Organisation for Economic Co-operation and Development

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ITEM 5. FOLLOW-UP DISCUSSION ON THE IMPLICATIONS OF THE WAR IN UKRAINE

Proposal for an impact study to consider whether a temporary limit on the production of biofuels could ease the food crisis and what options would be possible

Special Session of the Governing Board
29 June, 14h00-18h00
Hybrid meeting (Room CC15 and via Zoom)

The Development Centre proposes to implement an impact study to consider whether a temporary limit on the production of biofuels could ease the food crisis and what options would be possible. The proposed impact study would build on the Development Centre's previous work on the implications of the war in Ukraine for developing countres (ref. DEV/GB(2022)4), as presented to the 1st Governing Board Informal Session for 2022, on 16 March, and the subsequent spotlight on food price inflation and the implications for food security in developing countries, which proposed actionable recommendations to address the global food crisis (ref. DEV/GB(2022)7), as presented at the 2nd Governing Board Informal Session of May 12th

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The global food crisis exacerbated by Russia's war in Ukraine continues to aggravate

1. **Food insecurity is expected to worsen in 20 "hunger hotspots" this year, through a combination of war in Ukraine, regional conflicts elsewhere, and climate change, putting a record 47 million people in 81 countries at risk of famine** (WFP, FAO, 2022)**.** Russia and Ukraine combined represent about 29 percent of global wheat exports, 19 percent of maize exports, and 78 percent of sunflower oil exports (World Resources Institute, 2022). Since Russia's aggression, wheat and corn prices have increased by 41% and 28% respectively.

2. **Some 750,000 people are already experiencing "catastrophic" famine including starvation and acute malnutrition in Ethiopia, Afghanistan, Somalia, South Sudan and Yemen**. Other regions and countries exposed to high levels of food insecurity include northern Nigeria, central Sahel, eastern Democratic Republic of Congo, Sri Lanka and Syria, as well as countries that have previously been less exposed to food crises: Zimbabwe, Benin, Guinea, and Cabo Verde (WFP, FAO, 2022).

3. **Russia's invasion of Ukraine has severely aggravated food shortages that were severe even before the invasion, with the number of severely food insecure people doubling since the start of the Covid-19 pandemic, from 135 million to 276 million** (United Nations, 2022)**.** Russia's war in Ukraine is compounding what was already a year of catastrophic food shortages, unleashing a wave of hunger that is spreading across the globe, transforming a series of hunger crises into a global food crisis (WFP, FAO, 2022). In addition to the pandemic, aggravating factors have included climate change and La Niña, a climate pattern that changes ocean currents and meteorological conditions.

4. **High fertilizer prices could result in global agricultural output falling by tens of millions of tons, enough to feeds hundreds of millions of people (**IDFC, 2022; Bloomberg 2022). Soaring prices on natural gas are a main cause of the growth in fertilizer prices, since natural gas is a main input for nitrogen fertilizers such as ammonia and urea. The high prices of natural gas have caused some producers of fertilizer to cut back production, with Yara, one of the world's largest producers, curtailing its European ammonia and urea production by 55%. The price of potash, another key ingredient for fertilizer, has also gone up since the start of the war, with Russia and Belarus historically being major exporters. In spite of fertilizer prices falling slightly in recent weeks, prices remain at record highs compared to earlier years.

The international community is taking measures to address the food crisis

5. **Emphasizing the gravity of the global food crisis, the G7 have pledged to fight global hunger and committed to building the Global Alliance for Food Security** (G7, 2022). In the commitment to the Global Alliance for Food Security, the G7 commits to i) an additional USD 4.5 billion to protect the most vulnerable from hunger and malnutrition; ii) help facilitate the export of Ukrainian agricultural products; iii) ensure that sanctions packages are not targeting food and allow for the free flow of agricultural products, including from Russia, and the delivery of humanitarian assistance; iv) sustainably increase the availability of agricultural products including through strengthening agricultural productivity; v) keep its food and agricultural markets open; and vi) support the strengthening of long term resilience and sustainability of agriculture and food systems.

