

FACT SHEET

Climate-Smart Food Security and Livelihoods Programming

Introduction and Rationale

In line with Strategy 2030, the Movement Ambitions to Address the Climate Crisis and the pledge made at the 33rd International Conference, - Strengthening the resilience of communities to climate change & environmental degradation through climate-smart humanitarian action -, this fact sheet sets out key principles of climate-smart food security and livelihoods programming. It establishes a basis upon which more detailed guidance to operationalize and implement climate-smart food security and livelihoods programming in different contexts can be developed. This fact sheet focusses on food security and livelihoods in both rural and urban contexts.

Rural livelihoods and food security depend heavily on agriculture and the natural resource base and are therefore particularly vulnerable to climate change and variability. The agricultural sector (crops, livestock, fisheries and forestry) and food systems are the main sources of livelihoods for 2.5 billion people globally, but are also critical to meet the food needs of a growing global population.¹ While climate change impacts will vary between countries and even sub-nationally, they can include more frequent and intense weather-related hazards such as floods and droughts. These, as well as long-term climatic changes related to for example temperature or rainfall, already threaten livelihoods and food supplies now. The need for people, households, and communities to adapt is evident. The IFRC² needs to support and accompany them in this endeavor. Its experience and expertise in managing food security and livelihoods across the disaster risk management continuum and its local presence in communities around the globe places the IFRC in an ideal position to do so.

While supporting climate change mitigation efforts of rural communities' is at the core of the IFRC's mandate, we are increasingly required to consider how rural livelihoods can contribute to climate change mitigation. The agricultural sector contributes almost 24 percent of annual global greenhouse gas (GHG) emissions.³ Achieving the goal of a below 2°C warming scenario⁴ will therefore require substantial reduction in greenhouse gas emissions in the agricultural sector. While most agricultural GHG emissions come from highly industrialized food production, particularly from livestock production in industrialized and emerging economies, there is also potential to reduce GHG emissions in smallholder and subsistence agriculture, which is often the target of IFRC food security and livelihoods programming.

Urbanization and the accompanying changes of livelihoods and lifestyles contribute to climate change and create new vulnerabilities and risks to climate-related disasters. Already more than 4 billion people live in urban areas and this is projected to increase to more than 7 billion by 2050. Food security and

¹ "Increasing the Resilience of Agricultural Livelihoods" (FAO, 2016).

² When not specified, IFRC should be read as *IFRC Secretariat and its membership*

³ Helal Ahammad et al., "Chapter 11: Agriculture, Forestry and Other Land Use (AFOLU)," in *Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Assessment Report 5 (Cambridge University Press, 2014), 11.

⁴ As set out in the Paris Agreement on Climate Change

livelihoods in urban areas are usually cash-based and depend on daily wages, salaries, and markets.⁵ Climate change will exacerbate existing challenges and add new ones for urban food security and livelihoods. For example, urban slums and suburbs, with high concentrations of people and no or limited access to services, are exposed to increasingly frequent and severe hazards like landslides, floods or heatwaves, affecting peoples livelihoods (usually precarious or informal) and their ability to access food and ensure adequate living conditions. Similarly, urban households have little or no land for own food production and are thus more exposed to potential market shocks triggered by disasters and climatic changes. The size and density of urban populations combined with inadequate infrastructure also imply that large numbers of people are affected even by small, localized disasters. At the same time, cities account for more than 75 percent of global energy demand and produce more than 60 percent of global GHG emissions.⁶ The climate change mitigation potential of cities is thus large. Therefore, while traditionally focusing on rural areas and agriculture, climate-smart programming for livelihoods and food security needs to consider the urban context and its particularities as well. Yet, 'rural' and 'urban' are not strictly distinct but connected, and appear in mixed forms like 'peri-urban' contexts.

Considering all this, the IFRC should actively transform its approach to food security and livelihoods programming, in both rural and urban areas, to make it *climate-smart*. Only thereby it will contribute to ensuring global food security, providing economic and social opportunities for all, protecting the ecosystem services on which livelihoods and food security depend, and building resilience to climate change. Without climate change adaptation and mitigation, achieving food security for all and eradicating hunger, malnutrition and poverty will not be possible.⁷

Taking a Sustainable Food Systems Approach

The complexity of climate change and its impacts on food security and livelihoods as well as the complexities of different contexts on the rural-urban continuum demand a holistic approach to climate-smart food security and livelihoods programming. Taking a food systems approach enables us to better understand these complexities and identify entry points for IFRC programs.

