

Double Impact: Covid-19 and Climate Change in Food and Agriculture

Observations and recommendations for policy-makers in Southeast Asia

Issue

- ▶ What are the linkages between climate change and Covid-19 for the agriculture sector, and how can governments in Southeast Asia best respond?

Key Points

- ▶ There are lessons to be learned from the Covid-19 experience that could be potentially helpful to managing climate change in the agriculture sector. And, there are actions that can be taken in managing climate change that will be helpful in responding to the economic consequences Covid-19, and helpful in lowering the risk of disruptions in agriculture/food value chains from future similar health events.
- ▶ The Covid-19 crises has been very challenging; both the agriculture sector as a whole and governments responded quickly and remarkable effectively overall, all things considered.
- ▶ Without additional action, the short-term emissions reductions that have resulted from economic and other restrictions will have no discernible long-term impact on climate change.
- ▶ Conversely, concerted action on incorporating climate actions and investments into the Covid-19 recovery in the food, agriculture and forestry sectors can have a very positive climate change impact the latest data shows that food systems are responsible for approximately a quarter of all greenhouse gas emissions, with the highest share coming from Asia.
- ▶ Because methane, a short-lived climate pollutant, is over-represented in the agriculture sector (methane is more than one-third of all emissions in the sector), methane reductions incorporated into Covid-19 recovery can have a significant positive impact on reducing near-term warming, because of the immediacy of the climate impact. Because methane also reduces crop production, removing it will also have near-term positive impact on crop yields. Such actions could also reduce air-borne pollutants thereby providing significant health benefits, lessening the stress on the health system itself; and, because air pollution has been shown to increase the risk of Covid-19 health impacts, reducing those pollutants could have the important benefit of reducing the health risks from the current and future viruses.
- ▶ Climate change is happening now, at the same time as the Covid-19 crisis. Climate adaptation is therefore an immediate necessity for the agriculture sector, the need for which has not been lessened by the Covid-19 crisis.
- ▶ There are very good emissions mitigation practices on which to build – there are proven technologies and tested management practices that can be deployed; these will be beneficial for “greening the recovery” or for “building back better”, as recognized by the Association of Southeast Asian Nations (ASEAN).

- ▶ Financing is a considerable issue and risk, for both Covid-19 and for climate change. Governments are acting now to address the socio-economic impacts of Covid-19, but to date green investments that would also tackle climate change via those investments have been limited. Investments directly targeting the agriculture sector have also been limited.
- ▶ Government fiscal capacity in the medium term is uncertain, caused by Covid-19. Including because of

the debt problems Taking advantage of government’s intention to act now is paramount – it may be now or never.

- ▶ The ASEAN Comprehensive Recovery Framework and Implementation Plan provides an excellent over-arching policy framework. Consideration, however, should be given to developing a near-term subsidiary response for the agriculture sector within that framework.

