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FAO REGIONAL CONFERENCE FOR THE NEAR EAST

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Foresight Drivers and Triggers relevant to the NENA region

Executive Summary

Responding to calls by the 28th Session of the Committee on Agriculture and other Governing Bodies, FAO is currently engaged in foresight exercises for the transformation of agrifood systems at all levels. This Information Note outlines the findings to date of the Regional Foresight Exercise (RFE) for sustainable and resilient agrifood systems, ongoing in the Near East and North Africa region, and elicits further engagement of Members and other regional stakeholders in strategic foresight to support decision making processes.

Agrifood systems in the region face short- and long-term challenges and opportunities. Within the conceptual and methodological framework established by the recently published FAO flagship report *The future of food and agriculture – Drivers and triggers for transformation* (FOFA-DTT), regional experts are analysing selected priority drivers (driving forces) of agrifood systems to detect signals of possible future trends, outline alternative future scenarios, identify global priority areas or "triggers for transformation" and strategic options to activate such triggers.

The different demographic and economic growth patterns in the various subregions, as well as the large income gaps, signal that future significant intra- and interregional migrations may materialize, with implications for agrifood systems both in origin and destination countries. Concurrently, climate change and the degradation of natural resources and ecosystems highlight the emerging trade-off between rapid economic growth and wealth accumulation in oil-producing countries and the need to move away as fast as possible from fossil energy in oil-importing countries. On the demand side, the increasing prevalence of obesity associated with persisting and even increasing undernourishment in the region signals that the future outcomes of agrifood systems could vary depending on the prevailing consumption patterns and the actual possibilities for the vulnerable segments of society to access sufficient, safe and nutritious food.

If the neglect of public investments and geopolitical instability continue, innovative sustainable production approaches such as agroecological practices that trade off physical with human capital and other innovative approaches may be more unlikely to materialize, while differences of per capita income, savings and investment potential may further exacerbate the differences across countries. A possible future change of paradigm in agricultural practices may imply the use of renewable energy, including solar energy, which could be abundant in the region, and the insertion of agriculture within broader circular economy systems. On a global scale, the ongoing conflicts such as the war in Ukraine

and the conflicts in the region stress the trade-off between immediate well-being dependency from foreign inflows of income due to commodity or service dependency, and resilience, implied by diversification of activities and income sources. This trade-off is particularly important for countries in the region that are increasingly relying on imports for their food supplies.

The RFE builds on four global long-term alternative scenarios of possible futures presented in FOFA-DTT, to provide more region-nuanced narratives. To move future agrifood systems towards a scenario of sustainability and resilience, FAO has identified, four "triggers for transformation", to be targeted by suitable strategies, policies and behavioural changes: a) Institutions and governance; b) Consumer (citizen) awareness; c) Income and wealth distribution; and d) Innovative technologies and approaches.

Preliminary RFE findings emerged about the regional nuances of these triggers, to be further articulated at country level for high-income countries (HICs) and low- and middle-income countries (LMICs). Middle-income countries are at a crossroads. They may follow the unsustainable development paradigm adopted by HICs, thus largely contributing to further degrading natural resources, exacerbating climate change, and leading to ungovernable inequalities such as the FOFA-DTT paradigmatic "Race to the bottom" (RAB) scenario. Alternatively, particularly if HICs set a good example, they may adopt innovative development paradigms towards more sustainable alternative futures such as the paradigmatic "Trading off for sustainability" (TOS) scenario.

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I. Short- and long-term challenges facing countries in the region

The post-2008 financial crisis, the COVID-19 epidemic, the war in Ukraine and conflicts in the Middle East are compelling signals of many challenges that governments are facing: geopolitical and geoeconomic tensions, unilateral decisions, economic crises, growing inequalities, ecosystems degradation and climate change. These signals may push to trade off short-term efficiency with longer-term resilience, reliance on own production processes and favour reshoring. These consequences will have a heavy impact on trade and investment flows.

1. The reassessment of global value chains to reduce their dependence from the external context, and recurring disruptions on supply routes such as the Red Sea and Gulf of Aden, may change the relative domestic prices of goods, including food and factors of production, while geopolitical conflicts may increase the cost of servicing external debt and importing food and agricultural inputs.

2. Since 2022, foreign currency reserves of low- and middle- income countries (LMICs) have fallen significantly, with increasing exchange rates that reflected on food prices, particularly in food-importing countries causing distress in parts of societies. Political and social unrest and reignition of previously settled disputes may ensue. Long-lasting debt problems may also strengthen income divergence between LMICs and high-income countries (HICs). In the region, smaller economies are particularly exposed to debt distress[1] and are already being impacted by the effects of global monetary policy change and the evolution of interest rates.

3. Governments in the Near East and North Africa (NENA) region face these urgent realities, further exacerbated by the specificities that encompass the region, in particular, current and future impacts of climate change, extreme scarcity of water, long-lasting political instability and consequential conflicts in several parts of the region, and a heterogenous economic picture based on the availability of oil or lack thereof, making the transition towards sustainability and resilience more challenging but even more urgent.

4. Towards sustainability, decarbonizing economies may require substantial investment. Concurrently, claims to grant workers' rights could increase labour costs while the ageing population, could reduce its supply. These trends could accelerate robotization and automatization, with significant structural impacts and shifts in income distribution due to shrinking the wages share and increasing profits.

5. Amid these challenges, the need to move away from short-termism and towards a more strategic long-term approach is crucial.

II. Background to the Regional Strategic Foresight Exercise

6. Responding to calls by the 28th Session of the Committee on Agriculture to reinforce strategic foresight capacities and activities, FAO is currently engaged in foresight exercises for the transformation of agrifood systems at all levels. In this endeavour, the Organization benefits from the conceptual and methodological framework established by the recently published FAO flagship report *The future of food and agriculture – Drivers and triggers for transformation* (FOFA-DTT), based on the Corporate Strategic Foresight Exercise 2020–2022. This approach underscores the complementarity of qualitative and quantitative foresight; therefore, FAO is strengthening its quantitative analysis and modelling capacities to support Members to better anticipate future scenarios for strategic decision-making.

7. In this context, the Office for Near East and North Africa (FAO RNE), as well as the other FAO Regional Offices, is engaged in a Regional Foresight Exercise (RFE) on the future of agrifood systems, supported by the FAO Foresight Network which comprises several Offices and Divisions.