FAO defines food systems (FS) to "*encompass the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption and disposal of food products that originate from agriculture, forestry or fisheries, and parts of the broader economic, societal and natural environments in which they are embedded.*"⁸ The focus thus shifts from producers and consumers to encompassing all stages of value and supply chains, as well as relevant contextual factors.

These systems are sustainable if they deliver "*food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised*".⁹

Thus, taking the holistic food systems approach, different entry points for climate-smart food security and livelihoods programming emerge. For example, reducing food waste in subsistence farming and along value chains can increase food availability without putting additional production-induced pressure on the natural resource base. Similarly, shifting consumption patterns to food with smaller

⁵ Leah Campbell, "Stepping Back: Understanding Cities and their Systems" (ALNAP, 2016), 26-27.

⁶ "FAO Framework for the Urban Food Agenda" (FAO, 2019).

⁷ "The state of food and agriculture" climate change, agriculture and food security (FAO 2016)

⁸ Hanh Nguyen, "Sustainable Food Systems: Concept and Framework" (FAO, 2018).

⁹ *ibid.*

environmental footprints can increase sustainability and contribute to climate change mitigation while allowing for more food to be produced with the same amount of natural resources. This also opens new entry points for livelihoods and food security programming in urban areas with few opportunities to increase food availability through production. The box below lists further examples of entry points for climate-smart food security and livelihoods programming that arise when taking a food systems approach.

Entry Points for Climate-Smart Food Security and Livelihoods Programming
• Preserving or increasing agricultural productivity on existing cropland and pastureland by making it more resilient to climatic extremes (adapted seeds, soil, plant, and pest management control) • Making use of weather and climate forecasts to engage in better and risk-informed seasonal and long-term livelihoods adaptation • Empowering women along the value chain • New business models for smallholder agriculture and rural development that create economic and job opportunities and makes rural areas more attractive, thereby preventing migration to urban areas • Improving agricultural system management to increase resource efficiency, reduce emissions and pollution, improve soils and conserve natural resources and the environment • Shorten and localize food supply chains to reduce costs and GHG emissions from transport • Reducing food losses and waste, accompany with technical support and guidance • Promoting shift towards healthier diets

Objectives of Climate-Smart Food Security and Livelihoods Programming

Considering the potential humanitarian challenges of climate change, both adaptation and mitigation are needed. Climate-smart programming for food security and livelihoods in the IFRC should therefore ensure that anticipatory action, response, recovery, and long-term activities pursue two main objectives:

- 1) **Sustainably increase food availability and utilization** to meet local and global food and other basic needs without having a negative impact on the environment and degrading the natural resource base of future generations.
- 2) **Reduce vulnerability and build resilience** of people and communities to short-term risks and long-term stresses such as, but not limited to, impacts of climate change.

Objectives, which relate to climate change adaptation, are at the core of the IFRC's humanitarian mandate and are where it has the largest experience. However, climate change mitigation should also be pursued wherever and whenever possible through the guiding principles which will be detailed in the following section. Ideally, the pursuit of adaptation and mitigation will create mutually beneficial synergies. Yet, when faced with potential trade-offs between these objectives, climate-smart food security and livelihoods programmes should consider on which of the objectives they will have the largest impact, and the capacities and expertise available to achieve them.

Moreover, it should be noted that while the above objectives strongly focus on climate change adaptation and whenever possible, on mitigation, they go further. Reducing vulnerability and increasing resilience not only refer to climate change impacts but also to other shocks and stressors.

Guiding Principles

In pursuing these two objectives, climate-smart programming for livelihoods and food security should be guided by the following principles.¹⁰ These principles constitute an addition to existing programming guidelines and principles of the IFRC Secretariat (e.g. PGI, CEA, localization), which also apply to climate-smart programming for livelihoods and food security.

The intention of this fact sheet and the following principles is to establish a common basis, from which less abstract and simpler sets of climate-smart actions and step-by-step guidance can be developed that are tailored towards different food security and livelihood activities and contexts such as [the 'Terra Preta' approach of the Swiss Red Cross](#). When operationalizing these principles, special attention should be paid to the resource scarcity of the most vulnerable, which limits their opportunities to apply these principles. At the same time, climate-smart food security and livelihoods programming should identify existing capacities and good practices of the population that already reflect the following principles. IFRC programs should build on and increase existing capacities and practices.

