



联合国
粮食及
农业组织

Food and Agriculture
Organization of the
United Nations

Organisation des Nations
Unies pour l'alimentation
et l'agriculture

Продовольственная и
сельскохозяйственная организация
Объединенных Наций

Organización de las
Naciones Unidas para la
Alimentación y la Agricultura

منظمة
الأغذية والزراعة
للأمم المتحدة

E

FAO REGIONAL CONFERENCE FOR ASIA AND THE PACIFIC

Thirty-fourth Session

Nadi, Fiji, 9–13 April 2018

Climate Action for Agriculture: Strengthening the Engagement of Agriculture Sectors to Implement the Climate Change Elements of the 2030 Agenda in Asia and the Pacific

Executive summary

Climate change poses a systematic risk to the achievement of food security in Asia and the Pacific. Recognizing this risk, member countries in the region have highlighted the agriculture sector¹ as a priority for action under the climate change elements of the 2030 Agenda for Sustainable Development including Sustainable Development Goals (SDGs) 1 and 2 on zero hunger and poverty reduction, the Paris Agreement (SDG 13) and the Sendai Framework on Disaster Risk Reduction. As countries move towards implementation of these elements, key milestones such as the United Nations Framework Convention on Climate Change (UNFCCC) Talanoa dialogue (2018 Facilitative dialogue), submission of updated Nationally Determined Contributions (NDCs) and the preparation of Sendai Framework implementation plans will provide an opportunity for agriculture sector stakeholders to make the case for resources and support to drive climate action for agriculture. Strategic engagement and leadership by agriculture ministries in the climate change agenda will enhance national capacity to scale up measures to strengthen the climate resilient food and agriculture systems, reduce poverty, promote gender equality, and address food insecurity and malnutrition in Asia and the Pacific. This paper will provide a review of current knowledge on climate change risks to food security in the region and the opportunities and challenges for the

¹ The agriculture sector comprises crops, livestock, forestry and fisheries including aquaculture. See Edwards, P. & Demaine, H. 1998. Rural Aquaculture: Overview and Framework for Country Reviews [online]. Bangkok. [Cited 22 December 2017]. <http://www.fao.org/docrep/003/x6941e/x6941e00.htm#Contents> and Green Climate Fund. 2016. Annex 1: Initial Strategic Plan for the GCF. Meeting Document, Incheon, 8-10 March 2016, GCF 12th Board Meeting.

*This document can be accessed using the Quick Response Code on this page;
an FAO initiative to minimize its environmental impact and promote greener communications.
Other documents can be consulted at www.fao.org*



agriculture sector to play a more ambitious role in implementing the Paris Agreement and Sendai Framework.

Guidance sought from the Regional Conference

The Regional Conference is invited to:

- share national priority actions to address climate change risks to agriculture and food security under the 2030 Agenda;
- endorse FAO's approach to supporting member countries to plan, finance and implement national priority actions to address climate change risks to agriculture and food security inter alia through the FAO Climate Change Strategy, the 2018-19 biennial theme on climate change and the FAO Regional Initiative on Climate Change;
- support FAO's support to agriculture sector ministries and stakeholders, including women, to engage at national, regional and global levels in key 2030 Agenda processes, including the UNFCCC Talanoa dialogue (2018 Facilitative dialogue), the review and update of the NDCs, the Koronivia decision on agriculture, the UNFCCC Gender Action Plan, and the preparation of national implementation plans under the Sendai Framework;
- share experiences on working with focal points for the UNFCCC and the Sendai Framework; and
- underline FAO's role in order to facilitate coordination and collaboration between agriculture sector ministries and other relevant stakeholders through partnership and SSC&TC to support action to address climate change risks to agriculture and food security under the 2030 Agenda.

I. Introduction

1. While there is strong agreement that climate change poses a significant, systematic risk to the achievement of food security in Asia and the Pacific, the nature and magnitude of this risk are still poorly understood. In the face of mounting evidence that failure to act now to address climate change risks will result in potentially catastrophic impacts on agriculture systems and rural livelihoods, member countries in the region have highlighted the agriculture sector as a key priority for adaptation and mitigation under the climate-related elements of the 2030 Agenda for Sustainable Development, most notably the Paris Agreement, but also the Sendai Framework for Disaster Risk Reduction. Integrated action at the national level to plan, implement and monitor policies and measures to address climate change risks to the agriculture sector, particularly risks to smallholder, marginal, landless and women farmers, will be crucial for achieving SDGs 1 and 2 on poverty reduction and Zero Hunger.

2. Often the global, regional and national institutions in place to lead climate action are dominated by stakeholders not directly linked to agriculture or food systems. This could relegate the agriculture sector to a secondary role in shaping climate priorities and actions. Strategic engagement and leadership by agriculture sector ministries in the climate change agenda at various levels will enhance national capacity to finance and scale up measures to strengthen the climate resilience of food and agriculture systems, reduce poverty and address food insecurity in Asia and the Pacific. This paper provides a review of current knowledge on climate change risks to food security in the region and the opportunities and challenges for the agriculture sector to play a more ambitious role in implementing the climate-related elements of the 2030 Agenda.

II. Climate change, agriculture and food security in Asia and the Pacific

3. The fifth report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) is the most up to date and authoritative assessment of the risks that climate change poses now and in the future to the region and to regional food security. In separate assessments for the region and food systems, it confirmed that climate change is a significant risk to food security and the natural systems that support the agriculture sector in Asia and the Pacific (Table 1). There is high confidence and agreement that without action to address the drivers and impacts of observed and future climate change, the cumulative negative impacts of these risks for natural, human and food systems will be substantial and potentially catastrophic, particularly by the end of this century.^{2,3,4}

Table 1: Key risks from climate change in Asia and the Pacific in the present, near- and long-term without adaptation⁵ (Sources: Hijioka et al, 2014; Nurse et al, 2014)

Risk from climate change	Climate Drivers ⁶	Present Risk	Near-term (2030–2040)	Long-term (2080–2100 under a 2 °C scenario)
Asia⁷				
Increased risk of crop failure and lower crop production, leading to food insecurity in Asia (medium confidence)	WT, DRY, EP, ET, CY, SLR	L	M	H
Water shortage in arid areas of Asia (medium confidence)	WT, DRY	H	VH	VH
Increased riverine, coastal and urban flooding, leading to widespread damage to infrastructure, livelihoods, and settlements in Asia (medium confidence)	EP, CY, SLR	M	M	H
Increased risk of flood-related deaths, injuries, infectious diseases and mental disorders (medium confidence)	EP, CY	L	M	M
Increased risk of heat-related mortality (high confidence)	WT, ET	M	H	VH
Increased risk of drought-related water and food shortages, causing malnutrition (high confidence)	WT, ET, DRY	L	M	M
Increased risk of water- and vector-borne diseases (medium confidence)	WT, DRY, ET, EP	L	M	M
Exacerbated poverty, inequalities and new vulnerabilities (high confidence)	WT, DRY, ET, EP	L	H	H
Coral reef decline in Asia (high confidence)	ET, OA	M	H	VH
Mountain-top extinctions in Asia (high confidence)	WT, DRY	L	M	H
Pacific⁸				

