

C5 | TRANSFORMING FOOD SYSTEMS FOR HEALTHY PEOPLE AND A HEALTHY PLANET

Introduction

Food is a central part of our lives, if not the essence of it. However, the direct linkages between persisting structural and systemic inequalities and today's rising hunger make it clear that the matter of food and nutrition needs to be recognized as part of the broader "equation" towards more just and equal societies, including the realization of the human right to adequate food and nutrition for all.

This is where the concept of food systems comes in and becomes a central part of the questions of why, what, and how changes are needed to ensure the health and well-being of today's populations, as well as that of future generations. There are multiple forms of food systems, best understood as dynamic, heterogeneous, and complex assemblages of people, resources, places, interactions, relationships, practices, and politics. A holistic food systems approach, the focus of this chapter, reaches beyond the linear understanding of food supply chains and considers food systems in their totality, considering all the elements, their relationships, and related effects (Food and Agriculture Organization 2018). It recognizes the role of power, gender, and generational relationships as well as the complex inter-relatedness of food systems with other sectors (such as health, agriculture, environment, and culture) and systems (such as ecosystems, economic systems, social-cultural systems, energy systems) (High Level Panel of Experts 2020). Fundamentally, a holistic food systems approach recognizes how food systems can combine, serve, and support multiple public objectives within all domains of life, and individual and collective well-being.

Although there has not been a single and unique historical food system, but rather a plurality of coexisting food systems, over the past 60 to 70 years a few powerful actors have been pushing for a standardization of food systems across regions. Based on a model that is referred to as the agro-industrial production model, these standardized food systems consist of increasingly globalized "food" or "value" chains,¹ supported by liberalized global trade and investment agreements, and constitute in sum a global dominant food system. Their growth coincided with corporate concentration that works in and for the interest of powerful countries and large companies, while simultaneously marginalizing other food systems.

This industrialized corporate-dominated food system, however, is today failing to accomplish its claimed function to nourish people and ensure their well-being.

After two decades of a decline in undernourishment (1990–2013), in 2014 the number of people affected by hunger began to increase again and continues to rise. In 2020, the COVID-19 pandemic exacerbated the pre-existing food crisis. Up to 811 million people were suffering from hunger in 2020, as many as 161 million more people than in 2019 (Food and Agriculture Organization et al. 2021). Alongside hunger, all forms of malnutrition, including undernutrition, micronutrient deficiencies, overweight, and obesity were a persistent and growing challenge even before the COVID-19 pandemic (High Level Panel of Experts 2020).

The highly likely pandemic-related increase in malnutrition (United Nations Standing Committee 2020) is associated with the consequent economic crisis that is depleting the financial resources of many. The absence of coordination and direction across government sectors over containment measures to counter the rapid spread of the coronavirus and the near collapse of already enfeebled public health systems reflected the lack of awareness of ground and people's realities, particularly those of small-scale food producers, local vendors, workers, and the landless (Civil Society and Indigenous 2020). Local and rural market activities were restrained or even forbidden to operate in multiple countries, despite them being the main means of subsistence for many food producers and one of the most important ways that households access healthy and seasonal produce (Civil Society and Indigenous 2020). Instead, distribution channels controlled by powerful corporations and selling “convenient and safe” ultra-processed edibles² were kept working (La Vía Campesina 2020), revealing how corporate profit was prioritized over the work, well-being, and dignity of millions, aggravating already existing inequalities within and across countries. Border closures and other COVID-19 containment measures harshly affected agricultural workers' income and livelihoods, while the inadequacy of many food workers' living and working conditions were exposed, especially those of individuals working in industrial meat production (FIAN International 2020). For many regions of the world this was particularly the case of migrant workers, either temporary or permanent.³ Moreover, gender inequalities and inequities intensified through increased burden of care work, loss of employment, reduction of economic opportunities disproportionately affecting women, reduction in women's reproductive and health services, and increased gender-based violence due to the confinement measures and economic closures in the pandemic's context (Duncan and Claeys 2020) (see Chapter A2).

These facts are only part of a broader picture that shows how the pandemic exacerbated the already imminent food crisis, and clearly exposes the pandemic and its responses' deep linkages with agro-industrial and globalized food systems. These intersections can even be traced back to the very origin of the COVID-19 pandemic, indicating that they are all part of the same “syndemic,” where the usual determinants of an epidemic mesh with unconventional determinants related to poverty, in turn related to economic systems and social inequality, all converging to create a major social crisis (Salcedo Fidalgo 2020a).

Although there have been frequent calls for a transformation of food systems at the global level, these are often ignored or, at best, fall into simplistic and siloed answers far from the holistic food systems approach needed. A holistic transformation requires coordination among different policy domains and must tackle structural drivers such as power asymmetries. This is particularly relevant for today's dominant food system which prioritizes corporate profits over people's needs and in which food is understood as an object for sale (a commodity) to extract private gain. In this agro-industrial system access to healthy and sustainably produced food depends on purchasing power. A holistic transformation of this system requires food to be considered as an essential resource that requires management, with a social mandate to guarantee the right to adequate food for all not as a commodity, but as a commons (Vivero-Pol et al. 2018).⁴

