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## **Regenerating Kurdish Ecologies through Food Sovereignty, Agroecology, and Economies of Care**

Michel P. Pimbert

People's initiative to promote ecological approaches to agriculture and the re-localization of decentralized food systems<sup>1</sup> are remarkable in war-torn Kurdistan. Efforts to generate Kurdish ecologies through agroecology, food sovereignty, and economies of care are uniquely based on traditions of social ecology, a rejection of patriarchal relations, and democratic confederalism.

### **A BRIEF HISTORY OF CHANGING AGRICULTURAL ECOLOGIES IN KURDISTAN**

Historical studies of agriculture in Syrian and Turkish Kurdistan have described highly sophisticated and locally adapted traditional land use practices. For several centuries, agriculture was based on a highly diverse combination of plants and animals, adapted to summer drought and a winter growing season. Four complementary strategies reduced risks: outfield cultivation of grains and legumes; a diversity of garden vegetables, condiments, medicinal plants, and herbs; orchard crops providing wine and fresh or dried fruits and, where possible, olive oil. Last, several options helped to integrate animal husbandry with agriculture as a source of manure and alternative proteins and fats. In Butzer's words:

The strong integration of horticulture and arboriculture distinguished this Mediterranean-Near Eastern agro-system . . . Characterized by a diversified yet distinctive cuisine, this lifeway balanced solutions to risk with equally deep-seated cultural values. (Butzer 1994, 19).

Animal husbandry has also been an important part of agrarian life. Kurdish shepherds settled in the area north of the ancient Fertile Crescent. This region witnessed the domestication of sheep about 8,000 years ago which then resulted in the selection of many locally adapted breeds by Kurdish shepherd communities. Thirty years ago, 97 percent of the sheep population in Turkish Kurdistan was composed of local breeds (Askin et al. 1989). Pastoralism in Kurdistan traditionally has two forms: village-based sedentary pastoralism and pastoralism with vertical or horizontal movements. The latter has many variations, including local transhumance as well as regional or interregional trips by nomadic or semi-nomadic Kurdish communities and tribes (Thevenin 2011).

Historically, Kurdistan has been a smallholder, food-producing region that covered the needs of its population. Wheat and barley production mostly took place in the Syrian Kurdistan region, while most of the vegetables were produced along rivers and areas where irrigation was available. Fruit and date orchards were well suited to Kurdistan's temperate hillsides and to more arid regions where irrigation water is available. Crop and tree farming as well as pastoralism have deeply influenced the ecological features and the biodiversity of landscapes. Over time, local food providers worked with nature to co-create myriads of humanized landscapes in Kurdistan and the wider region. Biodiversity-

rich forests, wetlands, and grasslands have coexisted with farming and pastoralism as part of a complex land use mosaic adaptively managed by local communities.

However, this ecological diversity and complexity was largely suppressed with the imposition of colonial resource extraction and industrial agriculture based on genetically uniform monocultures. As part of this historical shift, Syrian and Turkish Kurdistan have become major importers of food over the last decades.<sup>2</sup> Like the rest of the region, the capacity of Kurdish agriculture to feed its population and its role in the economy has been severely affected by poorly conceived “modernist” policies, colonial designs, violent conflict and war, and cheap imports of foodstuffs.

In the 1960s and 1970s, the Ba’ath regime began to create a centralist planned economy in which northeastern Syria became the nation’s breadbasket. The communal, traditional mode of farming was replaced by huge, industrialized wheat monocultures managed by state companies that relied heavily on chemical fertilizer and pesticides. After the 1990s, the Ba’ath regime introduced some neoliberal reforms in which foreign companies partly replaced the state-owned businesses. However, overall, the ecologically destructive mode of production remained the same. Modernizing agricultural and environmental policies also undermined nomadic or semi-nomadic practices in the region (Walliser 2011), forcing many pastoral communities to become sedentary.

Today, farms in northeastern Syria are ecologically damaged by the monoculture of wheat in the region of Cizîrê and of olives in the region of Afrîn. Cizîrê’s holly oak forests and its wetlands have been replaced by extensive wheat monocultures that have destroyed habitats for wildlife (such as gazelles, birds, fish, and the Caucasian squirrel). The expansion of the agricultural frontier for barley, cotton, grapes, and olive monocultures has also led to dramatic losses in the biodiversity of ancient forests, grasslands, and wetlands in Syrian Kurdistan. Deforestation and impoverishment of the soil are particularly severe in the region of Afrîn. There has also been a significant loss of biological diversity as locally adapted crop varieties and livestock breeds have been displaced by modern hybrids and genetically uniform varieties promoted by the Syrian government and seed corporations (FAO 2019).

