

EDA INSIGHT



**Synergies between Global Food Security and
Climate Goals: Recommendations for Gulf
Countries' Foreign Trade, Investments and Aid**
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Executive Summary

- Agriculture and climate change are interlinked in important ways, as are the related policy goals of food security, reducing greenhouse gas emissions and adapting to the adverse impacts of climate change.
- On the international development agenda, the Sustainable Development Goal (SDG) 2, (end hunger, achieve food security and improved nutrition and promote sustainable agriculture), has strong interactions with SDG 13, (take urgent action to combat climate change and its impacts). There are also important interlinkages between other SDGs and the Paris Agreement on climate change.
- As governments accelerate their efforts to integrate the SDGs and the provisions of the Paris Agreement into their national development strategies and policies, it will be crucial to take into account these various interlinkages, which can either reinforce or undermine each other. Understanding these interlinkages will allow governments to pursue more efficient policies, including foreign policies.
- The Gulf Cooperation Council (GCC) member states are important players in global food security through their roles in food trade, agro-investments, agricultural development assistance and food aid. The GCC states also have a high stake in global efforts to tackle climate change, given their high reliance on food produced in other countries. A recent study in the UAE found that a number of its key staples and most of the countries it imports the majority of its food from are highly vulnerable to the negative impacts of climate change.
- Understanding the relationships between the global development goals related to food security and climate change can help the GCC countries maximise the impact of their foreign policies in both of these areas.
- Drawing from international experience and best practice, this EDA Insight identifies approaches and measures in three areas of foreign policy – trade, investments and aid – that are aimed at achieving food security and climate action goals simultaneously.
- The brief recommends a number of measures, which relate to (1) enhancing the domestic knowledge base regarding climate change impacts on food security, (2) using trade policy to proactively promote climate-friendly agriculture in countries its imports are sourced from, (3) supporting the adoption of at least the climate-change relevant aspects of voluntary international principles for tenure and agricultural investment, (4) integrating the positive interlinkages between the global goals on food and climate action identified in this brief into development assistance, including through trilateral cooperation, and (5) exploring cross-cutting strategies that harness synergies between trade, investments and aid in support of climate-friendly agriculture in the GCC countries' food source countries.

The Issue

Agricultural production and climate change are interlinked in important ways, as are the related policy goals of food security, reducing greenhouse gas (GHG) emissions and adapting to the adverse impacts of climate change.

At the international level, two global frameworks guide related development efforts:

- The UN 2030 Agenda for Sustainable Development contains 17 Sustainable Development Goals (SDGs) with 169 targets to guide global development efforts at national, regional and international levels over the next decade-and-a-half. These include goals related to food security and climate action.
- The UN Framework Convention on Climate Change agreed in 2015 to the Paris Agreement, which stresses the need to tackle climate change without threatening food production.

The SDGs are interdependent in multiple ways, and assessments have already identified synergies and trade-offs between various goals and targets. The SDG 2, the aim of which is to 'end hunger, achieve food security and improved nutrition and promote sustainable agriculture', has been demonstrated to have strong interactions with at least six other SDGs, including SDG 13, which pledges to 'take urgent action to combat climate change and its impacts'. Other SDGs and the Paris Agreement also interlink in important ways. These interactions, which can either reinforce or undermine each other, must be understood in order to make sound policy choices.

It is crucial that the Gulf Cooperation Council (GCC) countries, which largely rely on food produced in other countries, understand the relationships between the global development goals related to food security and climate change, and mainstream this knowledge into their foreign policy.

This EDA Insight first explores the dynamics of the main food- and climate change-related global policy goals, including related synergies and trade-offs. Understanding these interlinkages will allow governments to pursue more efficient policies, including ones in the area of foreign affairs. The Insight then presents a selection of international best practices in three areas of foreign affairs – trade, investments and aid – that relate to achieving food security and climate action goals simultaneously. The brief ends with suggestions on measures that GCC countries could adopt in their foreign policies,

drawing from these best practices and knowledge on the interlinkages between food security and climate change.

Relevance for GCC Countries' Foreign Policy

The GCC member states are important players in global food security through their roles in food trade, agro-investments, agricultural development assistance and food aid:

- In 2015, the GCC countries accounted for 13% of global rice and poultry imports, and 6% of sugar imports (measured in value), according to MIT data.¹
- The Land Matrix, a land deals observatory, has registered information on agricultural land purchases and leases concluded by the GCC countries totalling 2.3 million hectares – roughly twice the size of Lebanon and equal to 4.6% of all concluded land deals in the database.²
- The GCC countries also disburse billions of US dollars in official development assistance and humanitarian aid each year, with four of them ranking among the top-30 development cooperation providers globally, based on OECD data.³ According to the UAE government, two-thirds of its foreign assistance in 2015 was directed at supporting the Millennium Development Goal of eradicating extreme poverty and hunger.⁴

The GCC states have a high stake in global efforts to tackle climate change to protect their national food security in the future:

- The GCC countries' net import dependence on cereals (including rice and wheat), refined sugar, fats and oils stands at 95–100% (data for 2014).⁵
- An Abu Dhabi Global Environmental Data Initiative (AGEDI) study on the UAE has found that a number of its key staples, including rice and wheat, are 'strongly insecure' to the negative impacts of climate change, and that nine out of the top ten countries that export food to the UAE are expected to face at least partial constraints to food production due to climate change, in the absence of adaptation measures.⁶
- The GCC states could achieve important synergies from incorporating knowledge on the interlinkages between food security, low-emissions development and climate resilience into their foreign trade, investment and aid policies.

