

# Climate Change and Food Resilience in Africa and the Middle East

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## Introduction

The Russian war in Ukraine destabilized supply chain and put under stress African and Middle Eastern food systems, emphasizing their vulnerability and the need to improve their resilience. Climate change represents an even more ominous challenge in this regard, adding pressure on land and water and reducing yield growth<sup>1</sup>. In a globalized world, this issue cannot be relegated to humanitarian assistance or development partnerships. The European Green Deal and agriculture policies affect food systems in the Global South. Conversely, current, and future food crises threaten economic and political stability of African and Middle Eastern countries, and consequently economic interests and geopolitical security of the European continent (food shortage, migrations, collapsed states becoming a haven for terrorist organizations). Visegrad countries (V4)<sup>2</sup> have been affected by the war and the rerouting of Ukrainian grains. Due to the repercussions of the solidarity lanes on their own agricultural production, food resilience in the Southern neighbourhood and Sub-Saharan Africa should become a priority for them. They have the capacity to play a role in the collective European effort in this matter.

This policy paper is based on half a dozen semi-structured interviews with European Union (EU) officials, lobbyists, and scientists conducted in Brussels in July 2023, thanks to a Think Visegrad Fellowship<sup>3</sup>. These interviews have been realized under condition of anonymity in order to create a climate of trust, conducive to fruitful exchanges.

## Impact of Climate Change on Africa and Middle East Food Systems

Food crisis following the Russian aggression on Ukraine has been a warning regarding global food security. It affected mostly MENA countries, especially Egypt, Tunisia, and Lebanon<sup>4</sup>. In Summer 2022, the Black Sea Initiative calmed the market<sup>5</sup>. Its cancellation by Russia on July 17, 2023 has put even more pressure on solidarity lanes<sup>6</sup>. Europe has become the main destination of Ukrainian wheat in 2022, when only 3% of it was exported to Europe prior to the conflict<sup>7</sup>. The Visegrad group (V4) countries have become – together with Romania and Bulgaria – among the main receivers of Ukrainian

<sup>1</sup> OECD (2023). “Climate change and the policy implications for agriculture and fisheries,” *OECD: Better Policies for Better Lives* <https://www.oecd.org/agriculture/topics/climate-change-and-food-systems/>

<sup>2</sup> Czechia, Slovakia, Poland, and Hungary.

<sup>3</sup> The author wishes to thank all the interviewees, as well as the Europeum team in Brussels which greatly facilitated his work.

<sup>4</sup> Sub-Saharan Africa is less dependent than MENA to wheat. It is essentially a middle-class product of consumption in this region, while it is an essential part of diet in most of MENA countries.

<sup>5</sup> From 5,000,000 tons of wheat to 800,000 tons. See Cherif, O. T. (2023). “Blé et guerre en Ukraine : quels impacts pour l’Afrique ?,” *FARM Foundation* <https://fondation-farm.org/ble-guerre-ukraine-afrique/>

<sup>6</sup> Directorate-General for Mobility and Transport (2022). “European Commission to establish Solidarity Lanes to help Ukraine export agricultural goods,” *European Commission* [https://transport.ec.europa.eu/news-events/news/european-commission-establish-solidarity-lanes-help-ukraine-export-agricultural-goods-2022-05-12\\_en](https://transport.ec.europa.eu/news-events/news/european-commission-establish-solidarity-lanes-help-ukraine-export-agricultural-goods-2022-05-12_en)

<sup>7</sup> Cherif, O. T. (2023). “Agriculture en Ukraine : un an après le début de la guerre, quel bilan pour les céréales ?,” *FARM Foundation* <https://fondation-farm.org/guerre-ukraine-cereales-bilan/>

exports, plummeting the price of their own agricultural production. Thus, one of the effects of the Black Sea Initiative cancellation has been to deepen internal rifts among European countries<sup>8</sup>.