The model of industrial and export-oriented agriculture embraced by Syria’s government is a form of capitalist accumulation based on the relentless dispossession of Kurdish communities and the wealth of ecosystems they depend on for their food, agriculture, and livelihoods. This extractive process is exacerbated by neighboring Turkey. For example, the aridity of the Kurdish environment and availability of water is increasingly made worse by Turkey’s extractive siphoning of underground water in Kurdish Syria and by holding back water in Turkish dams for crop irrigation and other purposes. These externally driven ecological dislocations in Syrian and Turkish Kurdistan are deeply undermining community and socio-ecological resilience to shocks and stresses, such as climate change and market volatility.

## **KURDISH PEOPLES’ RESPONSE TO DESTRUCTIVE INDUSTRIAL AGRICULTURE**

Over the last decade, many Kurdish communities have responded to the destruction caused by externally imposed industrial agriculture and capitalist extractivism by advancing alternatives grounded in the social ecology of Murray Bookchin and the democratic confederalism of Abdullah Öcalan. Reflecting on the ecological dimension of democratic confederalism, Bookchin said:

The views advanced by anarchists were deliberately called *social* ecology to emphasise that major ecological problems have their roots in social problems— problems that go back to the very beginnings of patricentric culture itself. The rise of capitalism, with a law of life based on competition, capital accumulation, and limitless growth, brought these problems—ecological and social—to an acute point; [. . .] Capitalist society, by recycling the organic world into an increasingly inanimate, inorganic assemblage of commodities, was destined to

simplify the biosphere, thereby cutting across the grain of natural evolution with its ages-long thrust towards differentiation and diversity.

Bookchin went on to argue that to reverse this trend:

Capitalism had to be replaced by an ecological society based on non-hierarchical relationships, decentralised communities, eco-technologies like solar power, organic agriculture, and humanly scaled industries—in short, by face-to-face democratic forms of settlement economically and structurally tailored to the ecosystems in which they were located. (1998, 154–55)

Bookchin's social ecology and libertarian municipalism, which inspired Öcalan's views on democratic confederalism (Öcalan 2011; 2017), is based on a model of anarchism in which autonomous communes federate at multiple scales. However, Bookchin has enriched this classical model of anarchism by emphasizing the central importance which ecology must have, because humankind has no future if we do not protect nature (Bookchin 2005). This was also the view of several social anarchists at the end of the nineteenth century in Europe. There are indeed similarities between Bookchin's vision of an ecological society, and the libertarian communist future which Peter Kropotkin described in *The Conquest of Bread* (Kropotkin 2015) and *Fields, Factories and Workshops* (Kropotkin 1898), including an agrarian-industrial mutualism in which most economic activities are re-localized in mixed agricultural/industrial villages and where production is controlled by those directly engaged in it.

Bookchin's proposals for a regenerative ecological agriculture and a network of local food systems are informed by his social ecology perspective (Bookchin 1976). His and Abdullah Öcalan's proposals for a self-governing communalist society also converge with the food sovereignty paradigm developed by *La Via Campesina* and other global social movements.

The term food sovereignty was first brought to international attention at the World Food Summit organized by the United Nation's Food and Agriculture Organization in 1996. It was put forward by La Vía Campesina,<sup>3</sup> an international movement which coordinates organizations of small and medium-sized producers, agricultural workers, rural women, and indigenous communities from Africa, Asia, America, and Europe.