Likewise, healthy, just, and sustainable food systems should be based on the recognition and fulfillment of the human right to adequate food and nutrition and all other interrelated, indivisible, and interdependent human rights. They should foster sovereignty, preserve the environment and traditional knowledge, protect and increase biodiversity, and strengthen sustainable smallholder food production. Food systems based on agroecology as a science, movement, and practice have proven to best align with these objectives. Agroecology draws on social, economic, political, and biological/ecological dimensions and integrates these with ancestral and customary knowledge and practices of peasants, small-scale food producers, and Indigenous peoples. Anchored in food sovereignty, it fully grasps diets as a matter of public interest and, therefore, is able to address the interconnections between food, health, societies, culture, and the environment in an equitable way, and is increasingly recognized for its promising results in responding to challenges such as climate change, soil erosion, water scarcity, and loss of biodiversity. It is, moreover, highlighted as a distinct approach to truly transform food systems, rather than a tweaking of the practices of unsustainable agricultural systems (Food and Agriculture Organization 2018).

This chapter explores past and current failures of the agro-industrialized model of the dominant food system. It reveals how such a model hinders our understanding of food systems' multiple dimensions and connectedness, and how it leads to the marginalization and food insecurity of millions of people and the destruction of the global ecosystem. The chapter also identifies some of the diverse structural reforms needed by food systems to reclaim their full potential to provide for the interconnected food and health needs of people; those which are consistent with principles of social justice and human rights while respecting and protecting the natural ecosystems on which all life depends.

The current food system and health: what is at stake?

1. A system that pollutes and fails to feed

The COVID-19 pandemic and related governmental measures have reinforced imaginaries and narratives that portray distribution on a big scale as "safe" channels for access to food, while reducing and limiting the channels

that actually provide people with nutritious, healthy, and adequate food and generate economies that support the territories. “Territories” are understood as a set that includes both material territories – ecosystems, water, soil, land, seeds, or biodiversity – and “immaterial territories” – knowledge, care, ties, or cultures (Rosset and Martinez Torres 2016). In such a view, nutritious food is replaced with mere edibles that substantially reduce the nutritional value and directly relate to production and distribution models that deplete the planet’s natural resources and biodiversity.

Production systems and dynamics have suffered a standardization process since the rise of the industrial era. This has led to an exponential increase of agricultural practices that prioritize uniformity, intensiveness, and extension that often challenge planetary boundaries. These systems and dynamics are the ones that shape the corporatized agro-industrial production model based on an artificialization of land and specialization in monocultures to supply the large, and in many cases transnational, food distribution chains.

This production model requires numerous external inputs, often locking producers in vicious circles of dependency without any improvement of their livelihoods. Moreover, it invades, destroys, and replaces production models that require far fewer resources and that respect, protect, and ensure the well-being of people. According to the ETC Group, which monitors the impact of emerging technologies and corporate strategies on biodiversity, agriculture, and human rights, the agro-industrial model provides food to less than 30% of the world’s people while using at least 75% of the world’s agricultural resources (ETC Group 2017). The majority of the world’s population relies on food produced by peasants and small-scale food producers – most of it “organic” – requiring less (often much less) than 25% of available agricultural resources – including land, water, and fossil fuels.

The production model of today’s dominant food system has highly negative impacts on the environment and is one of the main contributors to climate change. In 2017, agriculture represented 20% of the world’s CO₂ emissions of all human activities (Food and Agriculture Organization 2020). Under the agro-industrial model, agriculture and livestock farming, both supposedly energy producers, become energy deficit activities. While a diversified agroecological activity invests ten calories to produce one calorie, an agro-industrial model requires up to 40 calories to produce the same quantity (Porcuna and González 2001). Much of the energy in question comes from fossil fuels and generally produces crops with a low nutritional value due to being grown on poor quality soils that require significant quantities of chemical fertilizers. Studies show that as the use of chemical fertilizers increases, the proportion of water in the food also increases, thus decreasing the concentration of nutrients (Raigón 2020). This phenomenon is aggravated when food is harvested before its optimum ripening point, a necessary practice to distribute the products thousands of kilometers away from the actual harvesting location that is routinely used in today’s global food chains.

The past 60 years have also seen a 70% loss of biodiversity (ETC Group 2017). While peasants have cultivated 2.1 million varieties of plants from more than 7,000 species of domesticated plants in the world, the agro-industrial chain relies on 137 crop species and receives 45% of private investment in research and development for only a single crop, namely maize (ETC Group 2017).

Similarly, in the case of livestock farming, while the peasantry breeds and reproduces more than 8,000 breeds, of which 774 are rare, the agro-industrial chain works with fewer than 100 commercial breeds of only 5 species (ETC Group 2017). In the case of industrial livestock farming large groups of animals are enclosed and packed into reduced spaces, leading to a threefold effect. First, high animal waste production is a consequence of industrialized livestock and is often disposed of in far greater amounts than land can absorb (Kraham 2017). Second, as no such equivalent grazing land exists for such high livestock densities, there is an increased demand for feed crops, such as high energy grains or transgenic soy for concentrate feed, requiring an intensification of the agricultural land which often involves large processes of deforestation, resulting in high environmental costs (Kraham 2017). In the case of beef, pastoral approaches and grass-fed animals result in meat with higher nutritional value than “feed-lot” produced beef (Daley et al. 2010). Third, an increasing concern is with the rise of antimicrobial resistance (AMR), partly due to the use of antibiotics for livestock growth promotion (due to suboptimum growth caused by unsanitary conditions) and routine antibiotic use for prevention or treatment of disease outbreaks. This has led to a rise in the spread of resistant bacteria not only through food derived directly from intensive livestock but also through soil, water, and crops due to their irrigation with contaminated water (Laxminarayan et al. 2013).

