MESA Report

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What concerns us most in México about agrifood systems?

A workshop report

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TABLE

TABLE is a global platform for knowledge synthesis, for reflective, critical thinking and for inclusive dialogue on debates about the future of food.

TABLE was originally founded as a collaboration between the University of Oxford, the Swedish University of Agricultural Sciences (SLU) and Wageningen University and Research (WUR) and the network has since expanded to include la Universidad de los Andes (Colombia), la Universidad Nacional Autónoma de México and Cornell CALS (USA)

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Introduction

As part of the launch of the dialogue platform MESA Mexico, an international collaboration project that seeks to explore and understand the different perspectives on the present and future of agrifood systems, an on-site and virtual workshop was held to identify the main problems of Mexican food and agriculture. It is in this context that the results of the workshop are presented, with the intention of reflecting and deepening the discussion on the top three issues selected as the most important by the participants, in order to open the dialogue and debate on the most relevant issues of agrifood systems in Mexico.

Workshop methodology

In the auditorium of the Institute of Social Research of UNAM, for the launch of the MESA Mexico project (June 2024), an on-site and virtual workshop was held in which a total of 57 people participated, 34 on-site and 23 virtual, including several members of various sectors such as government, business, academic and social[1]. To start the conversation among the participants, they were provided with a list of 10 academic, political and social problems in Mexico's agrifood systems (Table 1), in order to discuss and prioritize the problems they considered most important.

Table 1. Proposed problems related to food and agriculture in Mexico

P1. Effects of climate change on agriculture (droughts, floods, hurricanes, pests, loss of pollinators, etc.) and strategies to deal with it.
P2. Water crisis in agriculture (management, use, contamination by waste or discharges).
P3. Consequences of increased food insecurity and dependence (food imports, prices, monopolies).
P4. Environmental, social and health effects of agrochemical and fertilizer use, soil contamination (residues, discharges or emissions).
P5. Lack of gender equity in the agri-food sector (access to land, financial autonomy, excessive workload, poor working conditions in the food industry).
P6. Socio-environmental tensions in the face of the growth of industrial animal production: chicken, pigs, cattle (pollution and carbon emissions, deforestation, lack of animal welfare, ethics in the consumption of animal protein, effects on the health of communities) and diets based on vegetable protein.
P7. Lack of public policies and regulatory instruments to guarantee the right to healthy food (laws and regulations, industrial labeling, fair prices for producers and consumers, unfair practices -dumping-).
P8. Health consequences of the consumption of industrial and ultra-processed foods (malnutrition, obesity and overweight; excess supply of ultra-processed foods, food deserts).
P9. Loss of traditional agroecological practices and knowledge. Reduction of agro-biodiversity and its effects on food.
P10. Aging of the Mexican countryside: lack of generational replacement, incentives for young people to take root in the Mexican countryside.

1 Comisión Nacional para la Biodiversidad (CONABIO), Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT), WWF México, Instituto Nacional de Salud Pública, Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias (INIFAP), Centro de Estudios de Investigaciones Interdisciplinarias; of civil organizations "Sin maíz no hay país", Fundación Semillas de Vida, Asociación Mexicana de Productores de Carne, Centro del Cambio Global y Sustentabilidad, A.C., CEPAL (Comisión Económica para América Latina y el Caribe) NUUP, Centro de Investigación en Ciencias de Información Geoespacial. (Centrogeo), El Colegio de México, Centro de Estudios para el Cambio en el Campo Mexicano, El Colegio de la Frontera Sur (ECOSUR), El Colegio de Michoacán, el Poder del Consumidor, of the company Mycelia Mexicana, as well as students from different universities such as la Universidad Autónoma de Querétaro, la Universidad Autónoma de Chapingo, el Instituto Tecnológico de Estudios Superiores de Occidente, (ITESO), la Universidad de Colima, Benemérita Universidad Autónoma de Puebla, Universidad Autónoma Agraria Antonio Narro, among others.

Source: Prepared by the authors based on the results of the workshop.

In the on-site workshop, a dynamic discussion was developed, for which 17 pairs of participants were formed, who were asked to jointly answer the following question: What are the three main problems that require greater attention in the next academic, political and social agenda, related to agrifood systems in Mexico?

Each pair agreed and prioritized the issues they considered most important. They also proposed other relevant issues to add to the list and included them in their selection. At the end of the prioritization by pairs, a plenary discussion was held on the results of the selections made.

The virtual workshop differed from the face-to-face dynamic in that the participants worked individually and did not have the option of prioritizing by pairs, but they had three votes to select the topics they considered important.