Food sovereignty aims to recreate the realm of democracy and freedom by regenerating a diversity of autonomous food systems in both rural and urban areas (Pimbert 2008). It is thus grounded in the idea that farmers<sup>4</sup> and other citizens—men and women—can and should govern themselves by engaging in the practice of direct democracy. The Declaration of the 2007 Nyéléni Forum on Food Sovereignty affirms the centrality and primacy of “peoples”<sup>5</sup> in framing policies and practices for food, agriculture, environment, and human well-being:

Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations. It defends the interests and inclusion of the next generation. It offers a strategy to resist and dismantle the current corporate trade and food regime, and directions for food, farming, pastoral and fisheries systems determined by local producers. Food sovereignty prioritizes local and national economies and markets and empowers peasant and family farmer-driven agriculture, artisanal fishing, pastoralist-led grazing, and food production, distribution and consumption based on environmental, social and economic sustainability. Food sovereignty promotes transparent trade that guarantees just incomes to all peoples as well as the rights of consumers to control their food and nutrition. It ensures that the rights to use and manage lands, territories, waters, seeds, livestock and biodiversity are in the hands of those of us who produce food. Food sovereignty implies new social relations free of oppression and inequality between men and women, peoples, racial groups, social and economic classes and generations. (Nyéléni 2007)

Kurdish communities—but by no means all—have understood the need to regenerate the ecology and economy of local food systems within a food sovereignty framework rooted in libertarian municipalism and democratic confederalism. From July 2012 onward, the forces of the Ba’ath regime moved out of Rojava, the companies of the Syrian state were expropriated, and the councils took control of the agricultural land. The new Kurdish administration was based on newly created communes that mostly consisted of a village and the surrounding hamlets. These communes distributed the land among their families according to need and ability to manage it. Some pieces of land remained in the hands of the higher councils and were earmarked for the first cooperatives.

Early on, Kurdish people spoke of the need to diversify agriculture for the sake of self-sufficiency. Some communities also envisioned re-localizing food and agriculture to restore local ecologies, regenerate biodiversity, and reduce greenhouse gas emissions in Kurdish-liberated territories.

However, these are huge challenges for a war-torn society defending itself against Islamic fundamentalism and the state-sponsored violence of Turkey and Syria. In this profoundly disabling context, Kurdish initiatives for ecology in food and farming point to a direction of travel rather than to fully formed working alternatives based on food sovereignty and democratic confederalism. Three mutually reinforcing pathways for regenerating Kurdish ecologies are critically important in this regard, as discussed below.

## **AGROECOLOGY FOR FOOD SOVEREIGNTY**

From its initial emphasis on ecology for the design of sustainable agriculture, agroecology now emphasizes the study of the ecology of food systems (Gliessman 2015). A transformative agroecology for food sovereignty seeks to reduce dependence on corporate suppliers of external inputs and distant global commodity markets.

Agroecological approaches are based on the following:

(a) Re-embedding agriculture in nature, relying on functional biodiversity and internal resources for production of food, fiber, and other benefits. Resilient agroecological systems mimic the structure and function of natural ecosystems: biodiversity-rich fruit orchards and agroforestry systems, inter-cropping, genetic mixtures, mixed farming, agro-sylvo-pastoral production systems. The principles on which these agroecological systems are based originate in the knowledge-rich practices of indigenous and peasant communities. They include the following practices:

(i) adapting to the local environment and its diverse micro-environments; (ii) creating favorable soil conditions for plant growth and recycling nutrients, particularly by managing organic matter and encouraging soil biological activity; (iii) minimizing losses of energy, water, nutrients, and genetic resources by enhancing the conservation and regeneration of soil, water, and agro-biodiversity on the farm and in the neighboring landscape; (iv) diversifying species, crop varieties, and livestock breeds in the agroecosystem over time and space—including integrating crops, trees, and livestock at the field and wider landscape levels; (v) strengthening the “immune system” of agricultural systems through the enhancement of functional biodiversity—natural enemies of pests, allelopathy, and antagonists, for instance, by creating appropriate habitats and through local adaptive management; (vi) enhancing beneficial biological interactions and synergies throughout the system and among the components of agricultural biodiversity, thereby promoting key ecological processes for sustainable production and resilience to stresses and shocks.

Examples of these regenerative practices exist in different parts of liberated Kurdistan. The Internationalist Commune has planted 2,000 trees in 2018 and has generated some 50,000 design plans for the reforestation of areas belonging to the commune, as well as other zones in the Cizîrê

region. For example, the Committee for Natural Conservation in the Reforestation of the Hayaka Natural Reserve, close to Dêrik, plans to grow 50,000 trees on the banks of Lake Sefan within five years, thus contributing to the regeneration of biodiversity and ecological functions, such as pollination and carbon sequestration. In 2015, agricultural cooperatives planted over 50,000 fruit trees in Cizîrê, as part of their attempt to diversify production and move away from genetically uniform wheat monocultures dependent on the use of toxic pesticides and expensive chemical fertilizers (Bance 2019).

