



Association of International Research
and Development Centers for Agriculture

NUTRITION RESEARCH CAPABILITIES

Transforming rural livelihoods and landscapes:
Sustainable improvements to incomes, food security
and the environment





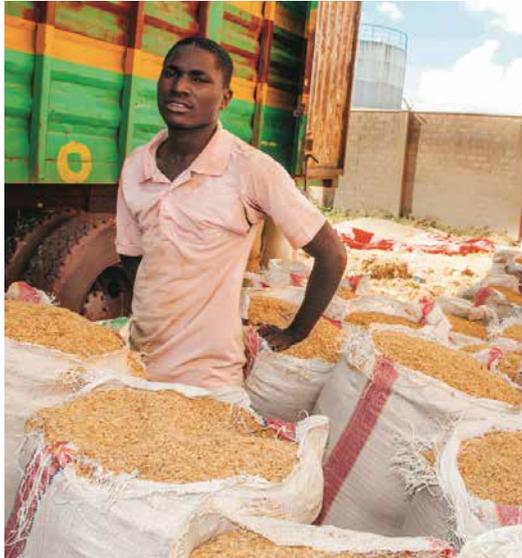
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About AIRCA

The Association of International Research and Development Centers for Agriculture (AIRCA) is an international, non-profit alliance of nine leading international research institutions focused on increasing food and nutritional security by supporting smallholder agriculture and rural enterprises within healthy, sustainable and climate-smart landscapes.



The formation of AIRCA was stimulated by the need for integrated action to deliver sustainable agricultural intensification at the landscape scale. AIRCA has already grown into a strong partnership of like-minded organisations with the capability and track record to address complex problems at a broad geographic scale and across several sectors. AIRCA members are committed to combining their experience of successful approaches, opportunities and challenges in moving farmers beyond subsistence and their communities from poverty to prosperity.

AIRCA members have activities in all major geographic regions and ecosystem types. All have a proven track record of research, development and implementation, working closely with farmers, extension systems, national research institutes, non-governmental organisations (NGOs) and the private sector across a wide range of crops and ecosystems.

Members



Vision

Healthy landscapes for improved livelihoods and food security.

Mission

Putting research into use by strengthening capacities for sustainable improvements to incomes, food and nutrition security in healthy landscapes.

Global Action Plan for Agricultural Diversification

In September 2015, the United Nations launched the 2030 Agenda for Sustainable Development which provides a global framework for sustainable development. It identifies 17 Sustainable Development Goals (SDGs) and 169 targets. The ambitious SDGs will shape future investment priorities and actions. More than any other sector, agriculture provides a common link across the SDGs. However, until now there has been no integrated plan for exactly how agricultural diversification can help meet specific SDG targets.

In December 2015, the Declaration on Agricultural Diversification, initiated by Crops For the Future (CFF) and fellow AIRCA members, was successfully opened for signature in Paris during the UNFCCC COP21 Climate Change meeting. This Declaration calls upon States, intergovernmental organisations, and the non-government sector to develop a Global Action Plan for Agricultural Diversification (GAPAD). By building a Partnership for the Goals i.e. SDG17, GAPAD will demonstrate how agricultural diversification can make measurable impacts on five SDGs:



An initial priority of AIRCA members is to demonstrate how GAPAD activities can make a meaningful contribution to achieving the targets of SDG2 and, more specifically, achieving nutritional security through agricultural diversification.

For this, we have already held webinars, stakeholder engagements and workshops to develop fundable proposals with measurable outputs. We now seek new partners, sponsors and investors who share our common vision.



This document outlines the main capabilities and facilities of each AIRCA member in relation to nutritional security as a basis for more detailed engagement with partners and funding agencies.

Nutrition Research Capabilities



Centre for Agriculture and Biosciences International

Headquarters: United Kingdom

www.cabi.org



Centre for Agriculture and Biosciences International (CABI) is an international not-for-profit organization that improves people's lives worldwide by providing information and applying scientific expertise to solve problems in agriculture and the environment.

Regional Centres: Brazil, China, India, Malaysia, Pakistan, Kenya, Switzerland, Trinidad and Tobago

CABI's approach involves putting information, skills and tools into people's hands. CABI's 48 member countries guide and influence its work which is delivered by scientific staff based in its global network of centres.

Capabilities for Nutrition Research

Focus

- Putting information, skills and tools in people's hands to facilitate sustainable agricultural practices.



Crop Production

- Pest and pathogen research. Integrated crop and pest management, including against insects, diseases and invasive weeds.
- Community based plant clinics and plant health system development (Plantwise).



