RESEARCH PROGRAM ON
Integrated Systems for the Humid Tropics

CGIAR

Integrated Systems Research for Sustainable Smallholder Agriculture in the Central Mekong

Achievements and lessons learned from working with upland smallholder farmers

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A family of *Hmong* farmers thresh their maize harvest in rural Northwest Viet Nam (ILRI/Jo Cadilhon)

The humid tropics span the globe and constitute many of the world's biodiversity hotpots. Covering almost 3 billion ha, the humid tropics are home to about 2.9 billion people, most of whom are poor smallholder farmers.

Considering that agriculture is a major livelihood in the humid tropics, sustainable agricultural development is essential to address the many challenges we face, not just in environmental conservation, but in dealing with the human element of the equation. Unless we can address poverty, food security and market access in these regions, we cannot address environmental threats or adapt to global changes including climate change.

Humidtropics, a CGIAR Research Program on Integrated Systems for the Humid Tropics, aimed to take a systems perspective to deal with such issues comprehensively by implementing agricultural research for development that contributes to enhancing agricultural production and productivity while at the same time improving smallholder livelihoods and reducing the environmental degradation that often arises from intensified agriculture.

Humidtropics was launched in the Central Mekong in 2013 and ended in 2016. In just four short years, Humidtropics was able to convene a broad network of research, state and civil society partners to work together to plan and implement a wide range of research for development activities in upland areas of China, Lao PDR, Thailand, and Viet Nam. A range of farm-level innovations were identified and tested to improve the livelihoods of farmers, sustainably intensify and diversify agricultural production, and empower women and other marginalized smallholder farmers.

The Humidtropics theory of change was based on the hypothesis that the region's inherent potential is best realized through an integrated systems approach involving research for development across stakeholder groups. Humidtropics worked to enhance individual and agency capacities to innovate at farm, institutional and landscape levels. With these capacities, actors are able to systematically implement system interventions to improve productivity, natural resources and links to markets.

In this volume, we share with readers our achievements, some of the lessons learned, and offer insights and recommendations that could support integrated agricultural systems research in the Mekong and elsewhere. We hope the book will contribute to strengthening our collective efforts to improve the income and livelihoods of smallholder farmers through sustainable agricultural development.

The research

Humidtropics' Intermediate Development Outcomes (IDOs) were derived directly from its four Strategic Objectives (SOs) of i) Livelihoods Improvement, ii) Sustainable Intensification, iii) Women and Youth Empowerment, and iv) Systems Innovation. Each Strategic Objective related directly to one or two IDOs, and for each IDO, indicators were defined with targets to be reached by 2023.

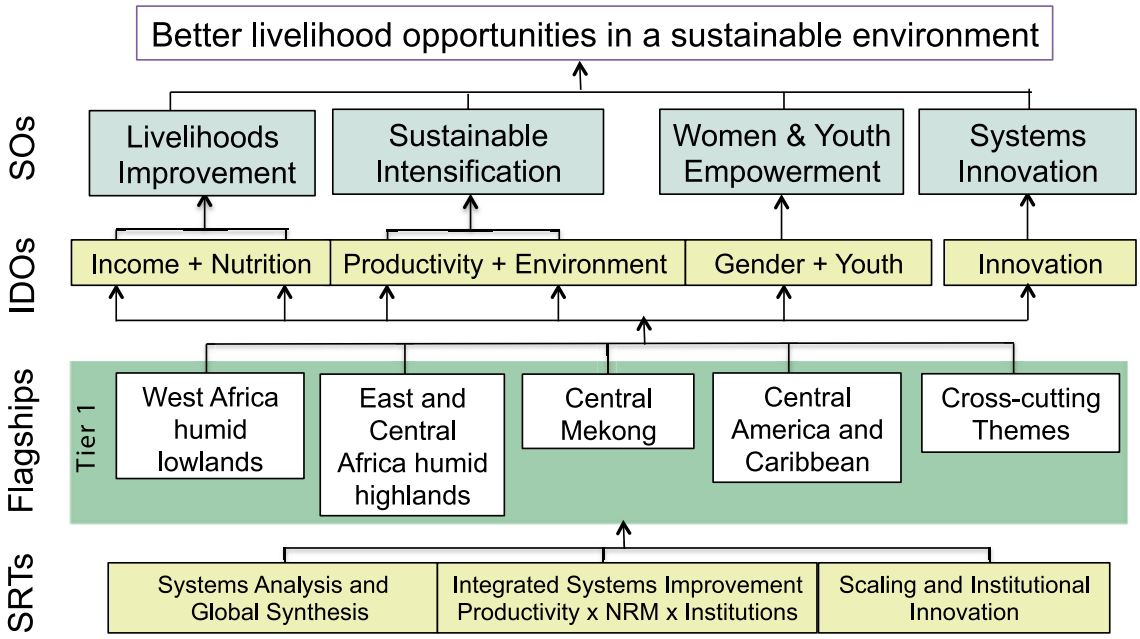
Findings and recommendations for agricultural researchers in the Central Mekong

Agricultural research for development to **improve the livelihoods** of smallholder farmers would have more impact if it went beyond simply focusing on agricultural production and included activities that strengthen farmers' roles in the value chain. This might take the form of connecting smallholder farmers to markets, supporting entrepreneurship and agribusiness development, building social networks for agribusiness, or by improving the farmers' capacities to improve product quality and processing.