² FAO. 2016. Climate change and food security: risks and responses. Rome. [Cited 27 June 2017]. <http://www.fao.org/3/a-i5349e.pdf>

³ FAO. 2016. The State of Food and Agriculture: Climate change, agriculture and food security. Rome. [Cited 27 June 2017]. <http://www.fao.org/3/a-i6372e.pdf>

⁴ Vinke, K. et al. 2017. A Region At Risk - The Human Dimensions of Climate Change in Asia and the Pacific. Asian Development Bank. Philippines. [Cited 27 June 2017]. <https://www.adb.org/sites/default/files/publication/325251/region-risk-climate-change.pdf>

⁵ Key risks are identified based on assessment of the literature and expert judgments, with supporting evaluation of evidence and agreement in the referenced chapter sections. Each key risk is characterized as very low, low, medium, high, or very high. Risk levels are presented for the near-term era of committed climate change (here, for 2030–2040), in which projected levels of global mean temperature increase do not diverge substantially across emissions scenarios.

⁶ WT – Warming Trend; ET – Extreme Temperature; DRY – Drying Trend; EP – Extreme Precipitation; CY – Damaging Cyclone; SLR – Sea Level Rise; OA – Ocean Acidification; SST – Sea Surface Temperature.

⁷ Hijioka, Y. et al. 2014. Asia – supplementary material. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability*. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.

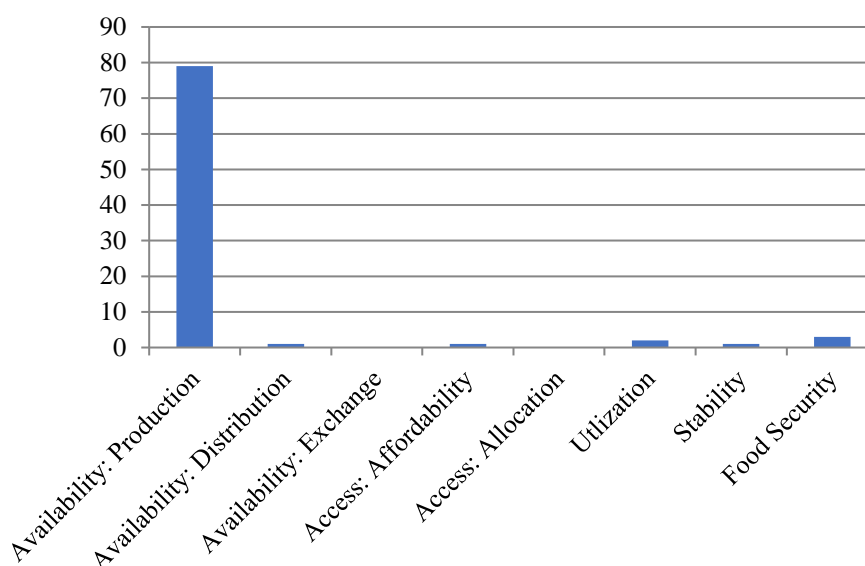
⁸ Nurse, L. A. et al. 2014. Small Islands. *Climate Change 2014: Impacts, Adaptation, and Vulnerability*. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, pp.1613–1654.

Loss of livelihoods, coastal settlements, infrastructure, ecosystem services and economic stability (high confidence)	DRY, CY, OA, SLR, EP	L	M	H
Decline and possible loss of coral reef ecosystems in small islands through thermal stress (high confidence)	WT, OA, CY, SST	M	H	H
Interaction of rising global mean sea level in the 21st century with high-water-level events, threatening low-lying coastal areas (high confidence)	CY	M	H	VH

4. However, while the IPCC conclusions are compelling, a surprising and little discussed finding from AR5 is that the quality and completeness of information on system-wide risks to food security from anthropogenic climate change are still notably weak.^{9,10} In Asia, the IPCC noted that with respect to food systems, critical knowledge gaps remain for drawing conclusions on key issues such as observed and projected yields of crops other than rice, changes in farming area, water demand for irrigation, and pest and disease occurrence.¹¹ Similarly, the IPCC review included relatively little information on observed changes in climate and potential impacts on food systems in the Pacific.

5. Our current understanding of climate risks to food security is narrow, focused almost exclusively on crops and crop productivity and the potential implications for food availability and food prices (Figure 1). Much of this research is limited only to staple crops, particularly in China and India. The impacts of changes in climate on the productivity and production of important and growing sources of nutrition and agricultural livelihoods in the region – including livestock, fisheries and aquaculture, fruits and vegetables and crops other than rice, wheat and maize – remain largely unexamined, unreported or unverified.¹²

Figure 1: Number of papers from Asia and the Pacific cited in the IPCC AR5 food security chapter by element (Source: Author calculations based on the methodology used in Campbell et al, 2016)



6. Furthermore, observed trends in climate extremes indicate that broader, systematic climate risks to food security will go far beyond production systems alone and warrant immediate attention.

⁹ Porter, J. R. et al. 2014. Food security and food production systems. *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: global and sectoral aspects. Contribution of working group II to the fifth assessment report of the intergovernmental panel on climate change*, pp. 485–533.

¹⁰ Campbell, B. M. et al. 2016. Reducing risks to food security from climate change. *Global Food Security*, 11, 34-43.

¹¹ Hijjoka, Y. et al. 2014. Asia – supplementary material. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*.

¹² Campbell, B. M. et al. 2016. Reducing risks to food security from climate change. *Global Food Security*, 11, 34-43

Asia and the Pacific is particularly susceptible to climate-related extremes and associated risks to food system stability.^{13,14,15} The number of climate-related extreme events in the region has been growing and exacting a significant human and economic toll (Figure 2 and Figure 3).¹⁶ There is mounting evidence that links anthropogenic climate change to the increased likelihood and intensity of these types of extreme climate events.¹⁷ An increase in moderate climate extremes, such as increases in the numbers of warm days and nights, heatwaves and the incidence of intense rainfall at seasonal and daily timescales, have also been observed across the region.^{18,19,20,21} Trends towards increased climate variability and more frequent extremes raise the risks that crops and livestock will be exposed to conditions that result in reduced productivity and that food system assets will be damaged or destroyed, worsening the stability of food availability, access and utilization.²² Smallholder farmers are most at risk of disruption from climate shocks, resulting in reduced consumption and the liquidation of productive assets that can lead to long-term deterioration of their capacity to cope with climate shocks.^{23,24}

Figure 2: Number of disasters in Asia and the Pacific by broad category, 1980–2014 (Source: CRED EM-DAT, 2016)