Negative Interactions between Agriculture and Climate Change

Agriculture and food production worldwide are highly vulnerable to the negative impacts of climate change, which include higher temperatures and extreme weather events, such as flooding and droughts. These impacts create risks across the agricultural value chain, from production through storage to distribution.⁷ According to the Intergovernmental Panel on Climate Change (IPCC), climate change could affect all aspects of food security, including access, utilisation and price stability.

Without adaptation, climate change will negatively impact the production of major crops – wheat, rice and maize – in tropical and temperate regions, and will contribute to increased global food prices in the coming decades.⁸ Consequently, climate change also increases the risk of hunger and malnutrition.⁹ Adaptation options in agriculture are varied but their suitability is determined by place and context, and action should take place on various levels. Reducing vulnerability and exposure to climate variability are considered the first step towards increasing climate resilience in any sector.¹⁰

At the same time, the global food system, comprising everything from agricultural production to fertilizer and food packaging industries, is estimated to account for up to one-third of global anthropogenic GHG emissions. At present, agricultural emissions continue to increase, driven by population growth and changing diets. Agricultural production, principally cattle, and fertilizer manufacturing and use, account for the largest share of these emissions. The best available large-scale mitigation options include different crop and grazing land management practices (on the supply side) and shifting away from meat consumption and reducing food waste (on the demand side).¹¹

Climate scientists have been paying growing attention to quantifying the risks of climate change to food production, with an eye on supporting science-based policymaking and planning. The complex interdependences of the global food system require an examination of related challenges from various angles. Regional and country studies are important in highlighting often context-specific impacts and providing more accurate estimates on risks and impacts. These can focus on either producing countries or importing countries.

Given the accelerating pace of climate impacts, historical data on observed events is no longer sufficient for estimating future risks to agricultural

production. This requires developing models for estimating future risk. Box 1 highlights the findings of three recent studies in these areas.

Interlinkages of Food Security and Climate Change on the 2030 Agenda

Ensuring universal food access and security requires avoiding catastrophic climate change and, conversely, averting dangerous climate change will require mitigation actions from the agricultural and food sector.

Under the UN, multilateral efforts to advance sustainable development culminated in the 2030 Agenda on Sustainable Development and the Paris Agreement on climate change, both in 2015. The two documents – the former a political declaration and the latter a legally-binding treaty – were negotiated through intergovernmental processes and therefore achieved broad, near-universal support. Both constitute solutions-oriented frameworks that apply to all countries. Importantly, the goals of the 2030 Agenda and the Paris Agreement are in many ways interlinked. They are largely mutually supportive, but potential trade-offs also exist between their specific targets.

On the 2030 Agenda, the main goal related to food security is SDG 2, which focuses on three long-term objectives: nutrition, food security and sustainable agriculture – worldwide. The Goal's specific targets broadly fall into these three areas and represent the three dimensions of sustainable development, namely: ending hunger and improving nutrition (social dimension); improving food security through productivity growth (economic dimension); and promoting sustainable and climate-resilient agriculture (environmental). Smallholders are at the centre of these aims.¹²

The SDG 13, on climate action, recognises that the UN Framework Convention (UNFCCC) is the primary international forum for governing the global response to climate change. It therefore focuses on a narrow set of goals, mainly related to adaptation but also capacity-building, financing and policy mainstreaming.

There have been a number of initial attempts at mapping the extremely complex web of interactions between the SDGs.¹³ On SDG 2, a study by the International Council for Science identified strong interactions between this Goal and six other SDGs: SDG 1 on ending poverty,¹ SDG 3 on health, SDG 5 on gender, SDG 6 on water, SDG 7 on sustainable energy, SDG 13 on climate action and SDG 15 on life on land.¹⁴

¹ The study identified the strongest link between SDG 1 (no poverty) and SDG 2 (zero hunger), noting (p. 35) that growth in the agricultural sector is by far the most effective growth driver of poverty reduction.

The most explicit link between SDGs 2 (zero hunger) and 13 (climate action) is found in target SDG 2.4, which sets the aim to, 'by 2030, ensure sustainable food production systems and implement resilient agricultural practices ... that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters.' Overall, mutually reinforcing links between sustainable and productive agriculture and climate compatibility exist in the areas of policy mainstreaming, education, awareness and institutional capacity, research and development, and financing. These are presented in Table 1. (See also Appendix 1 for a list of food and climate change-related SDGs and targets.)

