



RESEARCH
PROGRAM ON
Integrated Systems
for the Humid
Tropics

Situation Analysis Phase I Organizational Analysis Report

**Nicanorte Action Site
Central America and the Caribbean Action Area
Humidtropics**

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Contents

List of Tables.....	iii
List of Figures	iv
Acronyms.....	v
Introduction	1
Methodology	1
Findings	5
Current Projects and Initiatives of the Organizations.....	5
Organizational Impacts and Humidtropics Desired Outcomes	7
Recent Organizational Innovations and Changes	10
Partnerships between the Organizations	12
Common Themes in Work with Partner Organizations	17
Desired Innovations and Changes	18
Current Innovation/Change Partners vs. Potential Innovation/Change Partners	21
Sources of Learning to Carry Out Innovations	25
Information Needed to Carry Out Desired Innovations.....	26
Actual and Perceived Limitations for Fostering Innovation and Change.....	28
Lessons Learned	31
Themes of Organizational Activities	34
Trends in Innovation and Change	34
Trends in Organizational Partnerships	35
The Way Forward: Recommendations.....	36
Annex 1 – Organizations Working in Nicanorte and Participation in Semi-Structured Interviews	37
Annex 2 – Minutes from MAGFOR Meetings	38
Annex 3 – Interview Protocol.....	43
Annex 4 – Organizational Projects, Desired Outcomes, Partners, and Locations	51
Annex 5 – Organizational Impacts and IDOs of Humidtropics.....	58
Annex 6 – Recent Innovations and Changes Fostered by Participating Organizations in the Last Five Years.....	69
Annex 7 – Themes of Project/Innovations with Partner Organizations.....	83
Annex 8 – Desired Innovations/Changes by the Organizations in the Next 5–10 Years.....	89

Annex 9 – Reported Sources of Learning for Carrying Out Innovations and Change	98
Annex 10 – Information Needed by Organizations to Carry Out Desired Innovations	102
Annex 11 – Reported Limitations to Carrying Out Innovations and Changes	105
Annex 12 – Potential Limitations to Implementing Innovations Desired by Organizations	108
Annex 13 – Organizational Narratives	110
Asociación para la Diversificación y el Desarrollo Agrícola Comunal (ADDAC)	111
Bioversity	114
Catholic Relief Services	117
Centro Agronómico Tropical de Investigación y Enseñanza (CATIE).....	120
Centro de Gestión Ambiental y Tecnológica (CGAT).....	123
Consejo Nacional de Café (CONACAFE)	126
Dirección General de Sanidad y Protección Agropecuaria (DGPSA), Ministerio Agropecuario y Forestal (MAGFOR)	128
Exportadora Atlantic	130
Food and Agriculture Organization of the United Nations (FAO)	133
Fundación Solidaridad Network.....	135
German Federal Enterprise for International Cooperation (GIZ) – Program for the Sustainable Management of Natural Resources and Promotion of Competitive Enterprise (MASRENACE).....	137
Instituto Nacional Tecnológico (INATEC).....	140
Movimiento de Productoras y Productores Agroecológicos y Orgánicos de Nicaragua (MAONIC)	142
Nitlapan	145
Programa Campesino a Campesino (PCAC)	147
Ritter Sport Nicaragua.....	150
UCA Soppexcca.....	153
UNAN–FAREM MATAGALPA.....	156
Universidad Nacional Autónoma de Nicaragua – León (UNAN-León)	159
Unión de Productores Agropecuarios de Nicaragua (UPANIC).....	162

