AGROECOLOGY: INNOVATING FOR SUSTAINABLE AGRICULTURE & FOOD SYSTEMS

EXECUTIVE SUMMARY

FOEI FOOD SOVEREIGNTY

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Who Benefits? 2018

WHY IS INNOVATION AN IMPERATIVE?

There is an international consensus about the unprecedented and pressing challenges that the world is facing in the 21st century, such as hunger, eroding livelihoods of small-scale urban and rural food producers and workers, diet-related diseases, natural resource depletion, environmental degradation and climate change. It is also recognized worldwide that these intimately connected consequences of our current agri-food systems, and in particular of the dominant agri-business and high-input industrial model of agriculture, are affecting the health of the environment and humans. They are posing serious threats to achieving the human right to adequate food and nutrition, particularly of vulnerable populations. It has become clear that our world cannot afford a 'business-as-usual' approach any longer. We need a paradigm shift in agriculture and food systems.

WHICH VISION OF INNOVATION? THE NEED TO DEFINE KEY DIMENSIONS TO ASSESS SUSTAINABLE INNOVATIONS

The discourse on innovation as the way out of the global food, environmental and climate crises is gaining strength in various spaces of global governance, in particular of food and agriculture, often covering both agroecology and biotechnology among the 'approaches for sustainable agriculture'. It is thus critical to acknowledge that there are radically divergent visions for addressing the global crises and for defining and implementing innovative processes and products. Innovation is not a goal per se and should not be only about technology nor productivity. It should have a holistic and multidisciplinary perspective that includes social, economic, cultural, environmental and policy processes, and should seek to make a positive impact on the lives of small-scale food providers, workers and their communities. Furthermore, innovating to transform these systems is not only about introducing new, breakthrough or disruptive innovations, and new needs, markets and application spaces. It also entails the adaptation or evolution, and the substantial improvement and/or expansion, of already existing techniques and practices.

It is crucial for decision-makers, food producers and other actors to ask themselves the right questions to guide their choices. In this sense, we suggest a non-exhaustive set of 13 interconnected core evaluation criteria to serve as an objective and comprehensive framework with which to better assess and select an innovation. For an innovation to be considered socially, culturally, environmentally, politically and economically acceptable, it has to take into account and fulfill at least most, if not all, these criteria. A minimum requirement should be fixed, as cherry-picking criteria does not allow for fair, reliable and conclusive evaluation.

