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منظمة  
الغذية والزراعة  
للأمم المتحدة

# COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

## Item 10 of the Provisional Agenda

### INTERGOVERNMENTAL TECHNICAL WORKING GROUP ON MICROORGANISM AND INVERTEBRATE GENETIC RESOURCES FOR FOOD AND AGRICULTURE

#### First Session

Rome, 25–27 September 2024

#### FAO'S WORK ON CLIMATE CHANGE

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## I. INTRODUCTION

1. The Commission, at its Nineteenth Session, stressed the importance of continuing to increase capacity-building and training programmes on climate change adaptation and mitigation, in collaboration with existing intergovernmental and international bodies, with regard to all GRFA and within the broad framework of relevant global policies and strategies, including the *FAO Strategy on Climate Change 2022–2031*.<sup>1</sup>
2. The present document provides a breakdown of FAO’s work.

## II. FAO’S ACTIVITIES ON CLIMATE CHANGE

3. Climate change is one of the most pressing challenges facing our world today. The impacts of climate change are widespread, affecting ecosystems, biodiversity, and human communities. Rising sea levels, more frequent and severe weather events, and disruptions to food and water supplies are just a few of the consequences. FAO has consistently aimed to enhance its support to Members in their efforts with respect to climate change adaptation and mitigation, working towards climate-resilient and low-emission agrifood systems while striving to achieve the Sustainable Development Goals, in particular eradicating hunger and malnutrition. Climate action at global, regional, national and local levels across agrifood systems is fundamental to their transformation in a coherent manner according to, and dependent on, national contexts and capacities.
4. The *FAO Strategy on Climate Change 2022–2031* and its Action Plan<sup>2</sup> take a comprehensive approach, considering various sectors such as crops and livestock production, forestry, fisheries and aquaculture, along with related value chains, livelihoods, biodiversity, water and ecosystems. The Strategy echoes the recognition of the Paris Agreement of the fundamental priority of safeguarding food security and ending hunger and presents the role of agrifood systems as part of the solution to climate change and seeks complementarities with the missions of other organizations and related agreements. Furthermore, it assists countries in aligning their agrifood systems with their national climate commitments and policies, including Nationally Determined Contributions (NDCs), National Biodiversity Strategies and Action Plans (NBSAPs) and Land Degradation Neutrality (LDN) targets.
5. The Action Plan’s core purpose is to implement the vision set out in the Strategy being: “agrifood systems<sup>3</sup> are sustainable, inclusive, resilient and adaptive to climate change and its impacts and contribute to low-emission economies while providing sufficient, safe and nutritious foods for healthy diets, as well as other agricultural<sup>4</sup> products and services, for present and future generations, leaving no one behind”. It further seeks to orient how FAO enhances support to its Members and to enhance FAO’s own operational modalities, in particular in terms of capacity development, resource mobilization, partnerships and communications, to deliver climate action under the three pillars of the Strategy in an efficient and coherent manner.
6. Climate change is further embedded in FAO’s Strategic Framework 2022-31<sup>5</sup> and its Medium Term Plan (Reviewed) 2022-25 and Programme of Work and Budget 2024-25.<sup>6</sup>

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<sup>1</sup> FAO. 2022. *FAO Strategy on Climate Change 2022–2031*. Rome.

<https://openknowledge.fao.org/handle/20.500.14283/cc2274en>

<sup>2</sup> FAO. 2023. *FAO Action Plan 2022–2025 for the implementation of the FAO Strategy on Climate Change*. Rome. <https://doi.org/10.4060/cc7014en>

<sup>3</sup> The agrifood system covers the journey of food from farm to table – including when it is grown, fished, harvested, processed, packaged, transported, distributed, traded, bought, prepared, eaten and disposed of. It also encompasses nonfood products that also constitute livelihoods and all of the people as well as the activities, investments and choices that play a part in getting us these food and agricultural products. In the FAO Constitution, the term “agriculture” and its derivatives include fisheries, marine products, forestry and primary forestry products.

<sup>4</sup> For FAO, agriculture covers crop-based farming systems and livestock systems, including rangelands and pasturelands, forestry, fisheries and aquaculture.

<sup>5</sup> C 2021/7.

<sup>6</sup> C 2023/3.