List of Tables

Table 1. Organizations Participating in Semi-Structured Interviews.....	2
Table 2. Relationship of Thematic Areas to Humidtropics IDOs	4
Table 3. Number, Average, and Median Values of Project/Initiatives by Sector.....	6
Table 4. Distribution of Projects/Initiatives by Thematic Area	7
Table 5. Number, Average, and Median Value of Impacts by Sector	8
Table 6. Distribution of Projects/Initiatives by Thematic Area	9
Table 7. Number, Average, and Median Value of Innovations/Changes by Sector.....	10
Table 8. Distribution of Innovations/Changes by Thematic Area	11
Table 9. Partner Organizations for Projects/Initiatives and Innovations/Changes by Sector.....	14
Table 10. Number, Average, and Median Value of Alliances by Sector.....	15
Table 11. Distribution of Partnerships for Each Sector (%).....	16
Table 12. Number of Projects/Innovations with Partner Organizations by Theme	18
Table 13. Number, Average, and Median Value of Desired Innovations/Changes by Sector	19
Table 14. Distribution of Desired Innovations/Changes by Thematic Area	20
Table 15. Potential Innovation/Change Partners by Sector	23
Table 16. Reported Potential Partners for Desired Innovations.....	25
Table 17. Number of Reported Sources of Learning to Carry Out Innovations by Sector.....	26
Table 18. Sources of Learning for Carrying Out Innovations (number of organizations).....	26
Table 19. Themes of Desired Innovations and Information Needed to Carry Them Out	28
Table 20. Reported Limitations and Perceived Limitations	30
Table 21. Profile of Organizations by Group	32

List of Figures

Figure 1. Distribution of Interview Participation by Sector 3

Figure 2. Distribution of Projects by Sector 6

Figure 3. Number of Projects by Thematic Area and Sector 7

Figure 4. Distribution of Impacts by Sector 8

Figure 5. Number of Impacts by Thematic Area and Sector 9

Figure 6. Distribution of Innovations/Changes across Sectors10

Figure 7. Distribution of Innovations/Changes by Sector and Thematic Area12

Figure 8. Distribution of Partner Organizations.....13

Figure 9. Distribution of Partnerships by Sector (number of partnerships)16

Figure 10. Distribution of Desired Innovations/Changes across Organization Groups19

Figure 11. Distribution of Desired Innovations/Changes by Sector & Thematic Area 21

Figure 12. Distribution of Potential Partners by Sector 22

Figure 13. Distribution of Potential Innovation Partners by Sector 24

Acronyms

ADAA	Área de Desarrollo Agrario y Rural	Agrarian and Rural Development Area
ADDAC	Asociación para la Diversificación y el Desarrollo Agrícola Comunal	Association for Diversification and Community Agricultural Development
AECID	Agencia Española de Cooperación	Spanish Agency for International Development Cooperation
ANACAFE	Asociación Nacional del Café	National Coffee Association
ANAR	Asociación Nicaragüense de Arroceros	Nicaraguan Rice Association
APEN	Asociación de Productores y Exportadores de Nicaragua	Producer and Exporter Association of Nicaragua
ATC	Asociación de Trabajadores del Campo	Rural Workers Union
BCIE	Banco Centroamericano de Integración Económica	Central American Bank for Economic Integration
BICU	Universidad Indígena de Caribe Bluefields	Bluefields Indian and Caribbean University
BID	Banco Interamericano de Desarrollo	Inter-American Development bank
CAC	Centroamérica y el Caribe	Central America and Caribbean
CADIN	Cámara de Industrias de Nicaragua	Nicaraguan Chamber of Industry
CATIE	Centro Agronómico Tropical de Investigación y Enseñanza	Tropical Agriculture Research and Higher Education Center
CCAFS	Cambio Climático y Seguridad Alimentaria	Climate Change and Food Security
CECOCAFEN	Central de Cooperativas Cafetaleras del Norte	Central Association of Northern Coffee Cooperatives
CENICAFE	Centro Nacional de Investigación de Café	National Coffee Research Center
CGAT	Centro de Gestión Ambiental y Tecnológica	Center for Environmental and Technological Management
CGIAR	Grupo Consultivo para la Investigación Agrícola Internacional	Consultative Group on International Agricultural Research
CIAT	Centro Internacional de Agricultura Tropical	International Center for Tropical Agriculture
CIC-BATA	Bata Centro de Iniciativos para la Cooperación	Bata Center for Cooperation Initiatives
CIDEA	Instituto de Capacitación, Investigación, y Desarrollo Ambiental	Institute for Environmental Training, Research and Development
CIPAV	Centro para la Investigación en Sistemas Sostenibles de Producción Agropecuaria	Foundation Center for Research on Sustainable Farming Systems