Inflation of food price, together with post-Covid slowdown, is a burden for many African and Middle Eastern countries, aggravating the debt crisis, and debt exposure to China. 333 million people are facing acute levels of food insecurity according to the World Food Programme<sup>9</sup>. In the short term, humanitarian assistance is required. In the long term, global food system should be reformed to ensure more stability and food security, especially at a time when climate change shock and access to water are becoming more and more pressing issues. Due to population growth and dietary changes, it is expected that Africa will become even more food dependent in the future. Food patterns in Africa are evolving, due to urbanization and the development of the middle class, with an increase of animal protein in the dietary habits.

African and Middle Eastern economies rely heavily on agriculture, which occupies broad sectors of the population, mainly in familial exploitations<sup>10</sup>. Yet, agriculture performance is especially low in Africa, to the point it is difficult to make a living income from it. Some countries have 60% of their population working in the agriculture sector and are still strongly dependent on food imports. The situation improves, but progress is slowed down by climate change<sup>11</sup>. Low productivity creates an intense pressure on land conversion, even if most of the agriculture is familial. Extension of arable land causes deforestation<sup>12</sup>, which aggravates carbon emissions<sup>13</sup> and reduces biodiversity<sup>14</sup>. African ecosystems – especially in the equatorial forests of the Congo basin – are among the most rich and diverse in the world<sup>15</sup>. In addition, climate change favours spread of pest and disease, to which crop cultures are particularly vulnerable<sup>16</sup>. Last, water scarcity increases political instability, which discourages investors from agriculture production in this part of the world<sup>17</sup>.

<sup>8</sup> See, Kennedy, N. (2023). "Poland, Slovakia, and Hungary to defy EU and extend ban on Ukrainian grain imports," *CNN* <https://edition.cnn.com/2023/09/16/europe/ukraine-grain-imports-pland-slovakia-hungary-intl/index.html> See also, AFP (2023). "Czech farmers squeezed out of EU grain markets by Ukraine imports: Lobby," *Alarabiya News* <https://english.alarabiya.net/News/world/2023/04/18/Czech-farmers-squeezed-out-of-EU-grain-markets-by-Ukraine-imports-Lobby>

<sup>9</sup> WFP (2023). "A global food crisis," *World Food Programme: Saving Lives, Changing Lives* <https://www.wfp.org/global-hunger-crisis>

<sup>10</sup> Ricciardi V., et al. (2018). "How much of the world's food do smallholders produce?," *Global Food Security*, 17, pp. 64-72 <https://doi.org/10.1016/j.gfs.2018.05.002>

<sup>11</sup> According to a scientist interviewed in Brussels in July 2023, productivity in Africa is already 34% lower than it could be due to climate change.

<sup>12</sup> Xiangping H., et al. (2021). "Recent global land cover dynamics and implications for soil erosion and carbon losses from deforestation," *Anthropocene*, 34, pp. <https://doi.org/10.1016/j.ancene.2021.100291>

<sup>13</sup> UN (2022). "Land - the planet's carbon sink," *United Nations* <https://www.un.org/en/climatechange/science/climate-issues/land>

<sup>14</sup> Muluneh, M. G. (2021). "Impact of climate change on biodiversity and food security: a global perspective—a review article," *Agriculture & Food Security*, 10(36) <https://doi.org/10.1186/s40066-021-00318-5>

<sup>15</sup> Billand, A. (2012). "Biodiversity in Central Africa forests: an overview of knowledge, main challenges and conservation measures," In: De Wasseige, C., et al. (eds.) *The forests of the Congo Basin: State of the forest 2010*. Luxembourg: Publications Office of the European Union, pp. 63-94.

<sup>16</sup> FAO (2008). *Climate-Related Transboundary Pests and Diseases: Technical Background Document from the Expert Consultation Held on 25 to 27 February 2008*. Rome: FAO. <https://www.fao.org/3/ai785e/ai785e.pdf>

<sup>17</sup> Jawahar, P., & Quint, I. (2023). "The Ripple Effect: Why Investors Should Care About Water Shortages," *Multi-Asset & Solutions Investment Strategy*. Aegon Asset Managements.