The main internationally-agreed goals on climate action are governed by the UNFCCC and, from 2020 onwards, also its Paris Agreement on climate change. These include the Paris Agreement Article 1 goals of: keeping temperature rise at safe levels; enabling adaptation, resilience and low-emissions development in a way that does not threaten food production; and making available financing and other means of implementation to enable developing countries to take action. Consequently, there are a number of synergies and trade-offs between SDG 2 (zero hunger) and the Paris Agreement.

Box 1: Growing Significance of Climate Change Impacts on Global Food Production and Markets

Highlighted below are three types of studies that governments can use when assessing climate risk to agriculture and food security. All examples are from 2017.

Studies on risks specific to producing countries/regions: A climate vulnerability study of the Asia-Pacific region, by the German Potsdam Institute for Climate Impact Research and the Asian Development Bank, found that threats from climate change to agriculture and food security are 'large but regionally differing' and are caused by higher temperatures, drier conditions, sea-level rise and flooding. It concluded that 'projected changes in climate will significantly add to [existing] stressors', which include declining soil productivity and a host of water-related challenges (groundwater depletion, declining availability, and increased pest incidence and salinity).

Climate change is expected to pose important challenges to both social development and food security in the region where two billion people currently depend on agriculture for their livelihoods. In India, 60% of women and 43% of men are employed in the sector. The study also estimated that, in South Asia, as a result of reduced water availability and potentially significant crop yield declines, climate change could increase the number of malnourished by tens of millions and food import costs by billions of US dollars by mid-century.

Studies on risks to importing countries: A major study by AGEDI on the vulnerability of the Arabian Peninsula (and in particular the UAE) to the impacts of climate change, which concluded in 2017, included a project that assessed the UAE's long-term food security. The study identified risks relating to availability (supply constraints) and affordability (price volatility) of food imports, caused by climate change-induced declines in agricultural productivity in food-exporting countries and consequent tightening of global food markets.

In terms of food items, the study identified rice and wheat as 'strongly insecure' items where import gaps (between projected demand and available supply proportional to expected declines in agricultural productivity) could be large for the UAE and for which adaptation strategies are recommended. At the same time, the study identified items where production is expected to be less constrained for the UAE, which include beef, lamb and maize.

The study also calculated a 'food security index' for the UAE's main food import partners. Of the top 10 countries (which together accounted for two-thirds of the UAE's food imports in the 2000s), all but one are expected to face at least partial constraints to production, with Brazil, India and Iran ranked as particularly food insecure (taking into account both their share of UAE imports and vulnerability to climate change).

Studies on systemic risks: While some climate change impacts, for example rises in average temperature or sea level, are more gradual and more predictable, others are less so. These include large-scale extreme weather events, such as floods or droughts, as well as so-called tipping points (including permafrost melting). A recent modelling study by the UK Met Office sought to quantify the impact of extreme weather events on global maize production. It found a 6% per decade likelihood of simultaneous crop failure in China and the US (which account for 60% of global production), which would have a 'considerable impact on global food security'. Similar studies are being conducted for other major crops.

Sources: Asian Development Bank. *A Region at Risk: The Human Dimensions of Climate Change in Asia and the Pacific*. Manila: ADB, 2017, pp. xi, 12, 55, 56–58; Abu Dhabi Global Environmental Data Initiative. *Climate Change Programme. Socioeconomic Systems: Food Security*. Abu Dhabi: AGEDI, 2015 (2017 version), pp. ix, 29, 60–61; Kent, Chris, et al. 'Using Climate Model Simulations to Assess the Current Climate Risk to Maize Production'. *Environmental Research Letters*, Vol. 12, No. 5, May 2017.

These synergies are presented in Table 1, which also incorporates climate change-related interactions between SDG 2 and two other SDGs, namely SDG 7 (sustainable energy) and SDG 9 (industry, innovation and infrastructure): while climate-resilient infrastructure

is important for agricultural resilience, energy plays a significant role in agricultural emissions, both on the demand side (energy use in agriculture) and supply side (biofuels and biogas production).

Table 1. Interactions Between Food Security and Climate Action-related Global Goals and Targets