7. FAO is supporting countries to both mitigate and adapt to the effects of climate change through a wide range of research-based and practical programmes and projects,<sup>7</sup> as an integral part of the 2030 Agenda and the SDGs. Under the Paris Agreement, countries are expected to reduce emissions and meet national climate targets. In addition, the Climate change knowledge hub<sup>8</sup> is continuously updated with new information, which includes a learning corner that provides up-to-date webinars and e-learning courses.

### **Capacity development**

8. FAO has produced various guidelines and tools that aim to support countries in their national adaptation of international climate change and biodiversity obligations, covering both climate change adaptation and mitigation. Annex I presents a list of documents developed by the FAO since the last Commission's session.<sup>9</sup>

### **Projects**

9. FAO's project portfolio on climate change has continuously expanded through both the Green Climate Fund (GCF) and the Global Environment Facility (GEF). The project portfolio for FAO's GCF includes USD 1.2 billion, 20 FAO-led projects valued at USD 1 billion million and 94 readiness projects valued at USD 70.5 million.<sup>10</sup>

10. FAO's global GEF portfolio currently exceeds USD 1 billion, assisting more than 120 countries in projects that respond to local priorities, deliver global environmental benefits, and advance the SDGs. GEF has 62 active projects in 50 countries addressing both climate change and biodiversity, totaling USD 458 million in GEF financing.

### **Programmes and Initiatives**

#### *Scaling up Climate Ambition on Land Use and Agriculture through NDCs and National Adaptation Plans*

11. The Scaling up Climate Ambition on Land Use and Agriculture through nationally determined contributions and National Adaptation Plans (SCALA) programme<sup>11</sup> supports countries to enhance climate action in land use and agriculture, together with partners. SCALA supports 12 countries<sup>12</sup> to translate their NDC and National Adaptation Plans (NAPs) into actionable and transformative climate solutions in land use and agriculture with multistakeholder engagement.

12. Furthermore, through the SCALA programme, FAO identifies pathways for implementing climate actions with the potential to trigger transformative systems change, emphasizing private sector engagement and gender-responsive and inclusive approaches that benefit natural resource-dependent communities in situations of vulnerability. Examples of SCALA impact include: designing a monitoring and evaluation system in Egypt to track progress on adaptation as part of the country's NAP; strengthening monitoring, reporting and verification systems in Côte d'Ivoire and Ethiopia to track emissions from agrifood systems as part of the Enhanced Transparency Framework; bolstering

<sup>7</sup> <https://www.fao.org/climate-change/programmes-and-projects/en/>; <https://www.fao.org/gef/en>

<sup>8</sup> <https://www.fao.org/climate-change/knowledge-hub/en>

<sup>9</sup> For further information consult: CGRFA-19/23/3/Inf.1.

<sup>10</sup> <https://openknowledge.fao.org/handle/20.500.14283/cc6929en>; <https://www.fao.org/gcf/en>

<sup>11</sup> <https://www.fao.org/in-action/scala/en>

<sup>12</sup> The 12 core SCALA countries are: Argentina (<https://www.fao.org/in-action/scala/countries/argentina/en>), Cambodia (<https://www.fao.org/in-action/scala/countries/cambodia/en>), Colombia (<https://www.fao.org/in-action/scala/countries/colombia/en>), Costa Rica (<https://www.fao.org/in-action/scala/countries/costa-rica/en>), Cote d'Ivoire (<https://www.fao.org/in-action/scala/countries/cote-d-ivoire/en>), Egypt (<https://www.fao.org/in-action/scala/countries/egypt/en>), Ethiopia (<https://www.fao.org/in-action/scala/countries/ethiopia/en>), Mongolia (<https://www.fao.org/in-action/scala/countries/mongolia/en>), Nepal (<https://www.fao.org/in-action/scala/countries/nepal/en>), Senegal (<https://www.fao.org/in-action/scala/countries/senegal/en>), Thailand (<https://www.fao.org/in-action/scala/countries/thailand/en>) and Uganda (<https://www.fao.org/in-action/scala/countries/uganda/en>).

agricultural value chains through system level assessments in Mongolia and Uganda informing the 2025 NDC update; enhancing the skills of men and women livestock producers in Costa Rica to achieve certification for their sustainable practices; leveraging and scaling up climate-resilient indigenous and traditional knowledge and practices in Colombia, particularly among women, youth and other marginalized groups; and increasing the agrifood dimension of the new climate action priority plan in Cambodia.