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DIMENSIONS	KEY CRITERIA	INDICATORS
Social, economic and institutional	***Participatory governance***	**i)** accountability, transparency, predictability, information and the rule of law; **ii)** citizen participation in decision-making, management practices of natural resources in an equitable and sustainable manner, and monitoring and evaluation processes; **iii)** inclusion of bottom-up approaches and processes, in particular for creation of knowledge; **iv)** prominent role given to the most vulnerable and marginalized, including small-scale producers, workers, indigenous peoples, urban poor, women and youth.
	Social and economic justice	**i)** strengthen economic inclusion and social cohesion; **ii)** improve livelihoods and actively reduce inequalities; **iii)** in particular, encourage and consolidate relationships and solidarity among rural and urban areas and generations; **iv)** support social and public models of ownership that benefit all, encourage collaborative and open source intellectual rights held in common; **v)** foster solidarity economy and the connection between producers and consumers through equitable and sustainable markets; preserve and promote cultural heritage.
	Eradication of hunger	**i)** ensure sufficient future food supplies and equal access to meet the needs of the world's population; **ii)** bolster food self-sufficiency.
	Health, nutrition and safety	**i)** consumption of diverse, nutritious, safe foods for healthy, diversified, culturally appropriate and sustainable diets; **ii)** transparent information on health risks and benefits associated with the different types of food and consumption patterns; **iii)** decrease in non-communicable diet-related diseases; **iv)** recognition of traditional medicines.
	Small-scale food producers' and workers' benefits	**i)** creation of new decent employment opportunities, especially in rural areas; dignified and safe work; **ii)** dignified living conditions; improvement and respect for workers' rights; **iii)** fair income; **iv)** access to natural resources, infrastructure, markets and information; **v)** effective participation in decision-making; **vi)** positive effects for their communities; **vii)** recognition and preservation of their knowledge; **viii)** youth employment; **ix)** limit or reverse rural exodus.
	Gender justice and diversity	**i)** recognition and valorization of women's productive and reproductive work; **ii)** equal rights and access to resources; **iii)** effective participation in decision-making and support for women's leadership; **iv)** eradication of all forms of violence and oppression against women; **v)** respect for sexual and reproductive health rights.
Environment	***Effectiveness***	**i)** minimize food loss and waste; **ii)** minimize the transport involved in food production and distribution and the associated environmental impacts though localized or re-localized food systems.
	Energy justice	**i)** consider the systems and types of energy production, distribution and consumption to create, deploy and operate the innovation; **ii)** minimize the social and environmental impacts of energy; **iii)** recycle potential outputs for other purposes; **iv)** ensure fair and sufficient access to sustainably produced energy for the most vulnerable and marginalized; **v)** ensure community or social ownership of energy.
	Environmental justice	**i)** consider the short and long-term impacts on the environment (soils, water, air, land, forests and other natural resources) of the use of an innovation, over and after its lifespan; **ii)** ability to preserve biodiversity and water; **iii)** inclusion of labor aspects of innovation in food production and issues of migrant farm workers.
	Climate justice	**i)** address root causes of climate change based on agriculture models; **ii)** adaptation to climate change; **iii)** strengthen resilience against future shocks and support to communities; **iv)** reinforce autonomy for reconstruction after shocks; **v)** mitigation through the reduction of greenhouse gas emissions from current agriculture and food systems models.
Implementation process	***Availability and affordability***	**i)** allow access to all individuals and institutions across scales and geographies; **ii)** take into consideration and lower the financial and non-financial resources needed to create, promote and distribute, as well as to replicate, purchase, participate in, or use the innovation; **iii)** avoid unreasonable financial burden on the users.
	Usability and time sustainability	**i)** simplicity, ease and length of time for adoption, use and replication; **ii)** amount of training or transmission of information required for the end-users to effectively utilize the innovation; **iii)** effectiveness at accomplishing its intended task in the short- and long-term, and ability for user to sustain the innovation without external support; **iv)** correspondence to the needs, circumstances and culture of small-scale food producers and their communities.
	Scalability	ability to achieve widespread adoption across scales and geographies, with positive impact.

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WHY AGROECOLOGY IS THE INNOVATIVE APPROACH TO BE SUPPORTED

Agroecology is gaining widespread recognition and is increasingly being promoted by States and international institutions as the indispensable approach as a way out of the agriculture and food systems crisis. A science, a set of practices and a social movement, it is a living concept that continues to innovate and adapt to diverse and unique realities. It draws on social, economic, political and ecological dimensions and integrates these with ancestral and customary knowledge and practices of peasants, indigenous peoples and other small-scale food providers. It includes a long-term vision and goes beyond agricultural production to encompass and transform the whole food system. Four decades of scientific evidence on agroecology technologies, innovations and practices show that the solutions to today's monumental food and agriculture challenges are within our grasp and have been developed and tested for millennia by indigenous peoples, peasants, family farmers, pastoralists, artisanal fisherfolk, forest dwellers and other small-scale food providers.

Agroecology offers multiple benefits, including for providing stable yields and tackling hunger; linking food to territories; nutrition, health and sustainable livelihoods; preservation and sharing of cultural diversity and knowledge; transparency and access to information; the central role of rural women; restoring ecosystems, soil health and preserving biodiversity; preservation and renewal of genetic resources; harnessing food systems to stop climate change; and resilience to conflicts and environmental disasters. Agroecology's innovations and practices are technically feasible, affordable, politically, socially and culturally acceptable, locally-adapted and environmentally sound, thus meeting the key innovation assessment criteria defined in Chapter 1 of this briefing.