SDG 2 (zero hunger)	SDG 13 (climate action)
<i>Synergies</i>	
Ensuring sustainable food production systems and implementing climate- and disaster risk-resilient agricultural practices (SDG 2.4), as well as maintaining genetic diversity of seeds, plants and animals, and ensuring related benefit-sharing (SDG 2.5), can support efforts to strengthen climate-related resilience and adaptive capacity (SDG 13.1). Also, enhanced climate resilience overall (SDG 13.1) may lead to improved agricultural productivity, more sustainable production and conservation of biodiversity (SDG 2.3–2.5).	
Integrating climate change measures into national policies, strategies and planning (SDG 13.2) can support efforts to implement resilient agricultural practices (SDG 2.4) and vice versa.	
International climate finance (SDG 13.a) can also support climate change mitigation and adaptation in the agriculture sector and in related infrastructure (SDG 2.4 and SDG 2.a).	
International cooperation in agricultural research (SDG 2.a) could support strengthening climate resilience (SDG 13.1), policy mainstreaming (SDG 13.2) and awareness (SDG 13.3 and SDG 13.b).	
Improved education, awareness-raising, and human and institutional capacity on climate action (SDG 13.3 and SDG 13.b) can support food production and access-related goals (SDG 2.1–2.5).	
<i>Trade-offs</i>	
A focus on increasing agricultural productivity (SDG 2.4) that does not incorporate climate change considerations may undermine efforts to strengthen resilience and adaptive capacity (SDG 13.1).	
SDG 2 (zero hunger)	Paris Agreement on climate change
<i>Synergies</i>	
Increasing countries' adaptation ability, climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production (Paris Agreement Article 1) supports efforts to ensure access to food (SDG 2.1).	
Adopting resilient agricultural practices that strengthen capacity for adaptation to climate change (SDG 2.4) supports efforts to increase climate adaptability and resilience (Paris Agreement Art. 1).	
Various actions/practices related to sustainable food production (SDG 2.4) can help reduce emissions from agriculture and deforestation (Paris Agreement Art. 4–5) and support holding the global average temperature well below 2°C above pre-industrial levels (Paris Agreement Art. 1). These include preventing agricultural expansion into tropical forests or peatlands, reducing economic incentives for high-emissions livestock production, removing environmentally harmful agricultural and energy subsidies, and incentivising climate-smart agriculture and sustainable biofuel and biogas production.	
<i>Trade-offs</i>	
A focus on increasing agricultural productivity (SDG 2.4) that does not incorporate climate change considerations (mitigation and adaptation) may undermine efforts to reach the goals of the Paris Agreement, which include achieving carbon neutrality in the second half of the century (Art. 1–4).	

SDG 2 (zero hunger)	SDG 7 (sustainable energy)
<i>Synergies</i>	
Increasing agricultural productivity (SDG 2.3) can enable increases in biofuel production (SDG 7.2).	
Biofuels and biogas production (SDG 2.4) can in turn support increasing the share of renewable energy in the global energy mix (SDG 7.2).	
Increasing energy efficiency in agriculture (SDG 7.3) could promote targets related to food and nutrition security and productivity (SDG 2.1–2.3).	
<i>Trade-offs</i>	
Efforts to expand energy access (SDG 7.1) and increase the share of renewable energy in the global energy mix (SDG 7.2) may lead to diversion of crops into biofuel use, negatively impacting efforts to expand access to food (SDG 2.1), eradicate malnutrition (SDG 2.2) and double the agricultural productivity and incomes of small-scale producers (SDG 2.3).	
Increasing agricultural production (SDG 2.3) could lead to diversion of water resources from hydropower (SDG 7.2).	
SDG 2 (zero hunger)	SDG 9 (infrastructure)
<i>Synergies</i>	
Sustainable and resilient infrastructure (SDG 9.1) can support in transportation of food from surplus to climate-stressed areas/regions (SDG 2.4).	

Sources: ICSU. *A Guide to SDG Interactions*, pp. 38–41 and 63–66; author.

The following broad conclusions can be drawn from Table 1:

- National food **policies** should support sustainable and productive agriculture that results in emissions reductions and climate resilience, with a particular emphasis on smallholder farmers. **Energy** use and production have a role to play.
- International (climate) **financing** should support low-emissions, climate-resilient agriculture.
- Agricultural **infrastructure investments** should incorporate climate-resilience considerations.
- Agricultural **research and development**, including international cooperation in this area, should integrate climate change considerations and vice versa.
- Agriculture-related **capacity building, education and awareness-raising** should incorporate knowledge on how climate change interacts with food and agriculture.
- Agricultural **productivity** gains should not come at the cost of rising emissions and lower resilience, nor should the expansion of **biofuels** come at the cost of food security.

Policy goal mappings like the one above are not only important because they can help avoid situations in which supporting one development goal (such as clean energy in the form of biofuels) can undermine reaching another one (food security). Identifying the positive, synergistic interlinkages is particularly useful, for all stakeholders (including governments, multilateral agencies and the private sector), as this can inform policy choices and points of intervention that create multiple beneficial impacts; in other words, instead of supporting food security alone, a policy, a trade or investment agreement or a development cooperation project can simultaneously support climate resilience or reduced emissions.