CIPRES	Centro para la Investigación, la Promoción, y el Desarrollo Rural y Social	Center for Rural and Social Promotion, Research, and Development
CIRAD	---	Agricultural Research for Development
COMUSSAN	Comisión Municipal de Soberanía y Seguridad Alimentaria y Nutricional	Municipal Committees for Food and Nutritional Sovereignty and Security
CONCAFE	Consejo Nacional de Café	National Coffee Council
CONYCIT	Comisión Nacional de Investigación Científica y Tecnológica	National Commission of Science and Technology of Nicaragua
COSATIN	Unión de Cooperativas Tierra Nueva	New Land Union of Cooperatives
COSUDE	---	Swiss Agency for Development and Cooperation
CNP	Comisión Nacional de la Papa	National Potato Council
CNU	Consejo Nacional de Universidades	National University Commission
CRS	---	Catholic Relief Services
DED	Servicio Alemán de Cooperación Social-Técnica	German Development Service
DGRV	Confederación de Cooperativas de Alemania	German Confederation of Cooperatives
EED	Fondo Europeo para la Democracia	European Endowment for Democracy
EIRENE	Servicio Cristiano Internacional por la Paz	International Christian Service for Peace
EMBRAPA	Empresa Brasileña de Pesquisa Agropecuaria	Brazilian Agricultural Research Corporation
EU	Unión Europea	European Union
FADCANIC	Fundación para la Autonomía y el Desarrollo de la Costa Atlántica de Nicaragua	Foundation for the Autonomy and Development of the Atlantic Coast of Nicaragua
FAO	Organización de Alimentos y Agricultura de las Naciones Unidas	Food and Agriculture Organization of the United Nations
FAO-PESA	Programa Especial de Seguridad Alimentaria de la FAO	FAO Special Program for Food Security
FDL	Fondo de Desarrollo Local	Local Development Fund
FHIA	Fundación Hondureña de Investigación Agrícola	Honduran Foundation of Agricultural Research
FSLN	Frente Sandinista de Liberación Nacional	Sandinista National Liberation Front
FUNICA	La Fundación para el Desarrollo Tecnológico Agropecuario y Forestal de Nicaragua	Foundation for Technological Development in Agriculture and Forestry
GEF	Facilitador Ambiental Mundial	Global Environmental Facility

GIZ	---	German Federal Enterprise for International Cooperation
GPAE	Grupo para la Promoción de Agricultura Sostenible	Group for the Promotion of Ecological Agriculture
GRAAN	Gobierno de la Región Autónoma de Atlántica Norte	Government of the North Atlantic Autonomous Region
ICI	Instituto Cooperativo Inter-Americano	Inter-American Cooperative Institute
IDR	Instituto para el Desarrollo Rural	Institute for Rural Development
IFC	Corporación Financiera Internacional	International Finance Corporation
IICA	Instituto Interamericano de Cooperación para la Agricultura	Inter-American Agricultural Cooperation Institute
INAFOR	Instituto Nacional Forestal	National Forestry Institute
INATEC	Instituto Nacional de Tecnológico	National Institute of Technology
INFOCOOP	Instituto Nicaragüense de Fomento Cooperativo	Nicaraguan Institute of Cooperatives
INPSA	Instituto Nicaragüense de Sanidad y Protección Agropecuaria	Nicaraguan Institute for Health and Agricultural Protection
INPRHU	Instituto de Promoción Humana	Institute of Human Promotion
INTA	Instituto Nacional de Tecnología Agropecuaria	National Institute of Agricultural Technology
IPADE	Instituto para el Desarrollo y la Democracia	Institute for Development and Democracy
JICA	---	Japan International Cooperation Agency
LIDECONIC	Liga de Defensa del Consumidor de Nicaragua	Consumer Defense League of Nicaragua
LWR	---	Lutheran World Relief
MAGFOR	Ministerio Agropecuario y Forestal	Ministry of Agriculture and Forestry
MAONIC	Movimiento de Productoras y Productores Agroecológicos y Orgánicos de Nicaragua	Nicaraguan Movement of Agroecological and Organic Producers
MARENA	Ministerio del Ambiente y Recursos Naturales	Ministry of the Environment and Natural Resources
MASRENACE	---	Sustainable Management of Natural Resources and Promotion of Competitive Enterprise
MEDA	Menonitas Asociados para el Desarrollo Económico	Mennonite Economic Development Associates
MEFCCA	Ministerio de la Economía Familiar, Comunitaria, Cooperativa, and Asociativa	Ministry of Family, Communal, Cooperative, and Associative Economy