(b) Farmers distance themselves from markets supplying inputs (such as seeds and seedlings, fertilizers, and pesticides). Reduced dependence on commodity markets for inputs enhances farmers' autonomy and control over the means of production. For example, agricultural cooperatives have set up plant nurseries to provide farmers, gardeners, and municipalities with a large number of diverse fruit trees (olive trees, pomegranates, peach trees, and grapevines), forest plants, or decorative plants, such as rose bushes, as well as ornamental plants.

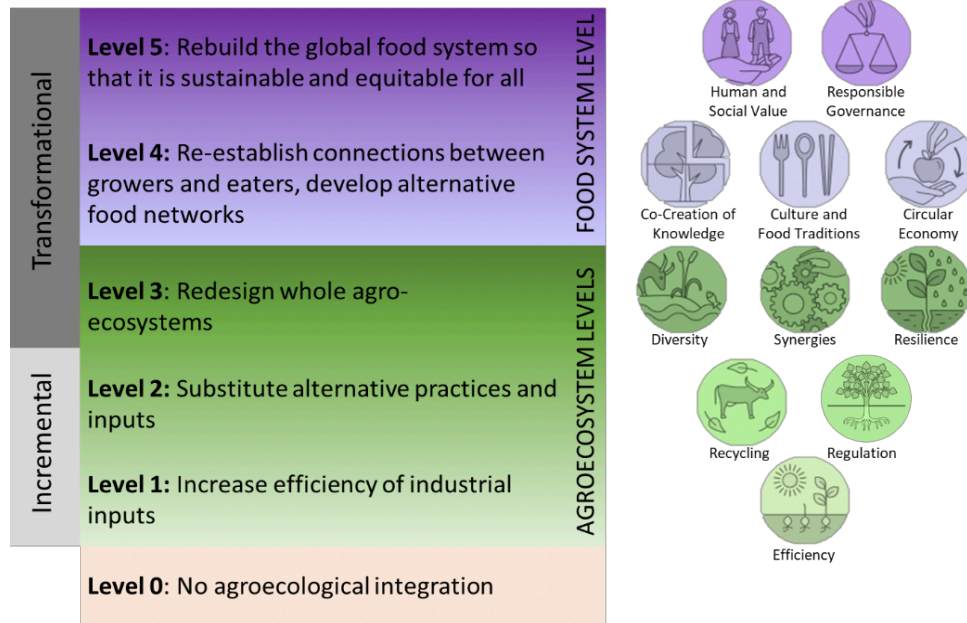
(c) A rediscovery of forgotten resources: organic manure and the soil's capacity to improve the yields and nutritional quality of foods; renewable energies (solar, wind, and biogas) and their decentralized and distributed micro-generation in towns and cities. The tightening of the embargo in 2015 led to a fourfold increase in the price of fertilizers and a reduction in agricultural production, especially in Cizîrê. In response, an international crowd-funding campaign<sup>6</sup> was organized, and decentralized facilities have started to be established in several districts of Rojava to produce organic compost and fertilizers by recycling waste from cities and farms. As part of these efforts for greater self-reliance, local knowledge on the nutritional and medicinal values of plants for people and livestock is being slowly brought back into food and farming in Rojava. Indeed, much of agroecology draws on the experiential knowledge of peasant farmers and pastoralists which it combines with the science of ecology.

(d) Farmers diversifying outputs and market outlets, often with the help of citizens. A greater reliance on alternative food networks that reduce the distance between producers and consumers while ensuring that more wealth and jobs are created and retained within local economies: short food chains and local food webs in which decentralized small-scale cooperatives engage in food processing (e.g. bakeries and cheese making) as part of the social economy.

Overall, agroecological initiatives in Kurdish territories show a mixed picture. There are different levels of change toward agroecology practices in rural, peri-urban, and urban areas (figure 1). Several agroecological initiatives aim for more efficient use of external inputs, such as fertilizers, or have replaced toxic agrichemicals with less harmful substances, such as organic composts or botanical insecticides, in largely unchanged monocultures. Transitions toward agroecology practices tend to be incremental here.