Role of National-level Solutions – Climate-smart Agriculture

Climate change will impact all dimensions of food security, including availability of food and global food markets. As noted by a FAO report from 2008: 'everybody is at risk'.¹⁵ At the same time, smallholder farmers are at most risk: according to a UN taskforce, 'climate change and unsustainable agricultural practices are increasing the exposure and vulnerability of small-scale food producers to extreme weather events, such as those associated with the 2016 El Niño.' Progress in this area, according to the taskforce, has been 'slow and uneven' and 'needs to be a higher

priority'. The taskforce also concluded that investment in sustainable and inclusive agriculture 'remains insufficient and needs to be urgently addressed.'¹⁶

While there is no single on-the-ground solution that the above-outlined actions can support, a number of approaches and measures have been identified by international development agencies and banks. Many of these are considered as 'no-regrets' approaches (i.e. they are likely to make sense from a cost-benefit perspective irrespective of the eventual scale of climate change impacts). These include measures such as disseminating climate-resilient crop varieties and equipping climate information systems to enable adequate responses by agricultural producers.¹⁷ Also, governments should seek to encourage and incentivise the adoption of, and investments in, integrated approaches that incorporate productivity and climate change considerations.

Climate-smart agriculture (CSA) has become a leading, internationally-supported approach to 'climate-proofing' agriculture. CSA aims to simultaneously address food security and climate change and has three goals: increased productivity; improved climate resilience; and reduced GHG emissions. It only differs from sustainable agriculture in its explicit focus on building on the synergies and avoiding the trade-offs between these three areas (productivity, adaptation/resilience and mitigation).¹⁸ (See Box 2.)

For agricultural investors and long-term food trade agreements, understanding the concept of CSA can help in assessing climate risk and in defining whether a potential trade agreement/investment is both climate-proof and climate-friendly. For development aid donors, CSA can serve as a 'conceptual and planning framework' for supporting both agricultural research and project implementation.

Box 2: The Climate-smart Agriculture Approach

Climate-smart agriculture (CSA) is defined by the Food and Agriculture Organization of the UN (FAO) as an approach to 'guide actions to transform and reorient agricultural systems to effectively and sustainably support development and food security under a changing climate'. The aims of CSA are:

- To increase agricultural productivity and incomes in order to increase food security;
- To build resilience and enable adaptation to climate change;
- To develop opportunities for GHG emission reductions from business-as-usual trajectories.

The term CSA was introduced by the FAO in a technical input document for the Hague Conference on Agriculture, Food Security and Climate Change in 2010, which was one of the first global multi-stakeholder conferences to take up this nexus. The aims and tools and technologies (such as social responsibility, no-till farming or agroforestry) of CSA are similar as those of sustainable agriculture, but also focus on climate change outcomes.

Increasing the productivity of smallholder farmers – while incorporating climate adaptation and mitigation activities – has been a particular focus area of CSA. Smallholder farming accounts for a large share of global food production. According to the FAO, increasing the productivity and incomes of smallholder producers (SDG 2.3) will be crucial in efforts to achieve global food security but also the SDG 1 goal of ending poverty, given the high dependence of the world's poor on agriculture and its effectiveness in reducing poverty. Climate change will have negative impacts on the achievement of this goal unless actions to adapt and mitigate are taken.

CSA is enabled through actions which include: expanding the understanding on specific adaptation options and barriers to their adoption; enhancing enabling policy frameworks; strengthening institutional capacity to improve access to decision-making, information and means of implementation; and increasing sources of financing. Many non-governmental organizations have criticized CSA, arguing that the technologies promoted under this approach are 'socially unjust and environmentally harmful' given the possibility of creating dependencies (on for example crops, fertilizers, pesticides or machines) and the danger of displacing smallholder production (given their capital-intensiveness). Others have pointed out that civil society, which often has location- and context-specific knowledge of socio-environmental dynamics, should be consulted, and should actively seek opportunities to be heard, in the development and application of related technologies.

Sources: FAO and CCAFS, *Climate Smart Agriculture: What Is It? Why Is It Needed?* n.d.; KfW, *The Current Controversy Between the FAO and NGOs Regarding "Climate-smart Agriculture"*, Development in Brief No. 30, 11 August 2016; CGIAR, 'Climate-smart Agriculture 101' website, accessed in August 2017; author.

How Foreign Trade, Investments and Aid Can Support Food and Climate Goals

The GCC countries' reliance on food imports and low potential for significant domestic agricultural expansion is well-known. Their arable land and natural water resources are simply insufficient to meet their populations' food demand.¹⁹ Other pressure factors affecting the GCC states' food security domestically (similarly to most other countries) include population growth, rising living standards and the negative impacts of climate change. These latter include higher temperatures and increasingly varied precipitation patterns.²⁰ Given all these factors, the GCC countries are unlikely to be able to significantly cut their food import dependence going forward.

Supply – the main food security concern for GCC food importersⁱⁱ – in the global food markets is constrained by several factors, including the level of domestic production in exporting countries, trade policies and the use of strategic reserves. Agricultural exports are becoming concentrated in an increasingly smaller number of countries (per food item) while food import dependence is increasing worldwide.²¹ Climate change could also significantly constrain global food exports: a recent study in the UAE, for example, found that a number of the country's key staples and most of its main food trade partner countries are highly vulnerable to the negative impacts of climate change (see Box 1).

