Food security: The Mediterranean regions desynchronized agenda

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Abstract

The Mediterranean is the scene of numerous geopolitical tensions which are reflected in the agricultural sector, a highly strategic but at the same time fragile sector. The paper carries out a review of the geopolitics problems and food system challenges that the Mediterranean regions have to face. It highlights the urgency of action to move towards sustainable and resilient food systems in the Mediterranean area. Multiple innovations will be needed until the Mediterranean achieves the most suitable conditions for guaranteeing its food security. The demographic pick will oblige national governments to find solutions able to satisfy the increased food demand and to feed much more people than before. It is necessary to increase South-North and South- South cooperation as drivers for structural growth, offering increased local opportunities as an alternative to economic migration and countries independent policies.

Keywords*: Food security, Sustainability, Economic development, Euromed cooperation, Climate change.*

The Russian invasion of Ukraine on February 24 provokes a wave of shocks on the international energy and agriculture markets, due to the weight of these two countries in these strategic sectors. Russia and Ukraine account for a third of world wheat exports, *80%* of sunflower oil exports and *20%* of barley and maize exports. On a global level, the Mediterranean is the scene of numerous geopolitical tensions which are reflected, in part, in agriculture, a highly strategic but at the same time fragile sector. Farming is essential for the life and the development of societies and peoples in the Mediterranean area. In terms of agriculture and food the value is enormous. The Mediterranean diet, inscribed by UNESCO in the list of World Heritage Sites, has been at the core of the basin's history, health, and political ambition of awakening in the region. The whole world practices this diet, thus giving it a universal character. It is important to underline the essential role that agriculture plays for the equilibrium of the Mediterranean region. Agriculture is not only about food, is about viticulture, horticulture, biofuels, drinks and much more. Food is a primary need for all living beings on earth. Everyone needs to eat and, possibly, several times a day. The big mistake of the political strategies carried out by the governments of the region in the 21st century, was to explain that that agricultural practices were something that belonged to the past and had little to do with the progress and development of the region. The mainstream was to explain

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that in a country where the GDP, employment and major activities were agricultural, the only consequence was stable underdevelopment. However, what social dynamics and international relations have been teaching us for about 20 years is the opposite. Countries where the agricultural sector is not well developed are countries increasingly vulnerable, that struggle to reach a good level of food security, which presents itself with a series of social risks and frustrations among the most important social categories. The Ukrainian conflict and the pandemic go hand in hand with pronounced climatic changes, which impact farmers around the world. While demography continues to grow and food remains the basis of human security, resilience agriculture is challenged (Jeder *et al.*, 2020). In the Mediterranean, where all the instabilities have been concentrated for a very long time, food problems are on the rise, at the risk of again taking on geopolitical dimensions.

1. Desynchronization of the Mediterranean's political agenda

On a global level, the Mediterranean is the scene of numerous geopolitical tensions. Farming is essential for life and the development of societies and peoples in the Mediterranean area. The strong dependence on international markets is therefore partly due to the difficulty of producing on a national scale a quantity of products suitable for satisfying the food needs of the population. The economic impact of the Ukraine crisis and the Covid-19 pandemic on North Africa and the Middle East is not limited solely to agriculture. Even countries that are not hugely dependent on Ukraine or Russia for agricultural imports, such as Algeria and Morocco, are experiencing increases in food prices driven by rising fuel costs and less availability of fertilizers. Furthermore, Mediterranean food security is threatened by several factors, with climate change at the top of the list, causing rising sea levels and temperatures across most of the region. The over exploitation of already scarce natural resources and increasingly fragile terrestrial ecosystems are undermining the model for agricultural sustainability, threatening the production of thousands of farmers and fishermen on whom the region's food security depends (Capone *et al.*, 2021). Climate change is causing a worsening of animal and plant health throughout the region, leading to a proliferation of diseases, and accentuating the importance of using new technologies to find alternatives to traditional methods. A further problem in the Mediterranean appears to be the widespread aging of farmers and the lack of consideration of the new generations towards this sector, in addition to the strong regional infrastructural inequality which does not allow for effective logistics and rapid transport of goods. The several structural limits to agricultural productivity in the region must not hide virtuous dynamics that could bolster agricultural progress and improve food security (Jeder *et al*., 2020).