In contrast, more transformative agroecological changes seek to redesign farms and the surrounding landscape to imitate the structure and function of natural ecosystems. For example, the ecology of homogenous and degraded landscapes is revived by planting intercrops and polycultures, mixed fruit tree orchards, bio-diverse urban/peri-urban gardens, and the revival of agroforestry systems. This diversification of agro-ecosystems allows farms to generate their own internal biological pest control and nutrient cycling, thereby reducing dependency on external suppliers of industrial inputs. These transformative agroecological practices enhance the autonomy of farmers and food sovereignty.

Last, there are also examples of food system transformation that link biodiversity-rich agroecological production with local markets and food networks in Kurdish territories—Level 4 in figure 1.



**Figure 1 Five Levels of Food System Change and FAO's Elements of Agroecology.** Adapted from Gliessman 2015 and FAO 2018. *Source:* © Biovision.

This coexistence of different levels of agroecological change (figure 1) is common in many countries today where several disabling factors prevent society-wide agroecological transformations—Level 5 in figure 1 (Anderson et al. 2021; HLPE 2019). However, large-scale shifts toward a transformative agroecology are even more constrained in war-torn Kurdish territories where significant amounts of resources are allocated to defense against violent external aggressors.

International solidarity that facilitates mutual learning on agroecological practices would help diversify and restore Kurdish food and farming ecologies. For example, evolutionary and participatory plant breeding can significantly increase genetic diversity in crop monocultures (Ceccarelli and Grando 2020). In Iran, evolutionary plant breeding (EPB) in barley and wheat allowed farmers to access and develop a great amount of crop biodiversity in a relatively short time. In EPB, farmers start by planting a large mixture of hundreds or even thousands of different varieties of a crop. These genetically diverse varieties are left to cross freely between each other. Seed harvested is replanted the next year for another crop cycle in the same environment. The plant populations thus evolve under different types of agronomic management and adapt to diseases, insect pests, drought, extreme temperatures, and salinity. As a dynamic and inexpensive strategy for agroecological diversification, EPB rapidly enhances the adaptation of farmers' crops to climate change. It also creates living gene banks under the control of farmers (Rahmanian et al. 2016). Mutual sharing of farmer knowledge on this agroecological practice could help Kurdish farmers re-diversify genetically uniform wheat monocultures, thereby enhancing adaptation to climate change and improve nutrition.

## AN ECONOMICS OF CARE AND SOLIDARITY

Democratic confederalism envisions a communal economy in which alternative economic institutions are necessary not only for self-government (Öcalan 2011). They are also needed to enable ecological sustainability and keep human activities within safe planetary limits (Steffen et al. 2015). New Kurdish economic institutions must also help reverse enduring patriarchal relations and the structural violence against women. Ecology, gender justice, and democracy thus need to be at the heart of an economics of care and solidarity that can sustain food, agriculture, and the well-being of people and nature.

Building such a communal social economy is a huge challenge in Kurdish-liberated territories. In practice, this has involved creating cooperatives, communes, and communal economic networks. Cantons have funded the setting up of new cooperatives, most of which are agricultural cooperatives. It is noteworthy that the number and size of women's collectively self-managed cooperatives have markedly increased since 2012. Many of them focus on food processing, including, for example, a woman's cheese-making cooperative in Derik, women's bakeries in Derna village and the city of Serekaniyé, and a women's agricultural cooperative working to diversify crops grown near Amudé. In a strongly patriarchal context, women's cooperatives are an important way for young and older women to become less and less dependent on their fathers or husbands.

To date, the growth in number and impact of these cooperatives and economic communes are constrained by a lack of funds, access to reliable energy sources, and appropriate facilities and machinery for running community food processing units and small-scale industries. However, these self-managed local organizations signal how the economic infrastructure of agri-food systems could be re-built on a large scale in Kurdish territories. Each link in the agri-food chain offers potential economic niches for many more people organized in cooperatives—as millers, bakers, butchers, carpenters, iron-workers, and mechanics, local milk processors, and cheese makers. The fluid network of decentralized economic communes and cooperatives involved in food production, processing, distribution, and waste recycling demonstrates that a significantly greater number of livelihoods and ecologies could potentially be sustained by scaling out agroecology-based food systems.