Integrating the interlinkages between the various global goals on food and climate change into policy – including through economic (dis)incentives and regulation – is in many cases in the purview of governments in the producing countries. However, there are a number of actions and measures that food-importing countries, including the GCC, can take in order to boost their own food security through enhancing the synergistic linkages between food security and climate action. These are examined below in the three main areas of foreign economic relations, namely trade, investments and aid.

Trade: The role of trade in global food security is growing in importance. The need to avoid market-distorting policies and to ensure transparency, is enshrined in SDG 2 targets 2.b and 2.c. Bilateral food trade, in turn, can be tailored in a way that promotes sustainable, climate-smart agriculture on both the production and consumption sides.

On the supply side, importing countries may intuitively consider source diversification – either multiplying the number of trade partners or moving away from dependence on the most vulnerable countries. This may not always be straightforward, given the small number of countries that account for the majority of agricultural exports.

Another option is to proactively engage in supporting the climate resilience of the trade partner country's agricultural production. Bilateral foreign trade dialogues, joint research initiatives and expert dialogues can support such efforts, as can technical assistance (see also below).

On the demand side, importing countries can seek to actively source products that are sustainably produced, or they can empower their domestic consumers to make more sustainable choices by passing legislation (or encourage local food industries) to introduce climate certification for food, or integrate climate certification into existing eco-certification schemes.²² Importing countries can also proactively share information with their food trade partners on national organic or eco-certification standards, regulations and market opportunities for sustainable and climate-friendly products, or – more directly – facilitate access to national organic or sustainably-produced food markets,²³ including through preferential trade agreements.

Investment: Overseas investments can support climate-smart agriculture directly, by financing projects and initiatives that boost its climate resilience and adaptive capacity, and indirectly, by financing infrastructure that supports agricultural resilience and low emissions. Substantial investments will be required to achieve the SDG 2 goals of increasing productivity and smallholder incomes sustainably. Despite a rising trend in agricultural development assistance, these flows alone will not be sufficient to bridge a growing gap between government expenditure on agriculture and the sector's contribution to the economy worldwide.²⁴ Most of the required investments are projected to come from private sources. From a sustainability perspective, the challenge is therefore to encourage these mainly profit-driven investors to consider 'more than purely commercial and short-term gains'.²⁵

A number of international investment principles have been established over the past decade that seek to encourage investors and industries to 'incorporate social, environmental and governance criteria

ⁱⁱ Unlike many other parts of the MENA region where food security conditions have eroded in recent years, the GCC countries remain classified as food secure (see e.g. Economist Intelligence Unit. *Global Food Security Index*, 2017). Their high food purchasing power is indirectly sustained by their hydrocarbon export revenues. Economic diversification will therefore be a key strategy for ensuring the GCC countries' ability to continue to *afford* food imports in the future. In terms of *availability*, GCC countries' long-term food security will depend to a large extent on the continued functioning of global food markets.

into investment decisions'.ⁱⁱⁱ Investors' motives for signing up to these principles range from reputation management to risk management.²⁶ There are two sets of international voluntary guidelines that relate to agricultural investments: the Voluntary Guidelines on Tenure and the Principles on Responsible Investment in Agriculture (see Box 3). Both seek to establish ambitious and sector-specific guidelines for land tenure governance and responsible investment in food and agriculture systems, and both were negotiated multilaterally in the wake of the increased interest in overseas agro-investments in the late 2000s. They are intended to help both governments and the private sector in evaluating 'whether their proposed actions and the actions of others constitute

acceptable practices'.²⁷ ^{iv} The two guidelines also include guidance relating to incorporating climate change considerations (measures supporting climate resilience in particular) into investments.

Aid: The same principles for responsible and sustainable agricultural and food investments (see Box 3) are also applicable in development cooperation where they can be used for structuring development assistance programmes. Compared to investments, development assistance generally allows for giving more weight to social and environmental considerations (rather than commercial ones), which arguably allows aid donors to strive for a high level of adoption and compliance with international guidelines

Box 3: Voluntary Guidelines for Overseas Agro-investors and Climate Change

Voluntary Guidelines on Tenure: The Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGT) are a set of guidelines aimed at promoting tenure rights and land access, including in the context of investments in land, to support hunger and poverty eradication and sustainable development. They were developed through an international multi-stakeholder consultation process and endorsed by the UN Committee on World Food Security (CFS) in 2012. Several multilateral fora, including the G7 and G20, have encouraged their adoption since.

Article 12 of the VGGT deals specifically with investments and related responsibilities of different actors, including states and investors. Article 23 considers climate change, identifying three areas of responsibility for states: (1) ensuring protection of tenure rights by laws, policies, strategies and actions that aim to prevent and respond to the effects of climate change; (2) implementing inclusive strategies and actions to support people displaced by climate change; and (3) facilitating the participation of all stakeholders with legitimate tenure rights in the negotiations and implementation of climate action programmes.

Principles on Responsible Investment in Agriculture and Food Systems: A set of voluntary principles on responsible agricultural investment (RAI) were similarly negotiated in a multi-stakeholder process that culminated in their adoption in 2014 by the CFS. They were originally proposed by the G8 following the 2007–08 food price crisis and related surge in interest in overseas land investments. The RAI comprises 10 principles that apply to across different types of agricultural investment, stakeholders and value chain stages.