Peasant movements have identified eight key drivers of the process of taking agroecology to scale: (1) recognition of a crisis, which motivates the search for alternatives, (2) social organization, (3) constructivist learning processes, (4) effective agroecological practices, (5) mobilizing discourses, (6) external allies, (7) favorable markets, and (8) favorable policies. Finally, agroecology is one of the pillars of food sovereignty and should be considered within the paradigm of how we view, manage and innovate our agriculture and food systems. Food sovereignty entails the right of all peoples, nations and states to define their own food, agriculture, livestock and fisheries systems, and to develop policies on how food is produced, distributed and consumed. As it sees food, agriculture, ecosystems and cultures as intrinsically linked, and covers a spectrum of socioeconomic reordering that touches upon lifestyles, development paradigms and geopolitics, its relevance extends far beyond food to the very future of societies and survival of the planet.

INNOVATIONS THAT DEEPEN THE AGRIFOOD CRISIS

The growing international recognition of agroecology has led to multiple reinterpretations of the concept by different actors and interest groups, as part of their vision of the future of food that either seeks to conform to the dominant industrial food and farming system, or to radically transform it. In that sense, false solutions presented as an innovative way out of the agricultural and food system crisis, such as 'climate-smart agriculture' and sustainable intensification, entail the risk that the term 'agroecology' is misused in order to pursue specific interests not necessarily coherent with its principles and its original purposes. Together with digitalization and other technologies, they risk to jeopardize the capacity of thousands of small-scale food providers and their communities to produce and access sufficient, diversified and healthy food in a sustainable environment. They do not respond to a minimum requirement that would ensure their sustainability, as they keep society on the path of business and impacts as usual. Finally, it must be made clear that agroecology and industrial agriculture are not interchangeable concepts nor practices and cannot coexist. They represent two fundamentally different visions of development and well-being.

THE WAY FORWARD: RECOMMENDATIONS FOR THE DEVELOPMENT OF PUBLIC POLICIES ON THE INNOVATIONS TO SUPPORT

In the table *"Mainstreaming agroecology: Challenges and policy proposals"*, we identify, on the one hand, diverse practical, ideological, economic and political constraints and challenges that are slowing or blocking the mainstreaming of agroecology at different levels. On the other hand, we provide a set of recommendations for governments and policy makers, with the support of intergovernmental organizations, in particular the FAO. These recommendations aim to guide the formulation of sound public policies in order to address the various barriers and create an enabling environment to unlock the transformative power of agroecology, to advance towards the achievement of food sovereignty and sustainable agriculture and food systems.

Agroecological family farm in El Salvador.
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MAINSTREAMING AGROECOLOGY: CHALLENGES AND POLICY PROPOSALS