The communalization of the economy has greatly facilitated ecological regeneration on farms, pastoral lands, watersheds, and municipal gardens. This is largely because the communalization of the economy by the Kurdish freedom movement enables more equitable access to water, land, seeds, and energy. These are common goods available for use by the whole of society. As Cemil Bayik said:

As long as society is the communal proprietor of these goods, no individual can exploit them. Moreover, such a society cannot become subject to economic domination . . . Least of all should water, land and energy belong to a State. A State that claims to control them is despotic and fascistic. (Cemil Batik quoted in Knapp et al 2016, 207)

The transformative potential of agroecological practices is thus further enhanced by gender-inclusive forms of economic organization, in which the means of production are socialized and communally shared. Economic exchanges mediated by the solidarity-based cooperatives bring into closer proximity food producers and food eaters in re-territorialized systems that reduce dependency on commodity markets and global value chains.

However, regenerating the local ecology of autonomous food systems also partly depends on a solidarity economy rooted in a deep sense of care, gift relations, and an intimate entanglement with nature. Talking about how women and plants mutually care for each other in nature, Azime Efrîn says:

There's especially a lot of plants in Mesopotamia, because of the nature, the rich water, the mountain environment, so there's all these various types that grow here. Truly, nature, it's a part of life. Because without nature, there can be no life. And women and nature should not be divided. And nature's defence is women. And nature is inside every woman. So every woman needs to see herself responsible for nature. Because nature is living. For us to live, we have to see nature as a part of ourselves. (Jineolojî 2020)

This intimate ecological relationship opens possibilities to cultivate mutualities of care between people and nature by re-embedding food provisioning and production in diverse local ecologies and economies. Regenerating ecologies, autonomy, fertility, health, and mutual entanglements with nature depends on a cyclic economy based on care and solidarity. Such a care economy values women's



productive and reproductive labor, as well as the labor of nature. In this life-affirmative dynamic, women cooperatives and their communities engage in a caring and permanent regeneration of the humanity-nature metabolism (Salleh 2017). This caring subsistence perspective (Mies and Bennholdt-Thomsen 1999) is reflected in the science of woman (*Jineoloji*) espoused by many Kurdish women who are now struggling for freedom and equality by opposing patriarchy's violence against women and nature (Öcalan 2013; Strangers in a Tangled Wilderness 2015).

As an ethics of care and solidarity that rejects hierarchies and patriarchal domination, *jineolojî* enables life to unfold by supporting nature's strivings for ever more diversity, complexity, and adaptation to local context. As such, Kurdish women and men who embrace *jineolojî* are particularly well placed to develop bold agroecological transformations (figure 1) that can heal the relationship between people and nature. Kurdish ecologies are indeed slowly being diversified and restored through agroecological approaches, ecological and permaculture design, widespread recycling and reuse, a focus on "doing more with less," and the re-localization of production, supply chains, and consumption as part of a new agrarian-industrial mutualism between towns and countryside.

However, further delinking Kurdish local economies from global commodity capitalism requires developing and promoting circular systems that mimic natural ecosystems at different scales—from individual farm plots to entire cities. The building blocks for that do exist, and include enhancing functional biodiversity, the ecological clustering of industries, recycling, and localized production and consumption in specific territories dedicated to sustainable living (Jones et al. 2012). Circular systems that combine food and energy production with water and waste management can reduce carbon and ecological footprints while maintaining a good quality of life through controlled processes of de-growth in consumption and production (Latouche 2011, 2019; Pimbert 2012). This process of decolonial de-growth would be designed for local control by communities and aim to strengthen collective tenure, conviviality, gender justice, autonomy, and direct democracy in territories. International solidarity for mutual learning and knowledge exchange could help strengthen this radical shift toward food sovereignty, agroecology, and a care economy in Kurdish territories.

A global network of food sovereignty and de-growth movements could help Kurdish communities enhance ecological sustainability and decolonize economics through:

- i) popular education and training on how to develop processes of self-managed research and grassroots innovations needed to scale out food sovereignty, agroecology, economies of care, and bio-cultural diversity to more people and places;
- ii) farmer-to-farmer training for transformative agroecology on ecological diversification of agricultural landscapes as well as solidarity-based economic exchanges and short food webs between food producers and food eaters;
- iii) knowledge-sharing on the development of ecologically sustainable agrarian-industrial mutualisms based on nested circular systems and economies of care that enhance diversity, decentralization, gender justice, and direct democracy.

