



CLIMATE SMART AGRICULTURE

A primer for local government officials in the Philippines

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The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), led by the International Center for Tropical Agriculture (CIAT), brings together the world's best researchers in agricultural science, development research, climate science and Earth System science, to identify and address the most important interactions, synergies and tradeoffs between climate change, agriculture and food security.

www.ccafs.cgiar.org.

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Farmers need to respond to change including climate.

Adapting to climate change requires adjusting agriculture practices to meet changing and more difficult environmental conditions.

Traditional and newly introduced practices can help farmers cope with both current climate variability and future climate scenarios.



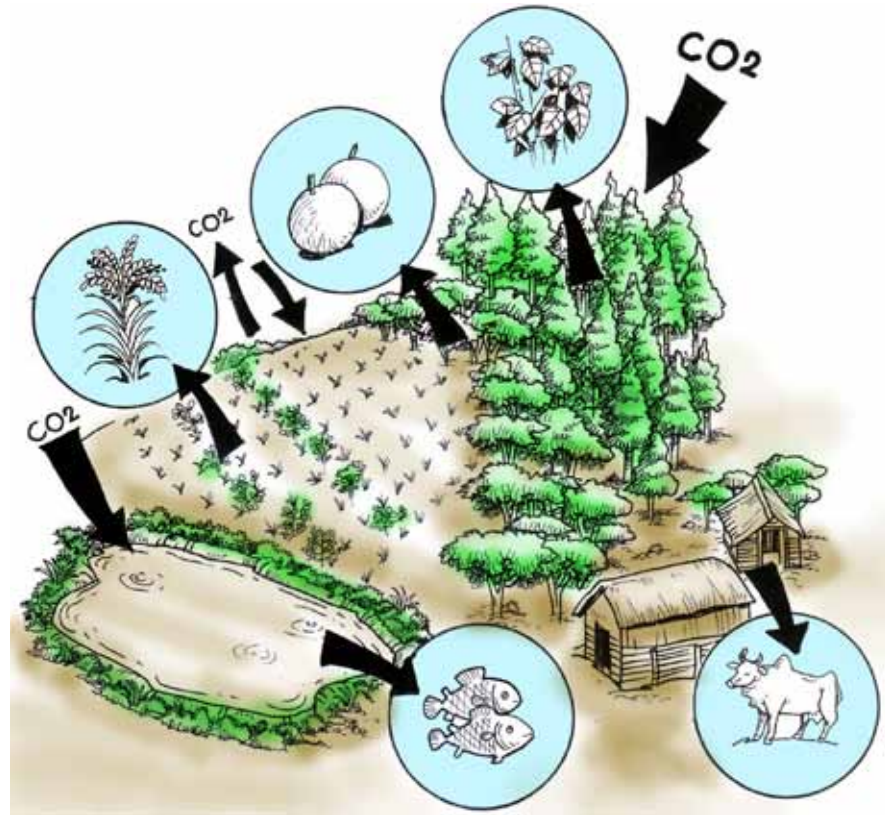
Agriculture and climate change are closely linked. While agriculture is part of the climate change problem, it is also part of the solution offering many opportunities for mitigating greenhouse gas (GHG) emissions.