8. The RFE aims to: a) develop regional and subregional strategic visions and actions to move agrifood systems towards sustainability and resilience; b) support Common Country Assessments and

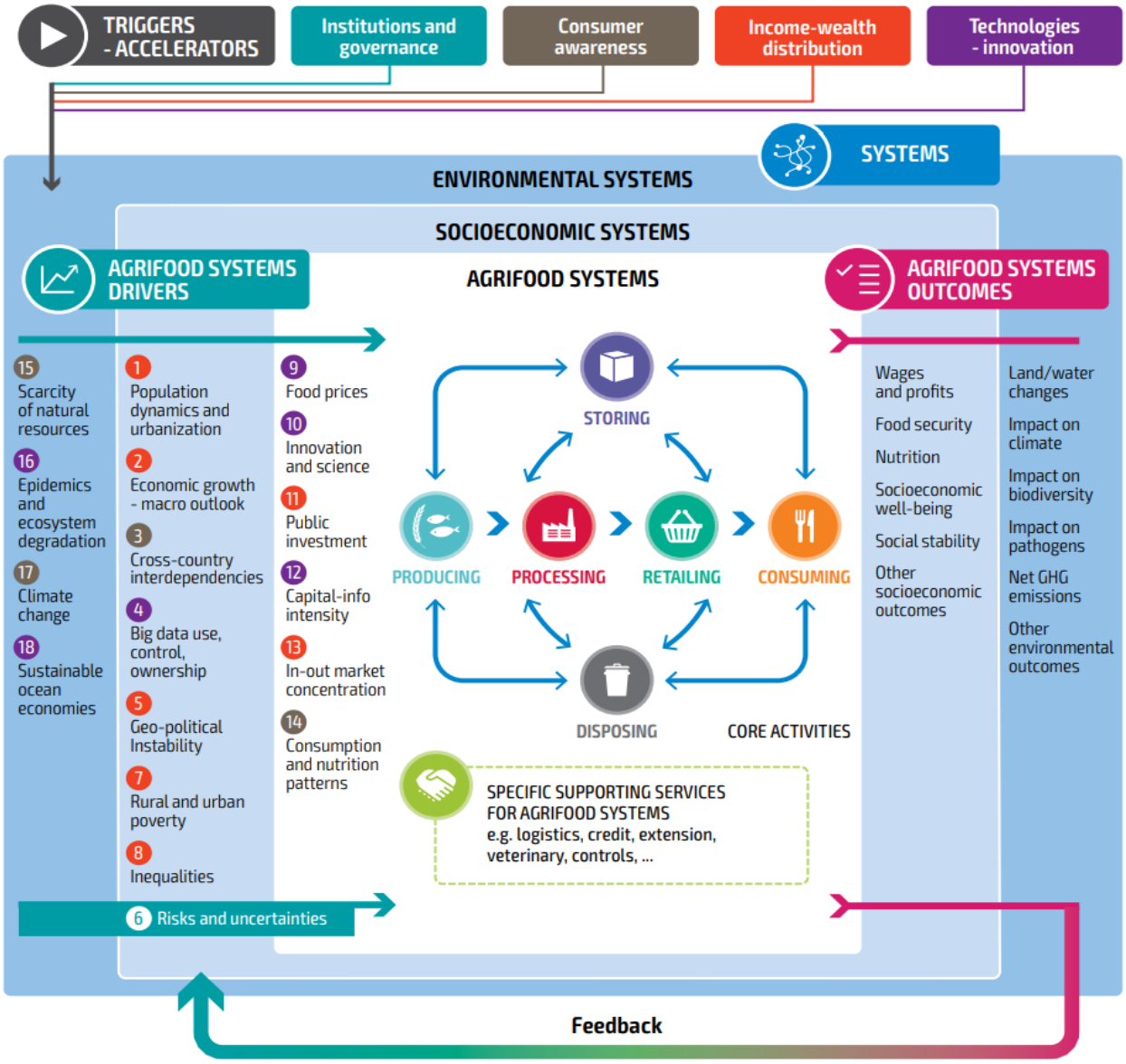
[1] See International Monetary Fund's list of debt distress status, as of 30 November 2023. https://www.imf.org/external/pubs/ft/dsa/dsalist.pdf

Country Programming Frameworks; and c) enhance institutional capacities on strategic foresight exercises at all levels. The RFE provides a granular assessment of regional, dynamic relationships occurring among agrifood, socioeconomic and environmental systems (**Figure 1**), through a stepwise analytical process that considers:

- **Key drivers** (driving forces) of agrifood systems;
- **Weak signals** of possible futures;[2]
- **Scenario narratives** for alternative futures based on weak signals;
- **Triggers for transformation** – priority focus areas that could transform agrifood systems; and
- **Strategic options** and policies to activate key triggers for transformation.

9. This Information Note outlines RFE's findings to date and elicits further engagement of Members and other regional stakeholders in strategic foresight.

Figure 1. Agrifood systems: key drivers, activities, outcomes and triggers for transformation



[2] The term "weak signals" in future studies, borrowed from Strategic Early Warning Systems, refers to events that could magnify to determine the future, or shrink and become irrelevant.

Note: Agrifood systems (white box at the centre), operate within broader socioeconomic and environmental systems (light blue and dark blue boxes). "Drivers" (left-hand side), influence agrifood systems' outcomes (right-hand side). Triggers for transformation (top) affect agrifood systems through their impacts on drivers. *Source*: FAO, 2022. The future of food and agriculture – Drivers and triggers for transformation – Rome, based on F4F Model

III. Drivers of agrifood systems in the Region

10. The RFE Inception consultation with regional experts in September 2023 showed that, among 18 global drivers of agrifood systems analysed in the FOFA-DTT, there are indeed Drivers that appear to be more significant and impactful in the NENA region,[3] and that each of these priority drivers interact with each other, being both influenced and influencing the others in a dynamic manner. Analysing the trends of each driver and their interactions helps understand past and recent performances of agrifood systems, and how socio-economic and environmental systems have influenced them. Moreover, this analysis also hints at possible future trends (weak signals). Accordingly, among the most important drivers and their interplays for the NENA region are the following: [4]

- Climate Change (17);
- Scarcity and degradation of natural resources (15);
- Economic growth, structural transformation and the macroeconomic outlook (2);
- Population Dynamics, including Migrations and Urbanization (1);
- Geopolitical instability and conflicts (5);
- Food prices (9);
- Cross-country interdependencies (3);
- Rural and urban poverty, Inequalities (7&8);
- Science and Innovation (10);
- Public Investment (11);
- Consumption and nutrition patterns (14).

IV. Selected key drivers and related "weak signals"

11. To complement experts' opinions and identify "weak signals" of possible futures, quantitative analyses of key drivers were provided through the interactive FOFA Data Dashboard and other external sources for indicators. Preliminary key findings of a few priority drivers in the region are summarized here below.[5]

V. Climate Change and natural resource scarcity and degradation

Unsurprisingly, climate change and scarcity and degradation of natural resources, in particular, water scarcity, are factors that strongly dictate the realities of the region. The geographic, climatic and soil-profile of the region has been a major factor in defining strong past and recent trends of its countries and of its agrifood systems. These pertain to higher temperatures, extreme water scarcity, extreme climate events (drought, flooding, extreme heat days), and soil degradation, which, coupled with obsolete technology and weak infrastructure for irrigation in many non-Gulf Cooperation Council (GCC) Countries, explains a significant part of the weaknesses of agrifood systems in these countries.