In turn, global food sovereignty and transformative agroecology movements have much to learn from the Kurdish freedom movement, including changing patriarchal relations and masculinist identities through education of boys/men and the creation of safe empowering spaces for women. Like the Kurdish women who espouse *jineolojî*, many members of La Vía Campesina recognize that "if we do not eradicate violence towards women within the movement, we will not advance in our struggles, and if we do not create new gender relations, we will not be able to build a new society" (La Vía Campesina 2008).

International farmer exchanges for mutual learning, intercultural dialogues, and power-equalizing research with activist scholars can all contribute to the momentum needed to strengthen people's alternatives to the destructive logics of colonialism, heteropatriarchy, white supremacy, and capitalist exploitation (Pimbert, 2018).

## DEMOCRATIC CONFEDERALISM

One of the clearest demands of the food sovereignty movement is for people to exercise their fundamental human right to decide their own food and farming policies (Nyéléni 2007). Democratizing the governance of rural and municipal food systems means enabling small-scale producers and other citizens—both men and women—to directly participate in the choice and design of policies and institutions, decide on strategic research priorities and investments, and assess the risks of new technologies.

Similarly, decisions on how to adaptively manage ecosystems need to be directly made by people who live in, or close to, these ecosystems and natural resources (land, water, seeds, and trees) they use for food and agriculture. According to the Convention on Biological Diversity, “the objectives of management of land, water and living resources are a matter of societal choices” and “management should be decentralized to the lowest appropriate level”. For forests, grasslands, wetlands, and agricultural landscapes “the closer management is to the ecosystem, the greater the responsibility, ownership, accountability, participation, and use of local knowledge” (Secretariat of the Convention on Biological Diversity 2007).

Putting peoples' participation at the center of ecology can best be done through an expansion of direct democracy in decision-making in order to replace models of representative democracy. According to Öcalan, this radical democratization of society is possible because

in contrast to centralised administration and bureaucratic exercise of power, confederalism proposes political self-administration, in which all groups of the society and all cultural identities express themselves in local meetings, general conventions, and councils . . . Politics becomes part of everyday life. (Öcalan 2011, 26)

The autonomy of Kurdish society depends on institutions being self-organized and self-administering through small self-governing decentralized units that can confederate into larger structures for coordinated action over large areas. Based on diversity and gender equality, this anti-centrist and bottom-up approach is key for the regeneration of Kurdish ecologies associated with crop farming, pastoralism, and other food provisioning activities.<sup>7</sup>

Indeed, democratic autonomy and self-administration are particularly good at empowering local organizations to carry out their roles in sustaining food systems and the wider ecologies they are part of. The knowledge co-created in local organizations (such as farmer groups and cooperatives) is both practical and political. For example, local organizations of peasant farmers and pastoralists develop knowledge, institutional rules, and policies (informal or formal) that enable coordinated and collective action for ecosystem management and agroecological practices. This knowledge is generated as part of the day-to-day activities mediated by local organizations that have been set up for different purposes within communities (Pimbert 2009, 2018), such as

- i) sustaining the ecological basis of agri-food systems—including producing knowledge and joint actions for the local adaptive management of land and the development of reliable bio-physical indicators to track and respond to change, including climate change;

ii) coordinating human skills, knowledge and labor to generate both use values and exchange values in the economy of the agri-food system, as well as organize economic exchanges over large geographical areas;

iii) governing agri-food systems—including decisions about people’s access to food and natural resources (such as land, water, and seeds) as well as collectively generating the political knowledge needed to shape policies and institutions.

In addition, new Kurdish organizations were especially created to coordinate local processes of social learning based on critical education and self-governance. Remarkably, the project of democratic confederalism has generated a web of new organizations and institutions for direct decision-making by Kurdish people: commune, neighborhood or village community people’s council, district people’s council, and the peoples council. At each of these four levels in which power flows bottom-up—from the level of the commune—there are eight commissions responsible for different areas (such as defense or justice). Each commission has two spokespersons—one man and one woman. Democratic confederalism involves a network of citizen-based (as opposed to government) bodies or councils with members or delegates elected from popular face-to-face democratic assemblies.