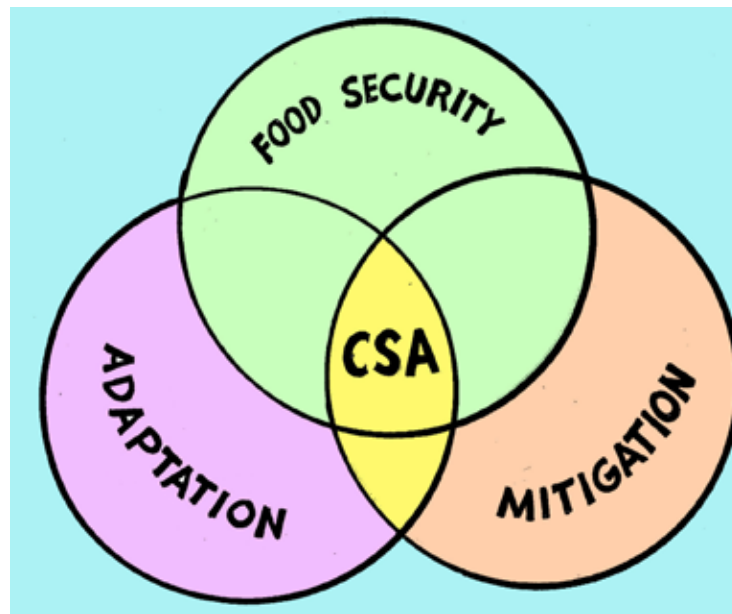
The agriculture sector is expected to suffer the most from the serious impacts of climate change. Food security, nutrition and livelihoods will be greatly affected if we don't act soon.



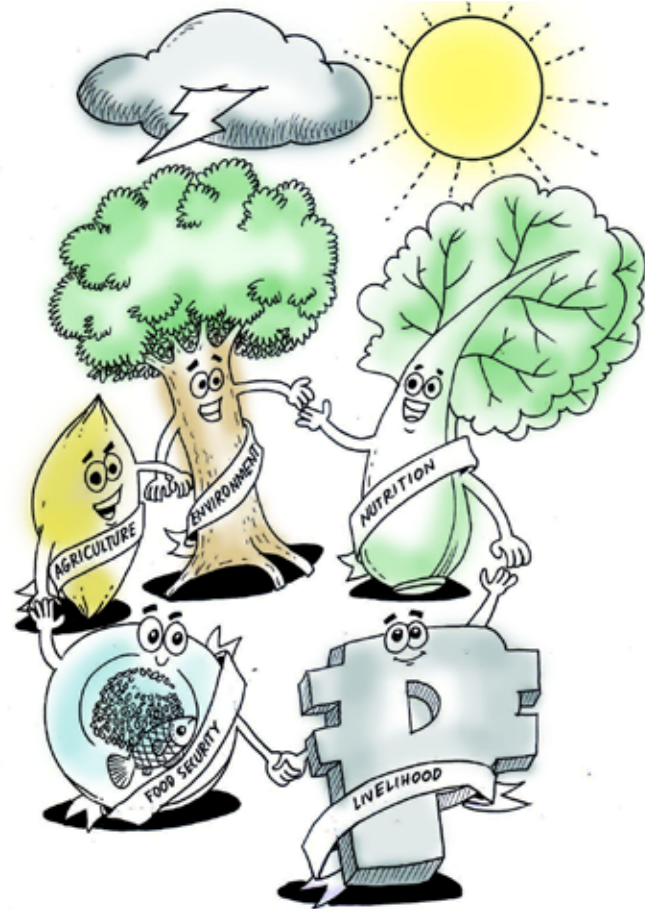
To help ensure lasting results, it is not enough to limit our work to addressing the impact of climate change on agriculture. We also need to address the problems of poverty and reduce climate vulnerabilities through the use of multiple benefit approaches (e.g. diversified farms, alternative livelihoods, and micro enterprises).



Climate-Smart Agriculture (CSA) is one way to achieve short and long term agriculture development priorities in the face of climate change. It anchors on three pillars: food security through agricultural productivity, adaptation by managing climate variability, and mitigation by reducing GHG emissions from agricultural activities.



CSA can be simply understood as environment friendly and sustainable agriculture that takes climate variability and climate change factors into consideration.



