# UN Climate Resilience Initiative A2R
### Anticipate, Absorb, Reshape

**UN Climate Resilience - A2R study on**
# 'Tracking progress on climate resilience and adaptation for agriculture and food systems at national, subnational and local levels'
Summary - December 2019

## Introduction

Enhancing the climate resilience and adaptation of the agriculture and food systems to climate shocks and stresses is highly important within the context of the climate crisis, which foresee the increase in the frequency and severity of extreme weather events, such as floods, storms and droughts as well as incremental changes (or slow onset events) that threaten agriculture production and food security even within a 2°C scenario. These extreme events together with changing seasonal patterns, have already adversely impacted agricultural livelihoods and related food security and nutrition (FAO, 2015[1] and SOFI 2018 report[2]). Today, FAO estimates that at least 26% of the total cost of damage and loss from climate related disasters, are absorbed by the agriculture sectors (rising to 80% for drought alone) (FAO, 2018[3]). Drivers such as population growth, increasing incomes and urbanization, while at the same time, overexploited and degraded renewable natural resources, including land, water, forest, oceans and biodiversity will further undermine the resilience and sustainability of agriculture and food production systems as well as related poverty alleviation and sustainable development in the coming decades (FAO, 2009[4]).

Agriculture is among the most climate sensitive sector and the people whose food, income, livelihoods and overall wellbeing depend on it and its activities are among the most vulnerable and at risk. It is estimated, that more than 2.5 billion people rely on agricultural livelihoods and related activities (FAO, 2013[5]). They manage over 80 percent of the world's estimated 500 million small farms and provide over four-fifth of the food consumed in developing countries (IFAD and UNEP, 2013[6]). Besides, they are also the custodians of renewable natural resources, playing a double role for food production as well as ecosystem services. In particular, these small-scale farmers, herders, fishers and foresters in developing countries, are often the world's poorest and most food insecure, and the most vulnerable, due to for example their lack of access to resources, such as land, water, energy, inputs, fertilizer, as well as their limited number of assets, such as land, personal property, livestock or savings and access to credit and insurance. (Frank and Penrose Buckley, 2012[7]).

## Background

Small scale farmers are at the front line of climate change and they are also the backbone of our agri-food systems. In addition to the investments needed in climate change mitigation to stay within a 2°C scenario, urgent measures are needed for building climate resilient and adapted agriculture and food systems at scale. As highlighted by the Global Commission on Adaptation's flagship report (2019), improving the resilience of smallholder producers will require a variety of interventions. This includes increased research and development together with improved extension services, such as for example

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[1] FAO. 2015. The impact of disasters on agriculture and food security. FAO: Rome.
[2] SOFI. 2018. The state of Food Security and Nutrition in the World. FAO: Rome
[3] FAO. 2018. The impact of disaster and crisis on agriculture and food security. FAO: Rome.
[4] FAO. 2009. How to Feed the World in 2050. FAO: Rome.
[5] FAO. 2013. Resilient Livelihoods. Disaster Risk Reduction for Food and Nutrition Security. 2013 Edition. FAO: Rome.
[6] IFAD and UNEP. 2013. Smallholders, food security and the environment. IFAD: Rome.
[7] Frank, J. and Penrose Buckley, C. 2012. Small-scale farmers and climate change. How can farmer organizations and Fairtrade build the adaptive capacity of smallholders? IIED, London.

more climate-resilient variety & breed development, better distribution to smallholders as well as digital farmer services, weather & seasonal, monthly and 10-day forecasts, and farmer-to-farmer knowledge sharing. The impact of external shocks and stresses should be reduced by income diversification (both on and off farm), increased market access, strong shock-responsive risk transfer systems, such as social protection schemes, bundled crop and/or livestock and climate risk insurance (Global Commission on Adaptation, 2019)[8]. Addressing the resilience of the most vulnerable will further require the safeguarding of land tenure rights and enhancement of resource access of women and young farmers, access to transition funding, and other measures.

Coherence between interventions and context-specific policies are also key and clear silver bullet solutions are not available. However today, we do not have across different public-private, civil society and academia actors, an agreed set of priority intervention for building together the resilience and adaptation of our agri-food systems. Similarly and in addition, there is an urgent need for shared simple metrics to track progress on climate resilience and adaptation in the agriculture and food sectors, as well as for other linked sectors, such as water, energy, biodiversity and renewable natural resources. It is essential to identify and agree on a set of shared interventions and related set of indicators in view of the central role of the agri-food systems for achieving both climate change mitigation and adaptation/resilience but also for a just environmental, social and economic transition for those most vulnerable countries and people.

In addition, due to the bottom-up nature of adaptation to climate change and reducing the adverse impacts to shocks and stresses with regard to agriculture and food systems, it is often not easy to capture the progress occurring at this level by quantitative and comparable indicators because these often context specific. The vertical integration of monitoring and evaluation (M&E) systems between the various levels, which complements the horizontal harmonization across the global frameworks at national level, is highly important as it also contributes to national development planning (IIED, 2018). The strengthening of the linkages of the M&E systems, vertically from local to national, will help to further the assessment of countries' progress with regard to enhancing countries' and communities' resilience to climate variability and change. In particular, it is important to identify the types of indicators that are required in order to capture a more comprehensive in-depth insight of the outcomes linked to the implementation of climate resilience interventions and actions for agriculture and food systems.

**UN Climate Resilience - A2R study**

A study was undertaken within the context of the United Nations Climate Resilience Initiative – Anticipate, Absorb, Reshape (A2R[9]) in collaboration with FAO and aimed to investigate how to track progress on climate resilience for food and agriculture systems at national level, but in particular at subnational and local levels. Moreover, it evaluates whether existing global and national indicators adequately assess the extent of implementation of subnational and local level climate action for agriculture and food systems.