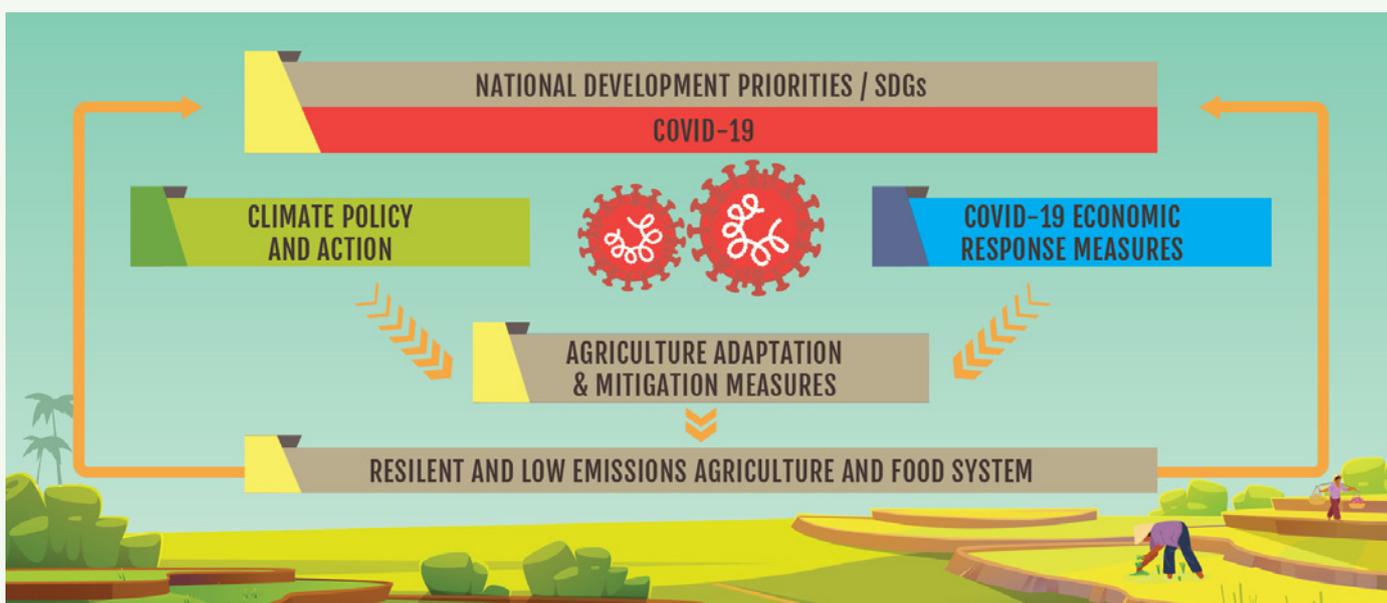


Figure 1 : Interlinkages between climate change and Covid-19 for the agriculture sector

Recommendations for ASEAN

1. Elaborate an Agriculture Sector Green Covid Response, based on 3 inter-related concepts, built around the theme of health, and three related sub-components:
 - Population Health** – governments should continue to situate the agriculture sector prominently within the broader framework of recovery from Covid with a simple guiding principle: “no food, no health”.
 - Economic and Social Health** – an economically strong agriculture sector is critical, including social dimensions such as rural development, women’s development and empowerment, and youth and family. Wealth creation and poverty alleviation should guide government action and support.
 - Environmental Health** – responding to climate-change-driven developments and actively contributing climate mitigation actions from the sector should be featured.
2. Conduct a combined Covid-19 and climate change Vulnerability Assessment examining the key risks and weak points with the entire food and agriculture sector and developing policy, management, and investment requirements to address them. Consideration in particular should be given to developing:
 - a. A framework for climate services, based on WMO’s Global Framework for Climate Services but adapted to regional realities, with a focus on weather services for farms, water management, soils, seeds, & crop research; and
 - b. A framework and strategy for economic risk-management support for farmers, including crop and other insurance schemes, based on global best practices, and including emerging innovative climate insurance schemes.

3. Through an engagement process with stakeholders in the sector, and with relevant government ministries, build off and drill down into the broader ASEAN Comprehensive Recovery Framework and Implementation Plan, including:
 - a. Application of a “sectoral lens” to each of the Broad Strategies in the Framework, defining required sectoral policy and program work. For example, what are the agriculture sector dimensions of “strengthening human security”; of “greater regional economic integration”; etc; and,
 - b. As a priority, and as identified in the Implementation Plan, develop a digitization strategy for the sector; this should include the provision of climate and weather services (from element 2 (a) above, and the provision of payments services and financial transactions from element 2 (b) above; and environmental and management applications (e.g., irrigation and water services; precisions fertilizer applications; enhancing transparency and traceability; etc); and
 - c. Further define the other broad work areas related to the sector that are set out in the Implementation Plan.