MEM	Ministerio de Energía y Minas	Ministry of Energy and Mines
MIFIC	Ministerio de Fomento, Industria, and Comercio	Ministry of Industry and Trade Promotion
MIPYMES	Micro, Pequeña y Mediana Empresa	Micro, Small, and Medium Business Program
MITRAB	Ministerio de Trabajo	Ministry of Labor
OCIA	Asociación para el Mejoramiento de Producción Orgánica	Organic Crop Improvement Association
ODESAR	Organización de Desarrollo Económico y Social y Área Urbana y Rural	Organization for Economic and Social Development in Rural and Urban Areas
OIRSA	Organización Internacional Regional de Sanidad Agropecuaria	Regional International Organization for Agricultural Health
PCAC	Programa Campesino a Campesino	Farmer-to-Farmer Program
PCI	---	Project Concern International
PRODECOOP	Central de Cooperativas de Servicios Múltiples	Central Multi-Service Cooperative
RAAN	Región Autónoma Atlántico Norte	North Atlantic Autonomous Region
Red-SICTA	Red Nacional de Innovación Tecnológica de Nicaragua	Agricultural Innovation Network Project of Nicaragua
SCAA	Asociación de Cafés Especiales de América	Special Coffee Association of America
SERIDAR	Sociedad Rural, Economía y Recursos Naturales	Rural Society, Economy, and Natural Resources
SETAB	Secretaría Técnica de Bosawás	Secretariat of Bosawás
SI	Solidaridad Internacional	Solidarity International
SIMAS	Servicio de Información Mesoamericano sobre Agricultura Sostenible	Mesoamerican Information Service on Sustainable Agriculture
SMS	Servicios de Manejos Sostenibles	Sustainable Management Services
SNV	Servicio Holandés de Cooperación al Desarrollo	Netherlands Development Organization
UCA	Universidad Centroamericana	Central American University
UNA	Universidad Nacional Agraria	National Agrarian University
UNAG	Unión Nacional de Agricultores y Ganaderos	National Farmers and Ranchers Union
UNAN	Universidad Nacional Autónoma de Nicaragua	National Autonomous University of Nicaragua
UNAN-León	Universidad Nacional Autónoma de Nicaragua	National Autonomous University of Nicaragua-León
UNIDO	Organización de las Naciones Unidas para el Desarrollo Industrial	United Nations Industrial Development Organizations
UPANIC	Unión de Productores Agropecuarios de Nicaragua	Agricultural Producers Union of Nicaragua

URACCAN	Universidad de las Regiones Autónomas de la Costa Caribe Nicaragüense	University of the Autonomous Regions of the Nicaraguan Caribbean Coast
USAID	Agencia de los Estados Unidos para Desarrollo Internacional	United States Agency for International Development
USDA	Departamento de Agricultura de los Estados Unidos	United States Department of Agriculture