We recommend **sustainable intensification** innovations prioritize techniques that : i) generate short-term additional incomes, ii) limit initial investment needs, and iii) contribute to long-term conservation of natural resources (e.g. water and soils).

To ensure agricultural research for development **empowers women, youth and other marginalized groups**, we recommend that inequity be addressed, not just in agricultural development, but also in how research for development is conducted. Special attention should be devoted to increasing the capacity of ethnic minorities to adopt appropriate agricultural innovations, while understanding how policies and biophysical constraints positively or negatively affect their development.

Humidtropics program framework



E De children playing with forage grass in Dak Nong, Viet Nam (ICRAF/Lisa Hiwasaki); Cattle in Dak Nong, Viet Nam (ICRAF/Pham Duc Thieng); *Thai* woman harvesting tomatoes in Son La, Viet Nam (ICRAF/Lisa Hiwasaki)

While bottom-up, participatory approaches are often perceived as the most promising for **innovation and scaling** of innovation, they may not be sufficient. In some situations, people only have a partial view of the range of technical and institutional options that could help to improve their livelihoods. Research for development should account for both local knowledge and state-of-the-art innovations (scientific knowledge).

Accomplishing these objectives requires **long-term involvement** with communities, especially when working with ethnic minority communities. The three-and-a-half-year lifespan of Humidtropics in the Mekong region was a short period. It would require extension to maintain the carefully built and nurtured relationships with local implementation partners and local farming communities, and reach its full promise.

Content synopsis

Chapter 1: Humidtropics in the Central Mekong Action Area

The opening chapter introduces the Humidtropics, the overall program structure, and provides an overview of the research for development activities implemented from 2013 to 2016 in the Central Mekong Action Area.

Chapter 2: Site characterization and systems analysis in Central Mekong

The authors characterize several Mekong systems and address system dynamics at two basic levels of resolution. Section 1 addresses agricultural systems at a broad level consisting of one or more districts, which can be considered the intracountry regional level, and includes variations in natural and social systems in addition to agricultural systems. Five regional-level cases which reflect some of Mekong's diversity are examined and compared.

Section 2 looks at diversity in those variables among farm households and the implications for livelihoods and well-being. Section 3 examines food security levels arising from the specific farm household systems, and the implications for potential farm interventions. The authors conclude by comparing the systems examined at these different resolution levels, the differences in types of tools needed, and the differences in questions asked and learning generated.

Chapter 3: Integrated tree, crop and livestock technologies for better soil and water conservation in the uplands of mainland Southeast Asia

After reviewing the main causes and effects of land degradation and erosion in the uplands of mainland Southeast Asia, the authors present case studies of recent land use changes governed by economic, political and institutional transitions, the expansion of teak and rubber tree plantations in northern Laos and southeast China, respectively, and of monocropping coffee in the Central Highlands of Viet Nam. The authors explain how these environmental disturbances are altering water and soil resources across different geographic scales, from the agricultural plot to the headwater catchment. Examples of coping strategies combining field trials and participatory approaches are illustrated with several case studies from Laos,

Landscape in Son La, Viet Nam (ICRAF/Lisa Hiwasaki)

Viet Nam and the Yunnan Province of China over three years. The authors propose solutions for sustainable agricultural intensification to diversify income, improve dietary diversity, and improve the management of natural resources.

Chapter 4: A review of efforts to integrate nutrition in systems research

The Humidtropics sought to address nutrition and dietary issues within a broader integrated research for development approach. This chapter summarizes and evaluates the tools and approaches that can be used to address nutrition, and presents diet and nutrition data and analysis from four case studies. The authors critically reflect on how researchers can more effectively include nutrition in their activities.

Chapter 5: Integrated systems research for sustainable smallholder agriculture in the uplands of mainland Southeast Asia: Achievements and lessons learned

After briefly reviewing the objectives and outcomes of Humidtropics, and some of the institutional constraints the program faced, the authors offer a synthesis of the achievements, gaps, and challenges of agricultural research for development activities in the Central Mekong Action Area. The authors conclude with lessons learned and insights and recommendations that could support integrated agricultural systems research in the Mekong and elsewhere.

Humidtropics CGIAR Research Program

The CGIAR Research Program on Integrated Systems for the Humid Tropics (Humidtropics) was an agricultural research for development program that aimed for sustainable intensification of agricultural systems to improve the livelihoods of farm households. Humidtropics was implemented in Central America, West Africa, East and Central Africa and in the Central Mekong. The Central Mekong Action Area focus was on rice and non-rice farming systems and areas with other land uses in the non-floodprone lowlands, uplands and highlands in Cambodia, China, Laos, Myanmar, Thailand and Viet Nam.

Starting in mid-2013, a broad range of research for development activities was implemented by a group of core partners. The research included agricultural systems characterization through situational analyses and identification of entry points for interventions, participatory research to improve nutrition and dietary diversity, and capacity development of farmers and local stakeholders. Multistakeholder platforms brought together representatives of farmers and the research, business, development and government sectors to facilitate responsible scaling of technological and institutional innovations.

Humidtropics core partners in the Central Mekong

Bioversity International · CIAT · Centro Internacional de la Papa (CIP) · IITA Research to Nourish Africa · ILRI International Livestock Research Institute · IWMI International Water Management Institute · Wageningen University & Research · World Agroforestry Centre · World Vegetable Center

For more information, including how to download the book, visit our websites:

www.community.humidtropics.org
www.humidtropics.cgiar.org
www.worldagroforestry.org/region/southeast-asia

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