For years, social movements have been warning about the serious consequences of overexploitation of the land and oceans, deforestation, and mega-urbanization, and how this whole “assault” on biodiversity would come at a cost. In 2020 we saw one of these costs in the form of the COVID-19 syndemic, the emergence of which has been linked to zoonotic processes (animal-human interactions) directly related to biodiversity loss (Salcedo Fidalgo 2020a).

2. Deterioration of people's health

The agro-industrial production model affects people's health unequally: peasants and agricultural workers are directly exposed to agrochemicals in the production process and their families, who often live near these production sites, also pay the price of exposure. Ultimately, agrochemical residues end up affecting consumers' health.

As already mentioned, agricultural and livestock products derived from this model have lesser nutritional values at source than those obtained from agroecological production practices. Moreover, food processing and ultra-processing to supply longer chains and/or to create “fast food” products all contribute to the reduction of nutrients, while increasing the content of sugar and other additives

along the “chain” until the food arrives on people’s plates (see Chapter C3). In Europe, for instance, unhealthy diets are associated with risks that are three times higher than the risks associated with the second highest public health threat, namely tobacco consumption. In other words, for every day of good health lost to tobacco consumption, unhealthy eating creates a loss of three days (VSF *Justicia Alimentaria Global* 2015).

Notwithstanding, the food industry tries to primp itself by using adjectives like “natural” and “super-food” to describe edibles, manipulating the collective imagination. Actual healthy and nutritious food becomes something exceptional, with the cheapest and most accessible products being the least healthy. This situation locks persons with fewer resources and lower purchasing power into loops of malnutrition and poor health, increasing the rates of hunger, diabetes, and obesity among these populations (*ibid.*). In countries without public health systems, this translates into additional individual costs, as people need to cover high expenditures on medical care, thus suffering an even greater loss of income. Their health deterioration leads to further problems such as poor access to employment, adding to their already inadequate level of income and further impacting their access to adequate food and the health resources they may need (Álvarez et al. 2020).

In cases where people lack the minimum resources to obtain food, access is often provided by food assistance programs whose supplies are sourced from the surplus of large agro-industrial production units. Such assistance usually lacks fresh produce. This reality is not limited to just regions in the Global South, as the polarizations between the “North” and “South” are entrenched within every country and city today.

Throughout the entire food system, the agro-industrial model is particularly damaging for women. Women participating in production as peasants or agricultural workers in many cases are the main harvesting laborers and are exposed to crops highly contaminated by chemicals which weaken their health. Due to the unequal sexual division of labor within households, women as consumers are also usually responsible for food-related tasks. They are constrained to double working hours with no space or time for self-care (see Chapter A2). The food chain model has not questioned these patriarchal dynamics but rather has reinforced the status quo, interiorizing it only to make ever greater profit by massively marketing and selling labor-saving and timesaving “options” targeted uniquely at women. These so-called “solutions” include such things as ultra-processed, pre-prepared meals that claim to reduce household food preparation and time (for women). Beyond the negative impacts of these ultra-processed “edibles” on health, they more deeply immure women within the sexual division of labor by emphasizing their domestic roles rather than their social rights.

Moreover, the different stages of women’s lives fall into medicalized “solutions” and become the source of niche markets for the food industry. Throughout the lifecycle, from breastfeeding to childhood to menopause, products are specifically



Image C5.1 Imagining a nutritious meal is the only way out for some.

Source: Sketch by Kriti Shukla for *Global Health Watch 6*.

aimed at women. Women, particularly young ones, are also the focus of campaigns promoting unrealistic body images, often leading to multiple eating disorders (Álvarez Vispo 2018). While women in some parts of the world die of hunger or malnutrition because of their lack of access to food, in others they starve themselves to respond to dominant systemic gendered parameters.

Box C5.1: Women in the COVID-19 crisis

The COVID-19 pandemic crisis is exacerbating inequities within our globalizing and neoliberal capitalist system while uncovering weaknesses in our present food systems. The result is the increasing erosion of our material territories, natural assets, biodiversity, and the bonds and relationships that comprise our immaterial territory, namely the community. Today, unrecognized and unpaid care work is what sustains lives. It is carried out predominantly by women through the unjust sexual division of labor.

Despite women being the ones who feed the world, they are invisible within the food system both as food producers and in their (unequal) role as caregivers responsible for food-related tasks in the household. The current crisis has highlighted the importance of care work but paradoxically multiplied the tasks of many women. In return, confinement measures across

countries have deprived many women of their ability to make a living, due to the limitations either of the informal economy or of peasant markets. Moreover, people were often required to possess a title deed of land to be able to go to the countryside during the pandemic, including to tend to allotments for personal consumption; most women lack such title deeds. In other cases, the restrictions to movements of migrant laborers led to them being replaced by rural women workers in the fields to guarantee the harvest of crops. Yet women hardly appear in major analyses of COVID-19 impacts, or in the reporting of the consequences of this crisis regarding food systems. They continue to remain invisible to many, even though they are the ones who have once again provided the essential care work that sustains lives. In such a context, women are not inactive; they organize mutual support and mobilization networks to fight against the inequalities that this corporate agro-industrial model imposes on them.