Introduction

As per Humidtropics' Strategic Research Theme 1, Systems Analysis and Global Synthesis, situation analysis was carried out for the Nicanorte action site, located in the Central America and the Caribbean (CAC) action area, from August to mid-November 2013. A key component of situation analysis was the collection of primary data from organizational actors that work in the Nicanorte action site with the goal of learning more about their past and current activities, innovations, and alliances between the organizations working in this action site; the direction the organizations seek to move towards in the future; and, finally, more about where the organizations see the greatest potential for Humidtropics in Nicanorte and why. The purpose of collecting and analyzing this data was twofold: (1) it helps to gain a deeper understanding of the current status of different activities, innovations, and future directions of organizations working in Nicanorte (and in other parts of Nicaragua) to assist in the process of making strategic and collective decisions about the direction of Humidtropics in Nicanorte and (2) it provides an important baseline data set to monitor and evaluate learning and innovation among organizations both at the level of Humidtropics territorial learning alliances (innovation platforms) and at the national level through the Humidtropics Research-for-Development (R4D) Platform.

This report includes the findings of the organizational analysis component of Phase I of the situation analysis of the Nicanorte action site. It first briefly discusses the methodology that was used.¹ It then continues by presenting the major findings of situation analysis organized into 10 indicators. It concludes by discussing some important lessons that were learned and recommendations for future directions.

Methodology

In order to carry out the organizational analysis component of situation analysis, semi-structured interviews were carried out with key organizations with the objective of gathering the following information:

- ★ General information about the organization
- ★ Organizational human resources in the Nicanorte action site
- ★ Projects and initiatives in the Nicanorte action site
- ★ Organizational impacts most relevant to the desired outcomes of Humidtropics achieved in recent years
- ★ Any innovations or changes in which the organization participated in the last five years, who they collaborated with, principle limitations, and most important sources of learning
- ★ Innovations or changes that the organization would like to foster in the next five years, who they envision collaborating with, what limitations they expect to encounter, and potential sources of learning
- ★ Three work sites in the Nicanorte region where Humidtropics should work and why these sites were chosen

Thirty-eight organizations were identified by the Humidtropics research team and consultants as actively working in the Nicanorte action site. These organizations were categorized by sector into six groups: public institutions, producer organizations, national civil society organizations, universities/university research institutes, private sector organizations, and international non-government organizations (INGOs) and cooperation agencies. The guidelines for categorizing the organizations into these groups were as follows:

¹ A more detailed description of the first phase of situation analysis, including organizational analysis, of the Nicanorte action site can be found in the report *Situation Analysis Phase I Methodology and Process*.

- **Public sector:** state institutions, such as ministries and other government programs or agencies
- **Producer organizations:** agricultural producer associations, networks, cooperatives, and unions
- **National civil society:** nongovernment organizations (NGOs) (excluding producer organizations) that are based in Nicaragua and serve the nation's communities
- **Universities/university research institutes:** includes universities at the national and international levels and research institutes that are either associated with or are part of a specific university
- **Private sector:** private enterprises and businesses and business and commerce associations (e.g., chamber of commerce)
- **INGOs and cooperation agencies:** the wide range of nongovernment and government organizations and agencies that provide support (including but not limited to material and financial) for development and include those that provide international aid, research organizations, implement development projects and programs, etc.

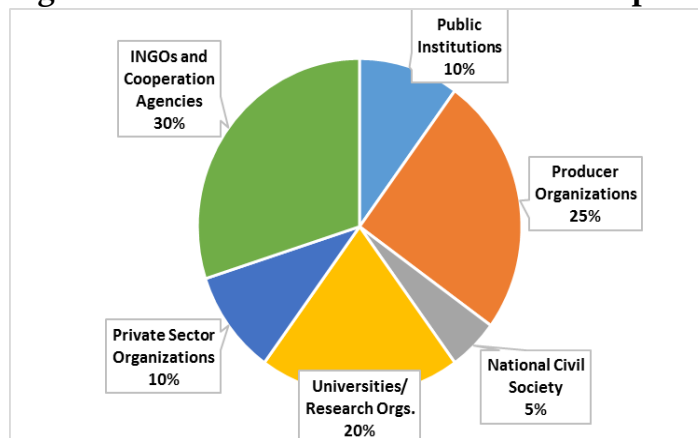
While efforts were made to arrange interviews with all identified organizations, the team succeeded in conducting semi-structured interviews with 20 organizations in September and early October of 2013.² These organizations are listed in Table 1 (below) according to sector. As depicted in Figure 1 (below), INGOs/cooperation agencies had the highest rates of participation, followed by producer organizations, universities, and finally private sector organizations, public institutions, and national civil society with more marginal participation rates.