The climatic, financial, and political crises have characterized the last decade in the Mediterranean Region. Population declines and related socio-economic desertification is particularly acute in marginal territories, spreading the risks of socio-political insecurity in this area. Also, the migratory patterns from and to these territories carry several implications for the sustainable development of the region (Mulazzani *et al.*, 2020).

In agricultural terms, only 14% of regional land is suitable for crop production, with averages of 34.4% for northern EU Mediterranean region (EUMed) and only 5% for countries in the southern and eastern shores (Middle East and Northern Africa, MENA) where water availability represents a main limiting factor. This North-South asymmetry has been historically reinforced by different development patterns, including economic growth, population dynamics and socio-cultural structures. Demographic trends present diverging patterns, between an ageing population in the Euro-Mediterranean, and fast- growing population rates on the African and Asian shores. Furthermore, economic, and political crises have also triggered in-migration to the region from other areas of the globe (Nori, 2018). Intense climate change contributes to amplifying the vulnerability of rural livelihoods and the differentiation amongst communities with diverse natural resource endowment. The Mediterranean is

considered the second world region that is highly exposed to climate change impacts. Following a phenomenon that originated in its southern shores, the region is becoming hotter and drier, with relevant implications on the health of ecosystems, animals, and people alike (IPCC, 2014). The increase in temperature is predicted to negatively affect agricultural yields and food supply regardless of other factors. Average reduction of rainfall is projected at 4% in northern shore countries, and 27% in southern ones. Drought events are also becoming regular on EU shores, where every second year is predicted as potentially dry by 2050 (Mombiela, 2010).

Multiple innovations will be needed until the Mediterranean achieves the most suitable conditions for guaranteeing its food security. Science and innovation will play a fundamental role in this process. It is important to underline that agricultural innovation is not only about technological innovation, but also organizational, social, economic, and environmental. Innovation not only allows the creation of new tools capable of giving concrete and effective answers to today's challenges, but also the ability to maintain the functioning of certain already consolidated practices over time (Valls Bedeau *et al.*, 2021). The collective dimension of innovation makes it possible to include not only producers within this process, but also businesses and consumers, projecting the acquired performances over the long term. Furthermore, the plural dimension underlines the global need to seek common and concrete solutions for strong sustainability, considering the environmental, social, and economic context of the various areas of the Mediterranean to be able to reach the transition process in the shortest possible time. Artificial intelligence, analytics, connected sensors and other emerging technologies are essential instruments to improve productivity of yields, water efficiency and enhance the sustainability and resilience of crops and livestock. If connectivity is implemented successfully in agriculture, the industry could tack on $500 billion in additional value to the global gross domestic product by 2030, according to our research.

Connectivity is growing across the globe. It is estimated that in 2030, 80% of countries on a global scale will be equipped with advanced connection networks, except for Africa, where the figure will only be about 25%. The role of Agri-tech companies Agri-tech companies have a key role in the implementation of food security and agriculture productivity. In recent years various agri-tech companies have been created in the MENA region to address the challenges of food scarcity and sustainability (Capone *et al.*, 2021).

The European Commission is moving forward to implement the digital farming revolution, especially for small and medium-sized farms (Giua *et al.*, 2022). At a bilateral level, the Italian ministry for Foreign Affairs and International Cooperation recently announced the launch of a new project in Libya called 'Monitoring, evaluation and rationalization of water use for the agriculture sector in Libya' with a financial contribution of € 830.000. The combination of desert conditions that characterize Israel and its extensive and internationally recognized knowledge base provides fertile ground for cooperation with numerous countries as Morocco and the United Arab Emirates, in the field of research and development on smart green farming and water. All the countries of the region are involved in a double internal struggle: the climate struggle to adapt to ever more restrictive conditions and reduce the anthropic footprint on natural ecosystems; the productive struggle to feed a large population, with regularity and accessibility for all.

