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Feeding a growing population

How can agriculture address this challenge while simultaneously adapting to – and not exacerbating – climate change?

By **José Graziano da Silva**, Director-General,
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I am convinced that we can end hunger and poverty in our lifetime. We have the tools and we have the know-how. However, the goals and aspirations of the 2030 Agenda for Sustainable Development to eliminate hunger and rural poverty cannot be achieved if urgent action to combat climate change and its impacts is not taken now.

Climate change and food security

Climate change threatens to reverse the progress made so far in the fight against hunger and malnutrition. As highlighted by the Intergovernmental Panel on Climate Change in its *Climate Change 2014 Synthesis Report*, climate change increases and intensifies risks to food security and nutrition. The most affected are vulnerable populations in arid and semi-arid areas, landlocked countries and small island developing states.

Climate change threatens all dimensions of food security: availability, access, stability and utilisation. It affects food availability by reducing the productivity of crops, livestock and fisheries. It hinders access to food by disrupting the livelihoods of millions of rural people who rely on agriculture for their incomes. Farmers, pastoralists, fisherfolk and community foresters who depend on activities that are directly linked to climate are the ones most affected.

◀ The Green Dam near Hassi Bahbah, Algeria, a reforestation project started in the 1970s and designed to combat desertification. It spans the full east-west length of the country

Agriculture will bear the brunt of climate change impacts. It will be affected directly by changes in temperature levels and rainfall distribution, and indirectly through changes to other species such as pollinators, pests, disease vectors and invasive species.

In our report *The impact of disasters on agriculture: Addressing the information gap*, the FAO estimates that between 2006 and 2016, agricultural sectors accounted for 26 per cent of total damage and loss caused by climate-related extremes in developing countries. These extremes included more severe and frequent weather events, heat waves, droughts and sea-level rise.

Climate change impacts seriously compromise food production in countries and regions that are already highly food-insecure. Such findings are evidenced in the latest edition of FAO's flagship report *The state of food and agriculture: Climate change, agriculture and food security*. Climate change will also have broader impacts through effects on trade flows, food markets and price volatility, and could introduce new risks for human health.

Migration challenges and opportunities

Today, as per FAO's report *The future of food and agriculture – Trends and challenges*, the total number of international migrants, including those displaced by climate-related natural disasters, is 41 per cent higher than in 2000. By 2050, the number is expected to reach more than 400 million. However, the large majority of migrants worldwide, about 740 million, move within their own countries rather than abroad. They move from one rural area to another or from rural to urban areas.

Although conflicts, violence and natural disasters are among the major causes of migration and displacement, many migrants are also compelled to move because of socio-economic factors. These include poverty, food insecurity, lack of employment opportunities, limited access to social

IRELAND'S COMMITMENT AND COLLABORATION



By **Michael Creed TD**,
Minister of the Department of
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Ireland sets a global standard for sustainable agriculture and food production

The provision of food security for the world's growing population in a way that is environmentally sustainable is one of the great challenges for agriculture and society. Our natural assets face increased pressure that requires a commitment to sustainable production. Critical to this is also the security of the environment that protects our natural resources and reduces our emissions and waste.

The agri-food sector is the largest indigenous industry in Ireland. It operates in rural communities to provide sources of income and employment and also makes use of the natural capital and resources.

The awareness of these core factors in Irish agriculture has positioned sustainability at the centre of the sector's long-term vision Food Wise 2025, which states that: "Environmental sustainability and economic sustainability are equal and complementary – one cannot be achieved at the expense of the other."

Ireland is already one of the world's most efficient food producers through continued action to drive down the emission intensity of Ireland's livestock production. Most notably this has been achieved through the world's first

national sustainability programme, Origin Green, which commits its current 500+ participating companies and farms to improvements and measurement of their sustainability performance.

A larger network of agri-environmental initiatives coupled with our focus on scientific research ensures and encourages farming practices that underpin our sustainability credentials.

Our ambition to be a leader in sustainable food production requires a sustained collaborative effort. This aim is shared by the government, farmers and the food industry in Ireland. In Food Wise 2025, we embrace collaboration to meet the complex challenges and deliver the opportunities for environmental and economic sustainability for all our stakeholders.