Results

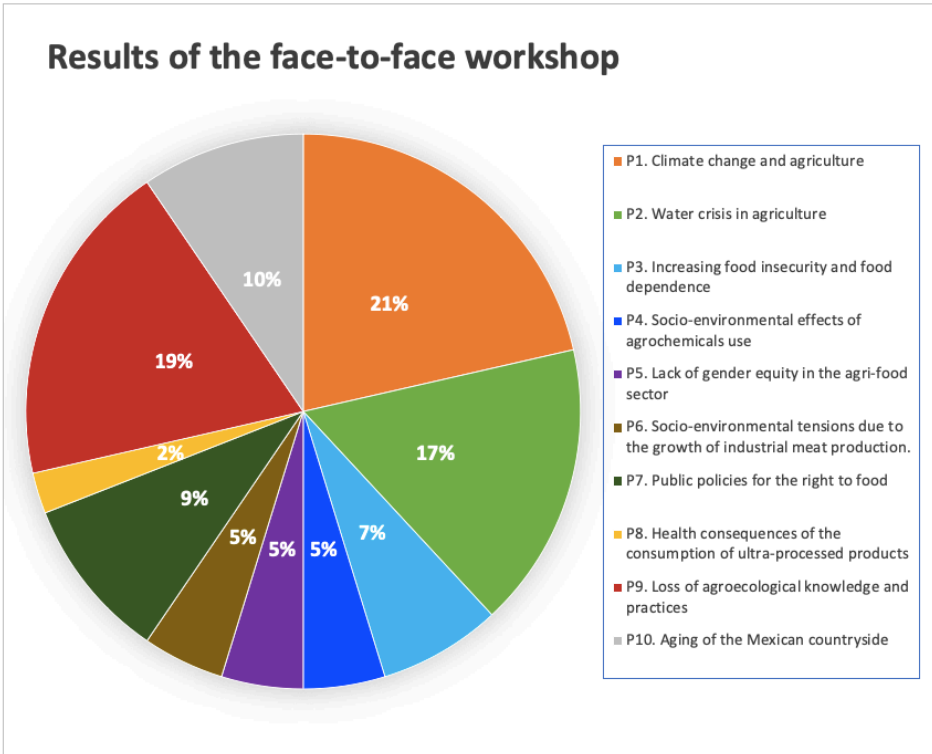
The prioritization of the most relevant issues for the virtual and face-to-face participants resulted in a tie between issues 1, 9 and 2, as can be seen in Table 2 and graphs 1 and 2.

Table 2. Priority issues in the face-to-face and virtual workshop. Source: elaboration

	On-site workshop	Virtual workshop
1	P1. Effects of climate change on agriculture (droughts, floods, hurricanes, pests, loss of pollinators, etc.) and coping strategies.	P1. Effects of climate change on agriculture (droughts, floods, hurricanes, pests, loss of pollinators, etc.) and coping strategies.
2	P9. Loss of traditional agroecological practices and knowledge. Reduction of agro-biodiversity and its effects on food.	P9. Loss of traditional agroecological practices and knowledge. Reduction of agro-biodiversity and its effects on food.
3	P2. Water crisis in agriculture (management, use, contamination by waste or discharges).	P2. Water crisis in agriculture (management, use, contamination by waste or discharges). P10. Aging of the Mexican countryside: lack of generational replacement, incentives for young people to take root in the Mexican countryside.

Source: Prepared by the authors based on the results of the workshop.

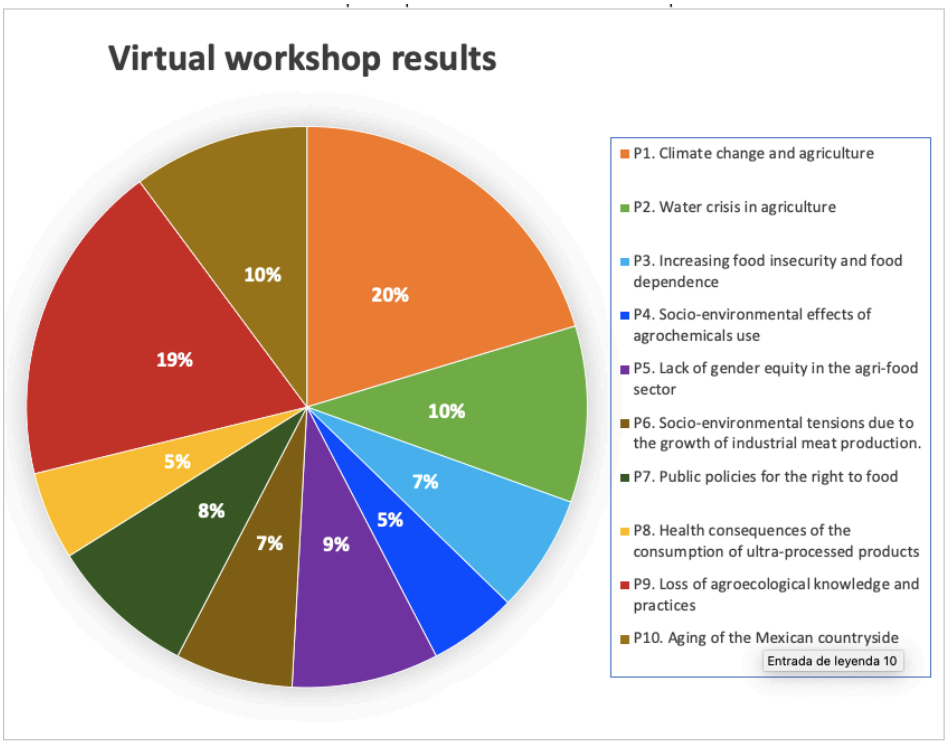
Graph 1. Percentage of relevance of the problems prioritized in Mexico's agrifood systems, according to the participants of the face-to-face workshop