Agricultural issues are still not a priority for the Mediterranean multilateral cooperation agenda. The crises of the last years tend to desynchronize the political agendas and the determination of cooperation between the shores of the Mediterranean. The intentional and structural de- Westernization of the world, led by Russia and China, have determined a new neo non-alignment in the international scene, where certain number of countries seek not to belong to one side or another but tends to maximize their international role according to their own interests and circumstances, especially in the Middle East countries. The non-alignment for some countries of the global south in the face of the Ukrainian conflict is significative. Today the European Union is focusing on the Indo-Pacific and Africa areas, and it is not considering the immense

values that the Mediterranean region has and could have if cooperation could be enhanced. The considerable silence on the Mediterranean is reinforced by the desynchronization of the agendas in the region. Mediterranean countries cannot unilaterally fight these battles given the complexity of the issues. Uniting to change is the only responsible path to face the geopolitical instability. In the short term, the risks are real. It is therefore appropriate to resume the strategies, already outlined in previous years, of cooperation, solidarity, and complementarity in the agri-food sector, to ensure strong food security. However, it is still too early to measure the full impact of the Russian-Ukrainian conflict on the Mediterranean region. The food uncertainty is great, as on the one hand the persistence of the conflict in Ukraine complicates the prediction of future harvests, and on the other, the impact on international wheat production undermines the stability of markets and the ability to supply quantities adequate to meet global food demand.

2. The Russia-Ukraine war

The Russian-Ukrainian conflict reveals several debates around agriculture and food security. This conflict, which started in 2014, opposes two agricultural superpowers: Russia and Ukraine.

Russia has been carrying out an agricultural reconquest for the past 20 years, which first resulted in the return of cereal cultivation and the massive grain's production. President Putin has always bet as much on cereals as on hydrocarbons and the arms industry to restore the national economy and the international role of Russia. Since 2016, Russia has been the world's largest exporter of wheat and each year Russia's grain sales are decisive for the economy of this country and its diplomacy in certain regions of the world, especially in Middle East and North Africa (Abis and Bertin, 2022). In 2014, the Kremlin decided to put in place a food embargo against several countries that imposed sanctions on Russia following Crimea's accession, to "protect national interests". The ban covered fish, meat, vegetables, fruit, and other foods. The list of countries and products has been updated repeatedly. The embargo was first applied for a period of one year, but it was extended each year from now. The food embargo has benefited Russia. In 2013, Russia imported $43.3 billion worth of food. Seven years later, that figure was down to less than $30 billion, and in 2021, food imports continued to decline. The food embargo not only reduced food imports, but also stimulated the development of the national agro-industrial complex. At the end of last year, for the first time in history, the volume of Russian food exports exceeded imports, exceeding $30 billion. By mid-December, Russia had already shipped more than $34 billion worth of food abroad. The export of oil and fat, meat and dairy products, and processed foods has increased significantly (Abis and Bertin, 2022).

One crucial ally for the renaissance of Russia agriculture is certainly the global warming. The increase in temperature in the latest decades, in Western and Central Siberia, allowed the progressive growth of the Russian agricultural system, since land became arable, and the agricultural production exploded. It is important to notice that at the political level, Putin's narrative of agricultural development is based on the Siberia's long run benefits from climate change and the need to have China as the main ally and partner in the international scenario, which is counting on Russia agriculture to ensure food needs of the growing population.

On the other hand, Ukraine is a huge agricultural powerhouse, but less commented than Russia. Historically, Ukraine agriculture was undervalued, and its territory was victim of several assault since the WW2. At the end of the WW2, the strategy to rebuild the national economy and to conquer a significant role on the international level, bet on the development of agricultural activity, thanks to its geographical confirmation, producing billions of tons of grain in the new century. The substantial increase in the agricultural production allowed Ukraine to inflate its GDP and its influence on a certain number of international markets, becoming once again a major cereal and grain supplier on the planet. Despite this country has lost 10 million people in 20 years because of violent conflict, Ukraine has produced a huge quantity of grain and exported ¾ of its harvest in the world market. In 2012,

Ukraine alone made the 5% of the world agricultural market. Before 2022 Ukrainian agriculture was both essential at national and world level. In 2021, Ukrainian agriculture represented 40% of total global grain exports, 20/25% of its GDP and 1/3 of its employment (*Corn*: 4th world exporter (behind USA, Brazil, and Argentina), with a particularity of making non-GMO corn. This corn is mainly for animal feed, and it is exported especially to the Netherlands and Spain; *Wheat*: 4th or 5th world exporter, mainly to EU, the Near East, and North Africa (Tunisia, Lebanon, and Egypt). The Ukrainian wheat has also arrived in the Sub-Saharan Africa and in Southeast Asia, in which Indonesia was the main importer from 2017 to 2022 (Abis, 2023).