6. **Other actual and potential international measures include**:

   a. International pressure and sanctions on Russia to stop the war and unlock Ukrainian ports for food exports.

   b. Multilateral organisations have issued calls for countries to avoid export bans on food and fertiliser (World Bank Group, IMF, WFP, WTO, 2022).

   c. Recent weeks have seen developments to increase exports of Ukrainian food crops, through Romanian Black Sea ports, via the Danube River (EU Observer, 2022), and via road and rail (The Guardian, 2022).

   d. Short-term responses concerning energy and fertilisers could include i) enhancing international dialogue and cooperation on energy and food supply security, ii) incentivising and enabling food growers to increase the

efficiency of nutrient use, and iii) alleviating pressure on natural gas and oil markets by adopting short-term measures to reduce demand like investing in energy efficiency in buildings and industry (IEA, 2022).

e. A reallocation of Special Drawing Rights to developing countries could help free up resources for implementing social protection programmes to mitigate the impact of the food crisis, but international agreement on this is not confirmed or immediately forthcoming.

f. Measures to address the immediate crisis need to be accompanied by medium to longer term policies that support the global expansion of climate resilient food and fertilizer supply (see previous DEV spotlight on food prices and food crisis).

The evolution of global food supply, and of food security, remains uncertain

7. **Whereas international initiatives to address the food crisis are essential and important, the evolution of global food supply and food insecurity remains uncertain.** Uncertainties include:

a. How long it will take for international pressure, and sanctions on Russia to stop the war and unlock Ukrainian ports for food exports, to have an impact on global food supply and prices.

b. Weather and climate events variables in coming months, which will impact on agricultural output globally this growing season.

c. The impact of establishing alternative export routes for Ukrainian grain on Ukrainian export volume.

d. Ukrainian farmers' productive capacity wile under the duress of war, and how much of Ukraine's sown crop it will be possible to harvest this season.

e. The magnitude of aggregate international efforts to mitigate food insecurity, relative to the extent of food insecurity.

8. **Measures that provide relief to vulnerable populations could be insufficient unless these measures are sufficiently large or/and accompanied by steps to expand global food supply and bring down food prices broadly.** If direct support for vulnerable groups is sufficient to ensure food security for all vulnerable groups globally, then markets will transfer price pressures in food markets to those better able to cope with them. However, if direct support to vulnerable groups is insufficient globally, then it may be necessary to bring down food prices broadly by increasing food supply. In the medium term, agricultural productivity could be raised by ensuring the availability of fertilizer and other means. In the short term, global food supply could possibly be increased by reducing the share of global agricultural production going to biofuels.

9. **Long-term measures to address structural insufficiencies are important but unlikely to offer relief in time for the immediate food emergency.** Some of the measures to mitigate food insecurity could have an impact in the medium to long term, without impacting on the immediate food crisis. For example, a reallocation of Special Drawing Rights, if implemented, is unlikely to take place soon enough to address the current food crisis. Measures to address the immediate crisis need to be accompanied by medium to longer term policies that support the global expansion of climate resilient food and fertilizer supply (see previous DEV spotlight on food prices and food crisis).

Options for immediate global action: studying the case for a temporary limit on biofuels production to ease the global food crisis

10. **A temporary limit on the production of conventional biofuels[1] could potentially have an immediate impact on the supply and price of food crops.** The production of such biofuels uses around 4 percent of arable

[1] Conventional biofuels use up a significant share of crops and oils that could otherwise be food. Conventional biofuels are first generation, or crop-based and produced from food crops, and represent nearly all current biofuel production. Advanced biofuels

land worldwide (World Bank, 2022), corresponding to 32 percent of world sugar production, 12 percent of corn, and 15 percent of vegetable oils (OECD/FAO, 2021). In Europe and the United States, two leading producers of biofuels (Table 1), a fifty percent reduction in the amount of grain used for biofuels would compensate for all the lost exports of Ukrainian wheat, corn, barley and rye, according to World Resources Institute (World Resources Institute, 2022). Greater demand for conventional biofuels was an important factor in the 2007/2008 food crisis.