Source: Prepared by the authors based on the results of the workshop.

Note: P refers to "problematic".

Graph 2. Percentage of relevance of the problems prioritized in Mexico's agrifood systems, according to the participants of the virtual workshop



Source: Prepared by the authors based on the results of the workshop.

Note: P refers to "problematic".

The above graphs show the relevance given to each of the issues raised. In this regard, issue 1 "Effects of climate change on agriculture (droughts, floods, hurricanes, pests, loss of pollinators, etc.) and strategies to deal with it" is once again highlighted and ranked first in both workshops, while issue 9 "Loss of traditional agroecological practices and knowledge. Reduction of agro-biodiversity and its effects on food" was in second place. These first two issues behaved similarly in terms of selection preference for both workshop modalities; however, this was different with respect to issue 2 "Water crisis in agriculture (management, use, contamination by waste or discharges)" in third place, where face-to-face participants considered it 7% more relevant than those who participated in the virtual modality. Likewise, the virtual participants indicated that this last topic is equally as important as topic 10, which refers to the aging of the Mexican countryside.

Regarding "other issues" considered important for the academic, political and social agendas of agrifood systems in Mexico, the workshop participants put forward several proposals, which are described in Table 3.

Table 3. "Other" problems proposed by the participants in the virtual and face-to-face workshops

Problems raised in the on-site workshop	Problems raised in the virtual workshop
Control of territory and production by organized crime	Implications of artificial intelligence on agricultural markets in Mexico
Technical advice and organization of producers in alternative production chains to agroexport	Implications of artificial intelligence on the entire food system
Soil regeneration, water conservation and biodiversity	Public policies needed to foster the conditions for sustainable food and production
Lack of gender equity and lack of public policies to guarantee the right to food	
Promotion of flexibility as a food value in the 21st century. Education and food consumption awareness	
Basic food supply for the urban population	
Global production-consumption system based on yield values	
Abandonment and lack of appreciation of small-scale producers	

Source: Prepared by the authors based on the results of the workshop.

Some of the issues indicated in the table above contain elements that show alignment with the original list, for example, public policies, gender issues and the right to food.

In this sense, of the "other issues" it is worth mentioning the influence of organized crime on territorial control and agrifood production. According to the Global Index of Organized Crime in Mexico (2023) and Le Cour and Frissard (2024), criminal activities such as extortion, robbery and kidnapping in productive and agro-industrial sectors of the country have been increasing, which threatens the very existence of agrifood systems in Mexico, since the minimum security conditions in the country are not guaranteed.

Another problem outlined was "the implications of artificial intelligence in Mexico's food systems" which, deserves to be discussed, especially in relation to the technological gap in Mexico that impacts the agri-food sector. For example,the application of the internet in the agricultural sector is insignificant (Negrete, 2018), with only 5.5% of Mexican producers using computers and 7.8% using the internet in 2019 (Ponce González, 2023 p.7). This situation could be transformed if public programs were implemented with the objective of expanding access to and use of

information technologies in the agrifood sector.

Analysis and discussion

a) Effects of Climate Change (CC) on agriculture

CC is a global phenomenon largely attributed to anthropogenic activities and the current development model, where 48% of greenhouse gas emissions are generated by 10% of the world's population, especially in the most developed regions, among which the United States and countries of the European Union stand out (Chancel, 2022; OXFAM, 2015). In these circumstances, it is important to consider the scope and limits of climate responsibilities, differentiating between those who contribute most to emissions and, consequently, to the climate crisis.

In this context, the United Nations Organization indicates that from 2011 to 2020 the effects of climate change have been more noticeable worldwide (UN, n/d). These include higher temperatures, droughts, forest fires and stronger storms (see images 1, 2 and 3), which have reduced Mexico's agricultural production, mainly crops such as beans, lentils, coffee, chickpeas and yellow corn (Servicio de Información Agroalimentaria y Pesquera, 2024). This information is relevant to point out, since it coincides with the results obtained in the workshop, where the most important issue for the participants was the impact of CC on agriculture.