Recommendations for countries in the region

1. Countries should, as an urgent priority, consider how COVID-19 response could be aligned with existing policy frameworks that promote resilient and climate-friendly agriculture, in particular nationally determined contributions (NDCs), Sustainable Development Goals (SDGs) plans, and long-term low-emissions development strategies. In addition, contributions of agriculture to countries’ NDCs, specifically for GHG mitigation targets, should be further elaborated through rounds of NDC updates.¹ Covid-19 recovery investments should be directed towards supporting these changes.
2. In order to facilitate government support for the adoption of climate change mitigation and adaptation actions, consideration should be given to broad dissemination of proven best practices with relevant government departments, using FAO climate smart agriculture materials² and other relevant materials such as the Climate and Clean Air Coalition’s work on agriculture³ or GIZ’s work on climate change mitigation⁴ and adaptation⁵. These organizations could be approached to offer their support and assistance. Developing political leadership for enhanced action is important. Engagement of Ministers in relevant regional and global fora can help build such leadership. Relevant international organizations should be engaged to support this.
3. Attention should be directed towards training of farmers and farm organizations, in order to increase their understanding and adoption of best practices. A particular focus should be placed on how new/improved farming methods and management practices can reduce costs, increase yields (and revenue), or provide new sources of revenues (e.g., carbon credits). While there are many existing reference materials, new materials and training and outreach approaches may be required, tailored to local and national circumstances. Attention should also be directed towards how to improve access to markets for climate-smart agriculture (CSA) sourced products as well as improved marketing and stronger pricing for CSA products.
4. Finance will be critical for successful change. Both governmental and private sector investment will be required, and international assistance will be needed to support the transition, including dealing with the debt-capacity of governments. In addition to support from governments and engaging private sector capital, innovative approaches to financing should be considered, including new public-private partnership arrangements, carbon markets, and engaging the Green Climate Fund and development banks on innovative programming approaches. The over-riding focus for finance should be an end-use focus — that is, getting appropriate and sufficient funds into the hands of farmers and industry decision-makers/change agents in order to stimulate change.

¹Sectoral implementation of NDCs - Agriculture (giz.de)

²Climate-Smart Agriculture | Food and Agriculture Organization of the United Nations (fao.org)

³Increasing Agricultural Climate Action & Ambition | Climate & Clean Air Coalition (ccacoalition.org)

⁴Potentials for Greenhouse Gas Mitigation in Agriculture. Review of research findings, options for mitigation and recommendations for development cooperation

⁵Adaptation in Agriculture. Potentials, Challenges and Experiences from Implementation

Analysis

Climate Change and Covid-19 – a double burden and a chance for transformation. At the simplest level, the Covid-19 pandemic and climate change are very different things.

Covid is a fast-moving health disease, causing significant illnesses and death, and, because of the public health measures required to contain the spread of the disease, significant economic and societal disruptions. For the food and agriculture sector, the combined effect of the disease itself and the government, corporate, and societal responses to it, impacts have been:

- ▶ Disruptions in the supply of labour (esp. for harvesting, processing, transport & distribution);
- ▶ Export and import restrictions; loss of customers (restaurants); significant changes in markets, including increased demand in some new areas (local grocers); on-line/home sales;
- ▶ Transport disruptions, esp. air and seaports;
- ▶ Significant income losses – for workers, farmers, retailers & all in-between;
- ▶ And, from a policy perspective, heightened interest by governments and citizens in food security and self-sufficiency; a much greater interest in food tracing (farm-to-fork); and a novel interest in food supply chains.

The Covid-19 global pandemic has also exposed several frailties in the food and agriculture system, amongst them:

- ▶ The fragility of all aspects of food security (millions will suffer from food insecurity because of Covid-19, particularly the economic impacts of Covid-19);
- ▶ The risks and weaknesses of supply chains and distribution systems (which are only as strong as the weakest link);
- ▶ The challenges of finance and payment systems – getting finance into the right hands at the right time; and
- ▶ The importance of strong trade links and collaborative trade facilitation services and policies amongst governments.

But, the Covid-19 pandemic has also clearly demonstrated the ability of the entire food chain to respond to challenging circumstances in a positive way. Food is still being produced in sufficient quantities and making its way into the mouths of those who need it, notwithstanding the tremendous obstacles hindering that process.

Climate change is, in many ways, the very opposite of Covid-19; it is characterized by:

- ▶ Slow, gradual, long-term changes in the environment;
- ▶ Slow-onset events (gradual shifts of growing seasons, gradual changes in ecosystems);
- ▶ Long-term temperature changes; and
- ▶ Slow gradual shifts in consumer behaviour and government policy to respond to it.