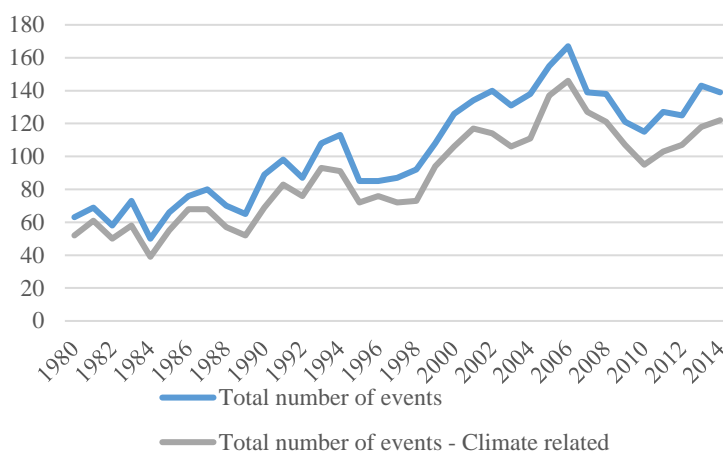


Figure 3: Value of damage caused by disasters in Asia and the Pacific, 1980–2014 (Source: CRED EM-DAT, 2016)

**Value of damage
broad categories**

¹³ Vinke, K. et al. 2017. A Region At Risk - The Human Dimensions of Climate Change in Asia and the Pacific. Asian Development Bank. Philippines. [Cited 27 June 2017]. <https://www.adb.org/sites/default/files/publication/325251/region-risk-climate-change.pdf>

¹⁴ Jongman, B., Ward, P.J. & Aerts, J.C. 2012. Global exposure to river and coastal flooding: Long term trends and changes. *Global Environmental Change*, 22(4), 823-835.

¹⁵ Peduzzi, P., Dao, H., Herold, C. & Mouton, F. 2009. Assessing global exposure and vulnerability towards natural hazards: the Disaster Risk Index. *Natural Hazards and Earth System Sciences*, 9(4), 1149-1159.

¹⁶ Centre for Research on the Epidemiology of Disasters (CRED). 2017. EM-DAT: International Disaster database [online]. [Cited 27 June 2017]. <http://www.cred.be/>

¹⁷ Heffernan, O. 2016. News feature: Climate research is gaining ground. *Nature Climate Change*, 6(4), 335-338.

¹⁸ Lehmann, J., Coumou, D. & Frieler, K. 2015. Increased record-breaking precipitation events under global warming. *Climate Change* 132, 501-515.

¹⁹ Westra, S. et al. 2014. Future changes to the intensity and frequency of short-duration extreme rainfall. *Rev. Geophys.* 52, 522-555.

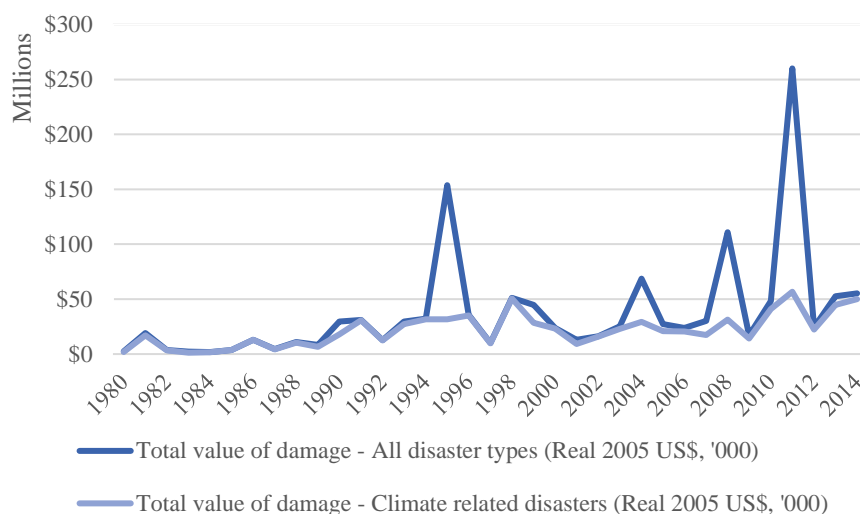
²⁰ Westra, S. et al. 2014. Future changes to the intensity and frequency of short-duration extreme rainfall. *Reviews of Geophysics*, 52(3), 522-555.

²¹ Alexander, L. V. 2016. Global observed long-term changes in temperature and precipitation extremes: a review of progress and limitations in IPCC assessments and beyond. *Weather and Climate Extremes*, 11, 4-16.

²² FAO. 2016. The State of Food and Agriculture: Climate change, agriculture and food security. Rome. [Cited 27 June 2017]. <http://www.fao.org/documents/card/en/c/18679629-67bd-4030-818c-35b206d03f34>

²³ Porter, J. R. et al. 2014. Food security and food production systems. *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: global and sectoral aspects. Contribution of working group II to the fifth assessment report of the intergovernmental panel on climate change*, pp. 485-533.

²⁴ FAO. 2016. The State of food and agriculture: Climate change, agriculture and food security. Rome. [Cited 27 June 2017]. <http://www.fao.org/documents/card/en/c/18679629-67bd-4030-818c-35b206d03f34>



7. When considering risk from a system-wide perspective, it is also necessary to recognize that the agriculture sector is a key source of emissions at the global and regional levels and, to the extent that sector emissions exceed what is otherwise required to address current food insecurity, a driver of longer-term climate risk.²⁵ But, unlike many other economic sectors, agriculture is also a sink, capable of storing carbon and sequestering atmospheric carbon dioxide if managed with these goals in mind.^{26, 27} It has been estimated that nearly 70 percent of the global technical mitigation potential in the agriculture sector, either through enhancing carbon sinks or reducing emissions, occurs in tropical developing countries – many of which are located in Asia and the Pacific.²⁸

8. In light of the above assessment, climate action for agriculture in Asia and the Pacific is needed to strengthen the resilience of food systems and moderate sector-specific drivers of anthropogenic climate change. In the near term, priority should be given to actions that will strengthen understanding of the climate-related risks to food security, improve farmer capacity to manage climate variability, and strengthen food-system resilience to climate-induced extremes.²⁹ Over longer timescales, the potentially catastrophic risks of climate change to food systems implies a need to consider action now to minimize future risk through actions that can deliver a mix of climate adaptation and mitigation co-benefits.^{30, 31, 32}

III. The 2030 Agenda and climate action for agriculture

9. The 2030 Agenda provides an integrated framework for action at national and global levels to address climate change risks to agriculture and food security. The most prominent element of the 2030 Agenda to combat climate change is the Paris Agreement, which establishes a collective commitment

²⁵ Wollenberg, E. et al. 2016. Reducing emissions from agriculture to meet the 2 C target. *Global change biology*, 22(12), 3859-3864.

²⁶ FAO. 2016. *The State of food and agriculture: Climate change, agriculture and food security*. Rome. [Cited 27 June 2017]. <http://www.fao.org/documents/card/en/c/18679629-67bd-4030-818c-35b206d03f34>

²⁷ Rioux, J. et al. 2016. *Planning, implementing and evaluating Climate-Smart Agriculture in Smallholder Farming Systems*.

²⁸ Rosenstock, T., Rufino, M. C., Butterbach-Bahl, K., Wollenberg, E. & Richards, M. 2016. *Methods for Measuring Greenhouse Gas Balances and Evaluating Mitigation Options in Smallholder Agriculture*.