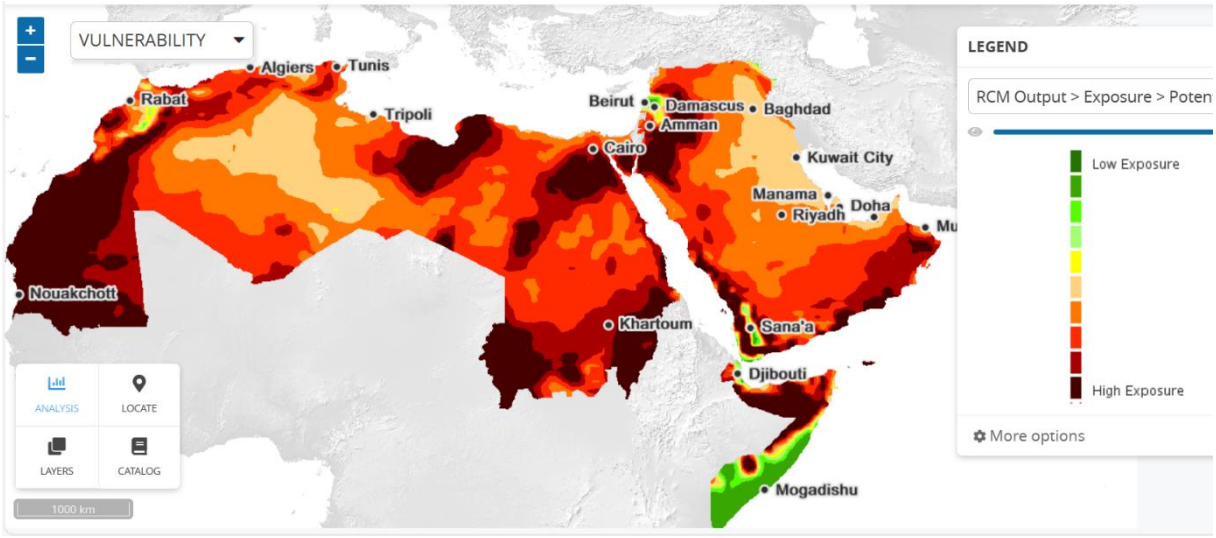
[3] The analyses are carried out also at Subregional level, with three Subregions considered: Mashreq, excluding Gulf Cooperation Council countries (Egypt, Iraq, Jordan, Lebanon, Palestine, Sudan, Syrian Arab Republic and Yemen), Maghreb (Algeria, Libya, Mauritania, Morocco and Tunisia), and Gulf Cooperation Council (GCC) countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates). For more details on the country groups see also the FOFA Data Dashboard.

[4] Numbers between brackets refer to the number of the Driver in the FOFA-DTT.

[5] This Information Note portrays selected preliminary examples of drivers analysed. Full analyses are to be provided in the Regional Foresight Report under preparation as part of the RFE.

The Regional Knowledge Hub Data Portal (fao.org),[6] looking at the change in the number of tropical nights signals (i.e. the number of times the minimum temperature is greater than 20°C at night leading to physiological discomfort), highlights that Egypt, Jordan, Libya, Mauritania, Oman, Somalia, Sudan, and Syrian Arab Republic might be particularly affected by climate change by 2081-2100 (**Figure 2**).

Figure 2. Change in the number of tropical nights by 2081-2100 under RCP8.5 (High)

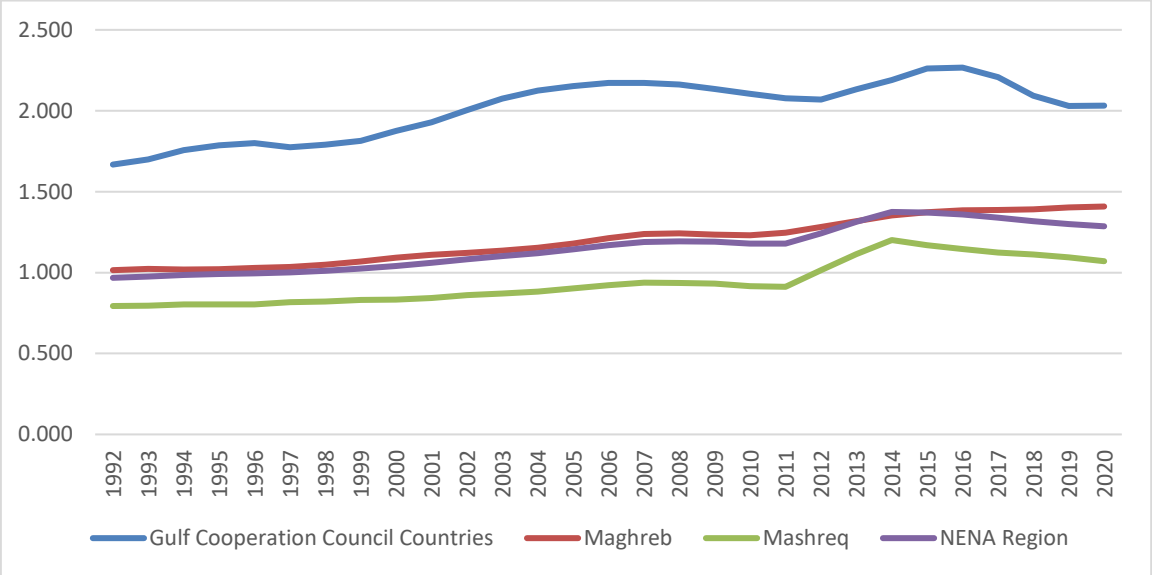


Note: Representative Concentration Pathways (RCP) 8.5 refers to one of a suite of scenarios that describe several potential future pathways in climate change projections. RCP 8.5 refers to the concentration of carbon that delivers global warming at an average of 8.5 watts per square metre across the planet. The RCP 8.5 pathway delivers a temperature increase of about 4.3˚C by 2100, relative to pre-industrial temperatures.
Source: Regional Knowledge Hub Data Portal (fao.org) based on the impact and vulnerability assessment of the Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR), https://rkh.apps.fao.org/home/1, accessed in December 2023.

12. Agricultural emissions (**Figure 4**show an increasing trend in the NENA region. The GCC has consistently been the region with the largest emissions per capita, although with a decreasing trend in the last years, despite the highest share of imported food, while the Mashreq region continues to be the lowest emitter per capita – trend in the last few years – since its high reliance on food imports allows to outsource production emissions in source countries.