But, the results of the two – Covid-19 and climate change – have remarkably similar impacts over time, including:

- ▶ Income losses for farmers (e.g., from weather events, pests, droughts and heat, water access; changes in demand for some products; etc)
- ▶ Disruptions in supply chains, and the need to prepare to avoid such disruptions using new risk-management approaches; and
- ▶ Changes in dietary preferences for consumers, and lessened demand for some products;

And, there is a high risk that Covid-19 is indeed not a one-off short-term event that will be overcome by having the world vaccinated. There is a high likelihood of other such outbreaks lurking, a likelihood made greater by climate change due to its association with the increase in zoonotic disease outbreaks.

Central to a linking of efforts on Covid-19 and climate change is the concept of “build back better” or “green recovery”.

Governments have committed themselves to investments, both policy and financial, and to make structural changes to respond to the impacts of Covid-19 such that the resultant society and economy is fundamentally better than it was before Covid-19. A critical aspect of that is responding with climate change in mind.

A few salient facts:

Agriculture is one of the hardest hit sectors by the impacts of climate change. Adaptation measures will be necessary. The most significant impacts are;

- ▶ Slow-onset changes (temperature changes; rainfall patterns; water availability);
- ▶ Episodic events (storms, cyclones) – greater frequency & severity;
- ▶ Unpredictability/variability of the weather (for planting and harvesting); and
- ▶ Episodic events (storms, cyclones) – greater frequency & severity;
- ▶ Unpredictability/variability of the weather (for planting and harvesting); and
- ▶ Atmospheric pollution and temperature increase impacts on crop growth (~50m tonnes of crop losses annually) & livestock (disease & stress)

The impact of all of these conditions can be lessened by strong climate adaptation planning.

Climate change is not going away – there is no vaccine for climate change. Its impacts, indeed, will become increasingly severe over the coming decades because of the locked-in warming caused by the global stock of climate forcing gases, some of which last for centuries in the atmosphere.

It is widely recognized that emissions from agriculture, forestry and other land use (AFOLU) contribute significantly to global GHG emissions (according to IPCC the sector makes up 23%). Latest data assessing the contribution of the global food system to the climate change problem suggests that food production and consumption, including processing, transport and packaging is even responsible for over a third of all climate forcing, if land-use changes are included. Most GHG emissions in the global food system come from Asia.

There is an increasing expectation in government policy circles that the agriculture sector itself needs to reduce its contribution to climate change. Climate change in an agricultural context used to be almost exclusively a focus on climate change adaptation; increasingly, emissions mitigation is a central focus as well. Agriculture can and needs to be part of the solution, being more clearly reflected in NDCs or other climate-related strategies and

policies, with the recognition that agricultural emissions cannot, with existing technology, be brought down to zero, and secondly, that food security must be an over-arching concern.

There are a range of existing technologies and management actions that can be deployed to significantly reduce agricultural emissions, with the appropriate policy and financial support, that can significantly lower emissions. The extent to which these technologies and practices are known, however, is still very limited – both within government, and in particular at the farm level. And, the actual deployment of solutions is still very much at the pilot stage.

In addition, while studies have shown that many climate mitigation measures in the sector will have positive economic returns over time, there may be increased up-front – direct (higher energy costs) or indirect (changing feed practices or farm management practices) – that will be challenging to implement without external support.

Because most emissions in the sector are pollutants with high warming impact and shorter lifetime in the atmosphere (methane and nitrous oxide), reducing those emissions can have a disproportionately positive impact – the sector can be a leader in limiting global temperature rise. And, some agricultural practices such as the open burning of crop residue also have significant regional health impacts, particularly in densely populated urban areas where the smoke and its contaminants commingle with transportation and other pollutants to make a deadly atmospheric cocktail.

Removing the contaminants from agricultural sources will have an enormous (low cost) public health benefit.

Agriculture is also one of the key drivers for deforestation and other harmful land-use practices, hence further contributing to GHG emissions and lessening of emissions sinks. Also, deforestation increases the risk for zoonotic diseases – so there is a link to Covid response and future pandemic prevention.

