

Report of the National Consultation Meeting on CGIAR Site Integration ++ in Nicaragua

November 17 -18, 2015

Managua, Nicaragua

1. Introduction



With the objective of developing a work plan based on priorities and demands of the Nicaraguan agricultural sector, a National Consultation for CGIAR Site Integration ++ was conducted in Managua, Nicaragua, on November 17–18, 2015. As part of the preparations for the National Consultations being organized for the third Global Conference on Agricultural Research for Development (GCARD3), this work plan will provide the guidelines to align the CGIAR system and activities with those of national and international partners, during the second phase of implementation of the CGIAR Research Programs (CRPs).

The participants in the meeting included representatives from six CGIAR Centers (Bioversity, CIAT, CIMMYT, CIP, ICRAF, and IFPRI), as well as from CATIE and CIRAD. During the discussion, the Centers presented nine CRPs that are active in the region (A4NH, CCAFS, FTA, Humidtropics, L&F, MAIZE, PIM, RTB, and WLE), highlighting opportunities for integration. The CRPs shared the objectives they have designed for Nicaragua for 2016 and beyond, in relation to Intermediate Development Outcomes (IDOs), as well as ongoing and planned activities to reach those objectives.

Different sectors involved in research activities for agricultural development in Nicaragua were represented in the meeting by 23 national partners, including Central Government, autonomous regional governments, academic and research institutions, producers associations, national and international NGOs, and cooperatives. Clear opportunities were identified for a better integration among CRPs and local and international partners; these included objectives, activities, alliances,

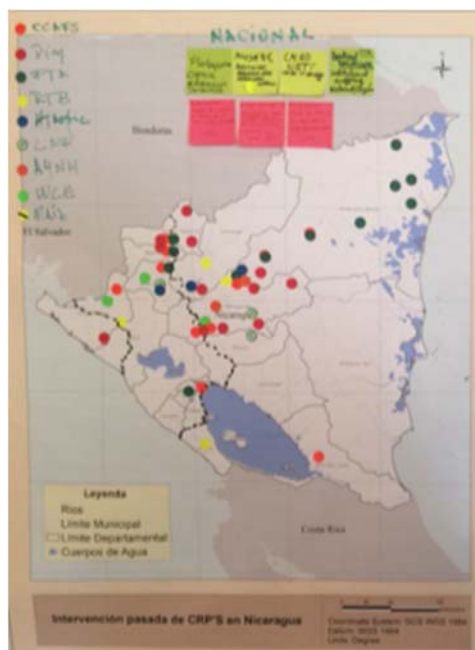
and availability of commonly held resources, which would benefit the work implemented by each Program in Nicaragua.

Through this interaction, the different stakeholders gave a detailed explanation of their activities and alliances within the country, taking into consideration the best ways to establish sustainable cooperation mechanisms to align CGIAR activities, sites, and research resources with those of partners already operating in the country; improve and scale up research initiatives led by CGIAR for the joint production of international public goods; and to collectively reach research goals for the national development.

2. CRPs in Nicaragua

The CRPs currently active in Nicaragua are:

- Agriculture for Nutrition and Health (A4NH)
- Climate Change, Agriculture and Food Security (CCAFS)
- Forests, Trees and Agroforestry (FTA)
- Integrated Systems for the Humid Tropics (Humidtropics)
- Livestock and Fish (L&F)
- Maize (MAIZE)
- Policies, Institutions and Markets (PIM)
- Roots, Tubers and Bananas (RTB)
- Water, Land and Ecosystems (WLE)



Map of CRPs in Nicaragua

Matrix of CRPs and Institutions

CRP	CGIAR Partner	International Partner	National Partner	Integration Opportunity
FTA	ICRAF	BIKU (Austria), CIRAD, CATIE	FAGANIC, CONICYT, CARUNA, UCA/Nitlapán, URACCAN, CONACAFE, UNA, INTA, MASANGNI	
Humidtropics	Bioversity	CIRAD, Wageningen, CATIE	Organizations, Alliances	
CCAFS	ICRAF, CIAT, IFPRI, Bioversity	Root Capital, Rainforest Alliance, CIRAD, CATIE, CAC, HIVOS, IICA, UVM, CEDECO, FAO, ECLAC	ANAR, UNA, ADDAC, PRODECOOP, FUMAT, URACCAN; CECOCAFEN	WLE, L&F, A4NH, FTA, AFS
PIM	CIAT, IFPRI, Bioversity, ICRAF	OFID, CATIE, COSA, Ford Foundation, Green Mountain, CRS		
RTB		CATIE	UNAN-León, UNA, APLARI, Alianza Café, MUSANIC, ODEL (Mayor's Office, Municipality of Matiguás)	A4NH
Livestock and Fish	ILRI	Ayuda en Acción [ActionAid], CATIE, Solidaridad Network, SNV, Heifer	APEN, ADDAC, UNA, GRUMIC, Dairy Cooperatives (Nicacentro, Masiguito, San Francisco)	FTA, PIM
A4NH		CARITAS, CRS	INTA, FIDER, Fabretto Foundation, SEMSA, FUMAT	FTA, RTB, PIM, CCAFS, AFS
WLE		CRS, University of Hohenheim, EARTH Institute	INTA; UNA; UNAN-León; Mayor's Office, Municipality of Somotillo; University of Colorado; UC Davis; UCATSE; ASENIC	

2.1. CRPs' Main Themes

CRP	Main Themes
A4NH	<p>This CRP has six flagship programs: Biofortification, Food Safety, Food Systems for Healthier Diets, Improving Human Health, Integrated Programs to Improve Nutrition, and Supporting Country Outcomes through Research on Enabling Environments. Even though most of the activities related to this CRP are not carried out in Latin America nor the Caribbean, many of the activities related to the Biofortification program are implemented in the continent by HarvestPlus (H+). Thus, the activities described below refer only to this flagship program, focusing on those conducted in Nicaragua.</p>
CCAFS	<ol style="list-style-type: none"> 1) Increase the resilience of the poor to climate change and other shocks <ul style="list-style-type: none"> - Reduce production risk 2) Enhance smallholder market access <ul style="list-style-type: none"> - Improved access to financial and other services 3) Increase incomes and employment <ul style="list-style-type: none"> - More efficient use of inputs 4) Increase productivity <ul style="list-style-type: none"> - Increased access to productive assets, including natural resources 5) Improve diets for poor and vulnerable people <ul style="list-style-type: none"> - Optimized consumption of diverse nutrient-rich food 6) Natural capital enhanced and protected, especially from climate change <ul style="list-style-type: none"> - Land, water and forest degradation (including deforestation) minimized and reversed 7) Achieve adaptation and mitigation <ul style="list-style-type: none"> - Improved forecasting of impacts of climate change and targeted technology development - Enhanced capacity to deal with climate risks and extremes - Enabling environment for climate resilience - Reduced greenhouse gas emissions associated to agriculture, forestry, and other land use systems

	<p>8) Achieve equity and inclusion</p> <ul style="list-style-type: none"> - Gender-equitable control of productive assets and resources - Participation in decision-making <p>9) Improvement of enabling environments</p> <ul style="list-style-type: none"> - Increased capacity of beneficiaries to adopt research outputs
FTA	<p>The FTA CGIAR program is based on 6 intermediate development outcomes (IDOs).</p> <ol style="list-style-type: none"> 1. Development of policies and practices supporting sustainable and equitable management of forests and trees, which are adopted by conservation and development organizations, national governments and international bodies. 2. Empowerment of women to improve gender equity in decision-making and control over forest and tree use, management and benefits. 3. Enhancement of incomes from products and environmental services derived from forests, trees and agroforestry systems. 4. Increase in productivity, production and availability of food, fuel and other products from forest, tree, and agroforestry systems for people from the rural areas. 5. Enhancement of resilience to environmental and economic variability, shocks and longer term changes of rural communities through greater adaptive capacity to manage forest, tree, and agroforestry systems. 6. Increase resources from forests, soil, water, biodiversity, and carbon sequestration, as well as their corresponding side benefits, in key target countries.
Humidtropics	<p>The main problems faced by this region include its high level of poverty, limited access to markets, the impact of natural resource degradation, and vulnerability to the effects of climate change. This is due to the expansion of the agricultural frontier, widespread livestock production, and lack of incentives and implementation of policies to protect conservation areas.</p> <p>Humidtropics seeks effective interaction with stakeholders and key partners in the region, to discuss social, institutional, biophysical, and technical aspects that should be considered along the implementation of the program.</p> <p>A key element to Humidtropics operational strategy is the partnership and collaboration of research institutions, national and international NGOs, producers' associations, and the private sector, and they will play important roles in the assessment of needs, development of interventions, and the spread of program outcomes.</p>