13. SCALA has also enhanced and developed critical tools to spur agrifood transformation within and beyond target countries, such as the Technical guidance for the Nationally Determined Contribution Expert Tool and the Climate Action Review tool for transitioning from planning to implementation in the agriculture and land-use sectors.

14. FAO and the United Nations Development Programme (UNDP) are co-leading this 20 million euro programme (2021–2025) with funding from the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) through the International Climate Initiative (IKI).

#### *Food and Agriculture for Sustainable Transformation (FAST) Partnership*

15. The Food and Agriculture for Sustainable Transformation (FAST) Partnership<sup>13</sup> is a multi-stakeholder partnership that aims to catalyze and accelerate the transformation of agriculture and food systems by 2030 for people, climate, and nature. The partnership was developed to implement activities and achieve the objectives of the FAST Initiative,<sup>14</sup> which was launched by the COP27 Presidency in 2022 in Sharm el-Sheikh, Egypt. Its goals are to improve the quantity and quality of climate finance contributions towards the transformation of agriculture and food systems, to support adaptation efforts, and to maintain a 1.5-degree pathway while ensuring food and economic security.

#### **Tools Programmes and Initiatives**

16. FAO has developed a wide range of tools and services aimed at enhancing countries' technical capacities. For example, FAO supports developing countries in their National Adaptation Plans by assisting in better access to and interpretation and use of climate risk information.<sup>15</sup> FAO also plays a central role in supporting climate action in agrifood systems (crops, livestock, forestry, fisheries and aquaculture and related value chains, livelihoods, ecosystems and biodiversity) and guiding governments on enhancing the agrifood dimension of NDCs.<sup>16</sup> Annex II presents a list of FAO tools.

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<sup>13</sup> <https://www.fao.org/climate-change/action-areas/access-to-climate-finance/fast/en>

<sup>14</sup> <https://www.fao.org/3/cc2186en/cc2186en.pdf>

<sup>15</sup> FAO. 2024. *How FAO supports developing countries in their National Adaptation Plans*. Rome. <https://doi.org/10.4060/cd0892en>

<sup>16</sup> FAO. forthcoming. *How FAO supports developing countries on their Nationally Determined Contributions*. Rome.

## ANNEX I

## RECENT DOCUMENTS DEVELOPED BY FAO ON CLIMATE CHANGE

Title	Description
<p>FAO. 2024. <i>How FAO supports developing countries in their National Adaptation Plans</i>. Rome. <a href="https://doi.org/10.4060/cd0892en">https://doi.org/10.4060/cd0892en</a></p>	<p>National Adaptation Plans (NAPs) serve as vital policy instruments for guiding countries' efforts to reduce vulnerability and build adaptive capacity and resilience to climate change impacts. The Food and Agriculture Organization of the United Nations (FAO) plays a central role in supporting adaptation efforts and advancing NAPs globally. Through technical support, institutional support, improving access to finance, and the provision of knowledge products and tools, FAO supports developing countries in the formulation and implementation of NAPs that increase resilience in agrifood systems across FAO mandate areas (agriculture, forestry and fisheries).</p>
<p>Pingault, N., Licona Manzur, C., Meybeck, A., Gitz, V., Baral, H., Bernoux, M., Crumpler, K., Duchelle, A.E., Drieux E. &amp; Thomas, R.P. 2024. <i>Land use and the Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security</i>. Environment and Natural Resources Management Working Paper, No. 99. Rome, FAO and CIFOR. <a href="https://doi.org/10.4060/cd0981en">https://doi.org/10.4060/cd0981en</a></p>	<p>Land use and land-use change (including related policies) interact with climate and climate change (including related policies) in multiple ways. Land-use sectors are among the most affected by climate change. They are also a significant source of greenhouse gas (GHG) emissions. According to the Intergovernmental Panel on Climate Change, agriculture, forestry and other land use are the second source of GHG emissions after fossil fuel use and account globally for about 23 percent of total net anthropogenic GHG emissions. However, the land use sectors are not only part of the problem, but also part of the solution. They are key to adaptation. The global potential of land-based mitigation options is evaluated at about 30 percent of the global mitigation effort required in 2050 to meet the 1.5 °C target of the Paris Agreement. This publication, resulting from a collaboration between FAO and the Center for International Forestry Research, lead centre of the CGIAR research programme on Forests, Trees and Agroforestry, aims to recall those complex interactions and to explore the opportunities to enhance the role of land use under the United Nations Framework Convention on Climate Change to advance climate change mitigation and adaptation.</p>
<p>FAO. 2024. <i>The unjust climate – Measuring the impacts of climate change on the rural poor, women and youth: Summary</i>. Rome. <a href="https://doi.org/10.4060/cc9638en">https://doi.org/10.4060/cc9638en</a></p>	<p>Measuring the impacts of climate change on the rural poor, women and youths report assembles an impressive set of data from 24 low- and middle-income countries in five world regions to measure the effects of climate change on rural women, youths and people living in poverty. It analyses socioeconomic data collected from 109 341 rural households (representing over 950 million rural people) in these 24 countries. These data are combined in both space and time with 70 years of georeferenced data on daily precipitation and temperatures. The data enable us to disentangle how</p>