Africa is more integrated in the global system than it is regionally integrated. This situation is a legacy of colonialism, which organised African and Middle Eastern production with regards to the needs of colonial powers<sup>18</sup>. Thus, these countries are heavily dependent of the global market for feeding their population, buying agricultural intrants and selling their production. This spells disaster when supply chains are affected, which has been the case for the last couple of years due to Covid pandemic<sup>19</sup> and the Russian aggression on Ukraine. Rising energy price – which will likely become a permanent feature of a world compelled to reduce its fossil fuel consumption – impose a de-globalisation of African and Middle Eastern food systems. But conversely, local food systems would be particularly vulnerable<sup>20</sup> to climate disasters, drought, epizooties, and botanical epidemics. Thus, regional integration seems to be the most effective solution to improve resilience of African and Middle Eastern food systems. This could prove especially true with regards to fertilizers at a time when Russia is using its fertilizer production to clientelize African state. 70% of global phosphate reserves (an important component for chemical fertilizer production) are located in Morocco, an African country<sup>21</sup>.

The European “Farm to Fork” strategy (F2F) has been criticized for being too euro-centric and neglecting the side effects of European agriculture policies on the global market and extra-European food systems<sup>22</sup>. Indeed, Europe is a major agriculture power, with one of the most carbon efficient systems. The F2F focuses on reducing the carbon impact of European agriculture but without strong incentives to adopt less carbon intensive dietary habits (namely, less meat). Thus, this strategy will reduce European production, but not the demand. As a result, price of food (meat, and also cereals used to feed livestock) will rise on the global market – which could be good news for producers in Africa in the long term, but would increase food insecurity in the short term, due to food dependence of several African countries. In addition, countries in the Global South will need to increase their production to compensate reducing of European supply on the global market. Since their food systems are more carbon intensive, this would lead to more carbon emissions globally, and put more pressure on equatorial forests, not only in Africa but also in South America and South-East Asia<sup>23</sup>.

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<https://www.aegonam.com/globalassets/aam/news--insights/nl-news-insights/documents/2023/the-ripple-effect-why-investors-should-care-about-water-shortages.pdf>

<sup>18</sup> Mbekeani, K. K. (2013). *Understanding the Barriers to Regional Trade Integration in Africa*. Tunis: African Development Bank Group.

[https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/September\\_2013\\_-\\_Understanding\\_the\\_Barriers\\_to\\_Regional\\_Trade\\_Integration\\_in\\_Africa.pdf](https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/September_2013_-_Understanding_the_Barriers_to_Regional_Trade_Integration_in_Africa.pdf)

<sup>19</sup> Clapp, J., & Moseley, W. G. (2020). “This food crisis is different: COVID-19 and the fragility of the neoliberal food security order,” *The Journal of Peasant Studies*, 47(7), pp. 1393-1417.

<sup>20</sup> Thornton, P. K. *et al.* (2014). “Climate variability and vulnerability to climate change: a review,” *Global Change Biology*, 20(11), pp. 3313-3328.

<sup>21</sup> Bouanani, R. (2022). “The gold rush for Morocco's phosphate in the Ukraine war aftermath,” *Middle East Eye*. <https://www.middleeasteye.net/news/morocco-gold-rush-fertilisers-war-ukraine>

<sup>22</sup> Dekeyser, K., Woolfrey, S. (2021). “A greener Europe at the expense of Africa? Why the EU must address the external implications of the farm to fork strategy,” *ECDPM Briefing note*, 37 <https://ecdpm.org/work/greener-europe-expense-africa-why-eu-must-address-external-implications-farm-to-fork-strategy>

<sup>23</sup> *Ibid.*

## Instruments of the EU

The main tools of EU in this matter are development cooperation, Green transition, and sustainable development. EU uses public funding to invest in private actors working in the agriculture of the Middle East and North Africa. Bilateral and multilateral trade agreements are parts of the EU policy toward Africa and the Middle East. The EU is also involved in cooperation with the Pan African Farmers Organisation in creating agrifood business platforms and in encouraging private European funds to invest in African food system. The Africa-Europe rural transformation action agenda has been set up in 2019<sup>24</sup>.