Table 1. Organizations Participating in Semi-Structured Interviews

National Civil Society	INGOs/ Cooperation Agencies	Universities/ University Research Institutes	Private Sector	Public Sector	Producer Organizations
ADDAC	Bioversity CATIE CRS FAO Fundación Solidaridad Network GIZ	CGAT Nitlapan UNAN-FAREM Matagalpa UNAN-León	Exportadora Atlantic Ritter Sport	INATEC DGPSA	CONACAFE MAONIC PCAC UCA Soppexcca UPANIC

² See Annex 1 for a list of the organizations that were invited to participate in the interviews. MAGFOR opted not to participate in a formal interview but did meet with members of the Humidtropics team in March 2014. The minutes from this meeting are available in Annex 2. Finally, it should be noted that this report and the accompanying analysis is only based on data compiled through semi-structured interviews and does not include other data collected on key organizational actors that was compiled at other stages of the situational analysis. This data is available in the situation analysis report referenced above.

Figure 1. Distribution of Interview Participation by Sector



Interviews were conducted in Spanish by members of the Humidtropics' team and local consultants. An interview protocol³ was used with the interviewers recording the responses of the interviewee(s) by hand. In addition to answering questions, interviewees were also asked to identify sites where they thought Humidtropics should work on a map of Nicaragua. The information collected during the interviews was then processed and preliminary findings and results were recorded. The processed data was later transcribed into narratives written in English.⁴

Using the information compiled from the interviews and presented in the narratives, more extensive organizational analysis proceeded, focusing on 10 principle indicators:

1. Overview of current projects and initiatives reported by the organizations
2. The relationship between organizational impacts and the desired outcomes of Humidtropics
3. Recent innovations and changes fostered by the organizations
4. Partnerships between organizations
5. Common themes in the work of the organizations
6. Innovations and changes desired by the organizations
7. Current innovation/change partners and collaborators and potential innovation/change partners and collaborators
8. Sources of learning for innovations/changes
9. Information needed to carry out desired innovations
10. Actual limitations and potential limitations for carrying out innovations/changes

In order to examine how organizational projects/initiatives, impacts, innovations/changes, and desired innovations/changes compared with the intermediate development objectives (IDOs) of Humidtropics, 11 thematic areas were selected that reflect elements of the Humidtropics IDOs. Table 2 below lists these 11 thematic areas and shows how they are linked to Humidtropics IDOs.

³ See Annex 3 for a copy of the interview protocol.

⁴ See Annex 13 for the narratives.

Table 2. Relationship of Thematic Areas to Humidtropics IDOs

IDO	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to	Increase Income/Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth,	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/
IDO 1 – Income : Increased and more equitable income from agriculture for rural poor farm families, with special focus on rural women.			X		X				X		
IDO 2 – Nutrition : Increased consumption of safe, nutritious foods by the poor, especially among nutritionally vulnerable women and children.						X				X	
IDO 3 – Productivity/Yield : Increased total factor productivity of integrated systems.	X			X							
IDO 4 – Environment : Reduced adverse environmental effects of integrated systems intensification and diversification.	X	X									
IDO 5 – Gender : Increased control by women and other marginalized groups over integrated systems *assets, inputs, decision-making and benefits.							X				
IDO 6 – Innovation : Increased capacity for integrated systems to innovate and bring social and technical solutions to scale.				X				X	X		X

In coding organizational projects/initiatives, impacts, innovations/changes, and desired innovations/changes using the 11 thematic areas, the following guidelines were applied for each thematic area:

- **Sustainable production**: Includes actions that related to production, diversity, and sustainability.
- **Natural resource conservation**: Includes actions that are focused on conserving or preserving natural resources, including environmental sustainability, water management, and climate change.
- **Commercialization and access to markets**: Includes actions focused on value chains, value-added, markets, commercialization, marketing, and certification.
- **Innovations to increase access to capital**: Includes actions focused on expanding access to credit and other resources to assist producers/others in expanding their production and commecialization/access to markets.
- **Increase income/reduce poverty**: Includes actions that seek to increase income and reduce poverty.
- **Food and nutritional security**: Includes actions aimed at foster food security and better nutrition.