For some of the principles below, examples of actions are listed for rural and urban areas. Again, the rural-urban distinction is not strict but serves as initial orientation acknowledging that actions might be applicable to the respective context as well and that rural and urban are classifications along a continuum.

Principles

Consider **current and future effects of climate change** on livelihoods and food security in the target area, for example in terms of hazards, seasonality, and availability of natural resources. In doing so, integrate information from climate science and from local communities, institutions, and people, who are experiencing the effects of climate change. Recognize interactions between climate change and other trends such as urbanization.

Enable people to become their **own agents of change** by placing a strong emphasis on dignity, equity, inclusion and justice and putting the aspirations and needs of those who produce, distribute and consume the food at the centre of the food system. Particular attention should be paid to the inclusion of women¹¹, informal actors of the food system, marginalized groups and the most vulnerable who are most affected by climate change.

Encourage **efficient use of natural resources** to reduce costs, negative environmental impacts, and dependency on external resources. This can increase autonomy of producers and decrease exposure and vulnerability to market and climate shocks, which eventually also benefit consumers. Ideally, programming should identify existing sustainable practices of the target population and support them.

¹⁰ "The 10 Elements of Agroecology: Guiding the Transition to Sustainable Food and Agricultural Systems" (FAO, 2018).

¹¹ Given the particular relevance and vulnerability of women smallholders, agricultural policy needs to ensure that women's needs are adequately taken into account in order to reach its potential in terms of production and productivity increases as well as in terms of poverty reduction and contribution to food security. For more on this, please see: "Do smallholders have a future?" Marcela Villareal (FAO)

Rural: Minimum tillage and soil disturbance, permanent soil cover with crop residues and live mulches, use of by-products of food production through recycling (e.g. biomass for energy production, reuse of water, nutrient rich waste as fertilizers), decrease loss and waste along value chains, encourage use of abundant and free resources (solar, wind and atmospheric carbon and nitrogen), composting

Urban: Decrease loss and waste along value chains, encourage use of abundant and free resources (solar, wind and atmospheric carbon and nitrogen), promotion of waste management and recycling

Enable **diversification** of livelihood activities, agricultural practices, landscapes, and the wider food system. Diversification is key to building resilience, spreading risk, improving food and economic security and ecosystem services, and restoring, protecting, and enhancing the natural resource base.

Rural: Promote polycultures including resistant crops, intercropping, crop rotation, agroforestry, crop-livestock or rice-fish systems, hedgerows and corridors, creation of off-farm income opportunities, education programmes, access to value and supply chains and promotion of value enhancing activities

Urban: Promote home and community gardening, beekeeping and greening of urban landscapes with crops creation of off-farm income opportunities, access to value and supply chains and promotion of value enhancing activities, education programmes, income generating activities related to clean energy, waste management and recycling.

Raise **awareness for climate change and its impacts** on food security and livelihoods. Identify and share both challenges and opportunities with all actors of the food system such as producers, traders, consumers, authorities, and legislators.

Connect people and communities for **participatory co-creation** of innovation and **sharing of best practices** for better and more inclusive solutions to local challenges of climate change. **Combine local and indigenous with global scientific knowledge.** Climate-smart programming must fit the environmental, social, political, economic, and cultural context.

Rural: Convene people and share knowledge through farmer field schools, mothers' clubs, and agricultural cooperatives. Engage relevant authorities, universities, and education providers.

Urban: Convene people and share knowledge through neighbourhood and business associations. Engage relevant authorities, private sector companies, urban service providers, chambers of commerce, universities, and education providers.

Connect actors of the food system to build **circular and solidarity economies** that reconnect producers and consumers to create social cohesion and build mutual trust. Short food circuits and supply chains play an important role in this.

Rural: Connect producers to the fair-trade and organic market through cooperatives and participatory auditing schemes, enable short rural-urban food chains connecting smallholders and informal actors to (new) markets close by, construct market and supply chain infrastructure, community fields and gardens, promotion of saving groups and mothers' clubs.