The Russia invasion weakens not only the Ukrainians agricultural system, but also and mostly the world food security. In February 2022, the FAO average price index for basic food products reached its all-time high. The Russia-Ukraine conflict came at the time when food prices were experiencing unprecedented inflation. In fact, the price of wheat went from 300 euros per ton on February 24 to 380 euros per ton 48 hours later.

Several initiatives have been put in place at European and international level. First, *the Food and Agriculture Resilience Mission initiative (FARM)*, led by France, has allowed Ukraine to get grain out of its borders via land and via the Danube, bypassing the Black Sea, blocked by the Russian army since February 2022. Second, *The Russia-Ukraine Grain Deal*, an agreement negotiated by UN and Turkey, renewable every 60 days. The deal has enabled Ukraine to transport millions of tons of food through the Black Sea despite the ongoing conflict. The Ukrainian conflict revealed once again the importance of the maritimization of the world agricultural trade, where among 80% of the world agricultural trade transit in the Ocean (*Ukraine 85% via the Black Sea*). The Black Sea is an economic, logistic, and agricultural breath for Ukraine and all the countries that depends on its agricultural products, for Turkey. President Erdogan has many interests that the agreement works, for many reasons. First, Turkey is the first world flour exporter, so it needs to import wheat from Russia to ensure the production. Second, the pivot role of mediator of the conflict allows Turkey to conquer an even more important in the arena of international relations. Third, the Erdogan project to build a commercial canal in Istanbul, as Suez and Panama, will increase the economic revenue and weight of Turkey in the international trade. What is certain, is that the only thing that still link Russia and Ukraine is the Grain Corridor (Abis, 2023).

3. "The dependence trap" near the Black Sea

In the Mediterranean region, as in many regions around the world, the obstacles to food security are well known *water scarcity, lack of land, climate uncertainty, heterogeneous demography, geopolitical instability, internal and external conflicts*. But, most of all, there are two factors that are rising as destabilizing. The first is climate change, that affects sea and land, impact seasonality, yields, agriculture production, animal, and plant health. The second one, is the geopolitical barometer, where international relations have been strained for a while, I particular *by COVID-19 and the war in Ukraine.* These two catalysts, climate change and geopolitics, have called into question Europe's internal actions at strategic and external levels. Ukraine has supplied many agricultural products to the Mediterranean basin in recent years. Together with Russia they have developed their international relations through food and agricultural products (Abis and Demurtas, 2023).

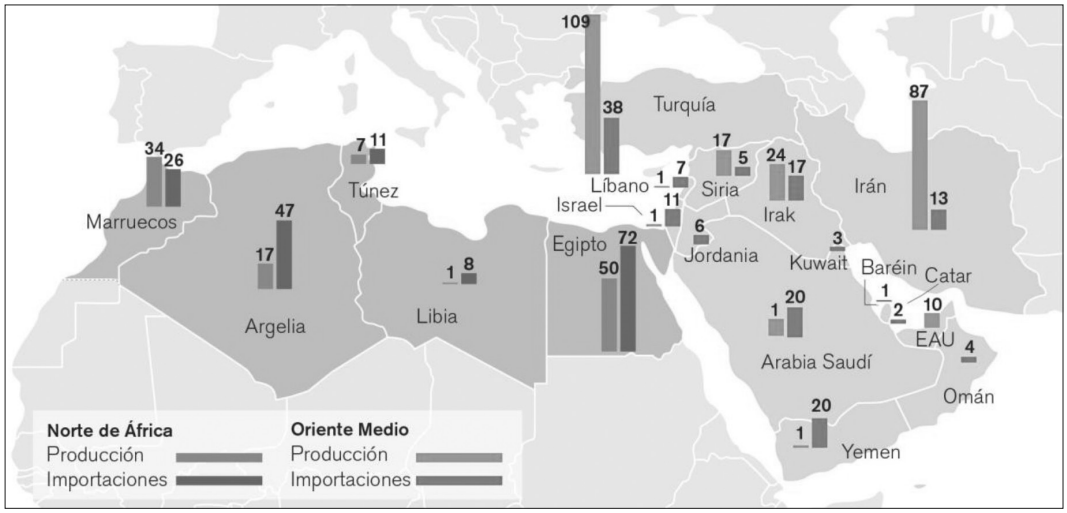
It must be underlined that Europe was the first to raise the problem of food security at the beginning of the century. But instead of carry on a Mediterranean strategy, strengthening and renewing cooperation in the basins, it turned toward more powerful countries, becoming completely depend on them in terms of agriculture and energy supply, leaving the Mediterranean behind. So, the real question is if agriculture could in some way mobilize a new Euro Mediterranean cooperation by putting agri-food issues back at the middle of multilateral cooperation and intra-social relations at national and international level, underlying the importance to choose what to eat as a bastion of world freedom