²⁹ Vermeulen, S. J. et al. 2013. Addressing uncertainty in adaptation planning for agriculture. *Proceedings of the National Academy of Sciences*. 110, 8357–8362.

³⁰ Wollenberg, E. et al. 2016. Reducing emissions from agriculture to meet the 2 C target. *Global change biology*, 22(12), 3859-3864.

³¹ Challinor, A. J. et al. 2014. A meta-analysis of crop yield under climate change and adaptation. *Nature Climate Change*. 4, 287–291.

³² United Nations Environment Programme (UNEP). 2017. *The Emissions Gap Report 2017: A UN Environment Synthesis Report*. (Also available at https://wedocs.unep.org/bitstream/handle/20.500.11822/22070/EGR_2017.pdf).

by the Parties³³ to the UNFCCC to take action to limit the increase in global average temperatures to well below 2°C above pre-industrial levels and to pursue further efforts to limit the increase to 1.5°C. In recognition of the catastrophic risks of climate change in the longer term, the Agreement establishes a supplementary goal to achieve balance between anthropogenic emissions by sources and removals by sinks in the second half of the century. In an important departure from the past focus of the UNFCCC on emissions, the Agreement also introduces a global goal for adaptation that aims to enhance adaptive capacity, strengthen resilience and reduce vulnerability to climate change.³⁴ The Paris Agreement is the core instrument for achieving SDG 13 on combating climate change and its associated targets.

10. Addressing climate change risks and strengthening resilience are also core concerns of the Sendai Framework and other SDGs, particularly those relevant for poverty reduction and food security. The Sendai Framework aims to substantially reduce disaster risk and disaster-related loss of lives, livelihoods and health, and economic, physical, social, cultural and environmental assets.³⁵ It establishes seven global targets and four priorities for action to understand risks, strengthen risk governance, invest in reducing exposure to hazards and vulnerability to disasters, and increase preparedness for disaster response and recovery.³⁶ Both the Paris Agreement and the Sendai Framework highlight the importance of addressing inequality, particularly with respect to gender, as a requirement of effective action to address climate and disaster risk. The Paris Agreement and Sendai Framework are complemented by specific targets under SDGs 1 and 2 on ending poverty and hunger to build the resilience of the poor and to strengthen capacity for agriculture sector adaptation to climate change and extreme weather. SDG 2 also includes a target for increased investment in agriculture that complements a target under the Paris Agreement and SDG 13 to mobilize USD 100 billion annually by 2020 to support climate action in developing countries.³⁷

11. Achieving the goals and targets embedded in each element will rest almost entirely upon voluntary action of countries and their willingness to accurately and transparently report on progress. The Sendai Framework and the SDGs are non-binding, meaning that there are no penalties if countries fail to meet the targets. The Paris Agreement is referred to as “partially binding” because, while countries are not legally bound to achieve their NDC contributions, they have agreed to be bound to report their progress according to the requirements of an Enhanced Transparency Framework. The non-binding nature of the 2030 Agenda elements elevates the importance of and need for sustained multistakeholder commitment and engagement, and robust national systems to monitor and report on progress in implementing action.

12. National work programmes of action embodied in NDCs under the Paris Agreement have been defined to support negotiation and passage of the Agreement. Thus, while programmes of action to support implementation of the Sendai Framework and the SDGs are still under development in many countries, the NDCs already provide a blueprint for how countries intend to combat climate change, including country-specific goals for mitigation and adaptation, policies and measures for implementation, and gaps and needs in terms of technical capacity and finance.

³³ For the current list of Parties to the Paris Agreement, see http://unfccc.int/paris_agreement/items/9444.php

³⁴ United Nations Framework Convention on Climate Change. 2015. Adoption of the Paris Agreement. Proposed by President. Paper presented at Conference of the Parties (COP), 30 November to 11 December 2015, Paris, Paris Climate Change Conference.

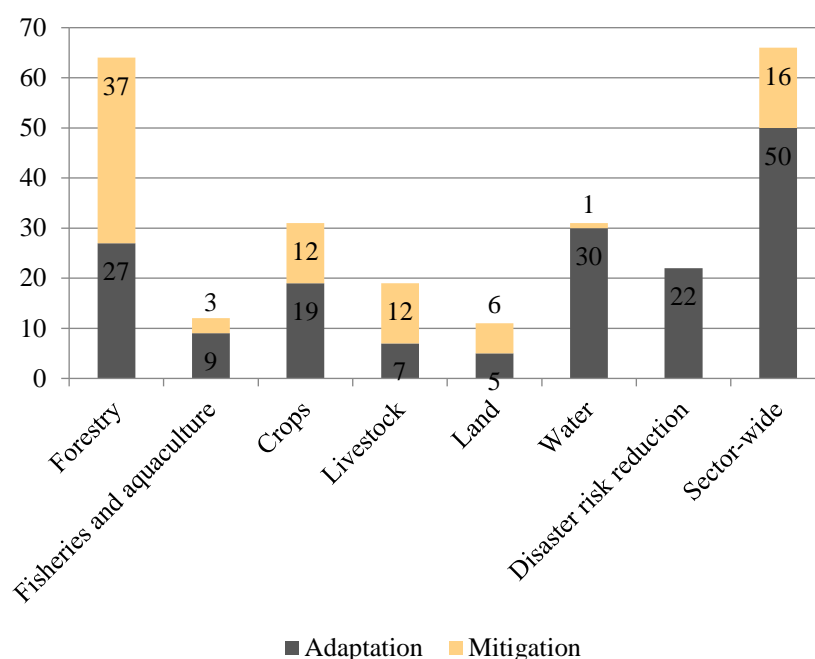
³⁵ Peters, K., Langston, L., Tanner, T. & Bahadur, A. 2016. Resilience across the post-2015 frameworks: how to create greater coherence, Working and discussion papers, November 2016, London, Overseas Development Institution (ODI).

³⁶ United Nations Office for Disaster Risk Reduction. 2015. Sendai Framework for Disaster Risk Reduction 2015 – 2030, Paper presented at the Third World Conference on Disaster Risk Reduction, 14-18 March 2015, Sendai, United Nations Office for Disaster Risk Reduction.

³⁷ United Nations. 2015. Transforming our world: the 2030 Agenda for Sustainable Development. New York. [Cited 24 June 2017]. <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>

13. Assessments of the NDC submissions by Parties from Asia and the Pacific reveal that agriculture is a core priority for climate action in the region.^{38,39,40} Adaptation and strengthening resilience to climate change impacts on agriculture and food security are overwhelming concerns for countries from the region. Many NDCs also prioritized policy processes with sector-wide relevance, such as National Adaptation Plans and specific actions related to disaster risk management and/or disaster risk reduction.³⁰ While a number of countries in the region included forestry as part of their national mitigation contributions, very few included mitigation targets for the other agriculture subsectors.⁴¹ However, as part of their NDC documents many countries identified priority actions that were not formally included as part of their national mitigation contributions but can be classified as agriculture mitigation (Figure 4).