	different types of climate stressors affect people's on-farm, off-farm and total incomes, labour allocations and adaptive actions, depending on their wealth, gender and age characteristics. The brief summarizes the key messages and findings.
Szaboova, L. 2023. <i>Climate change, migration and rural adaptation in the Near East and North Africa region</i> . Rome, FAO. <a href="https://doi.org/10.4060/cc3801en">https://doi.org/10.4060/cc3801en</a>	This report reviews evidence on the climate–livelihoods–migration nexus in the NENA region, identifies knowledge gaps and makes suggestions for future policy and programming to leverage the potential of migration for climate change adaptation
Galbiati, G.M., Yoshida, M., Benni, N. & Bernoux, M. 2023. <i>Climate-related development finance to agrifood systems – Global and regional trends between 2000 and 2021</i> . Rome, FAO. <a href="https://doi.org/10.4060/cc9010en">https://doi.org/10.4060/cc9010en</a>	This publication addresses the persistent knowledge gap related to climate finance to agrifood systems, providing data and information to support countries making informed decisions towards agrifood systems transformation. The analysis brings to light the evolution of climate finance in agrifood systems over the past two decades, showcasing unique sectorial analysis of climate finance allocations for adaptation and mitigation, delving into the diversity of actors involved, from bilateral and multilateral agencies to the private sector, highlighting the critical need for partnerships that transcend boundaries.
Angioni, C., Haensel, M. & Wolf, J. 2023. <i>Catalysing climate solutions: an introduction to FAO's work on climate change adaptation in agrifood systems</i> . Rome, FAO. <a href="https://doi.org/10.4060/cc9070en">https://doi.org/10.4060/cc9070en</a>	Recognizing the important role adaptation plays for agrifood systems, and its prominence in the Paris Agreement, the paper presents and reflects on FAO's repertoire of different adaptation actions and solutions. Complementing the conclusion of the Global Stocktake at COP28, it comprehensively summarizes FAO's efforts to boost progress in global adaptation actions. The paper (a) emphasizes the importance of bringing agrifood systems into the global adaptation agenda and policy landscape; (b) creates a cross-sectoral portfolio of FAO adaptation solutions covering multiple scales and approaches; (c) gives an insight into FAO's work with partners and Members and presents relevant networks and collaborations. Laying out FAO's guiding principles according to the FAO Strategy on Climate Change 2022–2031, it underscores FAO's efforts for transformative action in agrifood systems and demonstrates FAO's people-centered approach to climate change adaptation.
FAO. 2023. <i>Pathways towards lower emissions – A global assessment of the greenhouse gas emissions and mitigation options from livestock agrifood systems</i> . Rome. <a href="https://doi.org/10.4060/cc9029en">https://doi.org/10.4060/cc9029en</a>	This FAO report presents a comprehensive global assessment of greenhouse gas emissions from livestock systems, utilizing FAO's Global Livestock Environmental Assessment Model (GLEAM) based on the most recent available data. GLEAM also considers indirect emissions from upstream activities, such as feed and other inputs, and part of the downstream processes including post-farm transport, processing and packaging of raw products. Drawing from an extensive literature review, this publication illustrates pathways towards lower emissions through a set of interventions on both the supply and the demand sides of animal production.