RAI Principle 6, 'conserve and sustainably manage natural resources, increase resilience, and reduce disaster risks', includes seven actions for agricultural and food system investments: (1) avoiding impacts on land, soil, water, forests, and biodiversity; (2) conserving biodiversity and gene resources; (3) reducing waste and losses, and enhancing efficiency of production; (4) increasing the resilience of agriculture and food systems, habitats and smallholders to climate change; (5) reducing greenhouse gas emissions; and (6) integrating traditional and scientific knowledge, including through agro-ecological approaches and sustainable intensification.

Sources: CFS and FAO, *Voluntary Guidelines on the Responsible Governance of Tenure*. Rome: FAO, 2012; CFS, *Principles for Responsible Investment in Agriculture and Food Systems*. 2014; FAO, 'About the Voluntary Guidelines on Tenure.' Accessed in August 2017; Phoebe Stephens, 'The Principles of Responsible Agricultural Investment', *Globalizations*, Vol. 10 (2013), No. 1, pp. 187–92.

ⁱⁱⁱ These include the UN Principles for Responsible Investment (for institutional portfolio investors), the Santiago Principles (for sovereign wealth funds), the Equator Principles (for the banking sector) and the Extractive Industry Transparency Initiative (for the oil, gas and minerals industry).

^{iv} A study by Just Economics from 2011 (p. 7) questioned the transformative impact that signing up to such principles on investments, noting that they appear to encourage 'minor alterations to investment decisions, within commercial constraints, rather than altering the underlying basis of decision-making.' It called for better monitoring and measurement, a better understanding of enabling institutional arrangements and more ambitious guidelines overall. Efforts have, however, been undertaken to track VGGT and RAI implementation. A compliance study by the G7 Research Group from 2016 found that, of the seven G7 members and the EU, which had pledged support to implementing the two guidelines in their official development aid (ODA)-supported investments, five were in full compliance and three in partial compliance. None of the members was found to be in non-compliance. G7 Research Group, *2015 Schloss Elmau G7 Summit Final Compliance Report*. May 2016.

and best practices. A prominent example of promoting the implementation of the Voluntary Guidelines is the German government's and FAO's Bilateral Trust Fund, which supports food security, with a strong emphasis on the use of the Guidelines, as well as agricultural climate change adaptation and bioenergy production in partner countries.²⁸

On the partner country side, several 'vehicles' exist for countries to internationally communicate their climate action-related means of implementation (capacity-building, technology and finance) needs. These vehicles can help donor countries in targeting aid at partner countries' needs and priorities. Donors should also proactively incorporate their use into dialogues regarding aid allocation. These communication vehicles include national strategies relating to the 2030 Agenda, nationally determined contributions (NDCs) under the Paris Agreement, and nationally appropriate mitigation actions (NAMAs), national adaptation plans (NAPs) and national adaptation programmes of action (NAPAs) under the UNFCCC.

A study from 2016 found that 119 countries (including 78 developing countries) had included agriculture as part of their efforts to reduce GHG emissions in their intended NDCs. In addition, 134 developing countries included adaptation plans for agriculture in their intended NDCs and 126 of these indicated agriculture as a priority area for adaptation. The UNFCCC has set up web portals to make publicly available all NDCs, NAMAs, NAPs and NAPAs submitted by countries' designated national focal points.^v

Crosscutting approaches: A study by AGEDI on the vulnerability of the UAE's food imports to climate change impacts (see Box 1) includes, as an option for reducing risks related to climate-induced volatility in international food markets, a recommendation to invest in agricultural research and development projects in traditional priority trading partners. These investments could complement related development assistance efforts and would focus on resources and systems needed to adapt to climate change. Such investments would aim to increase the climate resilience or adaptive capacity of the partner country's agricultural production systems and they could target, *inter alia*, irrigation infrastructure and distribution networks. They could also be 'combined with price-competitive bilateral agreements on future imports', as suggested by AGEDI.²⁹

Policy Recommendations for the GCC Countries

The increasing pressures on the global food system, including climate change, will require attention from GCC foreign and security policymakers. Not only food security and climate change but also their interlinkages, as detailed in this paper, should therefore be mainstreamed across foreign policymaking.³⁰ Understanding the synergies and trade-offs between global food and climate action goals can inform policymaking by helping to focus on actions and interventions that maximise policy impact and multiply the number of beneficial outcomes.

Many GCC countries have already taken steps towards externally-oriented food security strategies. Most recently, the UAE has been working on a comprehensive food diversification policy that will include trade and overseas investments as well as a strategy for adapting to climate risks to food supply.