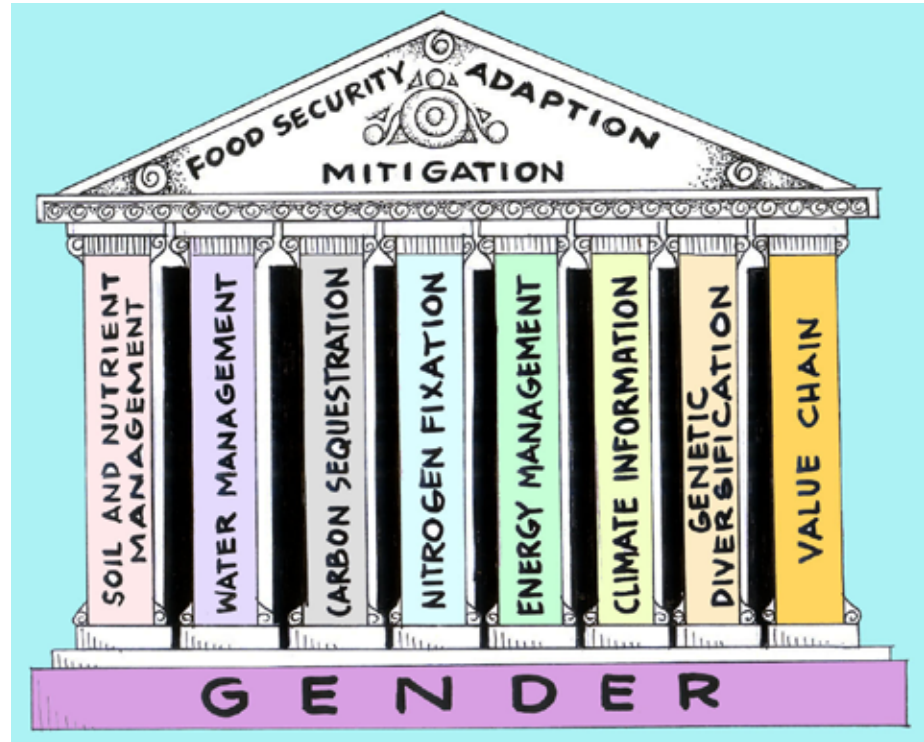
Key Objectives of CSA:

- Increase agriculture productivity and income in a sustainable, environmentally sound manner.
- Build the capacity of households and food systems to adapt to climate change.
- Reduce GHG emissions and increase carbon sequestration.

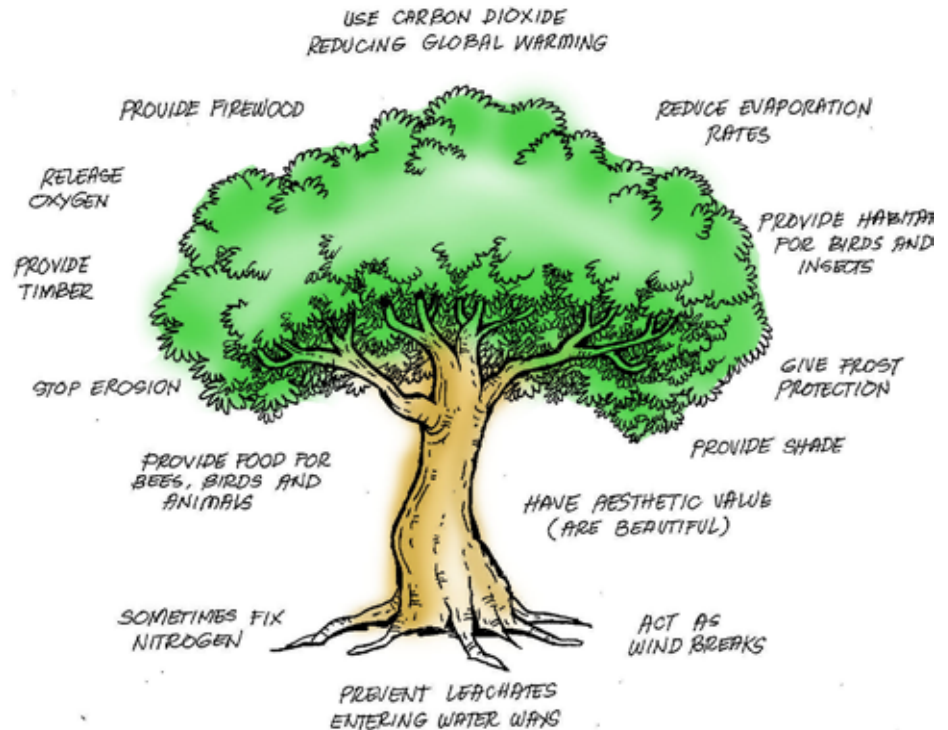


In farm level, CSA covers:

1. Soil and Nutrient Management
2. Water Management
3. Carbon Sequestration
4. Nitrogen Fixation
5. Energy Management
6. Climate Information
7. Genetic Diversification
8. Value Chain



CSA also involves protecting our ecosystems (e.g. rainwater and genetic resources, forest and water resources, etc.) and the services that they provide (e.g. soil conservation, mangrove protection, etc.).

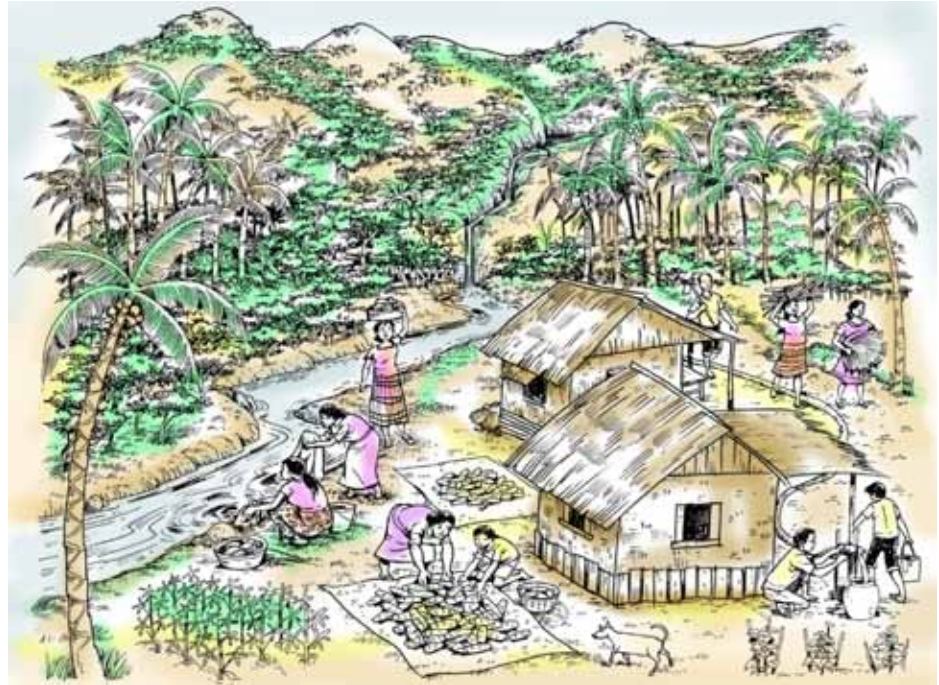


Source: www.fao.org/climatechange change

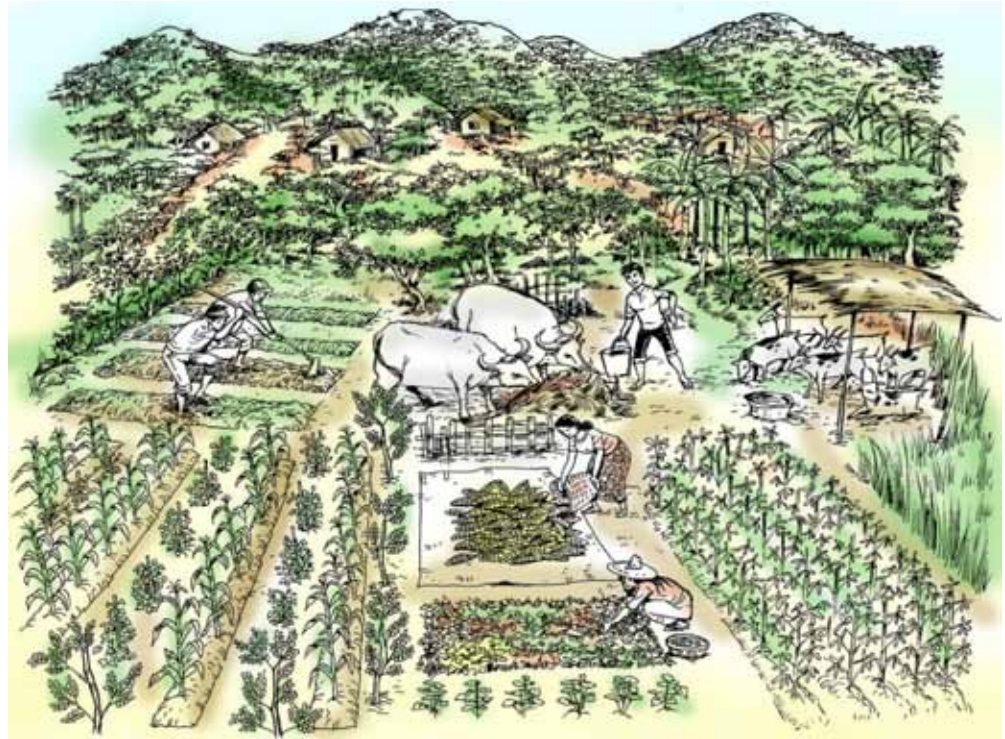
Healthy forest ecosystems help preserve and provide water resources and enhance river flows. Other benefits from forest ecosystem:

- provide refuge for wildlife
- source of non-timber products (fuel, fodder and timber)
- help in the pollination of agricultural crops
- support nutrient flows from the forest to the farm

Regeneration and enrichment is a CSA option for forested areas.

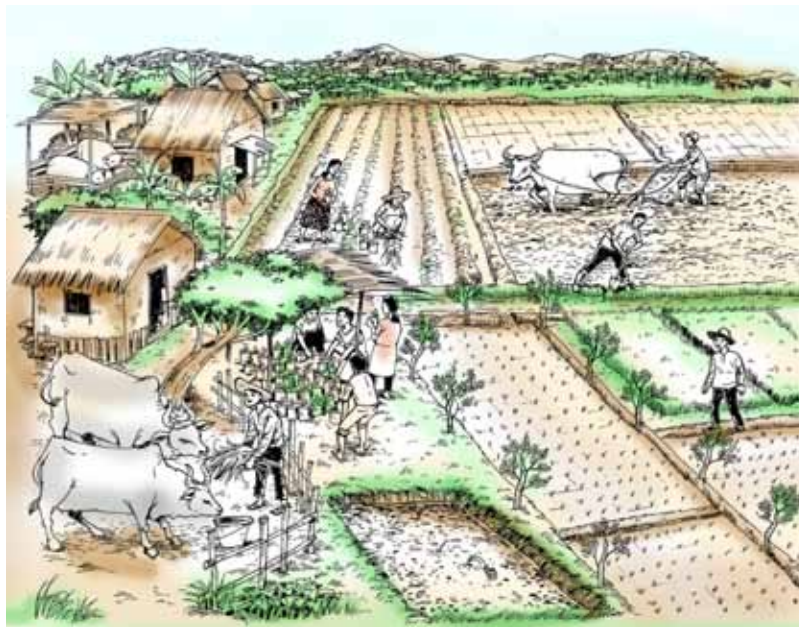


Upland ecosystems are often the interface between forests and lowlands. CSA options for these areas include agroforestry, small livestock systems, water harvesting, diversified mini fruit tree orchards and livestock systems based primarily on farm grown feeds.