With the MENA region, EU used different tools: Gulf states are able to import food to cover their needs. They also buy agricultural land in Africa, America and Europe and import directly from these lands. Some other countries such as Yemen, Syria and Iraq are in a humanitarian framework. In North Africa, European policies combine short and middle term humanitarian assistance (such as the “food and resilience facility” which notably helped Egypt to increase its storage capacity<sup>25</sup>) and long-term programming (until 2027) through neighbourhood instruments to facilitate the transition toward sustainable food system. Nevertheless, EU’s response to the food crisis following Russian aggression on Ukraine, if swift and adequate, was limited compared to the scale of needs<sup>26</sup>.

The current crisis has highlighted the risks inherent to the lack of diversification in terms of supply. Left to itself, the global food market does not create a need to diversify<sup>27</sup>. On the opposite, it creates more dependency, inciting countries in development to produce to satisfy global demand rather than the needs of their population, and to rely on imports to satisfy their needs. At the same time, the regulatory standards of the EU complexify the work of its partners which want to export to the European market. Interception and blockade of products due to standards issues or health issues create instability and anxiety on the market. In the long term though, these standards may help EU partners in Africa to build more sustainable agriculture systems. The problem is that this regulatory approach represents a challenge for developing countries, which are tempted to develop their export toward other markets, such as the US, China, and the Gulf states. It is also often perceived as protectionism or neo-colonial attitudes<sup>28</sup>, and these perceptions are exploited by Russian propaganda<sup>29</sup>. Thus, the solution is to move toward more self-sufficiency.

<sup>24</sup> “Africa-Europe rural transformation action agenda,” *European Commission* [https://agriculture.ec.europa.eu/international/international-cooperation/africa/africa-europe-rural-transformation-action-agenda\\_en](https://agriculture.ec.europa.eu/international/international-cooperation/africa/africa-europe-rural-transformation-action-agenda_en)

<sup>25</sup> Reidy, J. (2023). “EU grant supports Egypt’s food security,” *World-Grain.com* <https://www.world-grain.com/articles/18333-eu-grant-supports-egypts-food-security>

<sup>26</sup> Di Ciommo, M., Rampa, F., Dekeyser, K. (2022). “The EU’s capacity for crisis response: A look at the 2022 food crisis,” *ECDPM Discussion Paper*, 330 <https://ecdpm.org/work/eus-capacity-crisis-response-look-2022-food-crisis>

<sup>27</sup> According to an interview with officials of the European Commission’s directorate for agriculture and rural development.

<sup>28</sup> *Ibid.* See also, Kanth, R. (2022). “EU’s ‘deforestation-free products’ to constitute neo-colonial strategy?,” *SUNS*, 9530 <https://www.twn.my/title2/wto.info/2022/ti220306.htm>

<sup>29</sup> See for instance, Embassy of the Russian Federation in the Republic of Zimbabwe (2023). “The EU’s neo-colonial policy in Africa,” [https://zimbabwe.mid.ru/en/news/the\\_eu\\_s\\_neo\\_colonial\\_policy\\_in\\_africa/](https://zimbabwe.mid.ru/en/news/the_eu_s_neo_colonial_policy_in_africa/)

## How EU could help Africa and the Middle East to build more self-sufficiency

EU should assist Africa and the Middle East to transition towards more self-sufficiency at least in terms of food. This would contribute to the preservation of forests in this part of the world and thus to reduce carbon emission and preserve biodiversity. It would also reduce the weaponisation of food and fertilizers by Russia or China. Coordination and communication need to be improved at the regional level: African countries should specialize their production with regards to their capacity, but also to the needs of the continent, rather than the global market. Yet, neither Africa nor the Maghreb or the Middle East are integrated. Countries are picking different models, from EU, but also the US or China. Some states have collapsed and cannot develop a comprehensive approach to reforming their food system. Yet, European Green Deal can bring some solutions to the current issue, by accelerating transition to sustainable energy and more resilient food systems<sup>30</sup>. Green Partnerships, such as the agreement between EU and Morocco are a tool to extend this Green Deal to Africa and the Middle East, at the condition EU addresses perceptions of double standards and unilateral decarbonisation<sup>31</sup>.