<p>FAO. 2023. <i>Loss and damage and agrifood systems – Addressing gaps and challenges</i>. Rome.  <a href="https://doi.org/10.4060/cc8810en">https://doi.org/10.4060/cc8810en</a></p>	<p>The purpose of this report is to stimulate discussions on the central role of agrifood systems in the loss and damage debate and identify the gaps in data, knowledge and finance that need to be addressed. The report provides an overview of the loss and damage concept, the status of analytical methodologies and tools, a summary of the reporting on loss and damage in nationally determined contributions (NDCs), an outline of the policy needs and some preliminary analysis of the financing needs. Overall, support to countries needs to be targeted and strengthened so that loss and damage in agrifood systems can be dealt with as early as possible. This support needs to ensure that no one is left behind while striving for better production, better nutrition, a better environment and a better life.</p>
<p>FAO. 2023. <i>Agri-food solutions to climate change – FAO's work on the climate crisis</i>. Rome.  <a href="https://doi.org/10.4060/cc8055en">https://doi.org/10.4060/cc8055en</a></p>	<p>Amid a worsening climate crisis and slow progress in cutting greenhouse gases, sustainable agrifood systems practices can help countries and communities to adapt, build resilience and mitigate emissions, ensuring food security and nutrition for a growing global population. FAO is working with countries and partners from government to community level to simultaneously address the challenges of food security, climate change and biodiversity loss. But none of this will ultimately succeed unless the world commits to a significant increase in the quality and quantity of climate finance.</p>
<p>FAO. 2023. <i>Tracking progress on food and agriculture-related SDG indicators 2023</i>. Rome.  <a href="https://doi.org/10.4060/cc7088en">https://doi.org/10.4060/cc7088en</a></p>	<p>At the mid-point of the Agenda 2030 for Sustainable Development, there is an urgent need to understand where the world stands in eliminating hunger and food insecurity, as well as in ensuring sustainable agriculture. The new report of the Food and Agriculture Organization of the United Nations (FAO), titled <i>Tracking progress on food and agriculture-related SDG indicators</i>, offers analysis and trends on indicators across eight Sustainable Development Goals (SDGs) – in particular, SDGs 1, 2, 5, 6, 10, 12, 14 and 15 – highlighting areas of progress and areas where further effort is needed. Available in digital format, this year's edition also discusses selected indicators for which FAO is a contributing agency and/or that have key implications for food and agriculture. These additional indicators provide valuable information on agricultural losses resulting from disasters, the distribution of land tenure rights, the prevalence of stunting and malnutrition, the impact of international trade policies and regulations on agricultural trade, especially in developing and least developed countries, and the proportion of land degradation. This edition also includes, for the first time, an overall statistical progress assessment for SDG 2 that synthesizes information across all indicators aimed at achieving Zero Hunger, including those for which FAO is not the custodian agency.</p>
<p>Distefano, E., Rai, N. and Wolf, J. 2023. <i>Using metrics to assess progress towards the Paris Agreement's Global Goal on Adaptation – Transparency in</i></p>	<p>This publication serves as a guide for countries in exploring how reporting for the Sustainable Development Goals (SDG) indicators under FAO custodianship serves the scope of compiling information for the biennial transparency reports (BRT) under the Enhanced Transparency Framework (ETF). The paper intends to demonstrate the potential integration of adaptation reporting</p>