Table 1. Biofuel production ranking and major feedstock

	Production ranking (base period)		Major feedstock	
	Ethanol	Biodiesel	Ethanol	Biodiesel
United States	1 (46.7%)	2 (18.4%)	Maize	Soybean oil, used cooking oils
European Union	4 (4.9%)	1 (30.7%)	Sugar beet / wheat / maize	Rapeseed oil /Palm oil/ used cooking oils
Brazil	2 (26.3%)	4 (13.1%)	Sugarcane / maize	Soybean oil
China	3 (8.4%)	8 (2.8%)	Maize / cassava	Used cooking oils
India	5 (2.9%)	14 (0.4%)	Molasses / sugarcane / maize / wheat / rice	Used cooking oils
Canada	6 (1.6%)	13 (0.8%)	Maize / wheat	Canola oil / used cooking oil/soybean oil
Indonesia	20 (0.1%)	3 (17.5%)	Molasses	Palm oil
Argentina	8 (0.9%)	5 (3.6%)	Molasses / sugarcane/ maize	Soybean oil
Thailand	7 (1.4%)	7 (3.0%)	Molasses / cassava/ sugarcane	Palm oil
Colombia	14 (0.4%)	11 (1.3%)	Sugarcane	Palm oil
Paraguay	11 (0.5%)	18 (0.02%)	Maize/ sugarcane	Soybean oil

Note: Numbers refer to country ranking in global production; percentages refer to the production share of countries in the base period. In the OECD-FAO Agricultural Outlook 2022-2031, biodiesel includes renewable diesel (also known as Hydrotreated Vegetable Oil or HVO), although these are different products.
Source: OECD/FAO (2022), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database)

11. **Demand for agricultural commodities used as biofuel feedstock can adjust quickly, as biofuel demand is mainly determined by policies such as blending mandates.** Demand for biofuels is highly influenced by national policies and subsidies that have three major goals: farmer support, reduced GHG emissions, and/or increased energy supply and independence (OECD/FAO, 2022).

12. **Whereas agricultural crops used for biofuels, animal feed, and food are not perfect replacements for each other, there is sufficient overlap that the effect of a temporary limit on biofuels on food prices is likely to be significant.** Most agricultural products used as biofuel feedstock are not of the same quality as those used for human consumption. Therefore, agricultural commodities not used as biofuel feedstock will most likely be used as animal feed, which would in turn free up other crops for human consumption. For future growth seasons, some of the land used to grow biofuels could be used to grow food crops.

13. **By recent estimates, the global consumption of biofuels is estimated to remain at current levels (biodiesel) or grow slightly (ethanol) (OECD, FAO, 2022).** Demand for biofuels is expected to increase due to developments in transportation fleets, domestic policies that favour higher blends, and greater demand from consumers (Figure 1).

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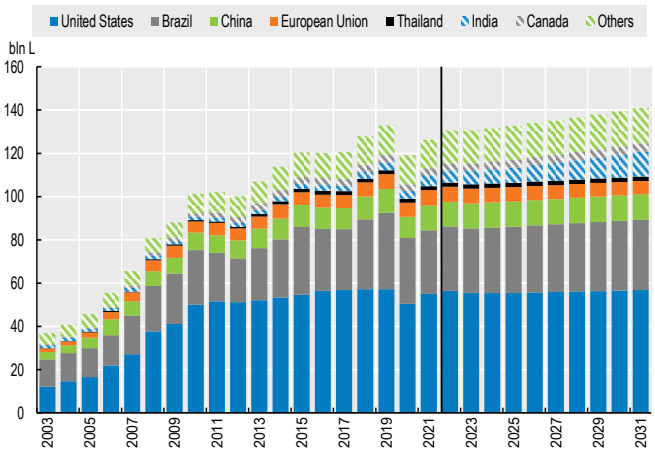
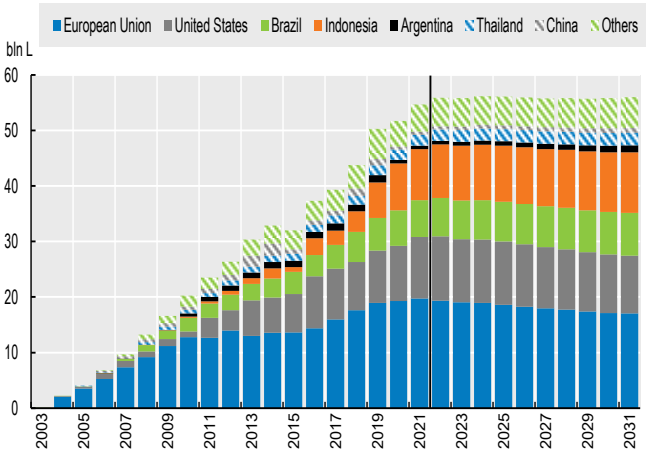
are derived from cellulosic or advanced feedstock, and could become important in the future but the produced volume is yet very small (Transport and Environment, 2020)