[6] The Regional Knowledge Hub Data Portal is a Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR). RICCAR is implemented through an inter-agency collaborative partnership involving 11 partner organizations, namely the United Nations Economic and Social Commission for Western Asia (ESCWA), the Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD), FAO, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) Gesellschaft mit beschränkter Haftung (GmbH), the League of Arab States Secretariat, the Swedish Meteorological and Hydrological Institute, the United Nations Educational, Scientific and Cultural Organization (UNESCO) Cairo Office, UN Environment Programme, the United Nations Office for Disaster Risk Reduction (UNDRR), the United Nations University Institute for Water, Environment and Health (UNU-INWEH), and the World Meteorological Organization (WMO).

Figure 3. NENA Agricultural Emissions per capita (tons CO2eq)



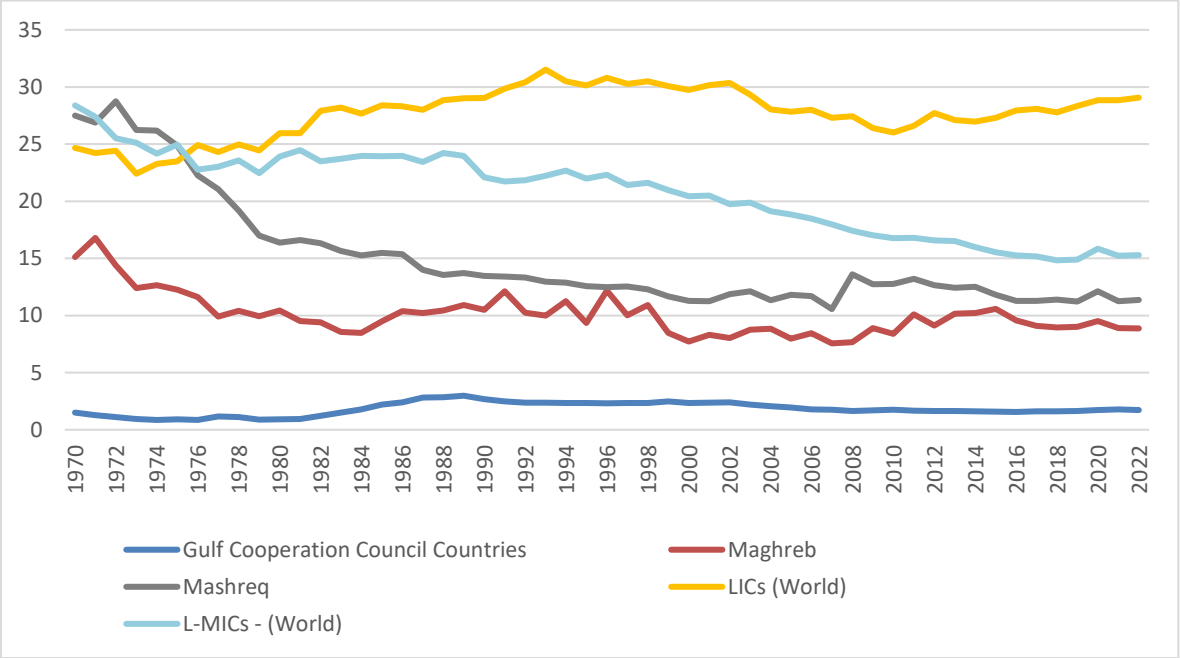
Notes: carbon dioxide (CO2) equivalents are calculated based on the 100-year time horizon Global Warming Potential as per the Intergovernmental Panel on Climate Chante (IPCC) Fifth Assessment Report (GWP-100 AR5). The detail of countries in each subregion are provided in footnote 3 and in the FOFA Data Dashboard.
Source: FAOSTAT, accessed through the FOFA Data Dashboard.

13. **Weak signals of possible futures.** The region suffers from several climate-related events. Agricultural production may decline due to climate change and already high water-stress levels. The decline in agricultural production in the region due to climate change, together with the increasing population growth, may increase the imports of agricultural products in the region. The net food import position of the region will increase further. Increased import requirements may result in the (further) balance of payments problems. At the same time, the differential of agricultural greenhouse gas (GHG) emissions per capita across subregional food systems, signals that there may be both lessons to learn from within the region on how to reduce GHG emissions and the need of technological improvements in large GHG-emitting countries.

VI. Economic growth, structural transformation, and the macroeconomic outlook

14. With further transformation of the region's economies, the share of value added of agriculture in the gross domestic product (GDP) has decreased until ten years ago, while the workforce transitioned to other sectors of the economy or emigrated. Since then, however, it has stabilized and even increased in Maghreb (**Figure 4)**.

Figure 4. Agriculture, Forestry, and Fishing, Value Added percent of GDP)

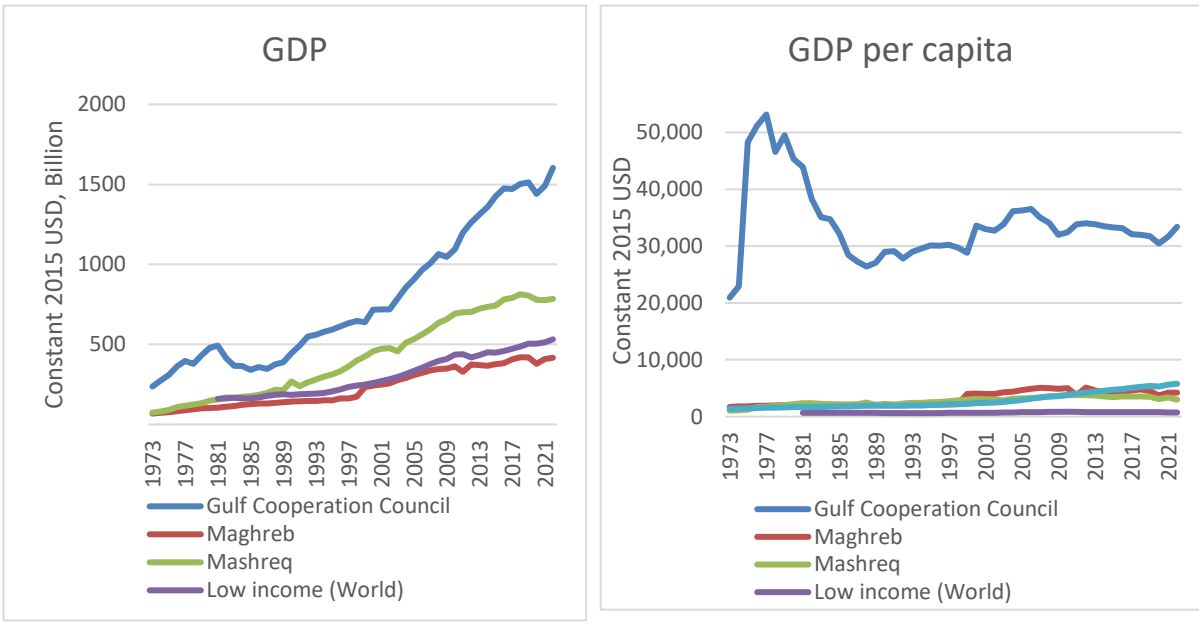


Notes: The percentages are calculated on values expressed in USD, Constant, 2015. Aggregates by subregions are calculated as averages across countries weighted with GDP shares in subregional GDP. LICs and L-MICs refer to low- and lower-middle-income countries. The detail of countries in each subregion are provided in footnote 3 and in the FOFA Data Dashboard.