Post-Harvest

- Isolation and development of biopesticides.



Human and Animal Nutrition

- Communication of messages on nutrition through digital technology.



Social Economic Assessment

- Research into empowerment of smallholder farmers and intermediaries to improve food and nutrition security and livelihoods.



Other Related

- Packaging and communicating scientific information in various formats for different audiences.
- Hosts the Nutrition and Food Sciences Database.
- Hosts the secretariat for Global Open Data for Agriculture and Nutrition (GODAN).
- Sanitary and Phytosanitary Measures.

Tropical Agricultural Research and Higher Education Center

Headquarters: Costa Rica

www.catie.ac.cr



The Tropical Agricultural Research and Higher Education Center (CATIE) is a regional center dedicated to research and graduate education in agriculture, and the management, conservation and sustainable use of natural resources. Its activities focus on tropical America, with specific emphasis on Mesoamerica and the Caribbean.

CATIE works on a broad range of areas: food safety, forests, agroforestry, climate change, watershed management value chains and agribusiness, sustainable livestock production, gender, environmental economics and territorial approaches.

Capabilities for Nutrition Research



Focus

- Combines science, graduate education and innovation to improve human well-being through integrated management of agriculture and natural resources in the rural areas of Latin America and the Caribbean.



Crop Improvement

- Conservation of thousands of genetic samples from various parts of the world, through the International Coffee Collection, the International Cocoa Collection and the Germplasm Banks for peach palm, annatto, guava and exotic fruits, as well as the Forest Seed Bank.



Crop Production

- Focus on vegetable crops – vegetable biodiversity and high performance lines.
- Nutritional and functional characterisation of diverse vegetables including common and underutilised indigenous vegetables.
- Nutrition-sensitive food and agriculture interventions for better diets and nutrition.



Human and Animal Nutrition

- Healthy diets programme with focus on rural and urban gardens, nutrition and health, and traditional vegetables to enrich diets.
- Nutrition KAP (Knowledge, Attitude and Practice), anthropometric and consumption surveys to better understand food and nutrition status/gaps of target populations.
- Nutrition sensitive programme improving access to nutritious food, food and nutrition practices, Water, Sanitation and Hygiene (WASH) practices and dietary quality.
- Evidence-based intervention and policy development.
- Animal study and clinical nutrition studies in collaborations with clinical nutrition and medical doctors.



Social Economic Assessment

- Research Programme in Economics and Environment for Development (EEfD/IDEA).



Other Related

- Forestry, agroforestry, territorial approaches, watershed management.

Crops For the Future

Headquarters: Malaysia

www.cffresearch.org



Crops For the Future (CFF) is the world's first organisation dedicated solely to research on underutilised crops for food and non-food uses. Its purpose is to help diversify global agriculture beyond the narrow range of commodity species and monocultures on which humanity currently depends.

CFF's research focusses on how agricultural diversification can enhance agricultural systems and their sustainability, address changing climates, increase food and nutritional security and improve economic well-being.

Capabilities for Nutrition Research



Focus

- Underutilised crops for food, feed and fuel.



Crop Improvement

- Germplasm collections with selection to increase drought tolerance and nutritional quality.



Crop Production

- Matching underutilised crops to different cropping systems. Management to optimise performance, quality and resource use.



Post-Harvest

- Laboratory scale of handling and storage.



Food Processing

- Capabilities to develop new prototype foods.



Human and Animal Nutrition

- Capacity to measure nutritional characteristics of food and feed ingredients in collaboration with public and private sector partners.



Social Economic Assessment

- Survey capability available to assess consumer preferences. Taste panel and sensory analysis facilities available.



Other Related

- A knowledge base of crop nutritional properties and changes across the food system.

International Center for Biosaline Agriculture

Headquarters: United Arab Emirates

www.biosaline.org



Regional Office : Uzbekistan

The International Center for Biosaline Agriculture (ICBA) is an international, non-profit agricultural research center established in 1999 through the Islamic Development Bank (IDB), the Organization of the Petroleum Exporting Countries (OPEC) Fund, the Arab Fund for Economic and Social Development (AFESD), and the Government of the United Arab Emirates (UAE).

Originally focused on the problems of salinity and using saline water for irrigated agriculture, ICBA has evolved over the years into a world-class modern research facility with a team of international scientists conducting applied research and development to improve agricultural productivity and sustainability in marginal and saline environments.