Figure 1. Development of the world ethanol and biodiesel consumption, historical, actual, and projected

Ethanol



Biodiesel



*Source: OECD/FAO (2022), "*OECD-FAO Agricultural Outlook*", OECD Agriculture statistics (database)*

14. **While cuts to biofuel production would have a large impact on food supply and prices, the effect on fuel supply would likely be limited.** Since biofuels are fossil fuels replacements, a short-term reduction in biofuel demand is likely to be almost entirely replaced by fossil fuels. However, the effect on fuel prices is likely to be small. The United States, a major producer, uses 30-40 percent of its corn supply for ethanol, to produce only 5 percent of U.S. transport fuel (World Resources Institute, 2022). Due to the differing caloric needs of machines and humans, the impact on food supply and prices is nonetheless likely to be very important. Whereas humans need around 2000 calories per day to survive, a single litre of bioethanol contains 7000 calories, enough to feed a human for 3.5 days – somewhat more if counting the energy lost in transformation from crop to biofuel. Whereas biofuel production generates animal feed as a by-product, the caloric content of biofuel crops is predominantly contained in the end product – the biofuel.

15. **Whereas a temporary limit on biofuels production could affect investor commitment to biofuels, it could be argued that the nutritional needs of the world's poor and vulnerable populations should take priority.** Biofuel production and distribution require significant investments, which rely on policy commitment towards biofuels. Policy adjustments could therefore negatively affect long-term investments into biofuel infrastructure. Nonetheless, the urgency of the food crisis, and immediacy of a potential hunger catastrophe, make it an ethical imperative to pursue the most impactful solutions to the crisis – including a limit on the production of biofuels.

16. **Biofuels have a role in replacing fossil fuels and reducing emissions, which must be taken into account. However, the climate-related impact of biofuels is context-specific and depends on a range of variables.** Studies show a wide variation of GHG emission and non-renewable energy consumption, depending on biofuel production technology. Lifecycle analysis is required in order to evaluate the sources of uncertainty in complex systems, such as biofuel life cycles (Hanaki and Portugal-Pereira, 2018). In particular, where biofuel crops replace carbon-capturing forms of land use, or when the production of biofuels is in itself energy-intensive, the total impact on GHG emissions can be negative.

Proposal for an impact study: A temporary limit on biofuels – Possible scenarios and implications

17. **The Development Centre proposes to implement an impact study to consider whether a temporary limit on the production of biofuels could ease the food crisis and what options would be possible.** The

proposed impact study would build on the Development Centre's previous work on the implications of the war in Ukraine for developing countries (ref. DEV/GB(2022)4), as presented to the 1st Governing Board Informal Session for 2022, on 16 March, and tabled for reference at the OECD Council meeting on 28 March;2 and the subsequent spotlight on food price inflation and the implications for food security in developing countries, which proposed actionable recommendations to address the global food crisis (ref. DEV/GB(2022)7), as presented at the 2nd Governing Board Informal Session of May 12th.

18. **To take account of the uncertainties surrounding the situation in Ukraine, the impact study would make use of scenario analysis and quantitative modelling under a set of different assumptions.** This would include different assumptions for the magnitude of Ukrainian and Russian food exports, about the duration of the war, the magnitude of international support for food security, global supply and prices of fertilizer, climate impact on the current and upcoming agricultural growth seasons, and other key uncertainties.

19. **The study would seek to quantify costs for relevant stakeholders, including biofuel producers, as well as benefits for the populations most exposed to high food prices.** The study would seek to and provide an informed and quantified basis for decision making, for policy makers across the spectrum of positions on biofuels.

20. **The study would draw on expertise across relevant OECD directorates, notably the Trade and Agriculture Directorate (TAD), as well as external expertise where necessary, and would be contingent on VC being made available.**

[2] DEV/GB(2022)4 was also tabled for reference at the OECD Council meeting on 28 March under the item *Updates on repercussions of the large scale aggression by Russia against Ukraine with regard to the economy, trade, financial markets, cyber security and social and labour affairs*

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