L&F	<p>The CGIAR Livestock and Fish research program aims at increasing the productivity of small-scale livestock and fish systems in sustainable ways, making meat, milk, and fish more available and affordable to poor consumers across the developing world.</p> <p>The program works in the development of four value chains (fish, pig, dairy, and small ruminants – goat and sheep) in 7 countries from Africa and Asia, plus the dual purpose cattle value chain in Nicaragua. So far, the program has been structured in flagship programs that combine solution-driven research topics with crosscutting integrated processes. There are 5 programs: animal genetics, animal health, feeds and forages, systems analysis for sustainable innovation, and value chain transformation and scaling.</p>
MAIZE	MAIZE currently has some ongoing activities linked to testing of improved maize germplasm. Due to Budget cuts in 2015, the Project ‘La Panamericana’ was suspended. We hope that this can be funded once again in 2016.
PIM	<p>Theme 1: Research platforms in development processes (Regional and National Learning Alliance)</p> <p>Theme 2: Inclusive business models with a gender approach (LINK)</p> <p>Theme 3: Participatory Market Chain Approach with a gender approach (PMCA)</p>
RTB	<p>Theme 1: Unlocking the value and use potential of genetic resources</p> <p>Theme 2: Accelerating the development and selection of cultivars with higher, more stable yield and added value</p> <p>Theme 3: Managing priority pests and diseases</p> <p>Theme 4: Making available low-cost, high-quality planting material for farmers</p> <p>Theme 5: Developing tools for more productive, ecologically robust cropping systems</p> <p>Theme 6: Promoting postharvest technologies, value chains, and market opportunities</p> <p>Theme 7: Enhancing impact through partnerships</p>

2.2. IDOs-related goals for Nicaragua for 2016 and beyond

CRP	IDOs-related goals for Nicaragua for 2016
A4NH	A4NH IDOs are: 1) Improve the diet of poor and vulnerable populations, 2) improve food safety, and 3) improve human and animal health. In Nicaragua and the region, the Biofortification program is focused on the first IDO. H+ is conducting research in a food basket that includes rice (for zinc), beans (zinc and iron), and maize (zinc), to provide a diversity of food and nutrients that are of benefit to consumers (in other countries, other crops are also included). Even though a large part

	<p>of the work is focused on the genetic improvement of varieties of high mineral content, research is also being carried out to evaluate the acceptability of those varieties among producers, as well as sensory evaluation studies among consumers. In addition, H+ will work on the strengthening of the relations with local partners (National Agricultural Research Institutes and NGOs) to be able to develop new varieties and (in the future) distribute the seed of such varieties among producers.</p>
<p>CCAFS</p>	<p>1) Climate-Smart Villages (CSVs) in El Tuma La Dalia CSVs are sites where researchers, local partners, farmers, and policy makers work hand-in-hand to select and implement technologies and institutional interventions based on global knowledge and local conditions, with the following objectives: a) Increase productivity and income in a sustainable way; b) build resilience to climate change; c) reduce greenhouse gas emissions, and d) pursue food security and development goals. CSVs seek a two-way participatory construction, at multiple scales, of a planned adaptation process with differentiation of roles within the family. CCAFS and gender baseline studies have been implemented (ICRAF, CATIE, CIAT), as well as the Climate-Smart Agriculture (CSA) Prioritization Framework, preliminary studies to address extension systems (CIAT) and implementation of agroforestry practices (ICRAF).</p> <p>2) Nicaragua country profile Country profiles provide an overview of the current conditions to spark a dialog within countries and worldwide, on the starting points for investment and scale up Climate-Smart Agriculture (CSA).</p> <p>3) Big Data for climate-smart agriculture This projects aims to support a novel use of information communication technologies and Big Data principles to develop a two-way Climate-Site-Specific Management System; this will allow farmers to contribute with self-generated data on soil and crop management and production in return for tailored, site-specific information on climate-smart practices. The project is based on both crowdsourcing, as well as secondary databases. The methodology will be implemented for rice systems in three countries with different scenarios of data availability (high, medium, and low.)</p> <p>4) Climate-smart coffee and cocoa value chains in Latin America and Africa The project aims at testing methods for scaling up Climate-Smart Agricultural (CSA) practices through (a) voluntary certification schemes; and (b) impact investments in producer organizations that use smallholder coffee and cocoa systems in Latin America as model cases. The partners in this project are two of the most prominent stakeholders in voluntary certification (Rainforest Alliance) and impact investment (Root Capital). The project will assess the exposure of coffee and cocoa systems to climate change at a sub-national scale, develop appropriate CSA practices with farmers who incorporate cash and food crops to increase the resilience of these systems, and codify these practices in adaptation guidelines. Such</p>

	<p>guidelines will be incorporated through the existing certification training programs used to develop innovative investment products. The outcomes will be promoted by voluntary certification agencies and impact investors to scale them up. Said outcomes will have an influence on government, private sector, and civil society actors, towards an agenda of joint adaptation applicable to other smallholders' crops.</p>
FTA	<p>In Nicaragua, the largest investment of the CGIAR FTA program is focused on the development of the Nicaragua-Honduras Sentinel Landscape (NH-SL). The NH-SL comprises an area of approximately 68,000 km² representative of the main ecosystems of the Nicaraguan and Honduran humid tropics, including two biosphere reserves, and 13 protected areas in a mosaic of agricultural and agroforestry lands. For more information, please visit www.paisajecentinela.org [In Spanish] The NH-SL is part of a worldwide observatory network (7 in all) to collect biophysical and socio-economic information that allows the assessment of factors determining the loss/gain of tree cover on a landscape, as well as the impacts that such changes in tree cover have on the livelihoods of rural communities.</p>
Humidtropics	<p>Humidtropics has six IDOs:</p> <p>IDO 1 – Income: Increased and more equitable Income from agriculture for rural poor farm families, with special focus on rural women.</p> <p>IDO 2 – Nutrition: Increased consumption of safe, nutritious foods by the poor, especially among nutritionally vulnerable women and children.</p> <p>IDO 3 – Productivity/ Yield: Increased total factor productivity of integrated systems. Sustainable Intensification.</p> <p>IDO 4 – Natural Resources: Reduced adverse environmental effects of integrated systems intensification and diversification.</p> <p>IDO 5 – Gender: Increased control by women and other marginalized groups over integrated systems assets, inputs, decision-making, and benefits.</p> <p>IDO 6 – Innovation: Increased capacity for integrated systems to innovate and bring social and technical solutions to scale.</p>
L&F	<p>The L&F program is aiming at reaching six intermediate development outcomes (IDOs), and goals have been set in Nicaragua for 2022. They are related to: i) increased productivity of livestock production systems; ii) improved access of smallholders to formal markets; iii) increased income and employment for smallholders throughout value chains; iv) increased consumption of animal-source foods, especially in the daily diet of women and children under the age of 5; v) protection of natural resources and increased number of smallholders, who will benefit from products and services from the ecosystem; and vi) impact on the development and implementation of policies that foster value chain improvement.</p>
MAIZE	<p>There are no specific goals related to IDOs.</p>
PIM	<p>Currently, PIM is focused on the following sub-IDOs:</p>

	<p>1.1 Increased resilience of the poor to climate change and other shocks 1.2 Enhanced smallholder market access* 1.3 Increased incomes and employment* 1.4 Increased productivity* 2.1 Improved diets for poor and vulnerable people 3.2 Enhanced benefits from ecosystem goods and services</p> <p>IDO's marked with an asterisk (*) are more emphasized by the program. Similarly, PIM is contributing to all cross-cutting issues, including the following cross-cutting IDOs:</p> <p>CC 1.1 Mitigation and adaptation achieved CC 2.1 Equity and inclusion achieved CC 3.1 Enabling environment improved CC 4.1 National partners and beneficiaries enabled</p>
RTB	<ul style="list-style-type: none"> • Potential to develop integrated activities with other CRPs: PIM, FTA, A4HN, FTA • There is great potential in Nicaragua to connect RTB activities to the National Agricultural Innovation System (NAIS) led by INTA. • The representative of INTA identified priorities to interact with international centers in the following themes: <ul style="list-style-type: none"> ○ Seeds ○ Recover native seeds, grasses, and animals ○ Agroecological production, use of local resources ○ Climate change ○ Diversification of production systems • Roots, tubers, and the Musaceae are priority crops for NAIS • The identification of issues, needs, and implementation of technologies and innovations is carried out in local platforms known as <i>Núcleos de Innovación Territorial</i>, NITs [Territorial Innovation Clusters] • There is a special interest in exploring the potential of seeds and management of tropical roots for export, such as cassava, dasheen, and taro. • INTA has prioritized the advancement of potato production. Demands include innovation in the production of seed, evaluation of varieties, pest and disease management, and integrated crop management.