Combining Covid-19 response with climate action

Globally, there have been significant resources, directed to economic support & Covid-19 recovery (over 15 trillion USD). The vast majority of these funds have been directed to supporting the health system, and to supporting industries and individuals who have been financially devastated by the Covid-19 crisis. There has been a strong

commitment to the concept of “building back better” or a “green recovery” and using the response to the Covid-19 crisis to advance needed economic structural reforms and to advancing transformational changes to address climate change.

Rhetoric notwithstanding, however, several detailed economic analyses of the recovery financing packages of governments have revealed that there has been a very weak focus overall on greening/climate, and a significantly greater focus on fossil fuel than the green economy, although there are emerging signs that this is slowly starting to improve. The funding now being made available for COVID-19 recovery is a unique chance to tip development in a more sustainable direction.

Conversely, not doing so could pose a big threat to environmental sustainability, including climate change action.

Additionally, because the fiscal situation of governments will be so precarious post-Covid, it is extremely unlikely they will have resources available to adequately support climate change at that time — it is a now or never situations, at least for the near to medium term.

Generally, there has been a very limited focus on agriculture to date, with some exceptions:

- ▶ North America — utilization of existing risk management frameworks and payments systems⁶ to deliver financial and economic support, especially at the farm level;
- ▶ Nigeria — significant support for expansion of agriculture and support for rural development, and a program for solar power generation including cold chain support;
- ▶ Europe — have incorporated agriculture into the climate action (for example in the new methane strategy), but without significant new financial support or programming;
- ▶ India — have committed to support market reforms for the agriculture sector.

In the ASEAN region, the response to the Covid-19 crisis has been quite strong:

- ▶ There have been positive and supportive political statements & initiatives across sectors, incl. agriculture;

- ▶ There have been border/trade measures and actions to counteract isolationist tendencies; and, notably
- ▶ There has been the development and political approval of a regional Covid recovery framework.

The five Broad Strategies contained in the ASEAN Comprehensive Recovery Framework provide a strong over-arching framework (Enhancing Health Systems; Strengthening Human Security; Maximizing the Potential of Intra-ASEAN Market & Broader Economic Integration; Accelerating Inclusive Digital Transformation; Advancing Towards a More Sustainable and Resilient Future). And the principles guiding its implementation (work to be impactful, pragmatic, inclusive, measurable) similarly provide practical guidance.

There are also important agricultural and climate elements set out in the Implementation Plan, including:

Implementation of the ASEAN Regional Guidelines for Promoting Climate Smart Agriculture Climate Smart Agriculture (CSA) Practices;

- ▶ Implementation of ASEAN Guidelines on Responsible Investment in Agriculture & Forestry
- ▶ Development of a guideline on utilization of digital technologies in the agriculture and food sector;
- ▶ Development of guidelines for sustainable agriculture;
- ▶ Development a disaster risk management framework; and
- ▶ Advancement of sustainable financing.

Development banks, including the Asia Development Bank, have also been providing supportive policy and economic analysis and some have developed financial programs/ support packages.

With respect to climate change more generally, however, there remain many mixed signals. There has always been a recognition that adaptation for agriculture will be imperative. And, there is an increasing recognition, as noted earlier, that agriculture is a significant source of emissions.

From a research perspective there are stronger messages emerging about the impacts of atmospheric pollutants, such as tropospheric ozone, and its impact on crop

⁶ See, for example: What's In the New COVID-19 Relief Package for Agriculture?

productions (losses of over 50m tonnes of key staples (rice; maize; wheat) per year; strong messages about the health impacts of some agricultural activities such as crop burning (over 7 million lives prematurely ended per year from particulate matter (PM) 2.5/black carbon, and agricultural sources are upwards of 10% of global black carbon); and, strong link to climate/minimizing near term temperature increases because of the short life of the pollutants and their intense warming.

What has been less prevalent is an understanding that there are strong links to economic growth, productivity improvements and jobs in the agriculture sector from implementing measures to reduce emissions.