The main objectives of the study included:
- Analyzing existing indicators of global policy frameworks relevant to agriculture and food systems (from production to consumption) at three levels: national, subnational and local;

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[8] Global Commission on Adaptation. 2019. Adapt Now: A Global Call for Leadership on Climate Resilience.
[9] A study undertaken within the context of the United Nations Climate Resilience Initiative: Anticipate, Absorb, Reshape (AR2), in collaboration with the Food and Agriculture Organization of the United Nations (FAO). 2019 draft under finalization.

- Identifying the key typologies of interventions that can help to enhance climate resilience of the most vulnerable small-scale farmers and also bringing the consumer role in the larger agriculture and food systems;
- Identifying gaps in existing indicators for agriculture and food systems across levels;
- Proposing additional qualifiers to existing relevant indicators to: i) ensure coverage of agriculture and food system specific aspects; ii) try to capture the different types of interventions to enhance the climate resilience of agriculture and food systems (people, farm, ecosystem/territory, institution, etc.);
- Suggesting core set of indicators that can help us all to coherently track progress on enhancing climate resilience for agriculture and food systems at national, subnational and local levels.

The target audience of this study includes government officials and policy makers, who have to report on their countries' status of progress against indicators from international frameworks, such as the Sustainable Development Goals (SDGs), Sendai Framework for Disaster Risk Reduction, Paris Agreement, Convention on Biological Diversity (CBD), United Nations Convention to Combat Desertification (UNCCD) as well as it informs Academia, NGOs and development practitioners, who are conducting research on measuring resilience/adaptation and managing programmes/projects.

**Findings**

The A2R study analyzed over 150 global frameworks, initiatives and research studies to identify relevant indicators for tracking progress on climate resilience for agriculture and food systems at national, subnational and local levels, and along a key set of interventions (see **annex 1**). It has helped to acquire a better understanding of whether the set of existing global and national indicators adequately assess/reflect the extent of implementation of subnational and local climate actions. Some of the main findings include:

- In total, over 85 global frameworks, initiatives and research studies included relevant indicators, variables, criteria or questions, which are considered key to enhance the climate resilience of the most vulnerable small-scale farmers and food system actors;
- Existing indicators for assessing climate resilience for agriculture and food systems are predominantly quantitative, while combination with qualitative indicators would be needed to provide a more complete overview of the situation, especially at the subnational and local levels.
- 11 typologies of interventions (Annex 1) were identified that can be considered as key climate actions needed for managing and reducing climate risks for building climate resilient and adapted agriculture and food system, especially for/by small-scale farmers, but also along the entire value chain and food system, particularly at local and subnational levels and in a bottom-up manner;
- Certain gaps and limitations were observed in the existing indicators with regard to tracking progress of some effective climate interventions/actions to enhance resilience.
  - A lack of indicators observed to help assess the shock-responsiveness or risk sensitiveness of social protection schemes when combined with credit schemes or insurance or when weather-index based insurance is combined with the purchase of agriculture inputs.
  - A lack of indicators that focus on the importance of monthly and 10-day weather forecasts for farmers, although indicators on seasonal forecasts do exist.

- o A lack of indicators that assess the collaboration and linkages between different agricultural stakeholders/actors – e.g. farmers, extension services and academia as well as with NGOs, private sector among others.
  - o A lack of indicators for identifying, selecting, testing and validating agricultural DRR and adaptation good practices, technologies and innovations, also linking scientific and traditional/indigenous knowledge which is highly important for the climate resilience of agri-food systems.
- There is a need to further mainstream gender, youth and other marginal groups into existing indicators and/or to develop specific indicators that are gender-sensitive.

## Conclusions and recommendations

Given the importance of agriculture and food systems as both being impacted by climate change as well as an essential climate solution, both mitigation and adaptation/resilience interventions require urgent investments and at scale. Key recommendations of this A2R study, include:

- Country and context-specific M&E for the resilience and adaptation of the agri-food systems are needed, structured along the proposed 11 typologies of interventions or a combination of these;
- The use of the existing set of indicators across global policies and programmes and initiatives should be further enriched by adding:
  - o qualifiers specific for the agriculture and food systems
  - o including gender, youth and other marginal groups
  - o elements to make sure that adequate progress is captured at local, subnational and national levels. The subnational and local level indicators would help to assess progress by projects, thereby being aggregable and contributing to achieving national (as well as regional and global) level outcomes.
- Among the existing and improved set of existing indicators, a core set of indicators should be agreed upon by a broad range of actors, both quantitative and qualitative, which would help to track progress on enhancing the climate resilience of the agri-food systems at national, subnational and local levels.
- A shared set of indicators for tracking resilience and adaptation interventions in the agri-food systems would also help to scale up the coherence and convergence of efforts and investments needed by all actors at all levels.

**See reference to this study on A2R website www.a2rinitiative.org**

**Annex 1**        **11 Typologies of key interventions for building climate resilient agri-food systems**

1) Agro-climatic and disaster risk information systems
2) Early warning systems and early action
3) Climate and disaster risk governance (e.g. risk driven policies, planning processes, etc.)
4) Shock-responsive risk transfer mechanisms (social protection and insurance schemes)
5) Emergency preparedness and response
6) DRR/CCA good practices at farm level
7) Climate risk proofing of grey infrastructure
8) Nature based solutions at ecosystem/territorial level
9) Food loss and waste reduction
10) Climate friendly and sustainable diets
11) Awareness raising, knowledge management and capacity building