Urban: Awareness campaigns on food production and diets (e.g. make food production and processing “experienceable”), enable short rural-urban food chains connecting consumers to local smallholders and other food system actors e.g. through farmer-consumer cooperatives, community gardening, promotion of saving groups and mothers’ clubs.

Enable and accompany people and communities to explore and **build synergies between the different components of the food system**. This can contribute to more efficient resource use, higher food availability, increased resilience, more diverse diets, and environmental sustainability. However, programming should also be conscious of potential trade-offs.

Rural: Intercropping, crop-livestock integration, rice-fish systems, synchronization of productive activities, on-site integration of value adding activities, integration of food and energy production.

Urban: Integration of food and energy production, livelihood activities related to organic and food waste management.

Advocate for **responsible governance of food systems** at different scales – from local to national to global levels - including natural resource and waste management and opportunities for risk transfers. Climate-smart programming for rural livelihoods and food security is best placed in a wider context of transparent, accountable, and inclusive governance that provides incentives for long-term livelihood investments and efficient resource use.

Rural: Secure land tenure, integration of sustainability in agricultural training curriculars, providing (financial) incentives for ecosystem services, legislation on natural resource and waste management, promote the right to food and human rights, provision of key infrastructure and services (e.g. clean energy, waste management), creation of and access to insurance and finance markets, abolition of discriminatory policies and norms restricting opportunities of women.

Urban: Secure land tenure, integration of sustainability in vocational training curriculars, legislation on post-harvest losses and food waste along supply chains, promote the right to food and human rights, provision of key infrastructure and services (e.g. clean energy, waste management), creation of and access to insurance and finance markets, abolition of discriminatory policies and norms restricting opportunities of women.

Examples from the IFRC

Viet Nam Red Cross Society has planted mangroves along the coastline, bamboo along river dikes and casuarinas along coastal and riverbank stretches thereby achieving all the three objectives of climate-smart programming for rural livelihoods and food security outlined above. Firstly, the planting provided livelihood opportunities for local communities. Mangroves provide nutrients and a nursery and breeding ground for marine life and thus support fishing activities of coastal communities increasing their incomes and availability of food. Secondly, the plants help to better protect dikes, and communities from hazards such as typhoons, storms and floods. Thirdly, mangroves, bamboo and casuarinas serve as carbon sinks and provide other ecosystem services such as nutrient and sediment retention, biodiversity, or wastewater treatment. Find more information [here](#) and [here](#).

Uganda Red Cross Society has supported an integrated organic farm in Bugiri Village. The program aimed to increase food yields and resilience to food insecurity. The farm relies on recycling and synergies between different activities for more efficient resource use and less dependence on external resources. For example, poultry droppings provide nutrients to fish in the pond, which are sold to buy pigs. Pig manure in turn is used as fertilizer for fruits, vegetables, and flowers, which in turn provide the basis for honey production from beekeeping. Moreover, floodwater is channeled in ways that maximize water retention in the soil. Finally, an association of beekeepers has been created increasing social cohesion and capital. Overall, the farm not only increased incomes as well as availability and diversity of food in the local market but also reduced vulnerability to hazards by diversifying agricultural and livelihood activities. Recycling and use of organic materials moreover decreased the environmental footprint of the project. Find more information [here](#).

As part of the Partners for Resilience (PfR) Initiative, the **Nicaraguan Red Cross Society** and the **Red Cross Red Crescent Climate Centre** engaged in projects combining disaster risk reduction (DRR), climate change adaptation (CCA) and ecosystem management and restoration in Nicaragua. One PfR project targeted coffee producers and their cooperative to help them adapt to climate change. A regional forum enabled knowledge sharing between producers, academics, and the government on how to adapt to climate change and deal with rust fungus affecting coffee plants. In the follow-up to the forum, training sessions were held on organic coffee production and good agricultural practices as well as on DRR and CCA particularly with regards to drought. As a result, the cooperative identified the opportunity to secure funding and assist coffee producers to diversify their production and sources of income by producing organic chia for export. In addition, exchange with and a trip to another cooperative allowed coffee producers to learn about the construction and use of biofilters for treatment of coffee wastewater. This promoted more efficient resource use as the filtered water can be used for watering vegetables or further coffee washing instead of going to waste. Similarly, a pulp tank was constructed to produce organic fertilizer from coffee pulp. Finally, community members established eco-forest coffee projects to restore the vegetation cover of areas that were previously degraded by inadequate agricultural practices. In sum, coffee producers' vulnerability decreased through diversification of crops and income sources, biofilters and pulp tanks contributed to more efficient resource use through re- and up-cycling and the cooperative and producers generally improved their knowledge on DRR and CCA. Find more information [here](#).