	<ul style="list-style-type: none"> • The strengthening of capacities for the development of value chains; the linking of farmers to markets; and the linking of agricultural innovations to food security, nutrition, and income generation offer considerable working potential in Nicaragua • Institutional innovation and knowledge management in the development of alliances or collaborative projects, are priority issues in the strengthening of the Nicaraguan innovation system led by INTA.
--	--

2.3. Ongoing activities to reach IDOs

CRP	Ongoing activities to reach IDOs
A4NH	<p>Activities related to breeding are conducted with different partners, depending on the crop. For example, although bean improvement is carried out in collaboration with INTA, rice breeding is conducted jointly with SEMSA. To implement the acceptability study, seed multiplication of beans was done with NGOs and groups of producers in 2015, the same year in which most of the seed was distributed among beneficiaries. At the beginning of 2016, a socio-economic survey will be conducted to assess acceptability of the two varieties of beans given to producers. Sensory evaluation tests will be carried out in 2016. For the strengthening of relations between H+ and its local partners, regular meetings are held with them and new opportunities for collaboration are being explored (i.e. new projects.) In addition, the possibility of collaborating with new partners is also being explored as a way to diversify the partner portfolio.</p>
FTA	<p>From 2012 to 2016, the work on the sentinel landscapes has been based on 2 main work lines:</p> <ol style="list-style-type: none"> 1. Worldwide comparative analyses: Biophysical and socio-economic indicators from a baseline have been collected from the 7 sentinel landscapes with standardized methods. The NH-SL baseline information was collected in 2013 and data analysis is currently ongoing. A preliminary report of key indicators of the status of the sentinel landscapes is expected for 2016. 2. Thematic research focused on livelihoods and landscapes. In 2015, CATIE and ICRAF conducted a series of studies at the landscape and farm level for: <ol style="list-style-type: none"> a. Quantification of the changes in land use through landsat and radar images, on three main periods of time (2000, 2007, 2014) for an area covering 36,463 km² (the landscape area covering Nicaragua.) b. Assessment of factors determining loss of tree cover and carbon stocks in 11 municipalities of Nicaragua.

- c. Quantification of the changes in intensity, tree cover in farms, and family benefits in 3 sites with different access to markets and agricultural development.

Besides the activities related to the sentinel landscape, there are also thematic activities from the livelihoods component (FTA 6.1) supporting the long-term trial of agroforestry coffee on the Masatepe area, as well as works related to component FTA 6.2: conservation of genetic forest resources, by means of three activities:

1. Characterization of the diversity of trees for fruit and timber in the area of Pueblos (source area of most of the fruits sold in the markets of Managua, Masaya, and Estelí), led by CATIE and ICRAF.
2. A community forest management project financed by the Austrian Development Agency with USD 643,000 and a substantial share from FTA (to be defined), led by Bioversity International in collaboration with international organizations like CATIE and BOKU University, Austria, and in Nicaragua, with local partners, the NGO Masangni, the Nitlapan research center, and community universities, such as BICU and URACCAN. The project evaluates the sustainability and the potential of community forestry to maintain forests and sustain livelihoods of rural communities living in these areas. The situations and potential recommendations are compared for two major Central American tropical forests: the Atlantic broadleaf forest in Nicaragua and the Maya forest in Petén, Guatemala. The project started in 2013 and will end in 2016. The project focuses on five components:
 - a. Socio-economic sustainability, led by Bioversity
 - b. Social study, led by BOKU
 - c. Study of governance and enabling environments for community forestry, led by CATIE
 - d. Study of ecological sustainability and dendrology, led by CATIE
 - e. Study of genetic sustainability, led by Bioversity
3. Modeling of the ecological niches of 54 timber and fruit species commonly found in the agroforestry systems of the Central American region. The latter is financed by FTA, CCAFS, and Hivos, and led by ICRAF and Bioversity. It is related to the coffee landscapes project in Nicaragua to generate information useful in the development of climate-proof diversification strategies.

Cacaonet/ Cocoa of excellence. It is a network of cocoa genetic resources coordinated by Bioversity. On the part of Nicaragua, cocoa associations are participating in the exchange of germplasm and the promotion of fine-flavored cocoa. The information generated by these studies has been shared with local partners through forums (an example is the the last forum on farm trees held jointly with CONICYT) and our web site www.paisajecentinel.org [In Spanish.] In addition, we are

	working on the process of directly reporting results back to producers and local organizations (beginning of 2016) and the preparation of scientific publications (posters, papers, and reports.)
Humidtropics	<ol style="list-style-type: none"> 1) Research projects from special alliances and projects <ul style="list-style-type: none"> • Public policies and the leading role of women for an integrated and equitable development of the region • Evolution of soil fertility under diversified management and restoration measures • Improvement of the decision making process in small farms – impact of management decisions • Developing a common certification code and practices to help smallholder families to cope with the challenge of multiple certifications • Agrobiodiversity and food diversity: towards the identification of potential areas for a better use of diversification and agrobiodiversity • Opportunities to improve access to markets and trading in remote communities • Scaling-up agroecology (WUR, CIAT): developing incentive mechanisms and identifying bottlenecks 2) FONTAGRO project for water resources management 3) Formulation of new projects, based on the theories of change contributed by each territorial alliance
L&F	<p>The main activities that L&F has been carrying out in Nicaragua during the last three years include conducting studies and applying tools, such as baseline surveys, stakeholder mapping, and focal group discussions among different actors of the dual purpose cattle value chain, at national level, as well as at action sites. Such discussions will help identify potential partners, points of entry, and define research for development agendas to address the real priorities of value chains in action sites.</p> <p>Through bilateral projects, local capacities have been strengthened by means of field schools and the publication of technical manuals covering topics such as sustainable livestock farming, to promote the transformation of traditional systems into sustainable intensification of livestock production systems. On the other hand, research has been conducted to measure benefits to the ecosystem from a sustainable use of soil, based on the planting of improved pastures to support policy advocacy efforts and the search for incentive mechanisms that support the adoption of sustainable livestock production systems.</p> <p>Research is also being carried out to examine climate change mitigation options based on the use of forages, such as the biological nitrification inhibition approach using hybrids of <i>B. humidicola</i> to improve the efficiency of nitrogen use in the soil and reduce nitrous oxide emissions, as well as the quantification of the reduction of methane emissions in livestock systems, based on the use of improved grasses and forage legumes.</p>

	Regarding research and activities with a gender approach, mapping and assessment activities have been undertaken with local organizations to learn about their gender capacity and generate a strategy to develop it. The baseline done through the bilateral project ADA-Genética has been adapted to collect information on gender and identify the main limitations and opportunities to facilitate gender-equitable changes. In addition, several strategic investigations/activities have been carried out to identify the main gender issues in the value chain, such as a study of gender perception on ownership of productive resources, a study of gender dynamics and governance within the value chain, and masculinity workshops to record and broadcast radio spots with messages of gender equality in farm management. In the future, it will be important to work towards a better integration of the gender approach in technical areas.
MAIZE	In accordance to activities within other CRPs, CIMMYT will look for synergies that allow for the development of potential projects. However, there is currently no specific project.
PIM	Learning cycles with the regional and Nicaraguan Learning Alliance in topics such as: <ul style="list-style-type: none"> • Inclusive business models with a gender approach • Inclusive value chains with a gender approach. Building of local capacities for an impact evaluation of value chain and business models interventions
RTB	<ol style="list-style-type: none"> 1) Clonal selection of bananas 2) Modeling of water resources management in banana-producing communities under conditions of climate variability (banana producing areas in Posoltega and the coffee area of Jinotega) 3) Options to manage seasonality in banana production within multistrata shaded coffee system (application of potassium and offshoot size in coffee-banana multistrata systems) 4) MUSALAC: regional Musaceae network in Latin America (homologous zones, climate change, pests and diseases, germplasm conservation and exchange, information exchange, priority identification for Musaceae.)

2.4. Integration opportunities among CRPs

CRP	Integration opportunities among CRPs
A4NH	<p>Many activities would benefit from an integration with other CRPs, including:</p> <ul style="list-style-type: none"> – Agri-Food System CRP: the Biofortification program will complement the work done within this CRP in topics such as Diets with Healthy Foods and Transformation of Food Systems. Since the varieties being produced will be part of the diets of consumers, the biofortification activities clearly complement the work done within this CRP.

	<ul style="list-style-type: none"> – Climate Change CRP: synergies are expected in activities related to Sustainable Food Systems. Since H+ will distribute seeds of biofortified varieties, carrying out research or other activities will be feasible (e.g. evaluation of sustainable distribution systems.)
CCAFS	<p>At CCAFS, there is always a place for other CRPs to work, implement, and evaluate their technologies (as long as there are partners, the baselines have been set, etc.) CCAFS benefits from integration, since it receives the technologies developed by CRPs, adds the climate component to them, and uses its previous work with communities to evaluate them and, if possible, scale them up, nationally.</p> <p>CCAFS seeks involvement of both Centers (CIAT, ICRAF, ILRI, Bioversity, CIMMYT) and CRPs (PIM, FTA, MAIZE, Humidtropics, WLE), not only regarding activities, but on sites (mainly CSVs) to take portfolios of technologies and practices to farmers in a comprehensive manner, making the best use of the scientific advances from the Consortium. In the Tuma La Dalia CSV, in Nicaragua, capacity strengthening and understanding of the dynamics of diversity and family agriculture will be aided by programs such as Linking Farmers to Markets, diversification through the implementation of agroforestry systems and crowdsourcing.</p> <p>CCAFS complements technologies and practices developed by CRPs such as Agri-food systems (e.g. drought resistant maize, micro-dosing, agroforestry technologies) by means of Learning Platforms where technologies and practices can be tested, as long as they are considered CSA measures. All this may include climate services, insurances, local adaptation plans, GHG measurements, etc.</p>
FTA	<p>Activities related to sentinel landscapes can be integrated to climate change programs to acquire a better understanding of how forestry and agroforestry components contribute to adaptation strategies and development of low-carbon rural economies. Similar to research, quantification of benefits to families and the relative contribution of agroforestry resources to family economy is crucial in working towards the development of value chains of alternative products. The information generated about production, productivity, and farm tree management practices should be integrated to thematic research programs on livestock, as well as roots, tubers and bananas, to design more efficient and sustainable production systems. Finally, a key objective of the work conducted at NH-SL regards the use of lessons learned and data generated by landscape and farm research to foster dialog among key actors from government, development institutions, and academia to introduce policies that facilitate access to farm tree resources and boost sustainable production.</p> <p>Potential integration mechanisms could be research platforms where we can share lessons learned, data, and tools.</p>