“Climate smart agriculture” practices are starting to change attitudes and understanding. But, the efforts are still at early stages of acceptance — many continue to believe there is little mitigation that can be achieved from changing agricultural practices, and that the changes will be expensive, burdensome, impractical.

The reality is that there are number of practices and measures, currently generally operating at pilot scales, that can be scaled up and result in a triple win — improved agricultural outputs (and incomes), reduced agricultural emissions (and beneficial near-term temperature impacts), and improved health outcomes.

These practices also improve the resilience to external shocks and increase risk-management capacities. They tackle well both the needs of a Covid-19 response and a climate response.

Agricultural methane emissions come mainly from enteric fermentation from ruminant livestock and from emissions

from manure and waste; nitrous oxide emissions come from fertilizer. Land use and land-use changes are also a significant source of emissions, as are some agriculture management practices, such as open-burning of crop residues. On-farm energy use and emissions associated with distribution and disposal are also significant emissions sources.

Some key practices, both for the supply and the demand side, include⁷: improved paddy rice practices (e.g., alternate wetting and drying); improved manure management; improved livestock herd health & breeding; improved feeds & pasture management; improved soil & crop management; moderation of the use of fertilizers via soils testing and use of precision applications; avoidance of food loss & waste, including through improved cold chain & logistics; cease open-burning of agricultural residue and make alternate use of it; afforestation & improved forestry management; and, if well managed, support for biofuels/bio-energy⁸; and oceans-based solutions (enhance carbon sequestration in mangroves and sea grasses; oceans-based energy production; shipping improvements).

These practices can be further enhanced by improved information for climate and weather; strengthened research, notably including for seeds and feeds, and, critically, support education, training and knowledge transfer, and farm management.

⁷ See, for example: ASEAN Regional Guidelines for Promoting Climate Smart Agriculture (CSA) Practices; see also World Resources Institute/Oxfam, Enhancing NDCs: Opportunities in Agriculture

⁸ Note: if not well managed and implemented, bio-fuels and bio-energy projects may have negative environmental and food security impacts.



Photo: Shutterstock/Dmitry Islentev

Testing the analysis and recommendations

The ASEAN Climate Resilience Network (ASEAN-CRN) has been promoting knowledge-sharing and dialogues on different aspects and approaches related to climate smart agriculture (CSA). Recently, this included the links between COVID-19 and climate change in the food and agriculture sector in ASEAN.

On 8 June 2021, the Institute for Policy and Strategy for Agriculture and Rural Development, which represents Viet Nam in the context of ASEAN-CRN, in collaboration with GIZ and the CCAC, hosted a virtual dialogue event during which experts presented and discussed insights on how to promote a 'climate-smart' COVID-19 response regarding agriculture and food security in the ASEAN region. This paper was presented and used as a guiding document for the event.

The meeting was attended by the members of the ASEAN-CRN, focal points of different ASEAN sectoral bodies and further representatives from the AMS, development agencies and research institutions.

Participants in the dialogue event expressed general support for the directions of the policy outlined in the paper. During discussions, they highlighted a number of aspects particularly relevant for promoting green recovery from COVID-19 in the food and agriculture sector, including the following:

- ▶ Past responses to economic shocks can provide lessons for COVID-19 recovery, which in turn offers a unique chance for different thinking and innovation.
- ▶ National and regional policies and plans must adapt to changing realities, including both, short-term and long-term goals and activities, and consider risks from external factors such as climate change or pandemics.
- ▶ In order to promote a comprehensive and effective policy agenda, a cross-sectoral approach is needed which breaks down the silos and promotes knowledge transfer, exchange of information and collective action across the ASEAN region.
- ▶ Governments need to identify groups vulnerable to climate change, implement a holistic approach to address related challenges, and encourage the participation of women and children.
- ▶ Digitalisation can play a key role in making agriculture value chains more resilient to shocks, efficient and sustainable. Technology development should reflect the needs of farmers and other local stakeholders.
- ▶ Access to finance (international, public and private), including from innovative sources, and developing bankable projects will be key for green recovery and climate action.
- ▶ Furthermore, participants shared many examples for COVID-19 response and climate action in the agriculture sector in the ASEAN region.