CHALLENGES	RECOMMENDATIONS FOR POLICY PROPOSALS
Different visions on the 'innovative approach' towards sustainable agriculture and food systems	**Develop a framework to assess the sustainability of innovations and select them.** **1.1 Assess and monitor new technologies** and private sector technology transfer and their impact on food sovereignty.
Family farmers need to be protagonists of innovation ***Priority focus on the needs of the most vulnerable and marginalized*** >> ***Create an enabling environment and ensure inclusive governance***	**3.1 Ensure policy coherence across sectors and a human rights-based approach.** **3.2 Establish mechanisms for the effective participation of civil society organizations as rights-holders and main protagonists for innovation** - especially small-scale producers, urban food insecure and other marginalized groups - **in the design, implementation and oversight of policies**. **1.2 Mainstream peasant, family farm–based and other small-scale food producers agroecology into regional and national agricultural policies and programs.**
Need to protect and strengthen small-scale food producers and agri-food workers ***Insecure land tenure and lack of access to natural resources*** >> ***Secure peoples' rights, territories and access to the commons*** ***Key existing instruments that reinforce food sovereignty, the fight against climate change and the conservation of biodiversity: Right to Food Guidelines, UN Declaration for Indigenous Peoples, Small-Scale Fisheries Guidelines, Tenure Guidelines, ITPGRFA, UN Binding Treaty on Businesses, UN Declaration on the rights of Peasants***	**2.1 Avoid, prevent, protect against and/or remedy violence, discrimination, marginalization and indecent labor conditions** inflicted on small-scale producers and workers by corporations, landowners, governments and individuals. **2.2 Ensure equitable access to essential services.** **2.3 Prioritize and boost public investment in peasant and family farming innovation and adaptation**, according to their particular needs, cultures and traditions. **4.1 Ensure small-scale food producers' collective rights, control over and access to the commons.** Carry out integral land reforms. **4.2 Oppose land-grabbing, large-scale industrial production, speculative investments, commodity markets financialization and extractive industries.** **4.3 Stop forced evictions and human rights violations and guarantee the protection of the defenders of territories and peoples' rights.** **4.4 Develop land-use planning policies that progressively introduce regulations to limit the loss of agricultural land to urbanization.** **4.5 Implement existing international instruments and vote in favor of those currently submitted for adoption.**
Lack of recognition of women's productive and reproductive work; violence and inequities >> ***Gender justice and women's rights***	**5.1 Ensure women's access to and control over land, territories, water, and seeds**; safe and dignified working conditions; control of income; access to training and information; and direct access to markets. Implement CEDAW General Recommendation 34. **5.2 Ensure women's autonomy, their right to make their own decisions and participate fully and equally in all decision-making bodies**; promote and strengthen women's leadership.
Ensure generational relay in rural areas ***Strengthen rural-urban linkages*** >> ***Rights of youth and future generations***	**6.1 Support young people in accessing land** and in taking over or establishing new farms; **improve physical and social infrastructure**, in particular access to information and communications technology. **6.2 Ensure effective youth participation in decision-making processes at all levels**, in particular on the risk assessment and all stages of the development process of new technologies.

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CHALLENGES	RECOMMENDATIONS FOR POLICY PROPOSALS
Perception of agroecology as uncompetitive and archaic ***Need for funding for adapted research and capacity-building on agroecology*** ***Need for holistic and multidisciplinary thinking*** ***>> Co-creation, training and dissemination of knowledge***	**7.1 Strengthen existing local knowledge, farmer-led research and capacity-building; co-creation of knowledge and participative research;** integrate agroecology in national research systems and formal and informal pedagogic programs. Support *Campesino a Campesino* (farmer-to-farmer) processes to stimulate farmer innovation and sharing of results. **7.2 Build and strengthen the evidence base for agroecology and its multiple benefits** to achieve food sovereignty and sustainable agriculture and food systems, through data collection and dissemination, in particular to enable decision making.
Biased international agricultural, trade and investment policies ***Distortion of markets*** ***Strong influence of concentrated agri-business corporations*** ***Negative social and environmental impacts of global food chains*** ***Territorial markets need to be made visible and strengthened*** ***>> Link food systems to territories, foster solidarity economy***	**8.1 Fill the quantitative and qualitative 'data gap' on territorial markets** to ensure effective follow-up of CFS *Recommendations on Connecting Smallholders to Markets* and sound public policies. **8.2 Reduce and stop international trade and the inclusion of food in trade agreements and investment protection, while prioritizing production for domestic consumption and food self-sufficiency;** development and protection of territorial markets through stricter regulations and anti-trust enforcement to prevent unfair competition. **8.3 Redirect subsidies to and strengthen territorial formal and informal markets**, agroecological cooperatives and exchange and barter mechanisms. **8.4 Implement public procurement policies that favor agroecological and local food production; support participatory guarantee and other accessible certification systems.** **8.5 Incentivize and inform on healthy, diversified, nutritious, local and regional food systems; support the development, endorsement and follow-up of CFS *Voluntary Guidelines on Food Systems and Nutrition* (FAO, 2018a).**
Heavy environmental and climate footprint of the high-input industrial agri-food industry ***Only 12 years to make the necessary changes for global warming to be kept to a maximum of 1.5°C*** ***>> Preservation of the environment and biodiversity, and fighting climate change***	**9.1 Shift policies, subsidies and production away from destructive industrial farming into agroecological techniques, innovations and practices and the transition towards agroecology.** **9.2 Promote farmer-led, bottom-up, local innovation systems and practices** to enhance the fundamental role of agroecology in biodiversity conservation. **9.3 Protect peasants' seed systems from the privatization of resources through intellectual property rights;** guarantee their collective right to save, select, breed and exchange their seeds, to continue generating myriads of crop and animal breeds. **9.4 Protect, invest in and expand small-scale agroecological farming, essential to reduce carbon emissions from agriculture.** **9.5 Shift policies away from carbon offset schemes towards real smallholder agroecological practices**, which support communities to adapt to and mitigate climate change, as well as strengthening their resiliency against future shocks. **9.6 Prioritize self-determination, local autonomy and people-to-people aid.** In instances when food aid is needed, it should support rather than undermine domestic agriculture and local food economies.