Several Kurdish organizations with different functions, powers, and responsibilities are thus usually involved in facilitating the adaptive management and governance of agri-food systems and the ecosystems they are embedded in. Such “nested organizations” and their polycentric networks operate at different scales and act in complementary ways (Ostrom 2010). These interlinked organizations provide the institutional landscape that is needed to manage the social and ecological realms in which agri-food systems are nested. They provide the organizational fabric that enables coordinated and collective agency by networks of peasant farmers, pastoralists, wild food and medicinal plant collectors, peri-urban and municipal gardeners. Decentralized and distributed decision-making usually ensures that there are no standard “one-size-fits-all” policies and agreements. Each decision tends to be tailored to its specific context through deliberations and negotiations within and between organizations—from the level of communes upward and between Kurdish territories.

This governance architecture greatly enables democratic autonomy and collective action to manage ecosystems and organize economic exchanges over large geographical areas in Kurdish territories. Such polycentric networks are also potentially well suited to tackle major ecological crises caused by agriculture (such as habitat destruction, chemical pollution, and climate change) because it creates a confederated web of city neighborhoods, municipalities, villages, and rural areas that can coordinate Kurdish peoples’ actions at multiple scales.

As such, confederated networks of democratic organizations are vital for regenerating Kurdish ecologies through food sovereignty, agroecology, and economies of care.

## CONCLUSION

Kurdish ecological initiatives in food, agriculture, and land use are uniquely rooted in democratic confederalism, libertarian municipalism, and the rejection of patriarchal relations. This Kurdish version of food sovereignty affirms the right of men and women to democratically govern themselves and co-produce local food systems, ecologies, economies, knowledge, and culture. Decentralized, distributed, and democratic decision-making is crucial for reviving and sustaining diverse ecologies associated with food, farming, pastoralism, and other forms of land use. Moreover, Kurdish agroecological practices that re-localize food systems help reduce carbon and ecological footprints while enhancing food and nutritional security.

However, this is an unfinished journey and emergent process. As Ozlem Tanrikulu, representative of the Committee for the Reconstruction of Kobane and president of UIKI (Kurdistan Information Office in Italy), said: “We have not yet succeeded in developing a system like the one we are planning, but we have been able to lay the foundations for understanding the principles and models of production and adapting them to our project” (ANF News 2020).

Kurdish ecological initiatives that regenerate the diversity of nature and culture in food and agriculture offer important insights for global social movements working for food sovereignty, agroecology, and economies of care based on de-growth and gender justice. In turn, these global solidarity movements can help Kurdish communities strengthen their struggle to develop life-affirmative and just alternatives to the ever-expanding process of commodification of nature and social relations.

## NOTES

1. A food system gathers all the elements (such as environment, people, inputs, processes, infrastructures, and institutions) and activities that relate to the production, processing, distribution, preparation, and consumption of food, and also the outputs of these activities, including socio-economic and environmental outcomes (HLPE 2019).

2. At the beginning of the uprising in March 2011, Rojava’s main agricultural products were wheat, cotton, and to a lesser extent, meat, olives, pistachios, eggs, and dairy products.

3. La Vía Campesina (LVC) is an international movement that brings together peasant organizations of small- and medium-sized producers, agricultural workers, landless people, women farmers, migrants, and indigenous communities from Africa, Asia, the Americas, and Europe. It is an autonomous, pluralistic movement, independent of all political, economic, or other denominations. LVC comprises about 164 local and national organizations in 73 countries and represents about 200 million farmers altogether. See: <https://viacampesina.org/en>.

4. “Farmers” refers here to smallholder peasant/family crop and livestock farmers, herders/pastoralists, artisanal fisherfolk, landless farmers/rural workers, gardeners, forest dwellers, indigenous peoples, hunters and gatherers, and any other small-scale users of natural resources for food production. The majority of the world’s food producers are small family farmers.

5. People is a group of persons who belong to the same culture, ethnicity, race, or nation. When more than one of such groups is referred to, “people” becomes “peoples.”

6. See <https://mesopotamia.coop/feed-the-revolution/>.

7. In Article 57 of its “Social Contract,” the Democratic Federation of Northern Syria declares that democracy is the “way of achieving the balance between economics and ecology.”

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