The ambition that we can do more to advance our goals, such as the expansion of Origin Green, is firmly embedded in our strategy. I believe in Ireland's long-term commitment and collaborative approach to improving the environmental footprint of the agri-food sector. It is an important global example of sustainable action in agriculture, food production and environmental protection.



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protection and the depletion of natural resources.

In the coming decades, climate change is likely to increase migration pressures both within and across countries, posing challenges but also potential opportunities for food security, sustainable agriculture and rural development.

Sustainable agriculture

Hunger, poverty and climate change need to be tackled together. This is a development imperative, but also a moral one, as those who are now suffering most from food insecurity have contributed least to the changing climate. International agreements such as the Paris Agreement, the 2030 Agenda for Sustainable Development, the Sendai Framework for Disaster Risk Reduction and the Agenda for Humanity provide opportunities for concrete actions to tackle climate change.

As the impacts of climate change become more and more severe, a global transformation towards sustainable agriculture must begin immediately. Smallholders must be supported to adapt to climate change. The integration of the agricultural sector perspectives in 94 per cent of countries' climate commitments – their intended nationally determined contributions or INDCs – is a clear indicator that countries know this already.

Such strong demand for climate action also underlines the fact that FAO has a fundamental contribution to make. More coherent strategies, financing, data and information are needed to better inform transformative policies and institutions that can overcome barriers to implementation of actions at scale.

Adaptation and resilience

Concrete adaptation actions to face climate change should take place urgently at scale to make agriculture more sustainable, productive and resilient. Diversification and better integration of food production systems into ecological processes can create synergies with the natural habitat instead of depleting natural resources.

Agroecology and sustainable intensification are examples of approaches

that improve yields and build resilience through practices such as green manuring, nitrogen-fixing cover crops and sustainable soil and water management, as well as integration with agroforestry and animal production.

More resilient agriculture and investments into smallholder and family farmers can deliver transformative change and enhance the prospects and incomes of the world's poorest while buffering them against the impacts of climate change. Livelihood diversification can also help rural households manage climate risks by combining on-farm activities with seasonal work – in both agriculture and other sectors.

In all cases, social protection programmes will need to play an important role in helping smallholders better manage risk, reducing vulnerability to food price

Options for achieving mitigation benefits from agricultural sectors are available, but these options should be viewed in the broader context of providing food for all and must be prioritised without threatening food security.

Leaving no one behind

Smallholders and poor people in rural areas often lack access to support services. They will require far greater access to technologies, markets, information and credit for investment to adjust their production systems and practices to climate change.

To allow for the transformation towards sustainable and more equitable agriculture to happen, access to adequate extension advice and markets must improve.

Insecurity of tenure, high transaction costs,

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volatility. Investment in smallholder agriculture and family farming, social protection, and climate risk management and risk transfer tools such as insurance are far below the levels needed to manage climate risks.

Prioritising mitigation

To keep the increase in global temperature below 2°C, emissions will need to drop by as much as 70 per cent by 2050. Keeping climate change within manageable levels is possible with the contribution of the agriculture sectors.

The challenge will be to reduce emissions while meeting unprecedented demand for food. In the forestry sector, avoiding deforestation, increasing forested areas and adopting sustained-yield management in timber production can store large amounts of carbon. Appropriate land use and soil management lead to improved soil quality and fertility and can help mitigate climate change.

and lower access to resources, especially among rural women, are barriers that will need to be overcome. Access to weather and climate information in agriculture and food security, disaster risk reduction, water and health are equally important to ensure food for all.

International and South-South cooperation

The international community needs to act to address climate change today, by adopting climate-friendly practices in agriculture, forestry and fisheries. International cooperation, particularly South-South cooperation, through the sharing and exchange of technologies and good practices, should be geared towards supporting smallholder and family farmers adapt to climate change.

This will determine whether humanity succeeds in eradicating hunger and poverty by 2030. Business as usual is no longer an option to ensure food for all. ●