to create a common food identity. The lack of a political vision and its inability to define an effective agricultural model has been a weakness for Europe and the Mediterranean, especially in terms of north-south cooperation. The only countries that have put agricultural products at the core of their international strategies and, most of all in the international markets were Ukraine (GMO free corn) and Russia. Regulatory convergence at the European level together with a renewed agenda towards the Mediterranean region should be the priority for the stability of the European continent and for its commitment to Africa. Mediterranean countries cannot unilaterally fight these battles given the complexity of the issues. Uniting to change is the only responsible path to face the geopolitical instability. In the short term, the risks are real. It is therefore appropriate to resume the strategies, already outlined in previous years, of cooperation, solidarity, and complementarity in the agri-food sector, to ensure strong food security. However, it is still too early to measure the full impact of the Russian-Ukrainian conflict on the Mediterranean region. The food uncertainty is great, as on the one hand the persistence of the conflict in Ukraine complicates the prediction of future harvests, and on the other, the impact on international wheat production undermines the stability of markets and the ability to supply quantities adequate to meet global food demand.

North Africa and the Middle East (MENA) represent only 4% of the world's population, but region accounts for 30% of world wheat purchases, which half of that come from Ukraine and Russia. Together account for 80% of wheat imports from Turkey and Lebanon, nearly 75% for Libya, 40% for Saudi Arabia, almost 50% for Tunisia and 80 % from Egypt, the largest wheat importer in world (for example, every minute, in Egypt, 5000 kg of wheat are consumed, 210 million tons of wheat in 20 years, 30 million kg of wheat per day). The hyper dependence on imported cereals for MENA region, is explained by water and land scarcity, population growth and accelerating climate change. In MENA region water is scarce and a variety of countries are affected by severe and growing water stress. The availability of arable land is limited and most of these, suitable for agricultural activity, are already fully used. In this context, unfavorable to agricultural activity, the demographic growth recorded in the last century has inevitably accentuated the food vulnerability of the region. The population has increased from 140 million to 180 million in the last five decades: *50 million inhabitants in 1950, 250 million in 2020 and 320 million in 2050 according to the latest United Nations projections*. The MENA region is one of the most dependent on food coverage on the planet. The demand for agricultural products has multiplied by six since 1960. Currently, about 40% of the region's consumption of these products comes from international markets. The regional average hides the large disparities at the national level, as 1 in 2 calories is now imported in countries such as the Maghreb and Egypt, particularly about the import of cereals. In Algeria and Jordan, two thirds of the grain consumed comes from the international market. In Lebanon and Yemen, 90% of wheat needs are covered by imports. It should be emphasized that the improvement in agricultural production in recent decades has been very slight if not completely absent in the region, leading to the use of the international market to fill the deficit (out of 110 Mt of grain that the region consumes, 65 Mt are imported) (Abis, 2023).

The dependence of Arab countries is also linked to price factors. Due to culinary traditions and low incomes of a part of the consumers, wheat, along with bread, is the staple food of Mediterranean societies. The region consumes the largest quantities of bread in the world. Different climate agendas and the considerable inequalities on natural resources and food security among the Mediterranean's regions make it difficult an effective cooperation for the common good. *1 inhabitant over 3* suffers food insecurity in the Arab world (Abis and Demurtas, 2023). Russia has grasped the strategic nature of wheat and took the opportunity to establish its influence in the region. At the beginning of this century, during the deployment of its wheat exports, Russia has mainly targeted North African and Middle Eastern countries, being aware that these countries no longer wish dependent on the United States and European powers. This

Figure 1 - North Africa and Middle East: the wheat interdependence. Accumulated imports and production of wheat during the last 6 seasons from 2014-2015 to 2019-2020 in million tons.



Source: Club Demeter, 2020, USDA, FAO. Graphics: Adriana Exeni.

deployment has gone through the acceleration of its wheat production, but also through the financing and construction of storage silos and infrastructure ports.