Source: FAO UN. FAOSTAT – Macro Indicators, accessed through the FOFA Data Dashboard.

The GDP shows an upward trajectory since the beginning of the 1990s in all the subregions, but the high population growth renders the GDP per capita relatively flat in Maghreb and decreasing in Mashreq, although all the subregions are well above the average of low-income countries globally **(Figure 5**). GDP per capita is significantly higher in GCC since the beginning of the 1970s. In 2021, the GDP per capita in GCC countries (USD 33 369) was almost eight times higher than in Maghreb countries (USD4 197) and eleven times higher than in Mashreq countries (USD 3 007). While average per capita indicators highlight intraregional disparities, they hide disparities in key outcomes of agrifood systems. In the region, the prevalence of obesity is dramatically increasing, associated with a persisting and even increasing prevalence of undernourishment.

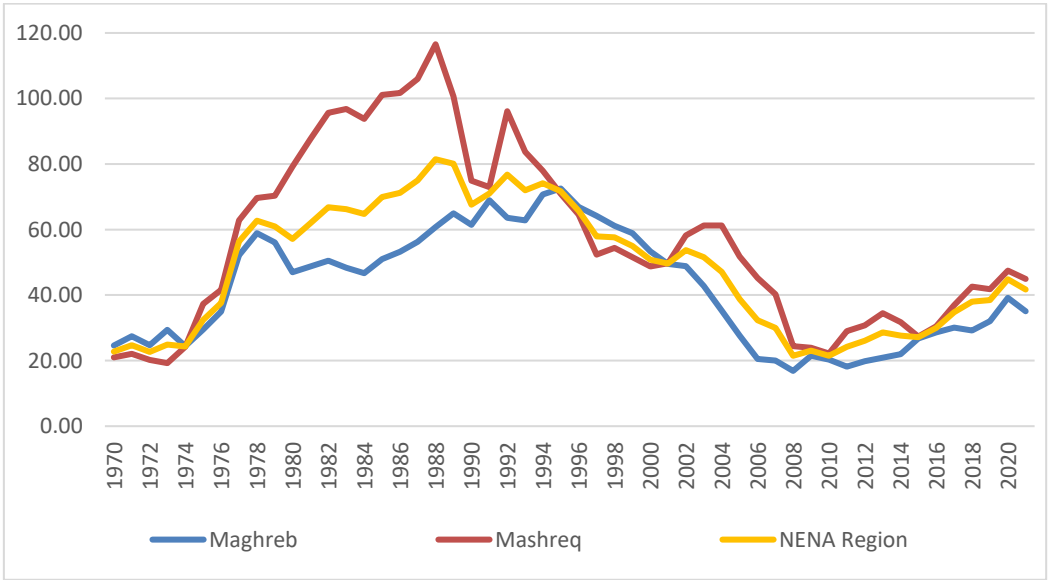
Figure 5. GDP (Constant 2015 USD) and GDP per Capita (Constant 2015 USD)



Note: The detail of countries in each subregion are provided in footnote 3 and in the FOFA Data Dashboard.
Source: The World Bank, World Development Indicators accessed through the FOFA Data Dashboard.

Indebtedness of the region is increasing faster than the world average, which is related to import dependency and high food prices. Food subsidies are a relatively large share of public spending/GDP in many countries of the region. High food prices put pressure on states' budgets and on national currencies. Naturally, in GCC countries, high international crude oil prices positively influence GDP growth. External debt stocks as a percentage of gross national income (**Figure 6**) show that both the Maghreb and Mashreq subregions have considerably high external debt stocks that, despite being well below what it used to be in the 1980s and 1990s, they have drastically increased in the last decade.

Figure 6. NENA External Debt Stocks (percent of GDP)



Note: GCC countires do not have available data on external debt stocks. The detail of countries in each subregion are provided in footnote 3 and in the FOFA Data Dashboard.
Source: World Bank, World Development Indicators, accessed through the FOFA Data Dashboard.

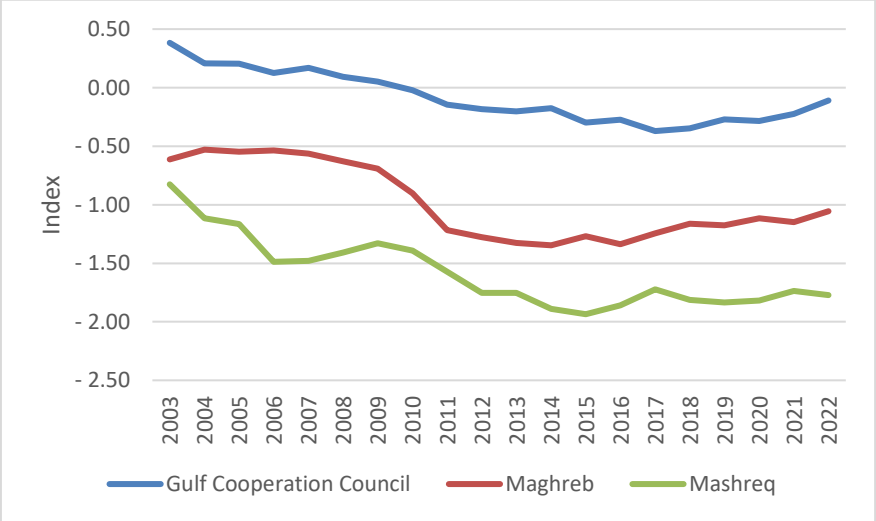
Weak signals of possible futures. Further transformation of the economies is likely to occur, but there is no guarantee that the shrinking of the agricultural value added as share of GDP will continue

in the future. In fact, opposing signals can already be detected. If land and water constraints become progressively tighter, different production approaches may emerge, including more labour-intensive ones, with possible implications for employment, agricultural prices and real incomes. Until oil-importing countries transition to renewable energy sources, GCC countries may continue to have strong incentives to maximize oil revenues, at least in the short term, while attempting to adapt to climate change and water scarcity. Considering the increased external debt so far, Mashreq and Maghreb countries may keep facing limited fiscal space, unless feasible and implementable new fiscal policies are adopted and/or new engines of growth emerge. This may leave little room for appropriate safety nets to support vulnerable people, achieve social mobility and create jobs for a growing share of young people. The upward trends in obesity and undernourishment signal that the future outcomes of agrifood system in terms of nutrition and food security could vary depending on the prevailing consumption patterns on the one hand, and the future possibilities for the vulnerable segments of the society to access sufficient, safe and nutritious food, on the other hand.