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AGROECOLOGICAL TECHNIQUES INNOVATIONS & PRACTICES

AT THE FIELD, FARM AND LANDSCAPE LEVEL, A WIDE VARIETY OF AGROECOLOGICAL PRACTICES BASED ON DIVERSIFICATION OF SYSTEMS AND PRODUCTS ARE CONSIDERED TO BE THE MOST STRATEGIC TO ENSURE THE SURVIVAL OF PRESENT AND FUTURE GENERATIONS.

PEASANTS, FAMILY FARMERS & OTHER SMALL-SCALE FOOD PRODUCERS:

- DIVERSIFICATION & PRESERVATION OF CROP VARIETIES, LOCAL SEEDS & LIVESTOCK BREEDS;
- INTEGRATION OF CROPS, TREES, LIVESTOCK, FISH;
- AGROFORESTRY;
- SOLAR FOOD DRYING & STORAGE;
- MINIMIZING THE USE & DEPENDENCY ON NON-RENEWABLE EXTERNAL RESOURCES;
- MANURE APPLICATION & COMPOSTING;
- COMMUNITY ECOSYSTEM MONITORING;

TRADITIONAL, ARTISANAL OR SMALL-SCALE FISHERIES:

- COMMUNITY-BASED MANAGEMENT TO CONSERVE & REGENERATE FISH POPULATIONS, FISHING GROUNDS, CORAL REEFS, MANGROVE SWAMPS & OTHER FISH HABITATS;

TRADITIONAL MIGRATORY & CROSS-BORDER PASTORALISM:

- CONSERVATION OF GRAZING TERRITORIES & UTILIZATION FOR MEAT, MILK, FIBER, FUEL & OTHERS;

FOREST DWELLERS:

- LIVING BY THE DIVERSITY OF NON TIMBER FOREST PRODUCTS.

INDIGENOUS PEOPLES:

- ACCESS TO NATURAL RESOURCES IN THEIR TERRITORIES, IN PARTICULAR FOR HUNTING & GATHERING.

WORKERS:

- RURAL & URBAN.