How did our food system break?

1. *The history of a production model*

Today's global environmental, health, and food-related crises had their origins in the vision promoted by the Green Revolution for increased agricultural and livestock production. After both World Wars, practices and systems were re-oriented and promoted to build a model that would "improve" food, gradually shifting from the needs of the land to an artificialization of the territory and high levels of energy consumption. These were rapidly expanded as, back then, petroleum seemed to be available in abundance and planetary limits were not a consideration.

This model was inspired by the Fordist vision and applied to the food systems it had co-opted or "engineered," resulting in agro-industrial food systems that would claim to produce large quantities of food at low prices to feed the world. Doing so, however, would leave control of these systems to international markets and their powerful intermediaries with little regard for prioritizing people and their right to adequate food.

Driven by a firm belief that unregulated markets would efficiently allocate economic resources in a way that maximizes overall well-being, and in order to receive support from international institutions such as World Bank and the International Monetary Fund, governments had to implement a package of neoliberal economic policies (Sonkin 2020). As earlier editions of *Global Health Watch* (GHW) have noted (e.g., *GHW4*, Chapter A1), these "structural adjustment" reforms included fiscal consolidation (austerity), reduction of cross-border capital controls, trade liberalization, elimination of agricultural subsidies, privatization of public services such as water supply or agricultural inputs/infrastructure

provision, and other measures such as allowing foreign investors' ownership of natural resources. A new push for austerity and privatization of previously public services gained even more strength following the 2008 global financial crisis (see Chapter C1).

Over these neoliberalizing decades, food was increasingly reduced to a mere commodity linked to other financial products, and the territory and plant genetic resources fragmented into assets that could be privatized. Natural assets have become tradeable commodities and subjected to speculation, while peasants were progressively forced to leave their territories. This forced the migration of small-scale food producers to urban areas where development projects were the key focus. Thus, the industrialization of food production became linked to the mega-urbanization process and changed models of consumption. These models were shaped by the decoupling of food and nutrition from food production, contributing equally to the medicalization of nutrition to the point where certain sectors understood nutrition as something merely prescriptive and, in a mechanistic way, as the simple sum of different nutrients.

Market-led reforms included policy changes that opened new markets for genetically modified seeds, facilitating the approval of chemical pesticides and fertilizers, and changing countries' land tenure arrangements to enable buying or leasing by international investors to "enhance productivity of land use" (Sonkin 2020). This implied food production trending towards high specialization and monocultures and against practices that would work in harmony with ecosystems. This increased the need for chemical inputs for production, that forced producers who transitioned to this model to become more and more dependent on external input providers, increasing their indebtedness (The Oakland Institute 2017). The parallel replacement of farmers' seeds with a few uniform industrial varieties led to the rapid erosion of global seed diversity (The Oakland Institute 2017), contributing to the previously mentioned 70% loss of biodiversity that has taken place over the last 60 years (ETC Group 2017).

This "financialization of food and agriculture" – or, in other words, the increasing role played by financial actors (from private equity and pension funds to commercial banks) and markets within food systems (Sonkin 2020) – resulted in a model that is mainly accessible to large corporations. The high amounts of resources and inputs required for the model to expand, in both quantity of land and money, mean that small-scale producers are not able to access this type of production, even if they wanted to do so.

2. Public policies

The agro-industrial model can only be sustained with the support of and promotion by public policies at different levels, from local to global. It is almost a century since the world began establishing the pillars for human rights intended to serve as rules of the game to protect and guarantee the rights of all people. Today, however, we are fully immersed in a neoliberal model of globalization

with a more unequal and hungrier world than ever. Public policies have played a central role throughout, simultaneously promoting human rights while enabling a form of economic globalization that deepens inequalities and thus severely hinders human rights protection (FIAN International 2009).

The privatization of natural assets has been accompanied by policies that support the supply of international markets controlled by large and highly polluting corporations. Today, the globalized and corporate agro-industrial model not only prevails in politics and has transformed social narratives, portraying itself as the only possible option, but its interests are the driving force behind public policy making.

One of the factors abetting the expansion of this model are trade agreements, which are aimed at increasing international commerce and ignore or marginalize people's human rights concerns. Specifically, the Agreement on Agriculture (AoA), which came into force as part of the World Trade Organization (WTO) in 1995, has been a barrier to fully realizing the right to food because it focuses only on creating a fair and market-based agricultural trading system without prioritizing non-trade concerns such as food security or the environment. Trade liberalization and domestic policies in the wealthiest countries increased the market power of transnational commodity traders and processors, and thus contributed to the consolidation of corporate power by ignoring the dominant role that a handful of large companies play at all levels of the food system (Fakhri 2020). Tight restrictions for agricultural subsidies within so-called developing countries that are party to the WTO AoA, and the subsequent WTO-mandated trade liberalization, caused agriculture in these countries to become "non-competitive" (Bello 2007), which had (and continues to have) a devastating impact on many countries' local economies. Competitive pressures induced by trade liberalization led to the expansion of commercial plantations at the expense of smallholders (Bello 2007), not only wrecking the livelihoods of the peasant communities but also advancing a model of "development" that makes the practices that do sustain those livelihoods invisible (see Chapter C4), reducing them at best to museum objects or elements of folklore.