VII. Geopolitical Instability and Conflicts

This is another major factor for the region's past and present. Within this driver, it is important to register and analyse how global geopolitics and power strategies are impacting the region. NENA has long been one of the most unstable regions in the world **(Figure 7**). This instability is the result of conflicts and tensions that periodically emerge, due to a variety of long-term pressures growing out of natural and man-made causes. Not only is the region the largest exporter of oil globally, but it also has a strong geostrategic position, as it hosts the strait of Hormuz, through which transit around one quarter and one third of the globally produced oil and liquified gas respectively. In addition, the Suez Canal at the heart of the region, is a key trade route between Europe and Asia. While oil-producing countries have now enough resources to compete for the regional lead and the control of their geostrategic position, security threats hinder local and foreign investments in other parts of the region, as fragmented regional and subregional loyalties hinder incentives for effective cooperation. At the end of 2023, the region has seen the flaring up of the Israeli-Palestinian hostilities and the conflicts in Libya, Sudan, Syrian Arab Republic and Yemen.

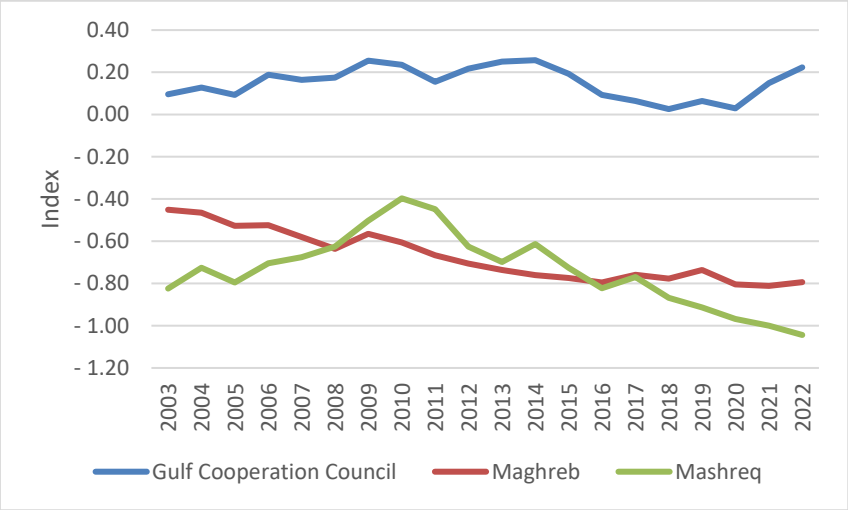
Figure 7. Index of Political Stability and Absence of Violence/Terrorism



Notes: The index of Political Stability and Absence of Violence/Terrorism ranges from approximately 2.5 (weak political stability) to 2.5 (strong political stability). The regional aggregates are weighted averages of country values. The detail of countries in each sub-region are provided in footnote 3 and in the FOFA Data Dashboard.
Source: World Bank (2023), World Development Indicators. https://databank.worldbank.org/source/world-development-indicators

Governance indicators such as the Government effectiveness index (Error! Reference source not found.) show a deteriorating trend in the Maghreb and Mashreq subregions, while GCC countries consistently score higher.

Figure 8. Government effectiveness Index



Notes: The index of Government Effectiveness ranges from approximately -2.5 (weak effectiveness) to 2.5 (strong effectiveness). The regional aggregates are weighted averages of country values. The detail of countries in each sub-region are provided in the footnote 3 above and in the FOFA Data Dashboard.
Source: World Bank (2023), World Development Indicators. https://databank.worldbank.org/source/world-development-indicators

Weak signals of possible futures. If the region remains of global geostrategic importance for external powers, and generally agreed governance mechanisms fail to address the security concerns of the region, existing tensions may keep occasionally flaring up into armed conflicts, with important implications for the global prices of energy and the regional prices of agricultural products and inputs. In addition, water stress issues and economic fragilities may themselves compose with external tensions generating migrations and/or displacement. Power asymmetries of countries within the region, conflicts around the Jordan river and Nile River basins may keep feeding the regional instability. Economic and climate anxiety could potentially lead to numerous boiling points in the region, making it more vulnerable to the geopolitical situation at the global level.

VIII. Alternative future scenarios for agrifood systems

The RFE built on the four FAO global long-term (2030-50-100) alternative scenarios for the future of agrifood, socioeconomic and environmental systems to provide more nuanced narratives of possible futures that highlight key regional specificities. The four RFE retrospective scenario narratives, which are intended as paradigmatic of a virtually infinite set of possible futures, and will be better articulated during the next steps of the RFE, are summarised below (**Table 1**).[7]

[7] For the NENA region, the *Adjusted future* (AFU) and *Trading off for sustainability* (TOS) scenarios look very challenging to achieve. The planned work ahead for the RFE implies a thorough work to articulate triggers of transformation and related strategic options to activate them.

Table 1. Narratives of alternative scenarios for agrifood systems

More of the same (MOS). Challenges posed by labour-abundant and resource-poor agrifood systems were left unsolved. Water stress issues were not addressed and continued to generate tensions and conflicts, migration and displacement. Power asymmetries between GCC countries and the rest remained. GCC countries attempted a slow and gradual transition into decarbonized economies, but did so, while postponing the end of fossil fuel era, thus, maximizing oil revenues. Costs and investment needs of transitioning to other engines of growth, coupled with growing climate-change and water scarcity costs, posed challenges on the fiscal side. Mashreq and Maghreb continued to suffer from higher debt distress, little fiscal room for appropriate safety nets, external wars and domestic conflicts, which popped-up with more or less frequency, and from climate change and natural resources scarcity impacts. The potential demographic dividend was not exploited; instead, demographic pressure with ensuing, stubborn domestic food price increases that significantly raised the cost of living, heightened dependency on food imports, and international conflict-induced price shocks, all contributed to fragilize agrifood systems. In a vicious circle, the ability to mitigate and adapt to climate change was not improved, thus exacerbating vulnerabilities. More days of extreme heat, sea level rise, decrease in rainfall, droughts, desertification, wildfires, storms, floods in coastal areas, pollution and coastal erosion ensued.
Adjusted future (AFU). Some moves towards sustainable agrifood systems were triggered in an attempt to achieve Agenda 2030 goals. Some improvements in terms of well-being were obtained, but the lack of overall sustainability and systemic resilience hampered their maintenance in the long run.
Race to the bottom (RAB). Regional fragmentation, conflicts to control and grab land, water and fossil fuel resources increased and led to social economic and financial disasters. Exacerbated climate change and lack of peaceful ways to prevent and solve conflicts led to record numbers of refugees and displaced people. National power dynamics progressively led to social unrest and numerous civil wars. . Power asymmetries between GCC countries and the rest of the region remained. However, as climate change impacts had become so severe, even GCC countries saw their relative power decrease over time. GCC countries gradually decided to pause the transition away from fossil fuels, but in the meantime, oil importers transitioned away from fossil fuel, leaving GCC countries without foreign inflows. Technological miracles did not materialize, and food import dependence further jeopardized the resilience of agrifood systems due to the deterioration of geopolitical, and cross-country relationships. Due to debt defaults, many international financial markets refrained from lending, putting fragile countries in vulnerable positions, in the interest of other global players. Informal economic activity grew and national governments de facto lost sovereignty. Water stress surpassed critical points several times, leading to humanitarian crises with massive human and economic losses. The non-oil producing countries were the worst-off in this context. Climate-related hazards and events increased, and coastal villages and livelihoods disappeared due to sea level rise. Droughts and desertification displaced a greater number of people, and urban pollution was not addressed. A significant share of the region's low and middle classes moved away to other parts of the planet, facing very difficult livelihood conditions due to rising protectionism and populist nationalism in destination countries.
Trading off for sustainability (TOS). Awareness, education, social commitment, sense of responsibility and participation triggered new power relationships, and shifted the development paradigm in most countries. Short-term Gross domestic product (GDP) growth and final consumption were traded off for inclusiveness, resilience, and sustainability of agrifood, socioeconomic and environmental systems.