Humidtropics	<p>Possible scenarios:</p> <ul style="list-style-type: none"> • Territorial Learning Alliances or Innovation Platforms (IPs) integrated to other CRPs • Activities related to Cluster 4 (decision-making processes and trade-offs, agrobiodiversity, soil fertility, public policies, access to markets, equitable participation in the value chain) resumed by other CRPs • Scaling-up • Information sharing and communications platform http://www.alianza-cac.net/ [In Spanish] • Results-Based Management
L&F	<p>Towards the future, a better integration with other CPRs is expected. In the case of PIM to make good use of the methodological approaches and tools for the development of value chains and inclusion of smallholder producers in formal markets; in the case of FTA, planting trees and their manage them and studies of functional diversity of trees in animal farms, and ecosystem services; in the case of Humidtropics, it is necessary to strengthen relations through innovation platforms, learning alliances, and interventions in mixed systems; and in the case of CCAFS, it is necessary to strengthen relations to integrate livestock production to research strategies and approaches related to Climate-Smart Agriculture.</p>
PIM	<p>Three points of connection with other CRPs: (a) targeting, (b) methods/ tools, and (c) scaling through value chains.</p> <p>Targeting Help CRPs identifying country areas where agriculture has more potential to lift rural populations out of poverty. A comparison can also be made to prioritize what issues will have a greater impact in the reduction of poverty and should thus be implemented first.</p> <p>Methods / tools Common methods for interventions focused on value chains and business models. This is relevant to those CRPs planning to make interventions in value chains as part of their research or scaling process. PIM can facilitate access to tested, common methods to improve effectiveness of those interventions and avoid having each CRP designing tools, when there is a range of tested and approved tools available. On that basis, PIM could facilitate the analysis among CRPs to evaluate the effectiveness of different types of interventions along value chains, with an emphasis on the advancement towards IDOs.</p> <p>Scaling through value chains PIM has a close relationship with development partners organized under the Nicaragua's Learning Alliance (also at the regional level, including Honduras and Peru.) These stakeholders are interested in helping to test and scale CGIAR's approaches, technologies, and methods. On the other hand, PIM will be conducting research on effective practices for</p>

	scaling through value chains: (a) technologies; (b) governance models; (c) partnership models; and (d) access to funding. Other CRPs could be included in these processes.
--	--

2.5. Implementation of activities by region

CRP	Implementation of activities by region
A4NH	Since breeding activities are limited to experiment stations and specific farms (where advanced lines are evaluated), it is not considered appropriate to name the municipalities where the experiment stations are located. Activities related to seed distribution will be carried out in those regions for which varieties were bred (or evaluated.) Currently, there are two bean varieties available for distribution. Seed of these varieties has been distributed in the municipalities of the department of Matagalpa.
CCAFS	El Tuma La Dalia, Nicaragua, Malacatoya, Sébaco, Matagalpa, San Luis, Peru, Ghana
FTA	There are 4 main sites where research activities have been conducted: El Tuma La Dalia, Waslala, Siuna, Columbus, which represent sites of contrasting conditions regarding agricultural development and access to markets. Outside the area of the sentinel landscape, work is being done in the area of Pueblos (fruits), Masatepe (coffee trial), Nicaragua as a whole for species niche modeling (coffee landscapes project, the action site is the coffee area of Las Segovias.)
Humidtropics	Estelí (municipalities of Estelí and Condega), Matagalpa (municipality of Rancho Grande), Jinotega (municipalities of Jinotega and El Cúa), and NCCAR (municipality of Waslala)
L&F	In Nicaragua, L&F activities have focused on two of the most important municipalities in the country, from the bovine meat and milk production point of view: Camoapa (department of Boaco, in the central-south area) and Matiguás (department of Matagalpa, in the central-north area.) There has been some presence in the territory of the Livestock and Basic Grains Mixed System Learning Alliance, in Estelí and Condega, through the integration of activities with Humidtropics.
MAIZE	N/A
PIM	Mainly in the north of Nicaragua, but it operates according to the demands of the Learning Alliance partners.
RTB	Rivas, Posoltega, Jinotega, Matagalpa, in the west of Nicaragua

2.6. Partners and integration mechanisms

CRP	Partners and integration mechanisms
A4NH	<p>In Nicaragua, partners include INTA, SEMSA, Caritas, Fider, Fabretto Foundation, and FUMAT. INTA and SEMSA collaborate in activities related to breeding, while multiplication and distribution of seed is carried out with the other partners. The possibility of collaborating with new partners to massively distribute seeds and reach a higher number of producers is currently under consideration.</p> <p>The possible integration mechanisms of interest to the CRP include: creating a platform that allows exchange of information to know what activities will be (or are being) implemented by other CRPs in a timely manner; this will help considering the possibility of collaboration and use resources more efficiently. In addition, A4NH is proposing to integrate activities in three ways: 1) leveraging research on genetic improvement, agricultural production, and value chains in the Agri-food systems CRP; 2) coordinating with integrative CRPs to align outcomes in nutrition and health with broader economic and agricultural policies; and 3) bringing together CGIAR and the global and regional community on nutrition and health.</p>
CCAFS	<p>CATIE, CIAT, ICRAF, FLAR, ANAR (NI), El Hatico Estate (PE), Fedearroz (CO), Rainforest Alliance, Root Capital.</p> <p>The main integration mechanism for CCAFS is making the Tuma La Dalia CSV available for the different Centers and CRPs, in order to implement and evaluate technologies and practices based on the coordination work of CCAFS and its local partners, as well as on the commitment with communities to contribute to the understanding of the links between local knowledge and scientific research.</p>
FTA	<p>Research activities will be conducted jointly with several local partners, including government: MARENA, INAFOR; academia: Universidad Nacional Agraria, URACCAN; development institutions: ADAC, FUMAT, regional and international partners: CATIE, CIRAD.</p>
Humidtropics	<p>We have territorial alliances, each with 8-12 members, a national research-for-development alliance with approximately 20 partner organizations, and we work with the following research centers: CIAT, Bioversity, CATIE, CIRAD and Wageningen University. To see a comprehensive list of our partners/counterparts, please visit http://alianza-cac.net/contrapartes/pais/1/ [In Spanish]</p>
L&F	<p>The program gathers four CGIAR Centers: the International Livestock Research Institute (ILRI), leading the work on animal production (animal health, genetics, animal feed, gender issues, targeting); WorldFish, leading aquaculture work; the International Center for Tropical Agriculture (CIAT), working on forages, markets, and learning issues; and the International Center for Research in the Dry Areas (ICARDA), working on small ruminants.</p>

	The main interventions of the program in action sites have been achieved through activities pertaining to the CRP strategy, and through activities conducted within the framework of bilateral projects that CIAT is carrying out with partner institutions in Nicaragua. Some of the main L&F partners in Nicaragua include: international development organizations, such as Heifer, CRS, Solidaridad Network, and SNV; national universities, such as UNA; international universities, such as University of Mississippi and University of Wisconsin, from the USA, and the University of Natural Resources and Life Sciences (BOKU), Austria; dairy cooperatives, such as NICACENTRO, MASIGUITO, and San Francisco; national development organizations, such as the Association of Producers and Exporters of Nicaragua (APEN); international research centers, such as CATIE; civil society organizations, such as <i>Grupo de Mujeres para la Incidencia en Camoapa</i> (GRUMIC) [Group of Women Advocating for Camoapa]; and continuous efforts have been undertaken to integrate public institutions, such as INTA, MAG, and IPSA.
MAIZE	As with other projects, CIMMYT would look for collaboration with local partners who know and understand the needs of the country and the region, so that these partners have an infrastructure and technical capacity to conduct specific activities.
PIM	Most of the PIM initiatives benefit from alliances with other CRPs and bilateral partners. Similarly, many of its activities emphasize the importance of value chains, the adoption of learning systems, and public-private alliances. The PIM CRP has gathered a solid group of partners in the country. PIM, along with other CRPs, like Humidtropics, and several CGIAR Centers have conformed a comprehensive network to achieve CGIAR goals (IDOs).
RTB	RTB partners: CIP, CIAT, Bioversity, IITA, CIRAD National partners: UNAN-León, UNA, APLARI, Coffee Alliance, MusaNic

2.7. Available resources for the implementation of activities

CRP	Available resources for the implementation of activities
A4NH	The following resources are available to implement activities of H+ in Nicaragua: <ul style="list-style-type: none"> – Human Resources (H+/CIAT): 4 Economists (part-time: 3 in Cali and 1 in Managua); two consultants; bean breeders (CIAT), maize breeders (CIMMYT), and rice breeders (CIAT), who assist local breeders (part-time); a nutritionist, who assists one of the consultants (part-time.) – Financial resources (H+/CIAT): funds are provided by H+. Additional to funds provided by CIAT, H+ transfers funds to CIMMYT for their activities in Nicaragua, Haiti, etc.