Figure 4: Number of priority actions identified in NDC documents from developing countries in Asia and the Pacific for agriculture and land-use sectors by subsector and type (Source: Damen, 2017)



14. As countries move to plan and implement the elements of the 2030 Agenda, coherence across strategies and processes at the national level will be important to avoid unnecessary duplication and costs. The Interagency and Expert Group on SDG Indicators, composed of Member States and including regional and international agencies (including FAO) as observers, has been working to improve interlinkages and harmony between the targets and indicators of the 2030 Agenda elements. As a result, the *Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development* adopted by the UN General Assembly in July 2017

³⁸ Zeleke, A., Phung, T., Tulyasuwan, N., O'Sullivan, R. & Lawry, S. 2016. Role of Agriculture, Forestry and Other Land Use Mitigation in INDCs and National Policy in Asia [online]. [Cited 24 June 2017]. <https://www.winrock.org/wp-content/uploads/2016/05/AFOLU-LEDS-Working-Group-Technical-paper-Role-of-AFOLU-mitigation-in-INDCs-and-national-policy-in-Asia-1.0-Feb-25-2016.pdf>

³⁹ Meadu, V., Coche, I., Vermeulen, S. & Friis, A.E. 2015. The Paris Climate Agreement: what it means for food and farming. CCAFS Info Note. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

⁴⁰ Damen, B. 2017. Meeting country ambitions to tackle climate change in agriculture: A novel analysis of developing country INDCs in Asia and the Pacific. Paper prepared for the Ninth Asian Society of Agricultural Economists International Conference: Transformation in Agricultural and Food Economy in Asia (unpublished).

⁴¹ Strohmaier, R., Rioux, J., Seggel, A., Meybeck, A., Bernoux, M., Salvatore, M., Miranda, J. & Agostini. 2016. The agriculture sectors in the Intended Nationally Determined Contributions: Analysis, Working Paper No. 62 for Environment and Natural Resources Management, Rome, FAO.

successfully integrated Sendai Framework targets into the indicators for other SDGs, including SDGs 1, 2 and 13.

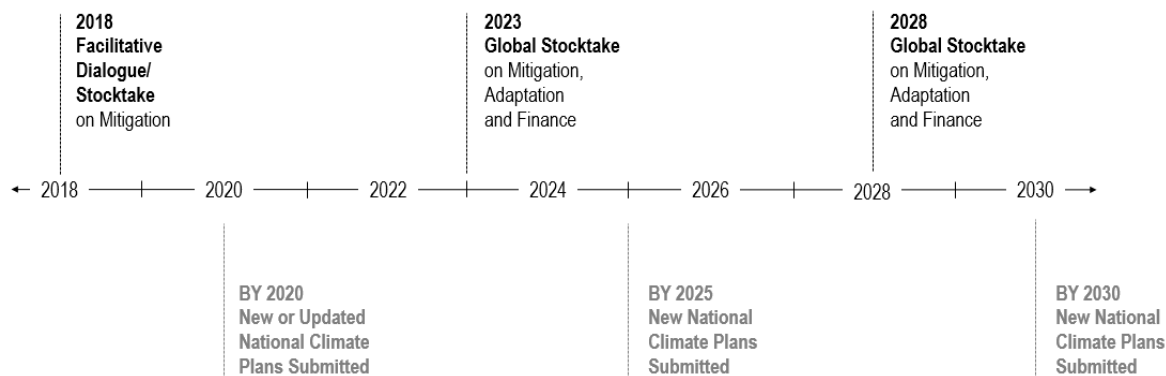
IV. Strengthening agriculture sector engagement in implementing the climate change elements of the 2030 Agenda

15. With the 2030 Agenda firmly in place, countries must turn to implementation of country-specific actions. The transition from planning to action will present numerous opportunities to strengthen agriculture sector engagement in implementing the climate change elements of the 2030 Agenda.

A. Enhancing Nationally Determined Contributions and Scaling up Action

16. A unique feature of the 2030 Agenda, and the Paris Agreement specifically, is the ambition mechanism, which aims to encourage enhanced action to combat climate change over time (Figure 5). The mechanism requires Parties to regularly review their NDCs prior to and during the commencement period of the Agreement to account for new information and consider increased levels of action. The ambition mechanism is important for addressing the gap between the action countries believe is currently possible to address climate change and what may be possible in the future as our understanding of climate risks and climate measures improves. It is already considered that greenhouse gas (GHG) levels in 2020 will be so elevated that it will be extremely difficult to meet the Paris Agreement targets for 2030.⁴²

Figure 5: The Paris Agreement Ambition Mechanism (Source: Fransen et al, 2017)



17. For agriculture sector stakeholders, the ambition mechanism represents an opportunity to increase the prominence of agriculture and food security in the NDCs. The first opportunity to review the NDCs will take place during the UNFCCC Talanoa (Facilitative) Dialogue in 2018. The Dialogue aims to be inclusive, participatory and transparent, and provide an opportunity for different stakeholders to share views about the NDCs, progress to date in preparing for NDC implementation, and other processes related to the Paris Agreement. Countries are being encouraged to organize local, national and regional dialogues in 2018 to support the Dialogue process. Agriculture sector stakeholders should consider the Talanoa Dialogue as an important opportunity to raise sector-specific priorities for climate action and enhance agriculture components of the NDCs.

18. In reviewing the NDCs, countries could consider and adopt many options to enhance from the agriculture sector perspective. With respect to adaptation, specific adjustments could include: adding

⁴² United Nations Environment Programme (UNEP). 2017. The Emissions Gap Report 2017: A UN Environment Synthesis Report. (also available at https://wedocs.unep.org/bitstream/handle/20.500.11822/22070/EGR_2017.pdf).

information on sector-specific trends, impacts and plans for adaptation and disaster risk management; incorporating new sector-specific measures for implementation; or providing additional details on gaps or needs to enable sector-specific action (Table 2). Where feasible and appropriate, countries could also consider incorporating information on possible mitigation options in agriculture. Trade-offs need to be considered, but identifying options for addressing sector emissions and inefficiencies may open new opportunities to draw in additional finance and support to the agriculture sector. Some options may also be complementary to existing national programmes and priorities. For example, countries could consider a sector-based non-GHG target to reduce food waste, which would also result in meaningful mitigation benefits.

Table 2: Options for enhancing Nationally Determined Contributions (Source: Fransen et al, 2017)

NDC element	Options for enhancing NDCs
Adaptation	Update or add information on trends, impacts & vulnerabilities
	Update or add current & near-term planning and action
	Update or add monitoring, evaluation & learning plans
	Update or add national long-term goals or vision
	Update or add information on gaps & barriers
Mitigation	Strengthen or add a GHG target
	Strengthen or add a sectoral non-GHG target
	Strengthen or add policies and actions
	Align implementation of the existing NDC with long-term goals
Implementation	Add actions or measures to strengthen implementation
Communication	Provide basic information to enhance clarity, transparency & understanding
	Provide additional details

19. Regardless of the climate actions planned in support of NDCs and the 2030 Agenda, scaling up implementation will present a significant challenge. From a sector perspective, implementation will involve: taking stock of experiences with successful adaptation and reducing emissions; developing a national NDC implementation strategy or plan; identifying appropriate mitigation and adaptation policy measures; mobilizing national and international financial resources and other support; implementing policy measures through legislation, regulations and expenditures; and facilitating/coordinating action with non-state actors.⁴³ Implementation plans will need to benefit from harmonization across different 2030 Agenda elements.⁴⁴ Countries at a more advanced stage of preparation may be able to impart valuable lessons and experiences for others that are at an earlier stage of preparedness.