IX. Triggers for transformation and strategic options

To move agrifood systems towards sustainability and resilience, FAO has identified four global priority areas or "triggers for transformation", to be targeted by suitable strategies, policies and behavioural changes: a) Institutions and governance; b) Consumers (citizens) awareness; c) Income

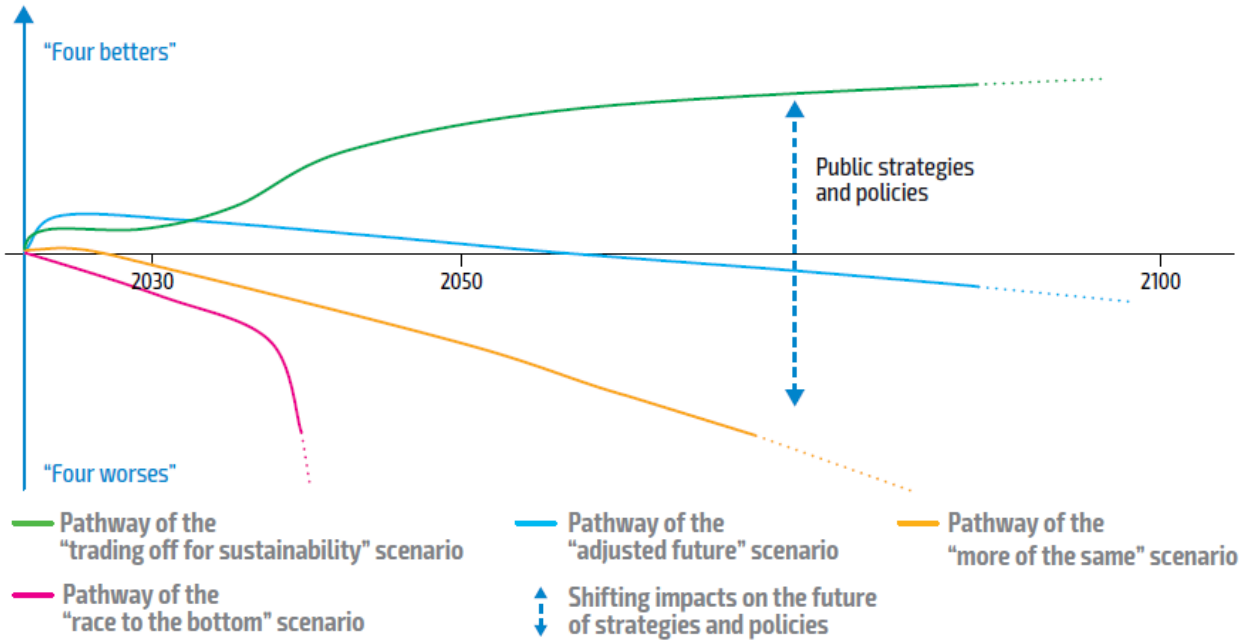
and wealth distribution; and d) Innovative Technologies and approaches (**Figure 1,** top part). Thanks to their transformative potential, these triggers are expected to spread impacts throughout the systems. Depending on whether they will be activated or disabled, the future could mimic one of the four paradigmatic scenarios, as illustrated in **Table 2** and FAO's inspirational *four betters* could materialize or dissipate (**Figure 9**).

Table 2. Triggers for transformation under alternative scenarios

	Institutions and Governance	Consumer (citizen) awareness	Income and wealth Distribution	Innovative technologies and approaches
More of the Same (MOS)	Weak governance of global issues. Roles of public and private confused	Piecemeal approaches of few groups have limited or no impacts on transformation	Inequalities, hunger, extreme poverty not tackled. HIC and LIC diverge.	Within the current paradigm (large-scale, labour-saving) CC 2100: 3+
Adjusted Future (AFU)	Selective pursuit of the 2030 Agenda for Sustainable Development. Private bodies cover public functions	Segmented pressure groups focus on well-being of selected societal layers/LICs	Voluntarist actions to combat most striking situations. Weak fiscal systems.	Mostly within the current paradigm. Small-scale survives CC 2100: 3-
Race to the Bottom (RAB)	Short-termism, dismantlement of rules. Governments colluded with elites	Green-social washing fool consumers. Citizens irrelevant in all systems	No taxes no services "Stratified societies". Exacerbated poverty in HICs and LMICs.	Extractive economies based on exhaustible resources dominate. CC 2100: 4+
Trading off for Sustainability (TOS)	Global governance of global phenomena. Power distributed. Roles well defined.	Consumers give up final consumption to invest to transform. HICs give room LICs	Efficient fiscal system new metrics for well-being adopted. Less leakages from LICs.	Effective Strategies for "Circular" economies dominate. CC 2100: 2-

Note: CC2100: 3+ means: Scenario compatible with an increase in the average global temperature by 2100 due to climate change above 3 degrees Celsius compared to the pre-industrial period. Analogously, 3-, 4+ and 2-, mean respectively: below 3, above 4 and below 2 degrees Celsius.
Source: Based on FAO, 2022. The future of food and Agriculture – Drivers and triggers for transformation – Rome

Figure 9. Scenario pathways and public strategies and policies to trigger transformation



Source: FAO, 2022. The future of food and Agriculture – Drivers and triggers for transformation – Rome