Lowland rice ecosystems rely heavily on external inputs. Rice, in this system, is grown in continuously flooded field, which contribute to GHG emission. Opportunities for CSA interventions can be demonstrated through:

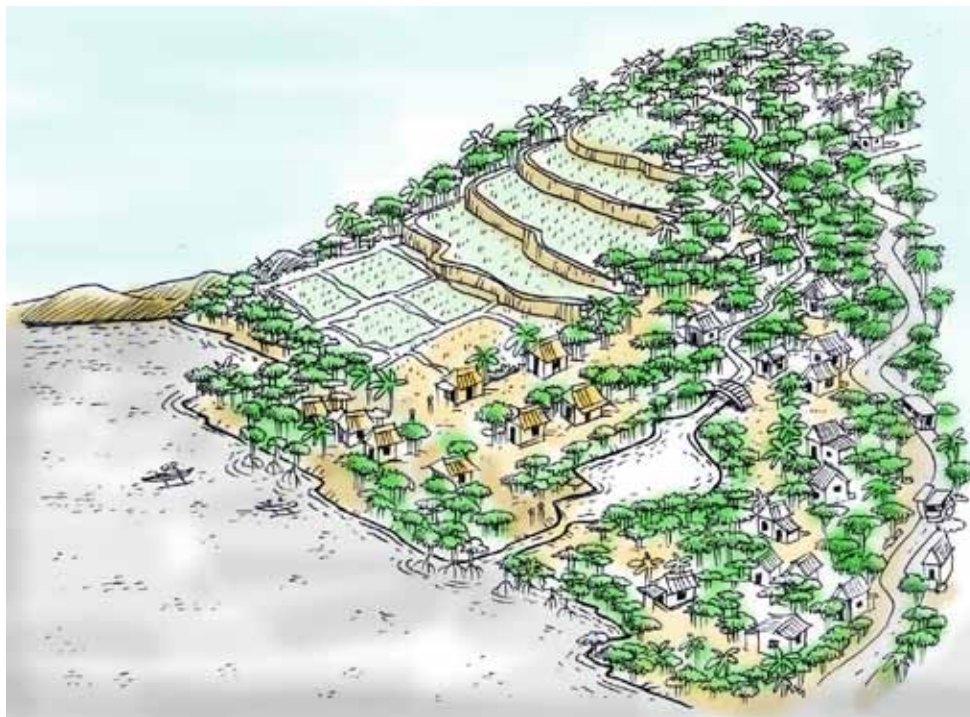
- SRI (System of Rice Intensification)
- AWD (Alternative Wetting & Drying)
- Use of short duration and/or drought tolerant varieties
- Post-Rice Legume Systems
- Small Water Impounding Diversification to livestock, agro-forestry root, tuber crops and fish can help reduce risks from crop failure and enhance nutrient recycling opportunities.



Coastal ecosystems and low-lying farms are prone to flooding and sea water intrusion which affects crop production. Mangroves serve as barriers (bioshield) during periods of storm surges. Coastal agriculture is a good CSA option: more fruit trees, timber, livestock and fodder trees which not only serve to protect homes but also help diversify the livelihoods of fishers.



CSA is usually best undertaken across landscapes because ecosystems are interconnected with each other. For instance, by conserving and improving forest and water resources, nutrient flow to farms on lower slopes are likewise enhanced.



Ultimately, for CSA to be sustained and outscaled, it has to consider a value chain perspective and the market opportunities. Farmers need to secure their food supply, as well as their livelihoods, if we want them to be stewards of the environment.



Scaling out CSA involves building adaptive models that provide practical guidance and serve as focal points for communities, organizations, and governments in the local level. CSA considerations should be included in the local government plans. Projects must demonstrate impact and uptake at scale.



Climate change is expected to adversely affect lives, livelihoods, nutrition and food security in the future. However, if we start NOW, we can:

- do a lot to reduce the impacts of climate change;
- build resilience in our food systems; and
- reduce risks and vulnerabilities of farming communities.





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