CCAFS	Activity 1 – 2013-2016 USD 1,000,000; Bilateral: USD 300,000 Activity 3 – 2015-2018 USD 1,845,000; Bilateral: USD 300,000 Activity 4 – 2015-2018 USD 1,845,000; Bilateral: USD 1,203,000
Humidtropics	2016: approx. USD 600,000
L&F	2016: W1/W2: approx. USD 200,000; Bilateral approx. 300,000
MAIZE	N/A
PIM	<p>Issues regarding PIM activities in Nicaragua widely contribute to PIM and CGIAR goals. These activities are conducted by a combination of CGIAR funds from PIM and other CRPs (such as CCAFS, A4NH, Humidtropics, etc.), as well as funds and investments from bilateral donors.</p> <p>In terms of specific projects, the following represent those funded by PIM:</p> <ul style="list-style-type: none"> - Building R4D learning platforms in Latin America, Africa and Asia - Building sustainable trading relationships between smallholder farmers and buyers - Monitoring and evaluation of the uptake of the LINK guide for inclusive business models - Understanding the potential for addressing rural poverty through value chain development for underutilized fruits - Conceptual tool: value chains as complex systems <p>Projects carried out with bilateral funds:</p> <ul style="list-style-type: none"> - "In our own hands" Community seed banks: origins, evolution and prospects -- a book - Impact Assessment and Performance Monitoring Nicaragua and Honduras - PROGRESA Project - Consultancy - Rural and Agricultural Economy Dynamics and Livelihood Development Potential in Mexico, Guatemala, El Salvador, and Nicaragua - Evaluation of the impacts of the fair trade for all initiative on smallholder producers and workers on large farms producing coffee certified by fair trade for all. - Measuring and Assessing Impacts of Fair Trade for All on farmer, farmworkers and the overall Fair Trade Market System - New Business Models for the Sustained Inclusion of Smallholder Farm Families in Agribusiness in Nicaragua and Honduras <p>Donors of bilateral projects include several German organizations, Catholic Relief Services, COSA, Ford Foundation, Green Mountain Coffee, and OFID, among others.</p>

2.8. Plans and proposals for CRPs Phase II

CRP	Plans and proposals for CRPs Phase II
A4NH	<p>In relation to Biofortification, Phase II of this program plans to deliver results at a greater scale (projection of 20 million homes in 2020) and conduct research to fill in key gaps and lessons learned on distribution for future research and scaling. In addition, to facilitate an enabling environment for biofortification in the future, the program will undertake policy analyses and advocacy at the national and international level, as well as building capacities of key partners in research and development issues, so they can incorporate biofortification in their research activities and programs. In Nicaragua, breeding and distribution activities will continue and it is planned to scale-up the distribution of biofortified seeds. Finally, H+ will raise awareness (increase knowledge) about health benefits derived from consumption of biofortified grains.</p>
CCAFS	<ul style="list-style-type: none"> • Projects related to Site-Specific Climate-Smart Agriculture and Climate-Smart Coffee and Cocoa Chains in Latin America and Africa are approved to the end of 2016 with a possibility of extension to 2018, depending on the outcomes. • The CSV will continue to be a site for participatory evaluation of technologies and practices, where the experience of our key partner, CATIE - within the framework of the Mesoamerican Agro-environmental Program - will allow for the scaling of results and processes that get communities involved in the work of researchers, making science available to them. • CCAFS has set goals for 2022 contributing to SLOs, where outcomes from the work in CSVs, like Tuma La Dalia, will allow for the scaling of technologies and practices of climate-smart agriculture, based on the evidence generated in these sites with communities, actors from the public and private sector, and other partners (See CCAFS Phase 2 pre-proposal.)
Humidtropics	<p>Although this program will no longer exist, the activities will be integrated to those of other CRPs. We estimate the allocation of the budget to look like this: Livestock 60%, RTB 20%, PIM 20%</p>
PIM	<p>Resources, examples, and links (including projects from PIM, CIAT, and partners):</p> <ol style="list-style-type: none"> 1) Inclusive business models <ul style="list-style-type: none"> • http://dapa.ciat.cgiar.org/designing-inclusive-business-models-in-central-america/ • http://dapa.ciat.cgiar.org/collaboration-for-inclusiveness-learning-alliances-in-central-america/ • http://dapa.ciat.cgiar.org/alianza-estrategica-para-la-construccion-de-modelos-de-negocio-incluyentes-2/ [In Spanish]

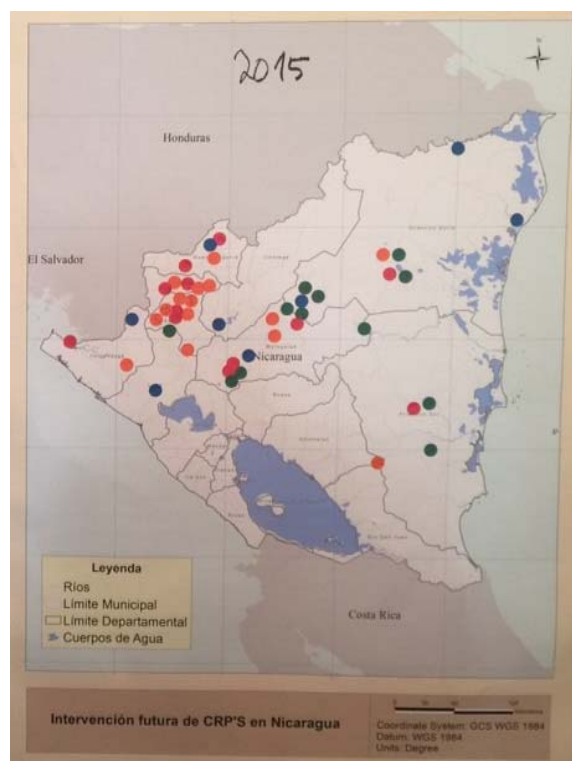
	<ul style="list-style-type: none"> • http://dapa.ciat.cgiar.org/2-casos-exitosos-de-link-en-foro-nicaraguense-de-negocios-inclusivos/ [In Spanish] <p>2) Research for development</p> <ul style="list-style-type: none"> • http://www.alianzasdeaprendizaje.org/portal/tematicas-de-aprendizaje [In Spanish] <p>3) Sustainable food systems</p> <ul style="list-style-type: none"> • http://dapa.ciat.cgiar.org/promoting-sustainable-food-systems-by-researching-informal-markets-in-nicaragua-and-honduras/ <p>4) Integrated themes, monitoring, and evaluation.</p> <ul style="list-style-type: none"> • http://dapa.ciat.cgiar.org/author/fguharay/ • http://dapa.ciat.cgiar.org/is-the-ft4all-initiative-really-for-all/
--	---

2.9. Outcome delivery mechanisms

CRP	Outcome delivery mechanisms
A4NH	The main outcome delivery mechanisms include direct collaboration with partners. When constraints/problems arise with a partner in particular, H+/CIAT searches for additional partners within its network of collaborators working on other CRPs or bilateral projects, who could help solve the problem and deliver the outcomes.
CCAFS	<p>Outcomes from CCAFS projects are stored through the Planning & Reporting Platform where the contributions of each project to the CCAFS theory of change are tracked, along with long-term goals and outcomes that help achieving goals set at the project level.</p> <p>The CCAFS Regional Project for Latin America supports projects through monitoring and follow-ups to establish connections with other researchers, institutions, and donors who could further develop partnerships where CCAFS works.</p>

FTA	The information generated by these studies has been shared with local partners through forums (an example is the the last forum on farm trees held jointly with CONICYT) and our web site www.paisajecentinela.org [In Spanish] In addition, we are working in the process of directly reporting results back to producers and local organizations (beginning of 2016) and the preparation of scientific publications (posters, papers, and reports.)
Humidtropics	We have established an information system: http://alianza-cac.net [In Spanish] where we share information with our partners; we also present results directly through the three territorial alliances and the R4D national alliance in Nicanorte
L&F	Regarding outcome delivery mechanisms, L&F has an electronic platform with an area with open access to documents generated by the program. In Nicaragua, the strengthening of a sustainable livestock farming platform is underway; however further efforts are required so that partners and other organizations can benefit from both mechanisms.
PIM	By means of the Learning Alliance and advocacy processes (led by partners) aimed at the private sector, donors and, to a lesser extent, the Nicaraguan Government.