B. Monitoring and reporting actions in a transparent manner

20. The considerable requirements for monitoring and reporting that underpin the elements of the 2030 Agenda present additional challenges for the agriculture sector. Agriculture in Asia and the Pacific is geographically disparate, covering a wide range of agro-ecosystems and landscapes and involving diverse groups of farmers, pastoralists, fisherfolk and foresters. Maintaining effective

⁴³ FAO. 2016. The agricultural sectors in nationally determined contributions (NDCs): Priority areas for international support. Rome. [Cited 24 June 2017]. <http://www.fao.org/3/a-i6400e.pdf>

⁴⁴ Murray, V., Maini, R., Clarke, L. & Eltinay, N. 2016. Coherence between the Sendai Framework, the SDGs, the Climate Agreement, New Urban Agenda and World Humanitarian Summit, and the role of science in their implementation [online]. Paris. <https://www.icsu.org/cms/2017/05/DRR-policy-brief-5-coherence.pdf>

systems for monitoring and evaluating agriculture sector programmes in an inclusive and gender-sensitive way at the national and subnational levels is complex and costly.⁴⁵

21. Despite these challenges, monitoring and reporting processes also offer an opportunity to strengthen data collection and processing systems for improved understanding of agriculture sector activities. A number of countries in the region are already improving capacity with forest sector emissions inventory and Monitoring, Reporting and Verification (MRV) systems in support of the Warsaw Framework for Reducing Emissions from Deforestation and Forest Degradation (REDD+), which is formally integrated into the architecture of the Paris Agreement.⁴⁶ The accumulated experiences with REDD+ will provide important lessons for monitoring and reporting climate action for agriculture. More importantly, tools that have been developed for the forestry subsector that integrate big data, cloud computing and geospatial information for data collection and reporting will be able to be adapted to strengthen activity data collection in agriculture and reduce the costs of monitoring and reporting agriculture sector adaptation and mitigation. When combined with improved systems for collecting and forecasting climate information, these systems may also lead to breakthroughs for reducing costs associated with agriculture early warning systems and, possibly, insurance.

C. Financing action

22. Perhaps the largest opportunity associated with the 2030 Agenda on climate change is related to finance. Under the UNFCCC, financing mechanisms are in place to support countries' scale-up action, most notably through the Green Climate Fund (GCF) and the climate change streams of the Global Environment Facility (GEF), including a newly established Capacity Building Initiative for Transparency (CBIT) fund to support countries in enhancing their capacity to monitor and report climate action. Multilateral development banks and donors have pledged additional finance of more than USD 30 billion and USD 18 billion per year, respectively, to support climate action and NDC implementation by 2020.⁴⁷ In addition, private sector banks and investors have also pledged to expand investment in agriculture.⁴⁸

23. The proliferation of sources of finance for climate action, while sorely needed in agriculture, has also brought new challenges. Increasingly, providers of climate finance are looking to support innovative, gender-responsive and transformational projects that go beyond what is capable under "business as usual" conditions.⁴⁹ But this interest in innovation does not necessarily correspond with an increased willingness to invest in promising ideas that have not been proven at large scale. To justify potential projects, countries will often need to have access to investment grade data on the technical and financial feasibility of proposed measures and associated environmental and social impacts. These data may not be readily available without significant upfront investment – particularly for action in smallholder farming systems.

24. The nature of smallholder farming systems in the region also presents complications for attracting investment from local and global financial institutions. While the largest investors in the agriculture sector are domestically oriented farmers and agri-businesses (Figure 6),⁵⁰ these operations

⁴⁵ Rosenstock, T., Rufino, M. C., Butterbach-Bahl, K., Wollenberg, E. & Richards, M. 2016. Methods for Measuring Greenhouse Gas Balances and Evaluating Mitigation Options in Smallholder Agriculture.

⁴⁶ United Nations Framework Convention on Climate Change. 2015. Adoption of the Paris Agreement. Proposed by President, Paper presented at Conference of the Parties (COP), 30 November to 11 December 2015, Paris.

⁴⁷ Wiseman, V. 2016. IGOs, Development Banks and UN Agencies React to Paris [online]. <http://sdg.iisd.org/news/igos-development-banks-and-un-agencies-react-to-paris-agreement/>

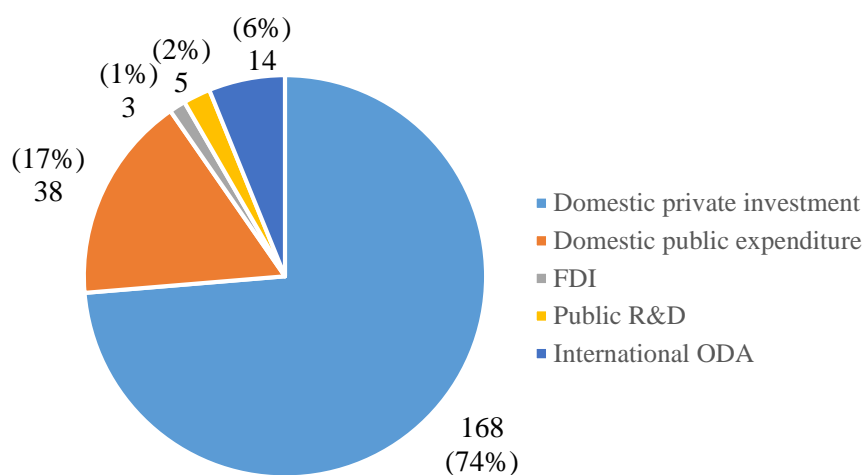
⁴⁸ Nakhooda, S. 2015. Climate finance: what was actually agreed in Paris [online]. [Cited 8 January 2016]. <https://www.odi.org/comment/10201-climate-finance-agreed-paris-cop21>

⁴⁹ For example, the Green Climate Fund defines innovative and transformational projects as projects that support the application and dissemination of cutting-edge climate technologies, which are characterized by the highest levels of mitigation/adaptation ambition, that can be scaled up and/or replicated or lead to fundamental changes in behaviours and/or investment patterns. See Green Climate Fund. 2016. Annex 1: Initial Strategic Plan for the GCF. Meeting Document, Incheon, 8-10 March 2016, GCF 12th Board Meeting.