Capabilities for Nutrition Research



Focus

- Focus on productivity and sustainability in marginal and saline environments.
- Climate change adaptation planning for resilient agriculture.
- Policies on land, water and alternative production systems.



Crop Improvement

- Crop productivity and diversification.
- Germplasm collection and screening of salt, heat and drought tolerant crops and varieties.



Crop Production

- Water, soil and salinity management.
- Use of conventional and unconventional water sources for agriculture.
- Integrated practices for protected horticulture.
- Integrated agri-aquaculture systems for nutrition-sensitive, diversified farming in marginal and saline environments.



Human and Animal Nutrition

- Nutritional aspects of new and underutilised drought- heat- and salt-tolerant crops for food and animal feed.



Social Economic Assessment

- Socioeconomic assessment.
- Development of value chains and marketing strategies for products produced in marginal environments through innovative farming approaches.



Other Related

- Capacity building and internship programs within the Center's thematic areas of expertise.
- Remote sensing and climate change modelling technologies.
- Knowledge management hubs.

International Centre for Integrated Mountain Development

Headquarters: Nepal

www.icimod.org



Regional Offices : Afghanistan, China and Pakistan

The International Centre for Integrated Mountain Development (ICIMOD) is a regional intergovernmental learning and knowledge sharing centre serving the eight regional member countries of the Hindu Kush Himalaya and based in Kathmandu, Nepal.

Globalisation and climate change have an increasing influence on the stability of fragile mountain ecosystems and the livelihoods of mountain people. ICIMOD aims to assist mountain people to understand these changes, adapt to them, and make the most of new opportunities, while addressing upstream-downstream issues.

Capabilities for Nutrition Research



Focus

- Nutritional security of people living in the Hindu-Kush Himalayan region.
- Objective to mainstream the role of neglected and underutilised crops.



Crop Production

- Identification of lesser-known traditional nutritional crops.
- Demonstrating affordable production methods.



Post-Harvest

- Develop storages techniques and packaging of high value products.
- Branding of mountain agricultural niche products.



Food Processing

- Capacity building on lesser-known crop production, processing and value addition.



Human and Animal Nutrition

- Assessment of nutritional values of lesser-known crops.



Social Economic Assessment

- Demonstration and training to promote underutilised crops.
- Assessment of lesser-known crops for use by local communities, tourists and downstream people.



Other Related

- Interests in food conservation and nutrition programmes.
- Linking nutritional crop products with tourism destinations in the region.

International Centre of Insect Physiology and Ecology

Headquarters: Kenya

www.icipe.org



Regional Office : Ethiopia

The International Centre of Insect Physiology and Ecology's (*icipe*) mission is to help alleviate poverty, ensure food security and improve the overall health status of peoples of the tropics, by developing and extending management tools and strategies for harmful and useful arthropods, while preserving the natural resource base through research and capacity building.

The centre's vision is to pioneer global science in entomology and related arthropods, to improve the well being and resilience of people and the environment to the challenges of a changing world, through innovative and applied research, alongside deep exploratory study, impact assessment, evaluation and sustainable capacity and institutional development building.

Capabilities for Nutrition Research



Focus

- Insect-food interactions across the food system and insects for food and feed.



Crop Improvement

- Screening of germplasm for pest and disease tolerance and resistance.



Crop Production

- Development and implementation of integrated pest management.



Post-Harvest

- Improved storage regimes and reduction of aflatoxin.



Food Processing

- Processing insects for food and feed.



Human and Animal Nutrition

- Utilisation of insects as alternative sources of protein in food and feed.



Social Economic Assessment

- Impact assessment and policy development with partners.



Other Related

- Promotion of insects for food and feed.
- Enhancement of pollination services.
- Capacity and institutional development in related fields.

International Fertilizer Development Center

Headquarters: United States of America

www.ifdc.org



The International Fertilizer Development Center (IFDC) is a public international organization based in Alabama, USA, with more than 40 years of experience in agricultural research and implementing development projects.

IFDC has implemented a range of long-term projects, short-term assessments and evaluation, and agricultural research activities in more than 100 countries in sub-Saharan Africa, Asia, Europe and Latin-America. IFDC's work covers a wide spectrum: from investigating and promoting productivity-enhancing technologies and practices to fostering agricultural market development.

Capabilities for Nutrition Research



Focus

- Improving soil fertility and plant nutrition, providing policy support to public institutions to enable agricultural sector growth and developing agro-input markets.



Crop Improvement

- Farmers/farmer organisations linked to agro-input dealers.
- Identification of cost effective nutrient management technologies for increased crop production.