Netherlands/Haitian Red Cross Society constructed mechanical (check dams, gabions, retaining walls) and organic barriers by reforestation (while regaining bio-diversity) the upper part of the watershed in the eroded riverbed of Delicasse Ravine, at Grand Fond, Haiti. These tested to be effective after the passage of Hurricane Matthew by stopping the destructive force of rainwater (estimated at 500 mm/m²/hour), that was threatening human lives and livelihoods downstream. It also created flat sediment areas beside these barriers and a new vegetable cover, stopping erosion. As a consequence, rainwater infiltration in the soil increased, raising the water table levels, which made possible to install a water catchment that feeds 3 water tanks that nowadays serve the local population through a gravity system. This water is used for human consumption (before water was taken straight from the river) and also for productive purposes through an irrigation channel system that provides the necessary inputs to face new productive activities downstream. This transformation process takes individuals and vulnerable communities to empowered and resilient ones. This activity has been part of a pilot project for the design of the Green Pearl Programme (financed by Princess Margriet Fund) based in Landscape restoration approach (4 Returns for Resilience). Find more information [here](#).

Haitian/Swiss Red Cross Society has introduced Productive Protective System method in Haiti that includes the integration of socio-permaculture concepts to reduce the population's exposure and vulnerability through measures that directly target the living environment. The system is based on the

“terra preta” to create soils based on a lacto-acidic fermentation of organic matter with charcoal powder. The programme aimed to reduce severe degradation and erosion of soils. The soil loss aggravates the vulnerable situation of the local population, mainly farmers. This technique was used by indigenous people in Amazonia, and rediscovered and replicated recently by scientists. This technique was introduced in this region after the earthquake of 2010 and were replicated by several organisations and also by members of the communities. Terra Preta raised garden beds (width: 1.10 m; length: 10 m), which were created with local resources, are highly fertile and enable the production of much higher yields than traditional techniques, while diminishing soil erosion. The plants used are banana, vine basket, “Malabar” spinach, leaf cabbage, sugar cane, small fruits by layering, etc. which are almost exclusively of perennial nature. This technique is a nature-based solution to improve the soil water retention and increase resilience of vulnerable families facing climate change. Find more information [here](#).

Way Forward

The urgency of the climate crisis demands the IFRC to take a strong position on climate change mitigation and adaptation. Its latest stance on climate change and the new Environment Policy strongly reflect this, and now need to be operationalized. In doing so, the IFRC can build on its unmatched network of volunteers and National Societies and their local expertise, as well as on its longstanding experience and capacities in, amongst others, disaster management, food security and livelihoods programming, disaster risk reduction and climate science.

Taking this fact sheet as a basis, four concrete actions for making IFRC food security and livelihoods programming more climate-smart are recommended:

- Knowledge Management

Moving forward with climate-smart food security and livelihoods programming will require collective effort and capitalizing on the comparative advantages and added value of the IFRC. This will require taking stock of the knowledge, experience, and capacities of the IFRC, particularly of National Societies and the reference centers. The existing knowledge, experiences and capacities will need to be gathered, analyzed for gaps, better disseminated and eventually applied more thoroughly throughout all IFRC's food security and livelihoods programs and interventions.

- Innovative partnerships

Given its complexities, climate-smart programming for food security and livelihoods should seek partnerships with, for example, experts on biodiversity and GHG emissions. The IFRC Secretariat's engagement in the Partners for Resilience Initiative or Zurich Flood Resilience Alliance show the benefits of partnerships. In addition, including climate change mitigation as a program objective not only serves increasing demands by traditional donors but can also offer an entry point to new financing mechanisms such as the growing market for GHG compensation.

- User-friendly step-by-step guidance

Making IFRC's food security and livelihoods programming more climate-smart will require to translate and simplify the principles outlined in this fact sheet into readily accessible knowledge and information. Climate-smart actions need to be understood and reproduced by the people targeted by IFRC programs such as resource poor farmers. For this purpose, simple and user-friendly step-by-step guidance for field application by NS staff and volunteers is needed.