<p><i>adaptation in the agriculture sectors</i>. Rome, FAO. <a href="https://doi.org/10.4060/cc2038en">https://doi.org/10.4060/cc2038en</a></p>	<p>with SDG and Sendai Framework for Disaster Risk Reduction (SFDRR) global measurable targets and corresponding indicators to advance towards a common understanding of how to track adaptation while informing progress towards the Global Goal on Adaptation (GGA). It is aimed primarily at technical authorities and experts working on monitoring and evaluation (M&amp;E) of adaptation in the agriculture sectors and compiling information to report on adaptation at national and international levels. Secondly, it is aimed at policy- and decision-makers that can use M&amp;E evidence to inform adaptation planning, both in the agriculture sectors specifically and as part of broader national adaptation planning, implementation, and budgeting processes.</p>
<p>FAO. 2023. <i>A snapshot of the status and way forward for transforming agrifood systems in the Pacific – Identifying entry points and analysing trade-offs for policymakers</i>. Apia. <a href="https://doi.org/10.4060/cc4940en">https://doi.org/10.4060/cc4940en</a></p>	<p>Snapshot of the status and way forward for transforming agrifood systems in the Pacific – Identifying entry points and analysing trade-offs for policymakers," describes the impact of climate change on the agrifood systems of Pacific Island countries. The changing temperature, precipitation, and sea level patterns have a significant impact on food production and trade, leading to food insecurity, malnutrition, and non-communicable diseases, particularly in vulnerable groups like women and youth. The report provides an overview of entry points for sustainable food system transformation, such as traditional Pacific farming practices, crop diversification, agroforestry, and community-managed marine protection zones. The report also emphasizes the need for socioeconomic, health, and environmental impact assessments to manage these trade-offs and to understand the potential revenue generation from taxes on unhealthy commodities, which could be used to subsidize local food production and transport.</p>
<p>FAO. 2022. <i>Strengthening gender-responsive climate policies and actions in the livestock sector</i>. Rome. <a href="https://doi.org/10.4060/cc2998en">https://doi.org/10.4060/cc2998en</a></p>	<p>About 600 million of the world's poorest households keep livestock as an essential source of income and food production to manage risk, store wealth and build up assets. However, women face several constraints to ownership and decision-making power in the sector. Scaling up culturally acceptable and locally available solutions requires government intervention through intentional policies that can empower women. Further, more funds should be allocated to replicate successful gender-responsive and transformative projects and identify entry points to mainstream gender considerations into livestock policies. This brief showcases promising research and innovation, particularly from countries engaged through the Food and Agriculture Organization of the United Nations (FAO) Flexible Multi-Partner Mechanism (FMM) 149 project. India and Botswana are highlighted as examples to inform policymakers and guide gender-responsive, climate-smart investments and policies in countries' livestock sectors</p>
<p>FAO. 2022. <i>Strengthening gender-responsive climate policies and actions in aquaculture and fisheries –</i></p>	<p>Women perform essential work throughout aquaculture and fisheries, yet their contributions are often overlooked and unrecognized in national statistics, policies, and development interventions. Women remain underrepresented in or excluded from formal governance processes and have limited say in</p>



<p><i>From research to policies.</i> Rome. <a href="https://doi.org/10.4060/cc2699en">https://doi.org/10.4060/cc2699en</a></p>	<p>decision-making. This brief showcases promising research and innovation, particularly from countries engaged through the Food and Agriculture Organization of the United Nations (FAO) Flexible Multi-Partner Mechanism (FMM) 149 project. Uganda, Belize and Samoa are highlighted as examples to inform policymakers, guide gender-responsive investments, policies, and strategies in countries' work in response to climate change.</p>
<p>FAO. 2022. <i>Strengthening gender-responsive climate policies and actions in climate-smart agriculture.</i> Rome. <a href="https://doi.org/10.4060/cc2957en">https://doi.org/10.4060/cc2957en</a></p>	<p>Championing women as critical agents of change within their communities and in policy and decision-making processes at national and international levels is a fundamental step towards ensuring gender equality and climate-related issues are adequately addressed in agricultural policies and dialogue and considered by international climate finance mechanisms, government ministries and research institutions. Gender-responsive climate-smart agriculture refers to approaches that consider women's and men's specific priorities and their different access to resources, services, education and information to build climate resilience, through a focus on equality and agency. This brief showcases promising research and innovation, particularly from countries engaged through the Food and Agriculture Organization of the United Nations (FAO) Flexible Multi-Partner Mechanism (FMM) 149 project. Senegal, Uganda and Belize are highlighted as examples to inform policymakers, guide gender-responsive investments, policies, and strategies in countries' work in response to climate change.</p>
<p>FAO. 2022. <i>Strengthening gender-responsive climate policies and actions in agrifood value chains.</i> Rome. <a href="https://doi.org/10.4060/cc2959en">https://doi.org/10.4060/cc2959en</a></p>	<p>Climate change can increase gender inequalities: while men can diversify into other commodities or migrate to other regions in search of economic opportunities in response to climate impacts, women often have more limited options, and therefore less resilience, due to their domestic responsibilities and poor access to resources and services. Failure to recognize the multiple roles performed by women along the agrifood value chain, and to address their specific needs and priorities often reduces their economic and social opportunities. This brief showcases promising research and innovation, particularly from countries engaged through the Food and Agriculture Organization of the United Nations (FAO) Flexible Multi-Partner Mechanism (FMM) 149 project. Senegal, Samoa and Zambia are highlighted as examples to inform policymakers, guide gender-responsive investments, policies, and strategies in countries' work in response to climate change.</p>