Despite the Kremlin's reassurances, importing countries may find it increasingly difficult to buy grain from Russia, due to difficulties in transferring funds to Russian companies and insuring their vessels. Countries like Lebanon (already hit by a strong economic and financial crises), Syria, Yemen, and Palestine, have been heavily impacted by inflation and humanitarian crises, so they are the most fragile. Humanitarian organizations have warned that rising commodity prices and cuts in aid budgets could imply less food for refugees and victims of conflict. The economic impact of the Ukrainian crisis on North Africa and the Middle East does not stop only at the agricultural question. Less dependent countries from Ukraine or Russia for their agricultural imports, such as Algeria and Morocco, are also seeing food prices increase, due to the soaring fuel prices and reduction in fertilizer supply. In 2021, Russia was the leading exporter of urea, potash and ammonia, necessary components to produce nitrogen fertilizer. With fertilizer prices doubling since the summer 2021, the difficulty of access to these agricultural inputs, essential for yields, dramatically intensifies.

If Mediterranean regions keep on focus only on the environmental variable, it will be difficult to bring the lines together and therefore transfer responsibilities equally. The Mediterranean is characterized by the typical north-south dialectics, as to say *fight to avoid the end of the planet versus fight to arrive at the end of* the month, which is a priority for many of the southern countries. The food security issue is the key point to get together countries that are deeply different between them. From 1950 to 2022 the population in north Africa and MENA regions is multiplied by 5 and the social and political situation still unstable. The demographic pick will oblige national governments to find solutions able to satisfy the increased food demand and to feed much more people than before (Valls Bedeau *et al.*, 2021).

4. Conclusion

Multilateralism in the Euro-Mediterranean region can therefore have a significant role especially in addressing long-term drivers. The *Union for the Mediterranean (UfM),* a unique institution including 42 countries of the Euro-Mediterranean region should be an important tool promoting regional stability, social development, and economic growth, addressing the

challenges of migration, climate change, agriculture, and food security in the region (Mulazzani *et al.*, 2020). This can be achieved by focusing on the promotion of human development, reinforcing regional integration, and supporting sustainability, creating synergies, and fostering projects spurring social and inclusive development, therefore mainstreaming migration in regional development and integration. In this context a question arises, which role will Europe play in the new international dynamics and in the building of a renewal Mediterranean cooperation?

It is necessary to increase South-North and South- South cooperation as drivers for structural growth, offering increased local opportunities as an alternative to economic migration and countries independent policies (Provenzano, 2018). There is a need to identify special weaknesses for labor market inclusion and to create employment opportunities, especially for young people and women in local communities, with a focus on vocational training and the creation of micro and small enterprises, fostering research and improving education. The promotion of regional integration is essential in this century to stimulate growth and fight against poverty, especially in the southern Mediterranean where economic integration could be much more developed sub regionally and regionally, as it is currently one of the least integrated regions in the world. Further economic integration would spur economic development and provide new job opportunities for its booming youth population, which is a generational opportunity for structural growth.

In the very long run of this century, the world needs a powerful *global agricultural rearmament*. This century sets an unprecedented appointment with agriculture, one of the oldest human activities, an activity that, even in 2023, cannot be surpassed. Every human being needs to eat to survive, and, if it is possible, several times a day. This is an obvious fact that must always be remembered.

But why does the 21st century sets an unprecedented appointment? Around 2050 the world population will be 10 to 11 billion inhabitants. An unprecedented demographic pick. So, it is necessary at national, regional and international level to propose and ensure food security for everyone, to ensure geopolitical, social, and human stability. We, as Mediterranean and Europeans, need an agricultural and food response for a colossal mass of people that will come, without making exceptions, and to give to each of them, the possibility of feeding, if it is possible, more times a day.

In the 21st century, global agriculture and food security require a sustainable food and agricultural system. It must be more efficient and virtuous for the entire ecosystem. Production should be increased in some areas, and decreased in others, drastically reducing food waste and the environmental impact of production activities on natural resources. It is also necessary to intensify the sustainability of these systems and of agricultural yields, so as not to have the need to continue deforestation practices and disparate research for new cultivable areas. It is necessary to verticalize agriculture production more than ever. A new *global agricultural rearmament*, able to increase collective play, multilateralism, and shared investments. A growth of solutions and innovations to enable the greater world to benefit from human, social and food security.

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