Foreign policies of V4 countries are traditionally European-centric and neighbourhood-centric (which includes part of the MENA region). Priority for them is Ukraine and the Balkans. But the creation of the solidarity lanes has made their own agricultural production vulnerable to Ukrainian concurrence, driving the prices of cereals down, and triggering farmers protest<sup>32</sup>. This emphasized how their situation is linked to the rest of the world: food security issues in Africa and the Middle East being the reason why the EU opened these solidarity lanes in the first place. As a response, they could try to revive some of the mechanisms of cooperation with the global South which existed during the time of former regimes. In particular in terms of research and development. Here, the Faculty of tropical agriculture at the Czech University of Life Sciences Prague is a good example of what can be achieved in this domain. Poland, for instance, could share its experience in food processing with partner countries in Africa. More generally speaking, V4 countries' experience with transition to an open market could benefit some African and Middle Eastern countries, at least at a technical level, and at the condition of including civil society in the process<sup>33</sup>.

Some actors exist at the intersection of civil society and private sector, trying to bring access to innovation to African and Middle Eastern producers, including small-scale farmers. Their activity

<sup>30</sup> Iacobuță, G. I., Onbargi, A. F. et. al. (2022). "The European Green Deal and the war in Ukraine: Addressing crises in the short and long term," *ETTIG Publication* <https://ettg.eu/publications/the-european-green-deal-and-the-war-in-ukraine-addressing-crises-in-the-short-and-long-term/>

<sup>31</sup> Medinilla, A., Dekeyser, K., Karaki, K. (2022). "Promoting a global green transition following the Russian invasion of Ukraine – The external dimensions of the European Green Deal," *ECDPM Discussion Paper*, 325 <https://ecdpm.org/work/global-green-transition-russian-invasion-ukraine-external-dimensions-european-green-deal>

<sup>32</sup> Deutsche Welle (2024). "Polish farmers block Ukraine border in grain import protest," <https://www.dw.com/en/polish-farmers-block-ukraine-border-in-grain-import-protest/a-68310541> See also, The Associated Press (2024). "Czech farmers block traffic in Prague in protest against the government and EU agriculture policies," *AP News* <https://apnews.com/article/czech-farmers-eu-protest-a170bfb134c53a0c2db5e4ccaca11d7c>

<sup>33</sup> Horký, O. (2012). "The Transfer of the Central and Eastern European 'Transition Experience' to the South: Myth or Reality?," *Perspectives on European Politics and Society*, 13(1,) pp. 17-32.

involves training farmers capacity and promoting sustainable practices such as responsible use of pesticide or recourse to biological tools<sup>34</sup>. Indeed, if the recourse to chemical fertilizers can help to alleviate the pressure on forest land in the short term, it is essential to promote sustainable intensification and ecological intensification<sup>35</sup> in the mid to long term. If the use of chemical fertilizers is globally less harmful than deforestation<sup>36</sup>, their production is still heavily carbon demanding. In addition, they do not work so well on degraded soils, and can lead many smallholders into poverty traps<sup>37</sup>. To succeed, ecological intensification and sustainable intensification need to be context-specific and location-specific<sup>38</sup>. Indeed, adaptation strategies of farmers can differ within a same production system, at a very small scale<sup>39</sup>.

Thus, the reform of African and Middle East food systems should be built on local knowledge and existing practices, not by forcing innovation on farmers<sup>40</sup>. Research and development should focus on developing better practices (in terms of productivity and sustainability) from this existing basis. The end-goals should be agro-ecology and climate smart agriculture. Local entrepreneurs and start-up developing techniques increasing productivity while being less demanding in water and chemical intrants should be targeted in priority by funding programs<sup>41</sup>. Sustainable investments in agri-food systems can be stimulate through the involvement of local governments, farmers, processors, and financial intermediaries<sup>42</sup>. At a macrolevel, African Union and the Arab League should be associated to the elaboration of some European directives or at least play a role in their interpretation, as for example directives on deforestation.