3. Thematic integration of CRPs



Future integration of CRPs in Nicaragua

3.1 Nutrition and Poverty

<p>Activity Description</p>	<p>It consists of issues related to food and nutritional security (access, availability, consumption, and biological utilization); there is a relation between poverty and nutrition, because when someone is poor, access to nutrients is limited.</p> <p>Elements affecting these issues are access, availability, consumption, and biological utilization of food, as well as availability of nutritious crops. From the economic point of view, it depends on supply and demand. It is also affected by the socio-economic conditions of the area. For example, there are poorer areas that require more work and they are poor areas with poor access, and adverse/different climate conditions. In addition, education is important as is the availability of information. Policies have an impact, since, for example, now there is a higher production and consumption of black beans in Nicaragua (than before), due to a project from the Venezuelan Government.</p> <p>It is necessary to implement rural development projects, not only agricultural projects.</p> <p>Work with charismatic crops is being conducted with NAIS; such is the case of cacti (pitaya), which inhibit grasses. It is necessary to work with crops for dry areas. There is a need for a greater diversity of crops and varieties; this could include recover crops and varieties planted by</p>
-----------------------------	--

	<p>indigenous people (i.e. quilite and ojoche), which still grow, despite climate change.</p> <p>It is important to distinguish between macro- and micro-nutrition. In terms of poverty, macro-nutrients are a general problem (e.g. consumption of junk food.)</p> <p>Changing eating habits is difficult.</p>
Existing cooperation mechanisms.	<p>Government social programs to deliver a technological packages (seed, fertilizers.)</p> <p>Food programs (government, organizations.)</p> <p>Banning junk food from schools.</p> <p>Genetic improvement of varieties and biofortified varieties.</p> <p>Development and health programs.</p> <p>NAIS.</p> <p>There should be a relationship between the Health sector and those generating new varieties/identifying crops for a well-balanced diet.</p> <p>The Ministry of Health has large health programs.</p> <p><i>Parque nacional de ferias</i> [national trade fairs park] (Managua): to promote all food products.</p> <p>Municipal fairs: similar to national trade fairs park, but outside Managua.</p> <p>Projects are needed to generate income for producers and reduce poverty. For example, it is possible to work with local market systems (in production, processing, consumption.)</p> <p>PAPSAN Program.</p>
Existing resources	<p>Local, government, and cooperation organizations; NAIS; local innovation chains; supermarket chains (contracts with smallholder producers); universities.</p>
Needs/contributions of international entities	<p>Genetics (conservation, preservation, multiplication), generation of knowledge and information (e.g. consumption patterns), serve as link to promote value chains, alternatives to reduce production risks (e.g. agricultural insurance), generation of more productive technologies, innovation for standardization and scaling, gender issues (closely related to nutrition), work with vulnerable groups (children, women, indigenous people), measure the impact of development projects, strengthening/creation of capacities (production, transformation, marketing, bio-inputs), strengthen local innovation spaces.</p>

3.2 Climate Change

Activity Description	<ul style="list-style-type: none"> - Reduced production - There is no rain; harder living conditions - Agroecological practices on coffee and cocoa systems, soil improvement, native seeds in every system - Mainstreaming of diversification - Issues regarding resilience to climate change
Existing cooperation mechanisms.	<ul style="list-style-type: none"> - Development of standardized information systems; Bioversity is working on streamlining information so producers may understand it.

	<ul style="list-style-type: none"> - Regarding resilience, Heifer and ASDENIC are working on values. Their work model involves linking local knowledge with scientific knowledge, creating a knowledge chain and scaling it up. With this model, they have reached 15,000 families in the last 3 years; ASDENIC, 1032 families. Building capacities in the communities.
Existing resources	<ul style="list-style-type: none"> 1) UNA <ul style="list-style-type: none"> - Experience in adaptation, practices and technologies addressed to the production sector - Varieties with higher resistance to drought - Summer food and fodder alternatives - Use of forages resistant to water stress - Practices to prevent run-off and erosion - Research staff: 120 experts in different areas - We want to sow, therefore, there is ambition, there is a strong productive culture 2) Heifer <ul style="list-style-type: none"> - Own financial resources - From 15 to 20 people in Nicaragua - Local partners - A network of promoters 3) ASDENIC <ul style="list-style-type: none"> - A network of promoters to attend 1000 families in the dry corridor - Research experience, extensive alliance with researchers from the universities of California, Vermont, Chapingo, and national universities, regarding community agroecology. - Important partnership with CIAT - Financial resources guaranteed for the next 5 years
Needs/contributions of international entities	<ul style="list-style-type: none"> - CGIAR has information, tools, how to extend the use of these tools (for example, Heifer put it this way and CAFENICA represents 10,700 producers) - CAFENICA is working with tools or weather stations - Making good use of CIAT's research experience, but there are other topics that interest CAFENICA with advice or support from CIAT. - Methodologies, design, and analysis, there is not much interest in documenting them, but straightforward implementation by producers is preferred - There is a great lack of research centers in the country - With the support of specialists, planting the most suitable crops for each area - Socialize climate information to develop resilient communities

3.3. Training

<p>Activity Description</p>	<p>Technical and professional levels</p> <p>1. Training areas:</p> <ul style="list-style-type: none"> - Natural resources - Climate change - Agroecology - Agricultural sciences - Social sciences - Environmental sciences <p>Mechanisms: Training through research theses</p> <p>2. Non-formal training level</p> <ul style="list-style-type: none"> - Crop management - Agroecological practices - Soil and water conservation - Pest and disease management - Business organization - Livestock farming - Community organization - Agricultural, livestock, and forest value chain
<p>Existing cooperation mechanisms</p>	<ul style="list-style-type: none"> - NCU - Council of Rectors - Inter-institutional technical commission for technical education in the countryside. - At the producers' level, there is no mechanism or entity coordinating training activities in this sector
<p>Existing resources</p>	<ul style="list-style-type: none"> - NCU - Council of Rectors - Technological commission - Associations: UNAG, UPANIC, FAGANIC - Public institutions - NGO - Private training centers - There are studies of the training needs at all levels
<p>Needs/contributions of international entities</p>	<ul style="list-style-type: none"> - Knowledge exchange and management - Provide experts for different priority topics - Financial contributions - Research outputs - Support processes and initiatives

3.4. Productivity

Activity Description	<ul style="list-style-type: none"> • It has been address towards production yields, without taking into account elements such as LAND, WORK, CAPITAL • The focus has been on the crop, and not on the farm. • Another factor is quality. Attention should be focused on the territory and the production systems and strategies should be designed to address specific conditions of specific territories. Working towards productivity on dry areas is not the same as working on humid areas with a family. • The monoculture approach is no longer relevant. The farm should be considered as an individual production unit. If we really want this, we have to consider every element with potential to improve its response capacity. Systemic approach... efficiency in resource management. • Lately we have been talking about sustainable productivity... the focus is on sustainable production systems... to have more or less diversity, organic matter... etc... • It has been discussed that productivity should not come at the expense of the environment... From technologies. Alliances and coordination strategies... • UPA initially manages its own SAN. • Working in accordance to territorial conditions, advancing resilient models to adverse conditions. Acknowledge and characterize the different types of producers. • Support the stability of family production systems.
Existing cooperation mechanisms	<ul style="list-style-type: none"> • There are forums for cooperation: National System of Production, Consumption, and Trade; Nicaraguan System of Research and Innovation; National Council of Research, Science, and Technology; National Council of Universities. On the other hand, we have a Donor Board. • There are Producer Organizations: MAONIC, PCAC, FUNICA... • There are Learning Alliances: International Centers, Technical Cooperation. Nicaraguan Chamber of Cocoa, Nicaraguan Chamber of Meat, Nicaraguan Chamber of Milk, Chamber of Palm, Regional Program for Coffee
Existing resources	<ul style="list-style-type: none"> • See INTA presentation (Pedro Pablo.) • For Productivity, Program PASO BID, NICADAPTA, CRISSOL.
Needs/contributions of international entities	<ul style="list-style-type: none"> • Knowledge management in different working areas. • Crop models (development and training) • early warning systems (weather bulletins) • Access to germplasm

	<ul style="list-style-type: none"> • Guidance for research on production systems provided by technicians. • Technical and methodological assistance to reach producers. • Strengthening of technical capacities. • Germplasm exchange. • Recovery and conservation of native seeds and plant breeding. • Strengthening of exchange relationships. • CONAGAN: How to improve production systems under the approach of silvopastoral systems on acid soils. Strengthening of Inclusive businesses. • Joint work to reduce knowledge gap along the scientific, technical, and community levels (knowledge management.)
--	---



3.5. Natural resources

Activity Description	<ul style="list-style-type: none"> • Long-term research on agroforestry coffee • Tree component in farms and yards • Long-term biophysical and socio-economic monitoring • Fertilization with bio-inputs • Efficient use of water • Agroecological management • Climate change mitigation • Agroforestry Systems (AFS) in cocoa and coffee • Silvopastoral Systems (SPS) in Livestock Farming • Forest restoration and natural regeneration • ENDE, REDD+, and NAMAS funds
----------------------	---

	<ul style="list-style-type: none"> • Community management of natural forests
Existing cooperation mechanisms	<ul style="list-style-type: none"> • Cooperation agreements with the State (CNIA), • In the future, strengthening alliances and collaboration platforms
Existing resources	<ul style="list-style-type: none"> • National partners: SPCC • International partners: CIAT, CATIE, CIRAT, ICRAF, ETC.
Needs/contributions of international entities	<ul style="list-style-type: none"> • Trainings • Technical assistance • Applied research • Financial resources in specific sites • Comprehensive projects • Food security and productivity • Cocoa • Musaceae • Roots and tubers • Vegetables, • Coffee • Livestock • Agroforestry

4. Recommendations of national entities to CRPs

1. Contribution to decision-making processes

- Take the public sector into consideration and use public policies as guidelines
- Align with and provide inputs for public policies.