⁵⁰ Falconer, A., Parker, C., Keenlyside, P., Dontenville, A. & Wilkinson, J. 2015. Three Tools to Unlock Finance for Land-Use Mitigation and Adaptation. London, Climate Policy Initiative.

are often considered by finance providers as high risk (Figure 7).⁵¹ Corporations that manage integrated, international agriculture value chains and have made commitments to take climate action are also relatively small investors in the region's locally oriented food systems. Further efforts are required to match finance providers with farming communities most at risk from climate change, leverage public climate finance and corporate sector interest to invest in enhancing sustainability and reducing emissions in agriculture value chains and increase trust between public and private actors working to enable climate action for agriculture.^{52,53}

Figure 6: Estimated annual global investment in agriculture, by source USD billion (Source: Falconer et al, 2015)

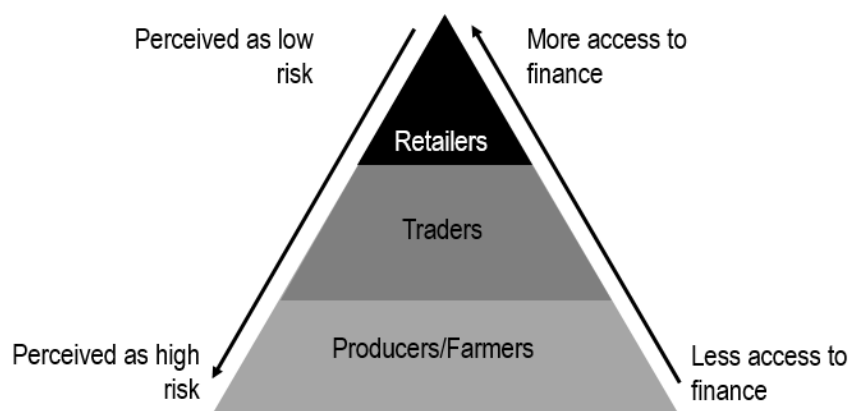


⁵¹ Sadler, M. P. et al. 2016. Making Climate Finance Work in Agriculture. Washington, DC, World Bank Group.

⁵² Stewart, R. B., Oppenheimer, M. & Rudyk, B. 2017. Building blocks: a strategy for near-term action within the new global climate framework. Climate Change 1–13.

⁵³ O'Mealy, M. et al. 2017. Convening Private Sector to Invest in Climate-Smart Commodity Production, Workshop Report, Bangkok, 29 March 2017. Washington, DC, Climate Economic Analysis for Development, Investment and Resilience (Crown Agents and Abt Associates).

Figure 7: Risk profiles along the agricultural value chain (Source: Sadler et al, 2016)



25. Certification systems have proven to be one potential way to bridge the gaps between smallholder farmers, private agri-business and consumer products with improved sustainability and unique value. Systems such as GI and GIAHS, based on generating value from products with geographically – and often climate-specific characteristics through locally managed value chains, may offer novel ways to build the business case for wider adoption of adaptation and disaster risk reduction as risk mitigation measures, reduce the cost burden on farmers to address climate risks, and provide a buffer against the impacts of extreme climate events. These systems may also help farmers to access new consumers in international markets which can help to reduce perceived risks in smallholder agriculture and enhance access to finance, while also creating positive spillover benefits for subsistence agriculture.

D. Asserting the role of agriculture in the 2030 Agenda

26. Addressing the opportunities and challenges outlined above will require strong and consistent engagement by agriculture sector stakeholders. The global, regional and national institutions in place to manage climate change action are dominated by stakeholders not directly linked to agriculture. Engagement with the UNFCCC and preparation of the NDCs has generally been led by UNFCCC focal points in the ministries of environment. Ministries of environment and finance are often the focal points for sources of international climate finance such as the GCF and GEF. A range of different ministries serve as the disaster risk management focal points in Asia. Agriculture sector stakeholders will need to improve their understanding of the key milestones of 2030 Agenda elements on climate action and engage with each set of relevant stakeholders to ensure that sector-specific concerns are properly reflected as countries move toward implementation.

27. While the agriculture sector has traditionally played a relatively minor role in shaping the global climate agenda, the 23rd session of the Conference of the Parties to the UNFCCC (COP23) Decision for the Koronivia joint work on agriculture will provide a unique opportunity for agriculture sector stakeholders to assert the importance of climate action for agriculture under the 2030 Agenda. This decision, reached after significant deliberation on agriculture-specific issues at the UNFCCC and strong support from developing countries in Asia and the Pacific, establishes a process to seek views from countries on issues related to agriculture that should be the subject of review and investigation in the implementation of UNFCCC instruments, including the Paris Agreement. At COP23, countries also adopted a Gender Action Plan to advance towards the goal of mainstreaming a gender perspective into all elements of climate action. In a manner similar to the Koronivia Decision, the Gender Action Plan will provide an opportunity for countries and agriculture sector stakeholders to shape the way gender issues will be integrated into the implementation of UNFCCC instruments.

28. The bottom-up and decentralized nature of the 2030 Agenda implies potential benefits for countries that are willing to coordinate based on common interests and take bold steps to address climate risks and reduce emissions.⁵⁴ Assessing similarities in priorities for climate action across countries may be an important way to foster regional collaboration and strengthen engagement for the benefit of agriculture. For example, in 2016 the ASEAN ministers for agriculture and forestry adopted a common regional position on agriculture and climate change to inform coordinated action at the UNFCCC based on a synthesis of the NDC priorities from countries in the subregion. This position was presented in a coordinated manner by ASEAN UNFCCC focal points and a dedicated team of agriculture sector negotiators at UNFCCC meetings in 2016 and 2017 and was an important driver behind the Koronivia Decision.⁵⁵

29. Drawing upon strategic partnerships involving the private sector, civil society, SSC&TC and development partners will also be crucial for effective implementation of country contributions under the 2030 Agenda. In 2017, FAO and partners convened regional dialogues on enhancing private sector engagement in scaling up implementation of NDCs and climate-smart agriculture.^{56,57} Countries in the region have also been actively looking for opportunities to use SSC&TC to advance national priorities for climate action for agriculture. For example, with support from FAO and other partners, ASEAN countries organized a dialogue and knowledge exchange on climate information services for agriculture in March 2016. This dialogue has led to field-level exchanges and dialogue in countries in the subregion to advance shared country priorities to strengthen capacity on this topic.⁵⁸

V. FAO support to enable climate action for agriculture

30. FAO is working to provide a comprehensive programme of support for member countries to enable climate action for agriculture. New and timely initiatives at global, regional and national levels will build upon FAO's growing portfolio of climate change activities to strengthen member-country capacities to plan, implement and report on climate change adaptation and mitigation in the agriculture sector under the 2030 Agenda.

31. At the global level, FAO launched its Strategy on Climate Change at the 40th Session of the FAO Conference in July 2017. The Strategy targets three outcomes related to: enhancing member-country capacities on climate change; improving the integration of agriculture and food security into the global climate change agenda; and strengthening FAO's work on climate change. A revised Action Plan Results Framework for the Strategy was endorsed by the FAO Programme Committee in November 2017 and sets forth output indicators for FAO to support countries with NDC implementation, enhance access to finance and better integrate agriculture and food security into national climate change and disaster risk reduction policies, strategies and programmes – among others.

