

# LWR & CLIMATE SMART AGRICULTURE



## BACKGROUND: THE CHALLENGE OF GROWING MORE FOOD IN UNCERTAIN CONDITIONS

Agriculture faces the challenge of fulfilling ever-expanding global food demand, in the context of changing climatic conditions that negatively affect food production. Higher temperatures, shifting seasons and rainfall patterns, more frequent and extreme floods and droughts as well as new pests and diseases wreak havoc on food production and farmers' livelihoods. Climate change affects agriculture and vice versa; farming is responsible for greenhouse gas emissions, depleted soil fertility and stress on water resources.<sup>1</sup> The links between stable and resilient agricultural production and ecologically sound natural resource management are therefore critical; agriculture systems must both increase production and better manage and sustain the planet's biodiversity and land and water resources. Climate Smart Agriculture creates an opportunity to assess and design agricultural production models that help smallholder producers adapt to and mitigate the effects of changing climates, while improving their own household food security.<sup>2</sup>

<sup>1</sup> CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), Fact sheet, Aug 2012. <http://ccafs.cgiar.org/>

<sup>2</sup> Climate Smart Agriculture, as defined by the UN Food and Agriculture Organization, is: "agriculture that sustainably increases productivity, resilience (adaptation), reduces/removes greenhouse gases (GHGs), and enhances achievement of national food security and development goals". FAO, 2010.

## LWR'S APPROACH: INCREASING PRODUCTION IN THE FACE OF CHANGING CLIMATES

LWR's Climate Smart Agriculture approach is aimed at three interrelated targets:

- Increasing production, incomes and food security
- Preserving and improving natural resources
- Developing the capacity of farmers and their organizations for active engagement with value chains that produce sustainable and just outcomes.

Climate Smart Agriculture programs necessarily apply a cross-sectoral approach, bridging LWR's Agriculture, Water and Climate work.

### Increasing production, incomes and food security

LWR works in rural communities around the world to sustainably improve **food availability, access** and **utilization** by focusing on strengthening rural economies and livelihoods.

Our approach to food security aims to increase **production**, improve **market access**, improve **nutrition**, and strengthen **producer organizations** to increase overall **community resilience**. Increasing farmers' food security requires both improving overall production quantities and



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increasing land and labor productivity. LWR works with farmer groups to access agricultural advisory services, increase the effective use of inputs, improve the quality and quantity of yields and enhance post-harvest handling, and build processing and marketing capacity. Interventions to increase production are framed in sustainable production systems, so gains do not come at the expense of the natural environment; rather farmers are equipped to deal with the challenge of changing climates.

## Preserving and improving natural resources

LWR works with farmers to improve the quality of their farmland to create sustainable conditions for generations to come. Our Climate Smart Agriculture approach builds resilient ecosystems through improved seeds and adapted cropping systems and soil and water conservation. These adaptation efforts reduce the severity of climate effects on food production. The resulting carbon sequestration and reduced greenhouse emissions from healthy farmlands and natural environments also contribute to slowing the pace of further climate change.

LWR links producer unions, researchers, government agricultural extension agents and seed distributors for consultative research and development to identify drought- and pest-tolerant seed varieties. Programs involve small producers to ensure seeds are adapted and appropriate to local agro-ecological conditions and needs and to protect genetic and biological diversity. LWR also supports farmer livelihoods in drought-tolerant and improved yield seed production, certification and marketing and works to ensure producer access to these new seed varieties. Moreover, LWR and its partners utilize adapted cropping systems which optimize innovative technologies, diversified production and improved land and water management techniques.

LWR's Climate Smart Agriculture programming uses proven land management practices to create healthier landscapes which are more resistant to droughts and floods, using soil and water conservation measures such as minimum tillage, organic fertilizers, crop rotation, grass strips, and

improved water harvesting. LWR also promotes agro-forestry techniques, combining agricultural crops with tree crops to reduce soil erosion while enhancing soil organic matter. Silvopastoral land use models also reduce agriculture's carbon footprint. Rainwater capture, terraces and other approaches make efficient use of water resources. In coffee producing regions, LWR introduces innovative post-harvest technologies like ecological wet mill processors that reduce water use and contamination by up to 80 percent.

Healthier farmland with better soil fertility, less run-off, more trees and improved land and soil management improves carbon sequestration and reduces greenhouse emissions. In addition to ensuring agriculture is climate smart, LWR's broader climate programs support community-based natural resource management. For example, by applying solid technical assistance and proven scientific approaches with widespread community education and participation, LWR is rehabilitating mangroves throughout Asia.

## Developing the capacity of small farmers for value chain engagement

Farmer organizations' active engagement with value chains to produce sustainable and just outcomes is the final pillar of LWR's Climate Smart Agriculture approach. LWR uses an agricultural value chain approach to improve the livelihoods of millions of people across sub-Saharan Africa, Asia and Latin America. By increasing access to markets, leveraging community assets, increasing access to inputs through sustainable financial empowerment and building farmer technical capacity, LWR works to capture higher value-added benefit by farmers for their agricultural products. LWR value chain interventions include: pre-harvest financing, seed development, improved post-harvest handling, warehousing and transport, enhanced processing and value addition, and increased market linkages.

## LOOKING AHEAD

In addition to its focus on Climate Smart Agriculture, LWR also promotes active collaboration and linkages with other agricultural stakeholders who may follow other methods. In the end, LWR recognizes that many different techniques will be needed to produce more food at affordable prices, ensure livelihoods for small farmers and reduce the environmental costs of agriculture. Global agriculture must engage a blend of conventional farming, science, economic and market reform, and environmentally sustainable practices and no single methodology can be applied or promoted for all possible farming situations. LWR encourages local producers to employ techniques and inputs that meet their needs and best help meet market demands.

LWR continues to explore Climate Smart Agriculture approaches such as climate-insurance to reduce the impact of losses on producers. LWR is also encouraged by prospects for agriculture-based carbon finance to provide farmers incentives for improved land and water management practices.

### LWR'S CLIMATE SMART AGRICULTURE APPROACHES PROMOTE SOIL AND WATER CONSERVATION, THROUGH:

- Use of vegetative material to avoid soil erosion and run-off and improve the quality of the topsoil
- Contour and terraced farming techniques on slopes
- Use of compost to enrich soil and increase rainfall absorption capacity
- Zero or low tillage
- Agroforestry-based cultivation with the planting of hardwood, fruit and other types of trees
- Organic and/or sustainable agriculture practices to avoid ground water contamination
- Water harvesting to capture run-off