- Pilot projects

Pilot projects based on the above principle are needed to further explore and build capacities for climate-smart food security and livelihoods programming. This will also serve to position the IFRC as a credible actor for climate change mitigation and adaptation.

Further Resources

"What is Climate-Smart Programming and How Do We Achieve It?" (IFRC & Red Cross Climate Centre, 2020)

<https://www.climatecentre.org/downloads/files/What%20is%20climate-smart%20programming%20-%20MAR2020.pdf>

"Climate Smart Programming - Checklist for Practitioners and Programme Planners" (Sri Lanka Red Cross Society & IFRC, n.d.).

https://www.climatecentre.org/downloads/modules/training_downloads/2b%20IFRC%20Climate%20smart%20programming%20checklist%20Sri%20Lanka.pdf

"Minimum Standards for Local Climate-Smart Disaster Risk Reduction" (Red Cross Climate Centre, 2013).

<https://www.climatecentre.org/downloads/files/Minimum%20Standards/Minimum%20Standards%20for%20climate-smart%20DRR%20%202.0%20NOV%202013.pdf>

"How Can We Ensure Community-Level DRR is Climate Smart? Guiding Minimum Standards" (Red Cross Climate Centre & Partners for Resilience).

<https://www.climatecentre.org/downloads/files/MinimumStandards-for%20ClimateSmart-DRR-Poster.pdf>

"Climate Training Kit" (Red Cross Climate Centre, n.d.)

<https://www.climatecentre.org/training/introduction>

Glossary¹²

Agroforestry	Agroforestry refers to land-use systems and technologies where woody perennials (trees, shrubs, palms, bamboos, etc.) are deliberately used on the same land management unit as agricultural crops and/or animals, in some form of spatial arrangement or temporal sequence. In agroforestry systems there are both ecological and economic interactions between the different components.
Cash Crop	A cash crop or profit crop is an agricultural crop which is grown to sell for profit. It is typically purchased by parties separate from a farm. The term is used to differentiate marketed crops from subsistence crops, which are those fed to the producer's own livestock or grown as food for the producer's family.
Climate Change	Climate change refers to a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is, in addition to natural climate variability, observed over comparable time periods.
Climate Change Adaptation	The vital response to the adverse effects of climate and the preparation for future impacts.
Climate Change Mitigation	Human interventions to reduce the emissions of greenhouse gases by sources or to enhance their removal from the atmosphere by "sinks" ("sink" refers to forests, vegetation or soils that can reabsorb Carbon dioxide CO ₂).
Climate-Smart	Climate-smart refers to the incorporation of climate and weather information in assessing risk and vulnerability, enable early warning early action, and sustainably address climate risks and trends in projects.
Crop Rotation	Crop rotation refers to the practice of alternating the species or families of annual and/or biannual crops grown on a specific field in a planned pattern or sequence so as to break weed, pest and disease cycles and to maintain or improve soil fertility and organic matter content.
Crop-Livestock System	Crop-livestock systems encompass diversified components and capitalize on the effective interaction between crops and crop-related products to provide feed for livestock and the forage and livestock component for enhanced system diversity, including manure to fertilize crops for on-site or in-landscape nutrient cycling.
Ecosystem Services	Ecosystem service refers to the benefits people obtain from ecosystems, including provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services such as nutrient cycling that maintain the conditions for life on Earth.
Fair Trade	Fair trade refers to a trading partnership, based on dialogue, transparency and respect, which seeks greater equity in

¹² Based on "IFRC Guidelines for Livelihoods Programming" (IFRC, 2010), "Minimum Standards for Local Climate-Smart Disaster Risk Reduction" (IFRC Climate Centre, 2013), "Glossary on Organic Agriculture" (FAO, 2009), "Scaling-Up Integrated Rice-Fish Systems" (FAO, 2019), "Critical Choices for Crop and Livestock Production Systems that Enhance Productivity and Build Ecosystem Resilience" (FAO, 2013),