32. To reinforce the implementation of the strategy, the FAO Council endorsed *Climate change and its impact on the work and activities of FAO* as FAO's 2018-19 biennial theme. The objectives of the biennial theme will include, but are not limited to: taking stock of the specific needs and climate risks in the food and agriculture sectors; identifying gaps and opportunities where FAO can address

⁵⁴ Stewart, R. B., Oppenheimer, M. & Rudyk, B. 2017. Building blocks: a strategy for near-term action within the new global climate framework. *Climate Change* 1–13.

⁵⁵ FAO. 2016. ASEAN Member States to present a united voice at COP22 on shared vision to adapt agriculture to climate change [online]. [Cited 1 January 2017]. <http://www.fao.org/asiapacific/news/detail-events/en/c/451030/>

⁵⁶ O'Mealy, M. et al. 2017. Convening Private Sector to Invest in Climate-Smart Commodity Production, Workshop Report, Bangkok, 29 March 2017. Washington, DC, Climate Economic Analysis for Development, Investment and Resilience (Crown Agents and Abt Associates).

⁵⁷ FAO et al. 2017. Climate Action for Agriculture in Asia: Strengthening the role of scientific foresight and climate-smart agriculture in addressing NDCs, Workshop Report, Bangkok, 10-12 October 2017, FAO.

⁵⁸ Association of Southeast Asian et al. 2017. Effective Climate Information Services for Agriculture in ASEAN. Event Report, Lapu-Lapu, 21-23 March 2017, ASEAN Climate Resilience Network.

and integrate climate change more effectively across its work programme; and seeking guidance from FAO's Governing Bodies on how to strengthen the effective and efficient implementation of the FAO Strategy on Climate Change. FAO's Governing Bodies, including the Regional Conference for Asia and the Pacific, are being requested to include discussion relevant to the biennial theme in their sessions of work in 2018 and 2019.

33. At the regional and national levels, FAO's work in support of the FAO Strategy on Climate Change and the biennial theme on climate change will be delivered through the newly established Regional Initiative on Climate Change (RICC). The RICC directly responds to member-country emphasis during the 33rd session of the APRC on the importance of the SDGs and the Paris Agreement in guiding future actions in agriculture, food security and nutrition. It will also reinforce FAO's contribution to the Global Action Programme on Food Security and Nutrition in Small Island Developing States (SIDS) and the urgent need to accelerate action on food security and nutrition in SIDS to support their efforts towards the 2030 Agenda.

34. Implementation of the RICC will directly contribute to the outcomes of the FAO Strategy on Climate Change by: supporting the development of strategies to leverage public and private sector investment to plan, implement and report on sector-specific actions under the 2030 Agenda and scale up climate-resilient and climate-smart practices and technologies, appropriate to countries in the region; expanding support to member countries in the region to better engage with UNFCCC national focal points, the Sendai Framework and other processes relevant to climate action and ensure that the region's priorities are reflected during implementation of the 2030 Agenda; and strengthening FAO's role as a leading provider of technical support, knowledge-sharing and partnership for climate-resilient and climate-smart agriculture and related technologies and practices. Activities to be implemented under the RICC will build upon FAO's growing portfolio of regional and national programmes and projects on climate change (Table 3).

Table 3: Selected examples of FAO's work on climate change in Asia and the Pacific

Work Stream	Examples
<p>Facilitating countries' access to climate finance</p>	<ul style="list-style-type: none"> · FAO is providing support to member countries to access resources under the GEF to implement climate mitigation and adaptation initiatives employing approaches that include climate-smart and -resilient agriculture and ecosystem-based adaptation. In Asia and the Pacific, GEF projects and programmes under implementation by FAO in partnership with national and regional counterparts total over USD 100 million, with an additional USD 150 million of projects in the pipeline. The FAO Regional Office for Asia and the Pacific is actively engaging with member countries and implementing partners to design new initiatives in advance of the launch of the 7th GEF trust fund in 2018. · FAO is accredited by the GCF to manage medium-sized grant-based projects with a medium (or lower) level of environmental and social risk. FAO is supporting countries in the region to develop technically sound projects for the GCF that will target climate change-specific challenges and deliver transformational change in the agriculture sector. FAO has developed specific guidance and templates for incorporating gender considerations into GCF programming, and for the GCF mandatory Gender Assessments and Action Plan Annex.
<p>Supporting countries with their NDC implementation</p>	<ul style="list-style-type: none"> · FAO leads the global NDC Partnership's Thematic Working Group (TWG) on agriculture, food security and land use and provides support to countries with the support of partners to understand and formulate NDC-related support needs in the agriculture sector. FAO is also collaborating with NDC partnership bodies at the regional level to address specific NDC priorities for the agriculture sector in the region. · In seven countries in the region, FAO is implementing Technical Cooperation Programme projects to support enhanced implementation of the national priorities under the 2030 Agenda on Climate Change and Food Security through Climate Smart Agriculture. · In 19 countries in the region, FAO, through the UN-REDD Programme, is providing support for the development of MRV approaches for the Land Use, Land Use Change and Forestry sector.

	<ul style="list-style-type: none"> · In five countries in the region, FAO is designing projects to strengthen national-level capacity to measure, monitor and report on emissions from the agriculture sector under the GEF CBIT fund, which was established expressly to support implementation of the Paris Agreement.
<p>Supporting countries in integrating climate change into their national policies, strategies and programmes</p>	<ul style="list-style-type: none"> · In four countries in the region, FAO is providing support to sector-specific adaptation planning processes under the joint UNDP-FAO Integrating Agriculture in National Adaptation Plans programme. · In 2017, FAO regional commissions for forestry, fisheries, and livestock each facilitated strategic discussions on improving integration of climate change into national subsector policies, strategies and programmes.
<p>Advocating for food and agriculture under the UNFCCC</p>	<ul style="list-style-type: none"> · In 2016 FAO organized with a training on capacity needs for the Paris Agreement's Enhanced Transparency Framework in the agriculture sector in Asia and the Pacific. · In the ASEAN subregion, FAO organized consultations in 2016 and 2017 and provided technical advice to support the development of the ASEAN common position on agriculture issues for negotiations at the UNFCCC. · In 2018 FAO convened a negotiator dialogue to discuss the implications of the Koronivia decision for the future work on agriculture under the UNFCCC - including key negotiators from Asia and the Pacific.
<p>Partnering to maximize the impact of FAO work</p>	<ul style="list-style-type: none"> · In 2016 and 2017, FAO worked in partnership with: the ASEAN Climate Resilience Network; the Consultative Group on International Agricultural Research (CGIAR) Programme on Climate Change, Agriculture and Food Security; the Global Alliance for Climate Smart Agriculture; the International Centre for Tropical Agriculture; the United States Agency for International Development; the UNFCCC Regional Collaboration Center; and the World Business Council for Sustainable Development. Capacity-building events and exercises were organized to raise awareness of 2030 Agenda processes and scale up climate action for agriculture. <p>In 2018, FAO is working in partnership with the Japanese Ministry of Agriculture, Forestry and Fisheries, the National Agriculture and Food Research Organization Japan, the University of Western Australia, the Thai Rice Department and the International Rice Research Institute to identify tools and options to support countries assess emissions reductions from the rice sector and co-benefits for farmer livelihoods and the environment.</p>