Image 1. Forest fire in the Los Tuxtlas Biosphere Reserve in Veracruz, Mexico. Photograph by Elena Lazos Chavero, 2019.

The effects of CC on agriculture and livestock in Mexico have been widely discussed from different perspectives, such as the deterioration it causes in animal health and the appearance of diseases, the decrease in agricultural yields, as well as a lower availability of food, and the loss of land suitable for the cultivation of grains such as corn, coffee and sorghum (Basurto Hernández et al., 2023; Estrada et al., 2022; Gómez Díaz et al., 2020; Sánchez Mendoza et al., 2020; Villers et al., 2009). From this perspective, one of the most notorious effects on the agricultural sector is the sharp decrease in production yields generated by prolonged periods of drought (which generates economic losses for producers) and the increase in agrifood dependence (Mendoza-Ponce et al., 2023).

This reveals the need to implement public policies to reduce production losses and guarantee food security in the country.

Image 2. Flooded house in Uayma, Yucatan. Photograph by Pavel Alonso García Magdaleno, 2023

There are currently multiple approaches to mitigate the effects of CC in the energy, transportation, industrial, commercial and agricultural sectors: some examples are the transition to clean energies; the development of electromobility technologies; the establishment of water capture, storage and harvesting systems, as well as the promotion of agronomic practices aimed at carbon capture (Special Climate Change Program 2021-2024, 2021). However, it is still necessary to deploy and implement articulated strategies between the public and private sectors, where the different perspectives and needs of the different actors and territories are integrated, contributing to the creation of a climate adaptation plan (Chamber of Deputies, 2024). Undoubtedly, commitments from all sectors and at all scales are required to trace pathways that will help us address the current climate emergency and reduce its impacts on Mexico's agrifood sector.

Image 3. Dry earth and ginger. Photograph by Pavel Alonso García Magdaleno, 2023.

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b) Loss of traditional agroecological practices and knowledge, reduction of agrobiodiversity and its effects on food

This concern may be related to the gradual abandonment of the Mexican countryside, caused by the migration of the rural population to the country's large cities or to the United States in search of better living conditions. This is revealed by data reported by Kato and Huerta (2022), which show a decrease from 40.3% to 19.8% of rural inhabitants during the period from 1960 to 2018. Another factor that caused the expulsion of thousands of Mexican farmers from their territories is the North American Free Trade Agreement (currently the Treaty between Mexico, the United States and Canada, TEMEC), when regulations and rules were implemented that allowed the importation of U.S. corn and other subsidized grains to the national territory, with prices below production costs, against which Mexican producers could not compete (Gálvez, 2022).

On the other hand, Mexico ranks first in the world as an exporter of avocado, tomato, mango, asparagus, red fruits, lemon, walnuts, peppers, cucumber, lettuce and onion (SADER, 2023), which shows that the national agrifood policy has focused on agroindustrial food production to meet the demand of international markets (see image 4). However, domestic production of basic grains such as corn, beans, rice, wheat, sorghum and soybeans is insufficient to supply domestic demand, and it is necessary to import these foods from countries such as the United States, Brazil or Argentina (La Jornada, 2023; SADER, 2020; Secretaría de Economía, 2023). If this trend continues, food dependence will increase.

c) Water crisis in agriculture (management, use, contamination by waste or discharges)

The water emergency, referring to water scarcity in agriculture, can be directly linked to the effects of CC due to the increase in droughts and their duration, but it can also be linked to socioeconomic circumstances that affect its availability and access. Some of these refer to the presence of pollutants in water sources, deforestation and population growth that leads to overexploitation of watersheds and groundwater, which represents 67.52% of the water concessioned for agriculture (CONAGUA, 2006, 2020).

This has led to an increase in conflicts and social mobilizations in various entities of the country to guarantee sufficient access to water (Antúnez, 2024; Réyez, 2017; Vázquez, n/d). This demands the creation of efficient strategies to safeguard the human right to water among the population, which represents a significant challenge for the institutions responsible for water management to find more equitable and fairer ways to provide access to water for agricultural, industrial and domestic use.

Conclusions

The results of the workshop reveal the main concerns and problems regarding Mexican food and agriculture, which provides a good entry point for conversation and debate on the present and future of agrifood systems in Mexico. One of the objectives of MESA is to understand the different perspectives on the production, distribution and consumption of food in order to reflect and explore alternatives that help us to trace pathways towards fairer and more sustainable agri-food systems such as those that promote better techniques, environments and healthy ingredients in our food. In this sense, the dialogue, debate and exchange of ideas that MESA proposes on global agri-food systems are central elements to further understanding the interests, evidence and values that each of the actors involved in food bring to the table. MESA has an open door for those who wish to join in the debates that cut across agri-food systems.

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