The extent to which agro-industrial food corporations have grown in size and power in recent decades pushed governments to invite them to the table of policy making, often through so-called multistakeholder platforms and/or public-private partnerships, to develop solutions to the problems they are largely responsible for, while granting corporations more and more influence over government policies and practices. This growing governance tendency is inconsistent with human rights frameworks, as governments fail to clarify roles of the different parties. These governance spaces often lack effective policies to protect against conflicts of interest and power imbalances and disregard those most affected by hunger and malnutrition, who are the real rights holders, often seeing them as people in need of protection but without the knowledge or evidence of workable food systems, thus legitimizing a paternalistic approach. Even when these

spaces have, in their perspective, condescended to accept the participation of civil society in decision-making processes, the manner in which this is done is too often merely choreographic or it consists only of consultation without the possibility of genuinely influencing decision-making processes.

The COVID-19 pandemic is aggravating and polarizing this reality even further. The few existing participatory spaces for public policy building have been reduced to purely virtual modalities. Policy making and consultation through digital means is portrayed and even promoted as inclusive governance, when in fact these governance modalities limit access for people from many communities and key sectors that lack the necessary technologies.

3. A crisis with multiple dimensions

The processes described above have resulted in a crisis that manifests in many ways. The struggle for access to resources required for minimum survival is deeply contributing to multiple conflicts, many of which subsequently turn into chronic and prolonged crises. The current climatic and environmental context further aggravates the situation, as it contributes both to the displacement of peasant populations and to corporate attempts to increasingly hoard resources related to food production for the purpose of large-scale land investments by new financial actors and speculation over food commodities (Sonkin 2020). In this sense, crises such as the current health emergency become opportunities for large corporations, as they expand the playing field for implementing measures in emergency situations that, far from providing solutions, worsen the very causes of the problem.

Box C5.2: False solutions to ending hunger and malnutrition and achieving sustainable food systems

Big food corporations have managed to design “solutions” for hunger and malnutrition that will only protect their interests. One of these “solutions” is reformulated and fortified food: the industry fortifies food that is already unhealthy and, through marketing, makes it appear healthy, all in the effort to keep food systems centered around the promotion of ultra-processed foods. Evidence demonstrates that such foods contribute to diet-related diseases (VSF Justicia Alimentaria Global 2015). Furthermore, by disassociating hunger and malnutrition from poverty and inequality, consumers are blamed for their bad choices, a strategy allowing corporations to deflect attention away from their responsibility of promoting unhealthy food. Additionally, food aid based on fortified food – which can be an appropriate short-term solution to treat severe micronutrient deficiencies – has become a core strategy used by many states to address hunger and malnutrition,

thus creating further dependence on corporate diets instead of local and diverse diets.

Likewise, agri-food companies offer “green solutions” to agriculture – often based on digital technologies – which ultimately profit them and do not allow a systemic and structural transformation towards sustainable and just food systems. Precision agriculture is one of these digital solutions on offer, which allows farmers to optimize their costs by tailoring input applications (High Level Panel of Experts 2019). While this can contribute to more sustainable practices, precision agriculture is essentially promoted and controlled by large agricultural inputs companies and is focused on increased yield rather than an interest in the fundamental shifts required to phase out fertilizers and pesticides (IPES-Food 2016; Carolan 2017). Digital technologies are also contested because of unequal access for all food system actors, creating food producers’ dependence on the owners of those technologies, something that is often associated with debt (High Level Panel of Experts 2019).

Today, many states’ narratives and proposals go hand in hand with this digitalization of food, a term that refers to the increasingly automated, delocalized, and computerized process of food production and commercialization. As researchers have commented, “... while this process might have been initiated by scientists genuinely concerned with safeguarding biodiversity by creating virtual genetic material which might be transplanted to future territories, it has now been captured by global corporations aiming to patent nature and acquire control of the production process by controlling the market in agricultural inputs” (Prato et al. 2018).

The use of big data is not only limited to on-farm input management but also entails the collection of data sets from consumers. This can be used to influence consumer choices in line with the interests of food industry companies (Carolan 2018). In this sense, digital technologies raise key questions on governance, access, and rights to information, as large companies are the ones who mainly own the platforms and equipment to control the data (Carolan 2017; 2018, Higgins et al. 2017) (see Chapter B2).

The urgent need to transform food systems: how can we build a resilient food system?

1. Agroecology as the answer

The current environmental and social crises in which we find ourselves did not evolve naturally but are the consequences of an economic model that, when transferred to food systems, results in hunger and malnutrition, separating food from the needs of people and the planet. Agroecology exists as a genuine alternative model.