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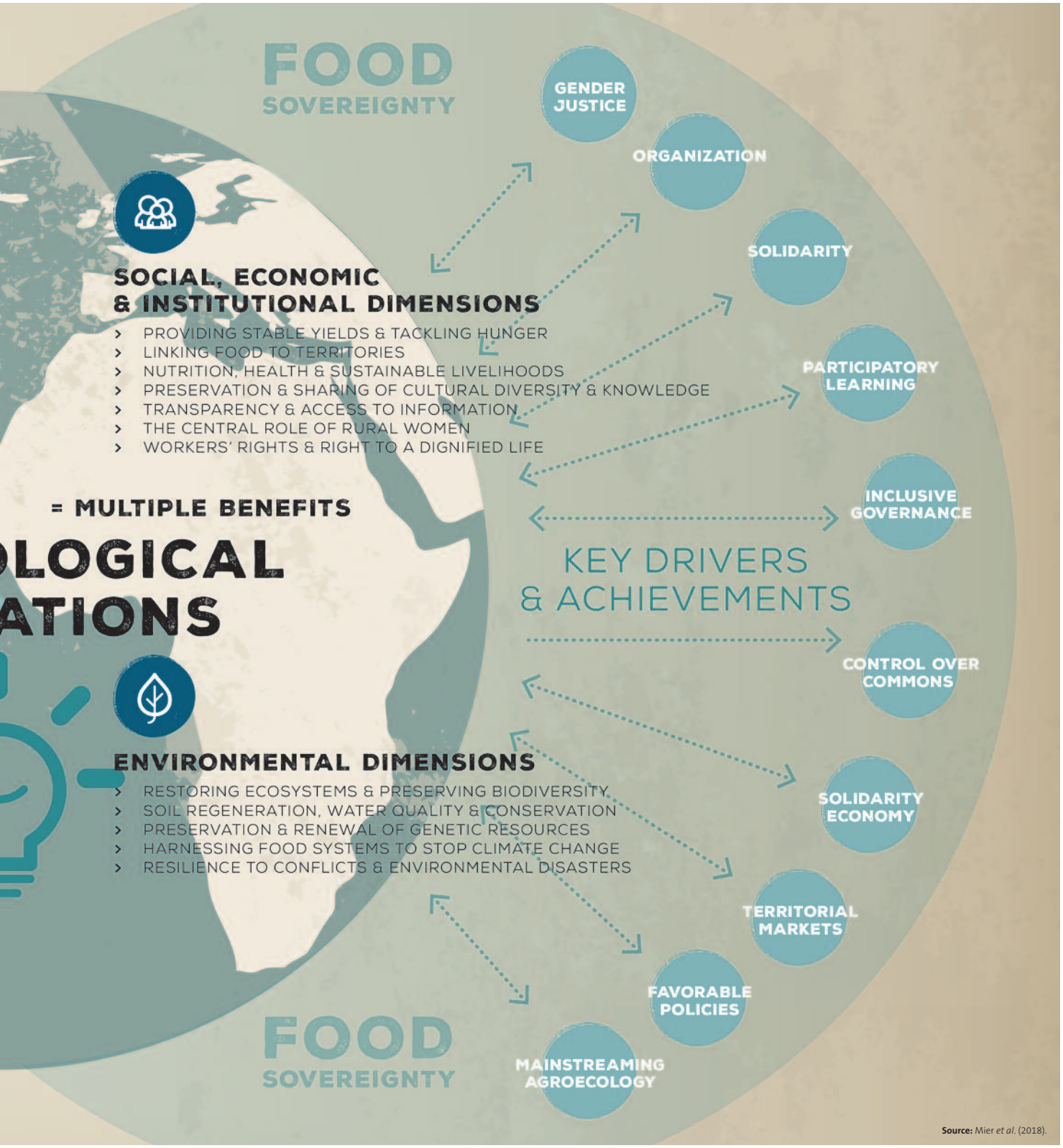

Source: Mier *et al.* (2018).

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Russia

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friends of the earth international
Secretariat
P.O.Box 19199, 1000 GD Amsterdam
The Netherlands

tel: +31 (0)20 6221369 fax: +31 20 639 2181
info@foei.org twitter.com/FoEint
facebook.com/foeint

Friends of the Earth International