*ANNEX II***FAO TOOLS ON CLIMATE CHANGE**

<b>Tool</b>	<b>Description</b>
Earth Map: <a href="https://earthmap.org/">https://earthmap.org/</a>	A point-and-click cloud-based platform powered by Google Earth Engine and other free data sources. Earth Map enables any user to visualize, analyze, and monitor changes on Earth's surface, performing multi-temporal and multi-parametric land monitoring, climate assessments and other geospatial and Earth Observation-based analyses.
Adaptation, Biodiversity, and Carbon (ABC) Mapping Tool: <a href="https://abc-map.fao.org/">https://abc-map.fao.org/</a>	A geospatial app that holistically assesses the environmental impact of policies, plans and investments in the agriculture, forestry, and other land-use sectors through Google Earth-based satellite imagery.
Climate and Agriculture Risk Visualization and Assessment (CAVA): <a href="https://fao-cava.predictia.es/">https://fao-cava.predictia.es/</a>	Climate and Agriculture Risk Visualization and Assessment (CAVA) is an approach to climate information with a focus on agriculture. Its goal is to provide long-term, climate services by democratising access and simplifying the use of past and future climate and impact data.
Climate Action Review (CAR) Tool: <a href="https://openknowledge.fao.org/handle/20.500.14283/cd0260en">https://openknowledge.fao.org/handle/20.500.14283/cd0260en</a>	Supports national adaptation planners through a practical, step-by-step process to identify actionable entry points for transformative adaptation in the agriculture and land-use sectors through multi-stakeholder engagement.
Climate Risk Toolbox (CRTB): <a href="https://data.apps.fao.org/crtb/">https://data.apps.fao.org/crtb/</a>	Supports the design of climate-resilient agricultural investment projects and plans, by allowing users to conduct climate risk screenings through advanced climate-related geospatial information and data.
Technical guidance for the Nationally Determined Contribution Expert Tool (NEXT): <a href="https://doi.org/10.4060/cc0568en">https://doi.org/10.4060/cc0568en</a>	The Nationally Determined Contribution Expert Tool (NEXT) is a greenhouse gas accounting tool developed by the Food and Agriculture Organization of the United Nations (FAO) to support annual environmental impact assessment for the Agriculture, Forestry and Other Land Use sector (AFOLU).

Self-evaluation and Holistic Assessment of Climate Resilience of Farmers and Pastoralists (SHARP+): <a href="https://doi.org/10.4060/cb7399en">https://doi.org/10.4060/cb7399en</a>	Assesses climate resilience among small farming households to pinpoint areas needing intervention, shape project activities, and monitor and evaluate the adaptive capacity and resilience of communities.
The Modelling System for Agricultural Impacts of Climate Change (MOSAICC): <a href="https://openknowledge.fao.org/handle/20.500.14283/cb4295en">https://openknowledge.fao.org/handle/20.500.14283/cb4295en</a>	MOSAICC is an innovative tool to carry climate change out climate change impact assessment studies at the national level.
Greenhouse Gas Data Management (GHG-DM) tool: <a href="https://www.fao.org/fileadmin/user_upload/climate_change/etf/docs/GHG_DataManagementTool.zip">https://www.fao.org/fileadmin/user_upload/climate_change/etf/docs/GHG_DataManagementTool.zip</a>	This excel-based package helps GHG inventory compilers manage the information related to the activity data and parameters in the agriculture, forestry and other land use (AFOLU); energy; industrial processes and product use (IPPU); and waste sectors.
Adaptation Toolbox for Fisheries and Aquaculture: <a href="https://openknowledge.fao.org/handle/20.500.14283/i9705en">https://openknowledge.fao.org/handle/20.500.14283/i9705en</a>	A portfolio of climate adaptation tools and methods to strengthen adaptation in the sector.
LEAP Global database of GHG emissions related to feed crops: <a href="http://www.fao.org/partnerships/leap/database/ghg-crops/en/">http://www.fao.org/partnerships/leap/database/ghg-crops/en/</a>	The GHG database on feed-crops is a global database of emissions, emission intensities and life cycle inventory for 5 main crops: maize, wheat, barley, soybean and cassava.