The agroecological model is based on common fundamental pillars (Nyeleni Center 2015) that reach well beyond a simple technological approach. Agroecology is a science, a set of practices, and a social movement aimed at producing healthy and nutritious food while responding to people's needs by respecting and protecting both material and immaterial territories. It is closely linked to food sovereignty and has proven itself to be a resilient model, as its practices promote biodiversity and therefore greater adaptation to climate change. According to the Food and Agriculture Organization's "10 Elements of Agroecology" (2018), a key element is that of social and economic change as represented in the principles of social solidarity economy. Furthermore, in reducing reliance on external resources, it empowers producers by increasing their autonomy and resilience to natural or economic shocks (Food and Agriculture Organization 2018). Agroecology is based on the prioritization of local contexts and realities in social, cultural, economic, and environmental dimensions, and seeks to offer food systems that enable communities to be autonomous. This ultimately leads to independence from external inputs for production by adopting a circular approach that takes advantage of the symbiotic relationships between the different animal and vegetal species and their metabolisms in food production. This preserves or even increases biodiversity even as it converts the soil into a carbon sink, thereby contributing to cooling the planet. Thus, the agroecological model incorporates a broad view that reaches beyond the techniques or management of soils. It considers the ecosystem as a whole, analyzing both land management and socioeconomic models and the political decision-making capacity of people within the food system. In other words, it works to preserve and sustain the territory.

Although the current economic paradigm is clearly not built on these principles, during the COVID-19 pandemic many practices and models of mutual support and solidarity emerged or were strengthened at the territorial level that were based on solidarity economy. This holds even more validation for their continuation and expansion in the post-pandemic period as global attention returns to climate change.

The agroecological model offers a holistic and integrated view that responds to the complexities of the food system and results in healthy and sustainable diets. In this model, small-scale food production is given a leading role alongside the ancestral knowledge that has fed populations for centuries, generating "knowledge dialogues" (*diálogo de saberes*) that lead to innovations adapted to the needs and health of both the territory and the people. Under this holistic view, a feminist approach is emerging which increasingly incorporates and emphasizes the role of women. This approach equally regards the inequalities faced by women as a pending, essential task, since no model based on inequality will result in an equitable impact (Civil Society and Indigenous 2019).

2. Alternative models, other forms of governance

COVID-19 has provoked a renewed examination of today's food systems, including local food system alternatives that have proven that they work better

Box C5.3: Agroecology and sustainable development programs in the dry land of Chile. Case study of the Pajal Community

In this case study, Mrs. Rosa Cueva's work around her house on a 600 square meter piece of land using an agroecological approach with high diversity was compared with another production site, that of her husband, Mr. Miguel Romero, who farmed a 4.5 hectare (ha) hilled area, growing lentils, wheat, and pasture using conventional practices. Both systems were closely monitored for one year and the results compared, both in terms of yield (in kilograms of available feed) and income.

This comparison showed that the 4.5 ha hilly system was highly degraded and its productivity was much lower than that of the diversified system. Also, the average production cost was higher and the number of calories obtained was much lower. This was in part due to the large harvest having to be shared with the landowner and part of it not being destined for local food distribution and consumption but, rather, for other markets.

As a consequence of this study, Mr. Romero soon joined his wife's work, and both decided to form a micro-company of organic horticultural products. The transformation was impressive. What originally was an average, not very functional area with stationary diversity and depleted soils was transformed into a very high agro-diversity area, managed by a majority of women, that realized a better income for the surrounding families. The transformation began in the small organic gardens, and gradually spread throughout the community, implementing a proposal with a strong emphasis on food production and recovery of natural resources. In this way, crops would be adapted and diversified, even taking advantage of soils that were not useful for commercial varieties but suitable for more rustic crops. This, in turn, would regenerate soil and biodiversity.

In this way, not only was there a more diverse ecosystem, but also an economy was developed based on the integration of women's knowledge and skills. The agroecological system ultimately proved to be more autonomous and resilient and, over time, this system has become a learning space for other communities (Infante 2013).

Box C5.4: Agroecology and COVID-19

The COVID-19 pandemic led to public policies prioritizing large distribution chains, even presenting them as "safe spaces," while open-air farmers' markets were being closed. These and further measures, such as the closure of schools that often represent the spaces where children from low-income

contexts receive their daily meals, increased hunger rates in many cities. Meanwhile, organized local groups that consume through collective initiatives such as cooperative markets or Community Supported Agriculture (CSA), which is based on a mutual collaboration between producers and consumers, have seen their demands increase. This shows that agroecology and solidarity movements are able to respond to people's real needs in many places, even during acute crises.

In the same way, while large production was affected by global markets grinding to a halt or the impossibility of harvesting their monoculture, agroecological production, despite the limitations imposed for some of their marketing channels, has been able to adapt to the circumstances of the crisis. Moreover, consumers in many places increased their demand for products coming from agroecological chains and solidarity-based agriculture, while different actors called for the availability of healthy, quality food for all. This clearly demonstrated the rise of a wider claim for a right to food perspective within food systems (Urgenci 2021).

The fact that agroecological movements are collectively organized has facilitated their adaptation to the new situation and even their articulation with other local movements, by sharing work and logistics. In many places, this situation has succeeded in reinstating spaces and relationships that had weakened over time. It has also resulted in developing support for local production and markets. In return, producers have been able to adapt to mobility restrictions that had to be followed by many consumers through collectivizing tasks with others.

than the dominant one, even in times of crises. The lessons so far learned must now be incorporated into the construction of agroecological transitions that move away from the agro-industrial model. Such a transition requires other forms of governance. If the agro-industrial system has been supported by public policies over the past 70 years, transformation of the food system must necessarily involve the redirecting of both the modalities and content of such policies. Inclusive spaces based on human rights that clearly distinguish duty bearers and rights-holders are needed to enable the fundamental dialogues between states and civil society.