In order to promote a comprehensive and effective policy agenda, a cross-sectoral approach is needed which breaks down the silos and promotes knowledge transfer, exchange of information and collective action across the ASEAN region.

For complete documentation of the event please refer to the ASEAN-CRN website:
<https://bit.ly/3ikLEcZ>

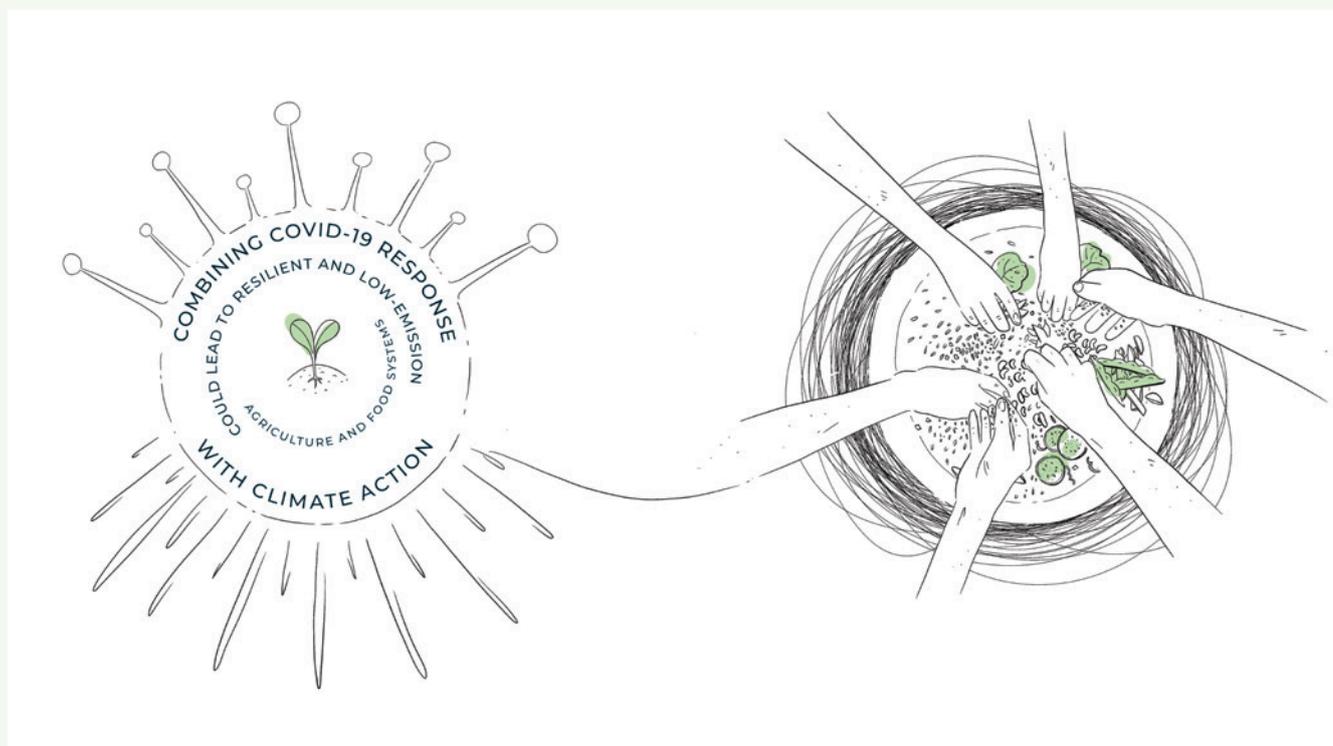


Illustration from A Story about Agriculture in Times of Climate Crisis and COVID-19.

A STORY ABOUT AGRICULTURE

IN TIMES OF CLIMATE CRISIS AND COVID-19



Complex challenges like the climate change and the COVID-19 pandemic are hard to understand. For a visual approach of explaining the interlinkages check out our graphic narrative: A Story about Agriculture in Times of Climate Crisis and COVID-19.

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Published by:



In cooperation with:



Published by Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH
Registered offices Bonn and Eschborn, Germany

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As at August 2021
Design Jippy Rinaldi, Jakarta