The RFE for NENA region has begun gathering knowledge and insights from regional experts to conjugate at the regional level the triggers for transformation identified by FAO, and to articulate policy options to overcome geostrategic issues, address political economy barriers, balancing difficult trade-offs, and overall, propel agrifood systems in the region towards a future of sustainability and resilience. Through Regional Expert Consultations, preliminary findings emerged about the regional nuances of these triggers, to be further articulated at country level for HICs, and LMICs in the forthcoming RFE activities:[8]

a. ***Institutions and governance***. Binding regional frameworks that align interests and enforce capacities are essential to overcome weak fiscal systems. Incentives in current governance in the region tend to focus on short-term issues, and not long-term environmental threats that require early action but a long-term vision. Nonetheless, work regarding national level governance is required as national governments still have the power to decide on how to orient key drivers of agrifood systems, despite existing regional problems originated at global scale. However, financial, and geopolitical tensions and conflicts within the region limit the extent to which these issues can be effectively addressed at country level. A much broader governance framework at international level to address the root causes of regional instability may be needed, which encompasses global climate change issues brought by the extraction and use of fossil energy; geostrategic tensions brought by the need to control energy sources and related transit; the objective and increasingly binding constraints on natural resources required to reduce the food import dependency of most countries in the region, just to mention some domains requiring regional and supra-regional governance.

b. ***Consumers (and citizens) awareness***. Due to daily challenges, citizens are also focused on short-term aspects and do not feel empowered to address those challenges. They are ill-informed regarding the features of the food they consume, the production processes implied, the implications of depending on imports, and the need to secure foreign currency to pay for them, and the implications of food waste. They are not aware of how they could exert some influence on producers, importers and governments. Improving education levels should be a

[8] Strategic options, policies and investments to activate these triggers at global level are reported in part 3 of FAO, 2022. The future of food and agriculture – Drivers and triggers of transformation. Rome

priority so that citizens can express themselves and have an active role in decision-making processes regarding agrifood systems.

c. ***Income and wealth distribution*.** Incomes must adjust such that everybody enjoys enough purchasing power to buy sufficient, adequate and healthy food produced in a sustainable way. Most likely, until now, governments have preferred to implicitly or explicitly subsidize food rather than addressing inequalities in income and wealth distribution. Restoring fiscal equity within existing economic sectors, repurposing public expenditure to support emerging sectors and implementing circular economy initiatives may help build the overall sustainability of agrifood, socioeconomic and environmental systems.

d. ***Innovative technologies and approaches***. Investors and governments have preferred short-term profit seeking, rather than societal benefits in the longer run. Technology is seen as a vital area of work due to the region's scarcity of resources, but progress in the region's societal setting must improve as well. Bioeconomy, innovative agrifood technologies and approaches inserted in broader circular economies, such as agroecology, agroforestry, precision agriculture accessible to smallholders and organic agriculture, are possible ways forward.

Ineffective implementation has been a serious issue in itself. There is a lack of specificity on how to implement national strategies, lack of required political stability and capacity to implement and ensure compliance. The strategic policy options that have emerged from initial expert consultations comprise:

a. measures to diminish the technological gap with smallholders and the poorest must be specifically defined and effectively applied. Otherwise, adoption is not ensured and plans continue to not come to fruition;

b. technological advances to produce more with less are desirable but may not materialize immediately or may not be sufficient in some scenarios. Therefore, contingency plans must be elaborated;

c. signs that point to a very slow phasing out of fossil fuels in the region. Increasing the phasing out of fossil energy – which, apart from dramatically contributing to global climate change, raises geostrategic tensions and disequilibria in the region – may speed up the transformation of agrifood systems that, in this scenario, become more strategic at regional levels;

d. quick gains, which are needed to ensure that governments, which must respond to present day problems and mostly act on short-term incentives, buy-in to long-term strategic planning. These gains may be generated through synergies and cooperation at regional level and include:

    i. creating/reinforcing regional research and development centres to enhance sustainable agricultural practices and adapt them to the local context;

    ii. regional economic governance with fair market integration that protects and incentivizes virtuous countries which invest in sustainable agrifood systems;

    iii. the creation and enforcement of compliance with land management rules; and

    iv. inclusive financial mechanism where GCC countries support the development of non-oil producing countries.

e. enlarging the fiscal space, which is key to strategizing public expenditure for solving diversification challenges, supporting emerging sectors and creating new jobs, including through the development of blue economy and new trade corridors;

f. in the endeavour of transformation, gender-disaggregated data which are needed to implement gender sensitive policies in a constructive way;

g. the need for the establishment of advanced technology sectors and required infrastructure in the region to profit from the demographic push, in order to avoid youth's exodus ;

h. the creation of a post-conflict rehabilitation regional fund and a clear and enforceable mechanism of implementation; and

i. import diversification, which can help as a price mitigation strategy.

X. Trade-offs along transformative patterns

In addressing the transformation of agrifood systems, win-win solutions would be welcome. However, most likely, trade-offs, that is potentially conflicting objectives, will need to be balanced, as they frequently emerged during the RFE Expert Consultations. This includes, for example, the possible trade-off between reducing greenhouse gases to mitigate climate change and achieving other key Sustainable Development Goals (SDG) targets, such as Zero Hunger, as envisaged in the "TOS" Scenario. Trade-offs and balancing actions are expected to be considered in initiatives at all levels, as articulated in FAO's *Achieving SDG 2 without breaching the 1.5 °C threshold: A global roadmap, Part 1* (Error! Not a valid bookmark self-reference.).

Box 1. *Achieving SDG 2 without breaching the 1.5 °C threshold: A global roadmap, Part 1*

FAO's Global Roadmap to achieve SDG 2 without breaking the 1.5 °C threshold involves a process that spans three years, starting with COP 28 in 2023, with a global vision of the limits of agrifood systems today and a diagnosis of what has not worked so far in transforming agrifood systems. It then moves from a global vision implying theories and practices of change at global level to the identification of actions required at regional level, and related costing and financing options, also thanks to quantitative modelling, to be discussed at COP 29, and ending by establishing country action plans, funding, and monitoring mechanisms at country level, by the time COP 30 takes place. It also examines how to integrate technical assistance into strategies, while supporting sustainable investment plans.

The global roadmap presents 120 actions, divided into ten domains of actions, and associated with 20 global milestones aimed to track progress in the right direction. Put together, they show a consistent pathway, starting from today's situation, pivoting quickly towards a trajectory similar to the FOFA-DDT's "Adjusted Future (AFU)" scenario, before accelerating transformation to converge towards a "Trading Off Sustainability (TOS)" scenario. In 2024, the global roadmap will be adapted to regional context, building on the work initiated by the RFE.

See more details at https://www.fao.org/interactive/sdg2-roadmap/en/

Along their development pattern, middle-income countries are at a crossroad. They may follow the unsustainable development paradigm adopted by HICs, thus largely contributing to further degrading natural resources, exacerbating climate change, and leading to ungovernable inequalities (see the paradigmatic "RAB" scenario). Alternatively, particularly if HICs set a good example, they may adopt innovative development paradigms, towards more sustainable alternative futures (as the paradigmatic "TOS" scenario).

National governments are instrumental in steering agrifood systems towards sustainability, yet their efforts cannot exist in isolation due to the supranational nature of challenges ahead, such as international conflicts, governance of global finance, trade and multinational corporations, climate change, biodiversity loss and resource depletion. These issues underscore the need for extensive international cooperation and support.