The UN Committee on World Food Security (CFS) is a multilateral space and includes the Civil Society and Indigenous Peoples Mechanism (CSM) as one of the main participants. The CSM has proven to be a space that can incorporate the voices of the different groups or constituencies that are key agents of agroecological food systems. After the food and financial crises in 2009, the CFS underwent a reform that was guided by the following principles: inclusiveness, strong linkages to the field to ensure the process was based on the

reality on the ground, and flexibility in implementation. It still stands by the vision of being the most inclusive international and intergovernmental platform to eliminate hunger and ensure food security and nutrition for all human beings (CFS 2009). Although this was a major achievement for social movements, the CFS principles must be further reflected upon with the aim to preserve the public common good over the multiple interests that may converge.

If food systems governance is to be anchored in a human rights-based approach, those groups most affected by hunger and malnutrition (“rights holders”) must be able to participate meaningfully in the determination of public priorities and the development of strategies, policies, legislation, and other measures that affect food systems. Democratic, inclusive, and participatory processes and institutions must be supported (High Level Panel of Experts 2020). These should recognize, respect, and support the self-organization and autonomy of movements and collectives as key contributors to food systems policy making (for an example of how this might be done, see Box C5.6).

The immense power imbalances within society and, more specifically, within food systems (e.g., between groups affected by malnutrition and large agri-food corporations) must be recognized. Consequently, it is crucial that states adopt policy frameworks that recognize such power imbalances and clearly distinguish and ensure appropriate roles for different actors in public policy making and program implementation.

A key element in this approach is the adoption of robust safeguards to protect against conflicts of interest resulting from inappropriate relationships with and influence of the corporate sector, and that uphold the public interest and human rights orientation of public policy. Likewise, a crucial condition for a democratic and human rights-based governance is accountability. States must ensure transparency in their actions and establish clear frameworks and mechanisms whereby they can be held accountable for decisions and actions taken in relation to food systems. At the same time, they should establish clear regulations and accountability frameworks for holding private actors, including corporations, accountable for actions that undermine human rights (see Chapter D5).

Box C5.5: Construction of the CSM's vision document on Food Systems and Nutrition

A good example of an autonomous, self-organized, and participatory process for paving the way to transform food systems is the construction of the vision document (Civil Society and Indigenous 2021) by the Working Group on Food Systems and Nutrition of the Civil Society and Indigenous Peoples Mechanism (CSM) for relations with the UN Committee on Food

Security (CFS). When the CFS embarked on the process of elaborating the Voluntary Guidelines on Food Systems and Nutrition in 2018, the CSM Working Group started a parallel process of building its own vision document for Guidelines to transform food systems.

Its construction has since evolved, and it remains open as a living document. The organizations and movements of the people most affected by food insecurity and malnutrition are prioritized, recognizing that they are the organizations of the rights-holders that are the subjects of their own development. Furthermore, they are the most important contributors to food security and nutrition worldwide and must therefore remain at the center of developing such guidance.

The process started with a Working Group meeting with all 11 of the CSM constituencies,⁵ followed by a public briefing in Rome. Different popular struggles for food security and sovereignty were discussed, with requests for their representation in the document to ensure that all concerns were adequately addressed. This dialogical process was strengthened through the CFS regional consultations in 2019 whose objective was to receive important inputs from the different regional and local realities.

The result entails the multiplicity of public objectives that food systems serve within all domains, from livelihoods to health, socio-cultural, and ecological ones. The vision document's structure aims to address this systemic perspective by offering a definition of healthy and sustainable diets and proposing a set of guiding principles that should be observed to reshape food systems in order to make them healthy, sustainable, and just. The document then provides a series of policy interventions in five key domains of food systems: governance; protection and regeneration of nature; health and well-being; modes of food production, exchange, and employment; and culture, social relations, and knowledge. Finally, it indicates a series of connected systems and policy domains in which structural changes and transformation are necessary to ensure policy coherence.

For more information visit: <http://www.csm4cfs.org/>.

The way forward

The analysis with which this chapter began argued how, if changes do not occur, the future will be increasingly difficult and inequitable, particularly when considering the impact of the COVID-19 pandemic. Paradoxically, we already possess enough tools and answers to generate a resilient and just food system that can feed and nourish both the planet and people. The transformation from our dominant but unsustainable agro-industrial model to an agroecological model can succeed, but only if alliances are cultivated and networks that incorporate

its vision and principles are generated. Health, ecosystems, and food must be regarded as interconnected commons, not as commodities for financial profit; and public policies must be based on a human rights framework, clearly differentiating needs and rights from mere private interests.

Box C5.6: Building networks for food sovereignty: the University Chairs Network in Argentina and Paraguay

The Network of Independent University Chairs in Food Sovereignty and Related Collectives (known as Calisas Network) links 50 entities in Argentina and Paraguay into one network that promotes public discourse on the agribusiness model imposed on the Southern Cone of Latin America. Calisas connects networks for the collective construction of food sovereignty.⁶

Origins and foundation

The possibility of creating Independent Chairs to promote areas of culture and knowledge, which do not have specific places in the curriculum of university careers otherwise, originates with Argentina's University Reform of 1918.

Inspired by the principles of the Reform and after the World Food Summit of 1996, in which Via Campesina (the International Peasants' Movement) introduced for the first time the Food Sovereignty Paradigm, the first Independent Chair on Food Sovereignty was created in 2003 under the Universidad Nacional de La Plata (National University of La Plata), to which all other entities would eventually be added.

