the participation of diverse civil society groups from the global North and South in governance processes and forums.

Recommendation 6: Mainstream agroecology and holistic food systems approaches into education and research agendas.
Public research agendas must be redefined around different priorities. Investments should be redirected towards equipping farmers to shift their production. The mission of university research should be redefined around the delivery of public goods. The United Nation's Food and Agricultural Organization (FAO) and other international agencies should mainstream agroecology into all of their work, spreading existing knowledge and filling the remaining gaps in our understanding. In addition, research conducted by the CGIAR Centres should be refocused around diversified agroecological systems and farmer participatory research.

Recommendation 7: Develop food planning processes and 'joined-up food policies' at multiple levels.
It is crucial to implement joined-up policymaking for food systems. Long-term, inter-ministerial planning – reaching across political boundaries and transcending electoral cycles – should be supported. This is necessary to build on landscape management and territorial planning initiatives, where food security can be meaningfully targeted and understood in terms other than 'feeding the world'. Crucially, food systems planning must be based on broad participation of various constituencies and groups with a stake in food systems reform. At the global level, the Committee on World Food Security (CFS) should advocate for coherent food policies and contribute to strengthening diversified agroecological food systems.

One lock-in that was not sufficiently addressed in the recommendations of the 2016 IPES-Food report was the concentration of power. This issue was tackled in a subsequent report by IPES-Food entitled: "Too Big to Feed" published in 2017.

The publication of the IPES-Food report "From Uniformity to Diversity" has been widely adopted by different stakeholders. Since its publication, I have been invited on multiple occasions to present the report at meetings, conferences and events organized by universities, farmers' organizations, civil society organizations and ministries. The report, which is now widely cited, has also contributed to raising the profile of agroecology in a variety of different institutions and inspired the strategies of several civil society organizations working on food security and sustainable development.

Recently, there has been a significant increase in interest in agroecology to address today's challenges. in the last two years alone multiple reports have been published that point to the need for transformational change in our agriculture and food systems, with a focus on the urgency to bring about such change These include the IPBES report on Land Degradation and Restoration (2018), the TEEB for Agriculture & Food report (2018), the IPBES Global Assessment Report on Biodiversity and Ecosystem Services (2019), the IPCC report on Climate Change and Land Use (2019), the HLPE report on Agroecological and Other Innovative Approaches for Sustainable Agriculture and Food Systems (2019), the Global Climate Adaptation report (2019) and the Global Sustainable Development Report 2019. All these reports recognize diversification and agroecology as key to transformational change.

This is encouraging, but major efforts from policy makers and private enterprise are still needed to overcome the lock-ins listed above. Overcoming these will be key to ensuring that agroecology becomes the new, mainstream, dominant model.

Endnote

1 http://www.ipes-food.org/_img/upload/files/UniformityToDiversity_FULL.pdf

Emile A. Frison, PhD, is a member of the International Panel of Experts on Sustainable Food Systems. He spent his career in international agricultural research for development. In 2003, he became Director General of Bioversity International and developed a strategy entitled "Diversity for Well-being", focusing on the contribution of agricultural biodiversity to better nutrition, and the sustainability, resilience and productivity of smallholder agriculture. Dr Frison is Chair of the Board of Directors of Ecoagriculture Partners and a member of the EC Mission Board on soil health and food.