Crop Production

- Implementation of Integrated Soil Fertility Management (ISFM) for increased crop yields.
- Soil fertility research.
- Decision Support Tools.



Post-Harvest

- Building linkages between farmers/farmer organisations and traders/processors for crop consolidation, storage and sales.



Food Processing

- Capabilities limited to developing business linkages between farmer groups and processors.



Human and Animal Nutrition

- Conduct micronutrient research for human and animal health.



Social Economic Assessment

- Policy formulation support to governments.
- Capacity building for trade associations and farmer associations.
- Fertiliser Market Assessments.



Other Related

- Training of agro-dealer networks.
- Brokering of partnerships between businesses, farmers and public agencies.

International Bamboo and Rattan Organisation

Headquarters: China

www.inbar.int



Regional Offices : India, Ghana, Ethiopia and Ecuador

The International Bamboo and Rattan Organisation (INBAR) is a multilateral development organisation which promotes environmentally sustainable development using bamboo and rattan. With over 40 of its members from the Global South, INBAR has played an especially strong role in promoting South-South cooperation for the last 20 years.

Since its founding in 1997, INBAR has been making a real difference to the lives of millions of people and environments around the world, with achievements in areas such as: raising standards; promoting safe, resilient bamboo construction; restoring degraded land; capacity-building; and informing green policy and Sustainable Development Goal objectives.

Capabilities for Nutrition Research



Focus

- Bamboo and rattan for promoting sustainable livelihoods, economic development and secure better environments.



Crop Improvement

- Germplasm collection and exchange; species-site matching.



Crop Production

- Demonstration plots, facilitate large scale plantation and agro-forestry models, demonstrate and promote sustainable management and harvesting for different end uses.
- Promotion of a range of low-cost propagation methods.



Post-Harvest

- Transfer of technologies for preservation and treatment; capacity building of research agencies; entrepreneurs and communities.



Food Processing

- Capacity building on bamboo shoot production, processing and value addition.



Human and Animal Nutrition

- Measurement of nutritional value of shoots for humans and leaves for feed and fodder.
- Capacity building of researchers and farmers.



Social Economic Assessment

- Policy formulation support to government and partners.
- Market assessment and linkages.
- Global geophysical assessment of bamboo and rattan stocks



Other Related

- Bamboo for bioenergy, landscape restoration, and climate change mitigation and adaptation

World Vegetable Center

Headquarters: Taiwan

worldveg.org



Regional Offices: Thailand, India, Tanzania, Benin and Mali

The World Vegetable Center builds quality partnerships in research and development to increase the production and consumption of safe, nutritious, and health-promoting vegetables for faster, greater and lasting positive impact on the nutritional status, incomes and well-being of people, particularly youth and women, in Africa and Asia.

Vegetables can alleviate poverty by creating new jobs and new sources of income for farmers and landless labourers. Vegetables improve health by providing essential micronutrients lacking in diets, enhance learning and working capacities of adults and children through improved diets and health, and improve the sustainability of food production practices by diversifying cropping systems.

Capabilities for Nutrition Research



Focus

- Nutritional and other functional characterisation of diverse vegetables including globally popular crops and underutilised traditional vegetables.
- Dietary analysis and nutrition-sensitive interventions for better diets and nutrition.



Crop Improvement

- Germplasm: Diverse traditional/indigenous vegetables from tropical Asia and Africa rich in essential nutrients and health promoting phytochemical/bioactive compounds.
- Breeding: High iron mung bean, low oxalate (anti-nutrient) amaranth, high carotenoid tomato, peppers and pumpkin, high rutin (flavonoid) tomato, anti-diabetes bitter gourd.



Crop Production

- Integrated pest management to reduce pesticide use and residue levels and to increase food safety.
- Year round and off season production to enhance food availability and close dietary gaps.



Post-Harvest

- Handling and storage; training courses on post-harvest handling.
- Collective marketing and pack houses.



Food Processing

- Various capabilities in collaboration with food industry.
- Research and application of food methods/recipes with vegetables that enhance iron/nutrient bioavailability and retention.
- Food processing and preservation.



Human Nutrition

- Analysis of dietary gaps and improvement of diets.
- Nudging behavioral change towards increased consumption of vegetables.
- Capacity building and scaling for rural and urban household gardens.
- Business models for healthy vegetable seed kits.



Other Related

- Randomised controlled trials to assess the impact of nutrition-sensitive interventions on households and school-children.

For more information
www.airca.org