Constantly growing, the Calisas Network today consists of:

- a. Independent Chairs on Food Sovereignty found in national public universities which have been approved by the boards of directors or university superiors;
- b. University Chairs that are not specifically geared towards food sovereignty but that address the Food Sovereignty Paradigm as their main objective;
- c. Collectives, associations, and organizations that seek to establish themselves as Independent Chairs within national universities, and
- d. Social organizations that develop workspaces and/or discussions on food sovereignty, though these are not always within universities.

There is great diversity and heterogeneity between the entities within the Calisas Network, derived from the different academic units of the universities and the social sectors involved. The decision on a university chair structure by many of the entities within the Network is not arbitrary, since the title

guarantees the greatest freedom of decisions and criteria, doctrines, and philosophical orientations, while it also serves as the adequate framework to develop teaching, research, outreach, and liaison activities with different scientific, technical, and cultural institutions of all educational levels.

Common traits

Although the entities of the Calisas Network are autonomous and freely define their own approaches, they all generally share the following features:

1. They question the agribusiness model, hypermarketism, as the dominant form of food distribution, and the circulation of food as mere commodities in a capitalist economy.
2. They promote food sovereignty as an antithetical paradigm that opposes and surpasses the agribusiness model.
3. They are part of and/or associated with social movements, peasants, and native peoples, with family, peasant, and Indigenous agriculture, and with the social and popular economy;
4. Regardless of their proposals, the entities are not intended exclusively for university students and are open to the community as a whole, and they promote an exchange of knowledge with the community.
5. They develop teaching, research, and outreach activities such as fairs, workshops, local work opportunities in neighborhoods, Participatory Guarantee Systems (local forms of guaranteeing organic production), agroecological food production, and community communications, among other things.
6. They are composed of interdisciplinary and transdisciplinary teams.
7. They are composed of graduates, students, and professors who are all of the same standing, promoting a horizontal and assembly-based internal structure.
8. They may or may not be embedded in the university curriculum.
9. In most cases, they lack specific funding, relying on volunteer work and their members' commitment to the cause.
10. They seek to influence public policies and, in this regard, they are increasingly becoming reference and consultation actors in the discussion of agri-food public policies in the country.

Permanent exchange, pronouncements, and Annual Assemblies

The entities that make up the Network are in constant communication and frequently issue public statements and/or collectively draw up advocacy strategies on current issues. Once a year, the Calisas Network holds its Annual Assembly in one of the different regions where it is present, decided on a rotating basis. This meeting becomes a space for gathering,

discussion, and friendly exchange and a possibility for taking a stance as a Network on different topics.

The South: A Latin American Network of Independent Chairs on Food Sovereignty and Related Collectives

Although the Calisas Network was born in Argentina, beyond the spaces it permanently inhabits, it is planting the seed that is the Independent Chairs and Related Collectives in other countries of Latin America. Recently, the first Calisa of Paraguay joined the Network, thus opening the door to the future formation of a Latin American Network, an objective to which the different Network entities collectively aspire.

The Calisas Network's fundamental contribution lies in weaving and building networks in the regions where it is present for the collective construction of the food sovereignty of peoples.

For more information, visit: <http://redcalisas.org/>. Download the book about the Network's experience: http://www.biodiversidadla.org/Documentos/Argentina_-RED_CALISAS_Tejiendo_redes_para_la_Soberania_Alimentaria.

Notes

1 References to the agro-industrial model and/or food or value chains allude to the linear sequence of links running from production, including its inputs, to consumption outcomes. The different links involve crop and livestock genomics; pesticides, veterinary medicines, fertilizers, and farm machinery; transportation, storage, milling, processing, and packaging; wholesaling, retailing, and ultimately delivery to homes or restaurants. These different links cannot be understood as different from the market economy and are deeply connected to the financial and political system (ETC Group 2017).

2 We refer to "edibles" as the source of worldwide pseudo-food consumption. It is possible to distinguish edibles from real food by their degree of processing. Industrially processed edibles have high concentrations of critical nutrients such as glucose, trans fats and sodium, preservatives, colorings, sweeteners, and genetically modified organisms. Scientific evidence shows that obesity is directly linked to the consumption of highly processed edibles (Salcedo Fidalgo 2020a; 2020b).

3 For case studies, see for instance: <https://focusweb.org/publications/farm-workers-during-covid-biggest-casualty-of-neoliberal-food-systems/>.

4 Commons and public goods are often used as interchangeable terms, but in different domains. The notion of commons is not about the nature of a good but rather the way in which societies organize around it. Commons can therefore be understood as "self-regulated social arrangements to govern material and immaterial resources deemed essential for all" (Vivero-Pol et al. 2018, 8).

5 The CSM is composed by 11 constituencies, namely smallholder farmers, pastoralists, fisherfolks, Indigenous peoples, agricultural and food workers, landless, women, youth, consumers, urban food insecure, and non-governmental organizations (NGOs).

6 For more information on the Calisas Network, see <http://redcalisas.org/>. Download the book about the Network's experience at http://www.biodiversidadla.org/Documentos/Argentina_-RED_CALISAS_Tejiendo_redes_para_la_Soberania_Alimentaria.

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