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<sup>34</sup> See, CropLife in Africa and the Middle East <https://croplifeafrica.org/>

<sup>35</sup> Cassman, K. G. (1999). "Ecological intensification of cereal production systems: yield potential, soil quality, and precision agriculture," *PNAS*, 96 (11), pp. 5952-5959 <https://doi.org/10.1073/pnas.96.11.5952>

<sup>36</sup> Tilman, D. et. al. (2011). "Global food demand and the sustainable intensification of agriculture," *PNAS*, 108(50), pp. 20260-20264 <https://doi.org/10.1073/pnas.1116437108>

<sup>37</sup> Tittonell, P., Giller K. E. (2013). "When yield gaps are poverty traps: The paradigm of ecological intensification in African smallholder agriculture," *Field Crops Research*, 143(1), pp. 76-90 <https://doi.org/10.1016/j.fcr.2012.10.007>

<sup>38</sup> Zimmerer, K. S. et. al. (2015). "Sustainable smallholder intensification in global change? Pivotal spatial interactions, gendered livelihoods, and agrobiodiversity," *Current Opinion in Environmental Sustainability*, 14, pp. 49-60 <https://doi.org/10.1016/j.cosust.2015.03.004>

<sup>39</sup> Khémiri, E. (2023). *Le bassin versant du Lebna au Cap Bon (Tunisie) : Crise agricole et dynamiques contrastées d'un territoire rural Stratégies d'adaptation des agriculteurs et recompositions socio-spatiales*. Ph.D. thesis. Panthéon-Sorbonne University.

<sup>40</sup> Stone, G. D. (2022). *The Agricultural Dilemma*. New York, NY: Routledge.

<sup>41</sup> Ronco, S. (2023). "Food Security in the Mediterranean Region: an entrepreneurial perspective from Egypt, Tunisia, and Lebanon," *EMEA Publication under the InvestMed Project – Policy Paper*, 7 <https://euromed-economists.org/download/food-security-in-the-mediterranean-region-an-entrepreneurial-perspective-from-egypt-tunisia-and-lebanon/>

<sup>42</sup> D'Allessandro, C., Rampa, F., Dekeyser, K. (2022). "Investing in sustainable food systems: A methodology and lessons learned from Africa," *ECDPM Briefing Note*, 151 <https://ecdpm.org/work/investing-sustainable-food-systems-methodology-and-lessons-learned-africa>



## Conclusion and Recommendations

Current food crisis could represent an opportunity to boost the transition toward more self-sufficiency and more sustainable food systems in Africa and the Middle East. EU can become an actor in this transformation, by improving its existing tools and addressing its partners' concern regarding double standards. V4 countries could and should take part in this collective effort, since this is in their economic interest, and they possess specific knowledge and experience which would prove useful in this matter.

The European Union should:

- Develop a strategy to change dietary habits of its citizens, in complement to the F2F strategy. Namely, efforts should be implemented to reduce meat consumption and favour short circuits, through information campaign and regulatory measures targeting school restauration.
- In the short term, increase its production of fertilizer and help Morocco to increase its own, in order to alleviate the cost of food production.
- In the mid to long term, encourage sustainable agriculture and regionalisation of food system at three levels: associating the African Union and the Arab League to the elaboration of its regulations in the domains of agriculture; developing Green partnerships with the countries of the region; channelling fundings and private investment towards the improvement of local practices and locally developed solutions towards ecological intensification and sustainable intensifications.

V4 countries should:

- Revive and/or develop existing mechanisms of cooperation with African and Middle Eastern countries, especially in terms of research and development (focusing on developing crops and tools less demanding in terms of water and fertilizers).
- Share their specific experience and knowledge in terms of transitioning toward a free market economy, especially toward civil society organizations, small producers, and micro-credit organisms

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