There are a number of additional measures that the GCC states could adopt in their foreign relations in order to support both the SDG 2 on zero hunger, food security and sustainable agriculture and SDG 13 on urgent climate action. Many of these apply to other countries that are dependent on food imports and provide development aid. This study has identified the following:

Food security policy planning:

- Make available up-to-date, comprehensive data on national and regional food trade, agricultural investments and agricultural development assistance to support research on linkages with climate change and to enable evidence-based policymaking^{vi};
- Invest in research to develop further models for estimating future climate risk to food supply and integrate this knowledge into food security planning;
- Establish or designate a government department to develop an early warning system for monitoring the global food market,³¹ including related long-term risks such as climate change; and
- Mandate the development of dynamic national databases on overseas agro-investments that incorporate science-based projections on associated climate vulnerabilities.

^v Interim NDCs registry: <http://www4.unfccc.int/ndcregistry/>; NAMA registry: <http://www4.unfccc.int/sites/nama/SitePages/Home.aspx>; NAP Central: http://www4.unfccc.int/nap/News/Pages/national_adaptation_plans.aspx; submitted NAPAs: http://unfccc.int/adaptation/workstreams/national_adaptation_programmes_of_action/items/4585.php.

^{vi} Food trade data from the FAO is available for most GCC countries, albeit with a significant time lag. However, there are major gaps in data on land and agricultural investments. The independent land monitoring initiative Landmatrix currently has the largest publicly-available dataset. Despite advances in harmonisation of development assistance reporting, so far only the UAE has begun making available more detailed data that allows for tracking agricultural assistance and food aid.

Foreign trade:

- On the 'supply side', proactively engage in supporting the climate resilience (and low emissions) of the trade partner country's agricultural production. This could include establishing bilateral dialogues or working groups with main food trade partners around SDG 2 (zero hunger) that incorporate climate change (SDG 13) adaptation and mitigation considerations; and
- On the 'demand side', actively source food items and products that are sustainably produced and climate-friendly. Share information with food exporting countries on local organic food and eco-labelling standards and regulations, and market opportunities for climate-friendly products. As part of bilateral trade negotiations with food exporters, consider facilitating access to national sustainably-produced food markets, including through preferential trade agreements.

Overseas agro-investments:

- Promote the adoption of the Voluntary Guidelines on Tenure (VGGT) and Principles on Responsible Agricultural Investment (RAI), including through establishing clearinghouses to support the mainstreaming of climate change considerations into current and planned agro-investments, and offering expert evaluations on compliance with such guidelines; and
- Pay attention to, and actively promote, measures that increase the climate resilience of, and decrease emissions from, land areas or food production where an investor stake exists.

Foreign assistance:

- At the ministry level, build capacity to adopt the VGGT and RAI, including their climate change-relevant principles, in all agriculture- and food-related development assistance, and report on related compliance as part of annual development aid reporting;
- In planning, proactively incorporate the use of partner countries' sustainable development strategies (in particular regarding alignment with the 2030 Agenda) and climate planning tools (NDCs, NAMAs, NAPs and NAPAs) into dialogues regarding (agricultural) development assistance allocation and planning;

- On a project level, seek to support agriculture and food sector (infrastructure) projects/initiatives that mainstream climate change considerations, including through support to: climate-smart agriculture and related research and technology development and transfer; early warning and disaster risk management systems; and human and institutional capacity building;
- Engage in trilateral South-South cooperation on projects and initiatives that support the SDG 2 (zero hunger) and SDG 13 (climate action) through both financing and technical assistance – the UAE's partnership with the FAO is a good example of cooperation on SDG 2³²; and
- Support research on climate-resilient agriculture and disseminate relevant findings – the UAE-based International Center for Biosaline Agriculture has been engaging in this type of work.³³

Crosscutting measures:

- Explore strategies that harness the synergies from trade, investments and aid in support of climate-friendly agriculture in the GCC countries' food trade partner countries, for example through a combination of commercial investment and technical assistance, possibly combined, at a higher level, with price-competitive long-term trade agreements.

Appendix 1. Food Security and Climate Action in the SDGs

The UN 2030 Agenda for Sustainable Development contains 17 Sustainable Development Goals (SDGs) with 169 targets to guide global development efforts at national, regional and international levels over the next decade-and-a-half. These include goals related to food security (SDG 2) and climate action (SDG 13), which are listed below alongside SDG targets that relate to both food security and climate change.

Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture

- 2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round
- 2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons
- 2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment
- 2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality
- 2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed
- 2.a Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries
- 2.b Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round
- 2.c Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility

Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all

- 7.2 By 2030, increase substantially the share of renewable energy in the global energy mix
- 7.3 By 2030, double the global rate of improvement in energy efficiency

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

- 9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

Goal 13. Take urgent action to combat climate change and its impacts*

- 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
- 13.2 Integrate climate change measures into national policies, strategies and planning
- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
- 13.a Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible
- 13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities

* Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change.

Sources: UN General Assembly. *Transforming our world: the 2030 Agenda for Sustainable Development*. A/RES/70/1, October 2015. Nb. SDGs 7 and 9 are only partly included in this box.

Endnotes

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- 7) Gilbert, 'GHG Emissions'.
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