	international trade. It contributes to sustainable development by offering better trading conditions to, and securing the rights of, marginalized producers and workers.
Farmer Consumer Cooperative	Farmer consumer cooperative refer to an organizational form where farmers and consumers co-own land and other resources, working together to produce the food.
Farmer Field School Add farming system	Farmer field school refers to a form of adult education, which evolved from the concept that farmers learn optimally from field observation and experimentation. FFS is a group-based learning process that brings together concepts and methods from agroecology, experiential education and community development.
Farmer-Consumer Cooperative	Farmer consumer cooperative refer to an organizational form where farmers and consumers co-own land and other resources, working together to produce the food.
Food Access	Food access refers to the way in which different people obtain available food. Normally, people access food through a combination of means including home production, use of left-over stocks, purchase, barter, borrowing, sharing, gifts from relatives, and provisions by welfare systems or food aid. Food access is ensured when everyone within a community has adequate financial or other resources to obtain the food necessary for a nutritious diet. Access depends on a household's available income and its distribution within the household, as well as on the price of food. It also depends on markets, and on the social and institutional entitlements/rights of individuals.
Food Availability	Food availability in a country, region or local area addresses the supply side and is determined by production, stocks and trade. For example, food is available because it can be found in markets and shops, it has been produced on local farms or in home gardens, or it has arrived as part of food aid. This refers to all available food in the area, and includes fresh, as well as packaged, food.
Food Loss	Food loss is the decrease in the quantity or quality of food resulting from decisions and actions by food suppliers in the chain, excluding retailers, food service providers and consumers.
Food Security	Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy live.
Food Stability	Food stability refers to the stability of food availability, access and utilization. People experiencing periodic inadequate availability, access or utilization or risk of deterioration of the nutritional status are considered food insecure. Stability is amongst others determined by weather conditions, political stability, or economic factors such as unemployment, inflation or trade restrictions.
Food System	Food system refers to entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption and disposal of food products that originate from agriculture, forestry or fisheries, and parts of the broader economic, societal and natural environments in which they are embedded.

Food Utilization	Food utilization is the way in which the body uses the nutrients of the food. This is dependent upon a number of interrelated factors: diversity and quality of the diet, food preparation and storage facilities, the individual's nutritional knowledge and health status, care and feeding practices, and intra-household distribution.
Food Waste	Food waste refers to the decrease in the quantity or quality of food resulting from decisions and actions by retailers, food service providers and consumers.
Intercropping	Intercropping refers to growing two or more crops as a mixture in the same field at the same time. Intercropping can be one way of adding diversity to a crop system.
Livelihoods	Livelihoods comprise the capabilities, assets and activities required for generating income and securing a means of living.
Minimum Tillage	Minimum tillage is a tillage method that does not turn the soil over, with a view to maintain biodiversity structure.
Mothers' Club	Mothers' club refers to an association of women from different regions to meet and work together to improve their living conditions and be models for their communities. Mothers' clubs engage in awareness campaigns, management of community assets and creation of solidarity funds.
Multicropping	Multicropping refers to the planting of two or more species in the same field during the same growing season. It can take the form of double-cropping, in which a second crop is planted after the first has been harvested, or relay cropping, in which the second crop is started amidst the first crop before it has been harvested.
Organic Agriculture	Organic agriculture refers to a holistic production management system which promotes and enhances agroecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, cultural, biological and mechanical methods, as opposed to using synthetic materials, to fulfil any specific function within the system
Polyculture	Polyculture refers to growing a mix of crops, trees, animals, fish to ensure variety of food, fodder and fiber sources and complementary use of natural resources. It also brings more ecosystem stability. Polycultures or mixed cropping is a system of sowing two or three crops together on the same land, one being the main crop and the others the subsidiaries.
Resilience	Resilience refers to the capacity of people and communities to resist, cope with, and recover from, a disaster or conflict. More safety and resilience mean less vulnerability.
Rice-Fish System	Rice-fish system refers to an ancient practice employed by numerous farmers in Asia where rice and fish grow simultaneously in a symbiotic relationship. Rice-fish co-cultures lessen the environmental impact of agricultural chemicals and help make rice farming more profitable.

Sustainable Livelihoods	Sustainable livelihoods refer to people's capacity to generate and maintain their means of living and enhance their own well-being as well as that of future generations.
Vulnerability	Vulnerability refers to a household or community's level of risk to threats to their lives and livelihoods. A community's vulnerability is determined by its ability to cope with risks and shocks, such as drought, flooding, adverse government policies, conflict and the HIV/AIDS crisis. Vulnerability is not the same as poverty, although underlying poverty contributes to increased vulnerability in most contexts