2. Establishment of Platforms and Alliances

- Team work
- Get national universities and local organizations involved
- Promote alliances among actors from the public and private sectors, academia, and research institutions to spread knowledge among rural families
- Invest time and effort to gain in-depth knowledge about partners and work areas
- Continuous consultation; flexibility towards change; complementarity; integration
- Territorial platforms for distribution and scaling-up
- Build and prioritize alliances with local partners

3. Prioritize joint planning with national stakeholders.

- Previous consultation and initial dialog in planning
- Identify priorities, available resources for interventions, and opportunities in the areas
- Incorporate into the *Sistema Nacional de Innovación e Investigación Agropecuaria* (SNIIA) [National Agricultural Research and Innovation System] and support it.

4. Respond to the demand of the country's research agenda

- Identify added value of interventions
- Establishing early links between generators and end users
- Co-generation of research products along with end users
- Feedback of results from producers
- Get the private sector involved

5. Communication and transparency

- Joint work, consulting national and local authorities
- Coordinate actions with links to the local and national circumstances
- Spread information among national institutions

6. Prioritizing monitoring and evaluation - follow-up the outcomes of interventions, taking into account cultural and territorial aspects of the country

7. Promote participatory processes.

- Joint planning of research with local actors, actively sharing and consulting, not imposing ideas/projects/activities.
- Take into account local and ancestral knowledge prevailing in the areas
- Prioritize feedback from end users (i.e. producers.)

5. Actions, Priorities, and Demands form the Nicaraguan Agricultural Sector

5.1. National Partners Matrix

National Entity	Actions	Sites	Beneficiaries	Relation to CRPs
UNA	<ul style="list-style-type: none"> - Research on adaptation practices, water and soil conservation, production alternatives, resilient varieties, among others. - Strengthening of technical capacities in different topics (climate change adaptation and CDRM) - Tropical agroforestry, integrated natural resources management, tree species - Integrated water resources management, integrated river basins management - Agroecology, plant health, technological innovation, sanitary and phytosanitary management - Support planning processes and river basin management - Research on conservation and soil and water conservation - Research on natural regeneration of forests, biodiversity, and forestry - Research on IPM, biological and organic control of pests, diseases, and weeds. - Promoting exchange, discussion, and communication of experiences: networks, forums, scientific seminars, conferences, journals, and website - Research on <i>in vitro</i> propagation, tuber breeding, and biotechnology (in general) 	<p>Somotillo, Cinco Pinos – Chinandega</p> <p>Murra, Pueblo Nuevo, Mozonte, Wiwilí, Ciudad Antigua – Nueva Segovia</p> <p>Somoto, Las Sabanas, Orocuina</p> <p>San José de los Remates, Camoapa</p> <p>Nandarola, Chacocente, Rivas, and Carazo</p> <p>San Carlos, San Miguelito, El Almendro, El Castillo – Río San Juan</p>	<p>Community members, local leaders, CAPs, producers in the different areas where the activities are conducted</p> <p>Technicians and professionals from INAFOR, MARENA, MAG, Mayors’ Offices, INTA, MEFCCA</p> <p>Decision-makers at the national, municipal, and community level in the working areas</p>	
CAFENICA	<ul style="list-style-type: none"> - Climate change adaptation of production systems (coffee–agroforestry–soils) 	Current and potential coffee areas	Regulatory and research institutions	

	- Research related to weather – phenology of coffee, varieties		Cafenica: composed of 10,000 smallholder coffee producers	
External Cooperation Secretariat – <i>Gobierno Regional Autónomo Costa Caribe Norte</i> (GRACCN) [Autonomous Regional Government of the Northern Caribbean Coast]	<ul style="list-style-type: none"> - Food production, food and nutritional security - Livestock restructuring - Development of agrosilvopastoral systems - Integrated river basins, water, and soil management - Climate change 	NCCAR	<p>Indigenous and mestizo communities</p> <p>Organizations</p> <ul style="list-style-type: none"> - Territorial - Communal - Private producers <p>Wawa River Kukalaya River</p> <p>20 communities</p> <ul style="list-style-type: none"> - 10 indigenous - 10 mestizo 	
ASDENIC	<ul style="list-style-type: none"> - Establishment of perennial tree plots in the dry area (dry corridor) - Socialization of climate variables for agricultural production - Experiments on new crops with drought resistance - Summer fodder to save livestock production in the dry corridor - 	Las Segovias	<p>Livestock producers from Estelí, Telpaneca, Jalapa</p> <p>Producers from 27 municipalities of Las Segovias</p> <p>25 plots in Totogalpa, Limay</p>	
INTA ST-NAIS	<ul style="list-style-type: none"> - Agronomic management of fruit crops - Humid tropics crops 	National	Small and medium-sized producing families	

	<ul style="list-style-type: none"> - Production of seed for coca, coffee, potato, vegetables, cassava - Water management - Soil management - Participatory breeding of native seeds - Agroecological management - Prevention, mitigation, and adaptation to climate change 		Large producers	
CONAGAN	<ul style="list-style-type: none"> - Dual purpose cattle production under intensive silvopastoral systems - Inclusive business organization for meat and milk 	NCCAR – Siuna NCCAR – Rama	Livestock producers in general (30,000)	
Solidaridad Network	<ul style="list-style-type: none"> - Support the integral development of oil palm, sugar, livestock production, coffee, and cocoa - Improve productivity – quality - Environmental approach - Certification - Linkage to markets 	NCCAR SCCAR Jinotega Nueva Segovia Matagalpa	2,000 organized smallholder producers	
FECODESA	<ul style="list-style-type: none"> - Generate added value, rural agribusiness - Actions addressing climate change adaptation 	NCCAR SCCAR Dry corridor San Juan River Northern Area	6,000 partners 144 base cooperatives in 8 departments and 2 autonomous regions 16 associations and cooperatives	
FUNICA	<ul style="list-style-type: none"> - Development of new agroecological production systems – dry tropics/humid tropics - Promotion/development of innovations and ventures – local markets - Technical, business, financial, and non-financial services for beneficiaries 	Segovias (coffee) Matagalpa/Jinotega (cocoa, livestock)	Local organizations, cooperatives, SMEs, small companies (150)	

		West (food production)	Rural population, innovators, entrepreneurs (250) Small and medium-size producers (5,000)	
NORTEAK National Association of Reforesters	<ul style="list-style-type: none"> - Timber production in agrosilvopastoral systems - Creation of a research culture in universities 	Foresters: Chinandega Nandaime Rivas Boaco Siuna Silvopastoral systems: Boaco (humid area)	All of those who plant trees	
CONACOO	<ul style="list-style-type: none"> - Access to research outcomes - Strengthening community reserves of seeds - Strengthening NAIS - Participatory breeding of basic grains and vegetable seeds 	National	Department councils (22) 250,000 rural families 4,000 rural cooperatives	
FAGANIC	<ul style="list-style-type: none"> - Marketing - Agribusinesses - Improve productivity 		50 associations	
Heifer International	<ul style="list-style-type: none"> - Research to improve coffee production and its resilience to the effects of climate change - Agroforestry and strengthening of the cocoa value chain - Improvement of the milk production yield (feed, animal health, genetics) 	Matagalpa Jinotega Las Segovias Dry corridor – León and Chinandega		

	- Strengthen experiences of community seed banks of basic grains and scaling-up experiences with native seeds			
APEN	<ul style="list-style-type: none"> - Seed breeding - Postharvest management - River basins management - Soil protection - Inclusive markets - Production strategies towards climate change 	<p>Northern area of Nicaragua</p> <p>Western area</p> <p>Nueva Guinea – SCCAR</p>	<p>2,500 vegetable producers</p> <p>500 producers of roots and tubers</p> <p>30 coffe, cocoa, and basic grains organizations</p> <p>200 banana producers</p>	
UCA	<ul style="list-style-type: none"> - Analysis and identification of agricultural production systems with resilience to climate change and to specific conditions of different areas - Participatory definition of strategies for climate change adaptation, their validation and large-scale application - Strengthening of technical and community capacities (training processes and knowledge management) - Linking strategies (territorial/sectoral; between levels) - Diversification of products derived from the dairy sector - Reduce knowledge gaps along the technical, scientific, and community levels 	National	<p>Social actors</p> <p>Different types of producing families</p> <p>500 smallholder producers from Ciudad Darío</p> <p>Smallholder producers from the dairy sector (approximately 1000)</p>	

5.2. Notes from the National Consultation to identify actions, priorities, and demands from the agricultural sector of Nicaragua

i. Joint generation of research outcomes and international public goods (i.e. knowledge, technologies, tools, evidence, processes, and platforms)

Boost participatory research processes with quicker results, involving local knowledge at the community level, as well as innovation systems and business development from bottom to top. Adaptation of technologies to these new innovation models.

Development of impact evaluation and monitoring systems, as well as information systems to improve the diffusion and adoption of technologies.

