

International Conference on Integrated Systems Research



Integrated Systems Research for Sustainable Intensification in Smallholder Agriculture

Conference Program & Book of Abstracts

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such knowledge will help to i) address the role of development partners; multinationals, farmer organizations and NGOs in the cocoa sector and ii) determine avenues and opportunities for realistic action, lobbying and policy making.

Keywords: Cocoa, stakeholders, common and divergent goals, avenues and opportunities, Ghana and Cote d'Ivoire

11:40 **A Systems Perspective for Achieving Economic Growth and Livelihood Resilience: Towards a Multi-Chain Approach to Value Chain Development**

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Smallholder livelihoods are diversified to meet both subsistence and income needs. While diversification helps to mitigate production and commercial risks, dispersed allocation of household resources may not provide for viable pathways out of poverty. Value chain development (VCD) seeks to address resource inefficiencies and achieve economies of scale by bundling household and other assets for improved production, processing and commercialization of agricultural and forest products. VCD usually focuses on a given value chain where resource allocation and investments appear most promising. Such single-chain approaches; however, tend to ignore complex patterns of gender-specific labor division, income generation, decision making, and access to and control over resources. They also fail to account for smallholders' balancing of subsistence and market-oriented activities aimed at food security and income generation. As a result, conventional approaches to VCD may help meet certain livelihood goals but often remain short of achieving broader livelihood resilience.

This is the principal finding of a comparative analysis of 23 cases of VCD in Asia, Africa, Latin America, and the USA. Cases were chosen to ensure broad coverage across countries, crops, and types of intervention (private sector vs. public sector driven). We assessed livelihood resilience at the level of smallholder households and business viability at the level of small and medium enterprises linking them with downstream value chain actors. While several cases showed building of certain assets at smallholder household and/or enterprise level, we found little evidence for broad-based asset building that would ensure livelihood resilience and business viability as markets contract, natural disasters hit, or regulatory frameworks change.

In response to the limitations of single-chain approaches focusing on the generation of employment and income, we propose an asset-based, multi-chain approach to value chain development for increased livelihood resilience and viability of smallholder businesses. This systemic approach takes into account diverse options across a number of value chains smallholders are linked to in a given territory. It carefully balances food security and commercial risks, and allows for gender-equitable roles and access to assets in line with the different realities and needs of women, men and the youth.

12:00 **Effect of Commercialization on Intensification and Productivity in Smallholder Agriculture in Central Africa**

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Commercialization is an important driver of intensification and crop productivity. Therefore, our paper establishes whether commercialization increases intensification through fertilizer and improved seed varieties use and if it eventually increases banana and legume productivity among smallholders in Rwanda and Democratic Republic of Congo (DRC). Cross-sectional data are used in Two Stage Least Squares (2SLS) with commercialization as endogenous variable in both input and productivity models. The results indicate that commercialization has a positive effect on input use and banana and legume productivity although with contribution of human, economic and ecological factors surrounding farmers. Thus influence of commercialization cannot remain strong without complementary effect of market access and resources endowment factors specifically availability of credit, good roads and market information, land and country specific policies. The production system in the region is characterized with low input low output. In addition, the development programs such as Consortium for Improving Agriculture-based Livelihoods in Central Africa (CIALCA) and others targeting to increase crop productivity through promoting commercialization has great potential if smallholders are able to fully participate in the projects.