Development of tools to improve decision-making processes at the farm level (records, monitoring information systems, market assessment)

Strengthen knowledge management in relation to the network of weather stations and early warnings; establish a common definition of tasks that territorial organizations will carry out regarding climate change; climate information sharing between technicians and producers, linked to interpretation processes for a better management of production systems

Provide support and follow-up of research activities by local organizations

Activities related to topics such as crop varieties adapted to territories, water quality, indicators for the evaluation of climate-smart agriculture and the impact of climate change, knowledge management and training, crop models, access to germplasm, silvopastoral systems on acid soils, food security and productivity, genetics, consumption patterns, development of value chains, risk reduction, tools to measure the impact of development projects

ii. Scaling up – *Sistema Nacional de Innovación e Investigación Agropecuaria (SNIIA)* [National Agricultural Research and Innovation System]

The country's research agenda is coordinated by INTA, with a territorial approach and based on local consultations; it represents an opportunity to align goals with those of CGIAR and implement studies that are relevant to the country. The SNIIA seeks increasing agricultural production within the context of climate change, by means of an agroecological model. It includes 19 *Núcleos de Innovación Territorial*, NITs [Territorial Innovation Clusters], each of which covers 2 or 3 municipalities.

Research groups include:

- *Livestock farming*
- *Agro-socio-economy*
- *Agroecology and climate change*
- *Apiculture*
- *Water for agricultural use*
- *Agri-foods*
- *Vegetables*

Approaches include:

- Traditional crops: beans, maize, rice, sorghum, cocoa, pastures and forages, tomato, onion, peppers, cabbage, roots and tubers, Musaceae, amaranth, potato, coconut, peach-palm
- Export crops: coffee, cocoa, chia seeds, cassava, dasheen, taro, passion fruit, chayote, bamboo, oil palm, pineapple, rubber
- Native seeds
- Fruits: citrus, avocado, pineapple, guava, pitaya, Musaceae, mango, icaco, nancite, peach-palm, breadfruit, zapote, guanábana (soursop), chirimoya, cashew nuts, ice-cream bean
- Medicinal and aromatic plants, herbs
- Bio-inputs for fertilization and pest control
- Contribute to animal production in husbandry systems: intensification of pig farming and poultry

Possibilities of alignment and collaboration of CRPs and national policies through SNIIA

This forum may be used to provide feedback and contribute to the implementation and development of national and regional policies. The priorities identified for collaboration between SNIIA and CGIAR include:

- Seeds
- Recover native seeds, grasses, and animals
- Agroecological production, use of local resources
- Climate change
- Diversification of production systems
- *Diversification: integrated vision of research, fruit, maize, and livestock projects*

iii. Opportunities and thematic demands of research for agricultural development in Nicaragua

Research needs for agricultural development identified through SNIIA, include:

- Types of farmers to identify intervention options
- Project baseline for impact monitoring

The opportunities for monitoring include:

- 600 innovation participatory farms (of 3 to 5 Nicaraguan *manzanas* [2-3 ha])(producers, researchers, vegetable production) focused on systems that combine a range of activities
- Outreach mechanisms: INTA trains staff members of MEFCCA and other organizations in the use of technologies to transfer this information to farmers
- Germplasm exchange.
- Inclusive business
- Knowledge transfer
- Participatory research
- Demonstrative trials
- Incentive schemes
- Seed banks

The topics of interest identified by representatives of different sectors of the country include:

- Socio-economic problems
- Productivity
- Livestock production
- Monitoring and Evaluation
- Market challenges
- Outreach (rural development loans and technical assistance; inclusive business models linking industries and producers)
- Communication networks to understand the tasks and ongoing activities of each organization

6. Next steps

- Taking advantage of the appointment of Nicaragua as an integration site, CRPs Phase II represents an opportunity of integration.
- It is necessary to develop an agenda of CRP activities that respond to country demands in a collaborative way.
- Preparation of a working paper to establish the mechanisms, according to the following criteria:
 - Country background
 - Country priorities
 - Current status of CRPs
 - CGIAR research agenda
 - Theory of change and impact pathways
 - Strategy to coordinate actions of CRP Phase II
 - Cooperation mechanisms existing in Nicaragua
 - Existing resources
 - Scaling mechanisms
 - Identification of additional issues not covered by CGIAR

Clarifications:

Two fundamental cornerstones

- 1) What do CRPs do
- 2) What does the country want

Broaden talks with MARENA [Ministry of Environment] and open up the way for collaboration with CIAT offices in Nicaragua – themes identified related to environmental issues; identify points of interest (forests, environment, natural resources)

Outline what CGIAR offers local partners within the Nicaraguan system, aligning with their priorities and agendas – from this agenda, design a theory of change and impact pathway. This way partners will have a clear path to approach CGIAR and get involved in research activities.

It is important to use the opportunity given by SNIIA and open up the way to collaborate with MARENA, INAFOR, etc. (suggest existing or new cooperation and scaling mechanisms to overcome these challenges.)

One of the objectives of this working paper is to record evidence of the value of the CRP proposals (highlighting the support CGIAR provides to this emerging innovation system in Nicaragua), as well as identifying issues that show the ability of CRPs to work in a coordinated fashion in the same territory, with their skills and competencies. Starting from the approval of the CRP Phase II agenda, this document constitutes a valuable resource to share the lines of work with local partners.

As the work advances, it becomes necessary to define communication strategies for a transparent exchange with local and international partners. It is important to reflect the criteria that make Nicaragua a priority area for this complementation exercise between CRPs and partners to close the gaps in the country.

This meeting will generate two types of products:

1. Proceedings of the workshop (in order keep transparency of CRP proposals and get local partners involved)
2. Internal working paper identifying those messages with which we want to reach out:
 - Issues that highlight working potential in Nicaragua
 - How and with whom it is necessary to work in Nicaragua
 - The added value that CGIAR brings to the Nicaraguan innovation system

7. List of participants

ORGANIZATION	NAME	EMAIL
Biodiversity International	Elias Bucardo	ebucardo@catie.ac.cr
Biodiversity International	Maarten van Zonneveld	m.vanzonneveld@cgiar.org
CATIE	Norvin Sepúlveda	nsepulveda@catie.ac.cr
CATIE	Eduardo Somarriba	esomarri@catie.ac.cr
CATIE	Estela Alemán	ealeman@catie.ac.cr
CIAT	Carlos Zelaya	c.r.zelaya@cgiar.org
CIAT	Martín Mena	m.a.mena@cgiar.org
CIAT	Byron Reyes	b.reyes@cgiar.org
CIAT	Steven Prager	s.prager@cgiar.org
CIAT/CCAFS	Deissy Martínez	d.m.baron@cgiar.org
CIAT	Ma. Eugenia Baltodano	m.e.baltodano@cgiar.org
CIAT	Elcio Guimaraes	e.guimaraes@cgiar.org
CIAT	Ma. Alejandra Mora	m.a.mora@cgiar.org
CIAT	Wendy Godek	w.godek@cgiar.org
CIAT	Shadi Azadegan	s.v.azadegan@cgiar.org
CIAT	Carla Coronado	c.v.coronado@cgiar.org

CIAT	Armando Martínez	a.i.martinez@cgiar.org
CIAT	Pablo Siles	p.siles@cgiar.org
CIAT	Luis Armando Muñoz	l.a.munoz@cgiar.org
CIMMYT	Xiomara Chávez	x.chavez@cgiar.org
CIP	Claudio Velasco	c.velasco@cgiar.org
CIRAD	Sandrine Freguin Gresh	freguin@cirad.fr
ICRAF	Jenny Ordoñez	j.ordonez@cgiar.org
IFPRI	M Hernandez	m.a.hernandez@cgiar.org
ACF	Ramon Guevara Flores	rguevara@ca.acfspain.org
National Association of Reforesters	Ove Faurby	faurby@norteak.no
APEN	Silvio Fornos	sfornos@apen.org.ni
ASDENIC	Raúl Díaz	raul.diaz@asdenic.org
ASDENIC	David Sarantes	david.sarantes@asdenic.org
CAFENICA	Martha Gutiérrez	dirección@cafenica.info
CONACOOOP	Javier Pasquier	ajpasl@cipres.org.ni
CONAGAN	Carlos Mercado	cmercadoa@yahoo.es
FAGANIC	Salvador Castillo	prendinic@faganic.com
FAO	Gherde Barreto	gherde.barreto@fao.org
FECODESA	José Miguel Sandoval	jmiguelsandoval@yahoo.com.mx
FUNICA	Julio Mon	
Northern Regional Government	Héctor Rodríguez	hrodriguez61@yahoo.com
Heifer Nicaragua	Milton Castillo	milton.castillo@heifer.org
IICA	Mario Aldana	mario.aldana@iica.int
INTA	Danilo Montalván	dmontalvan@inta.gob.ni
INTA	Pedro Pablo Benavidez	pebena@yahoo.com
Lutheran World Relief	Jenny Wiegel	jwiegel@lwr.org
Solidaridad Network	Edgar Berríos	eaberrios@gmail.com
UCA	Mauricio Jesús Córdoba	cgat.fctya@ns.uca.edu.ni
UCA	Tarsilia Silva	tarsilia@ns.uca.edu.ni
UNA	Matilde Somarriba	matilde.somarriba@ci.una.edu.uni
VECOMA	Fausto Rodríguez	fausto.rodriguez@vecoma.org