- **Gender equity/empowering youth, women, and marginalized groups:** Includes actions that seek to channel resources (economic, social, educational, etc.) to women, youth, or other marginalized groups (e.g., indigenous communities).
- **Innovation, knowledge, and learning:** Includes a broad range of actions that touch on processes of learning and knowledge production, including research, training/formal and information education, capacity building, and the creation of tools that serve to more deeply understand some phenomenon or are used to teach others.
- **Policies and institutions:** Includes actions that relate specifically to public policy and institutions at multiple scales.
- **Community health:** Includes actions that relate to the health of communities.
- **Strengthening organizations/alliances:** Includes actions that seek to strengthen organizations, alliances, and the relationships between them.

The nature of some projects/initiatives, impacts, innovations/changes, and/or desired innovations/changes reflected more than one thematic area, and they were coded as such. As per the indicators, data was processed and analyzed. A multiple spreadsheet Excel database was created for the processing of several indicators. Finally, conclusions were drawn as well as some lessons learned.

Findings

The findings from organizational analysis are organized below by indicator and are based on interviews with the 20 organizations listed above.

Current Projects and Initiatives of the Organizations

The organizations identified different projects and initiatives they are carrying out in the territory encompassed by the Nicanorte action site. In some cases, they reported other projects and initiatives in regions outside of Nicanorte, which were included in the findings. Annex 4 includes a list of all the projects/initiatives by organization, as well as the desired outcomes, partners, and locations of the project/initiative, if specified.

Seventy-three (73) projects were identified by the organizations, with an average of four projects per organization, and two project proposals (which were not included in the analysis of projects and initiatives). Table 3 below shows the total number of and average number of projects and initiatives for each sector as well as the project median value.⁵ Figure 2 below shows the distribution of projects by sector. The sectors with the highest average number of projects included universities/university research centers, national civil society, and the private sector.

⁵ This study chose to also include the median value because of asymmetry in the data set and to reduce the influence of outlying values.

Table 3. Number, Average, and Median Values of Project/Initiatives by Sector

Organizational Group	Number of Projects/Initiatives	Average	Median Value
National Civil Society	4	4	--
INGOs and Cooperation	17	3.4	2.5
Universities/University Research Institutes	17	4.3	3
Private Sector	8	4	4
Public Sector	5	2.5	2.5
Producer Organizations	22	3.6	5
Overall	73	3.7	3

Figure 2. Distribution of Projects by Sector

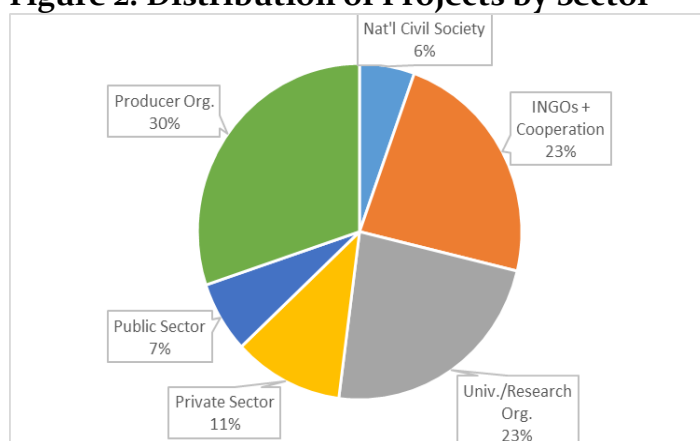


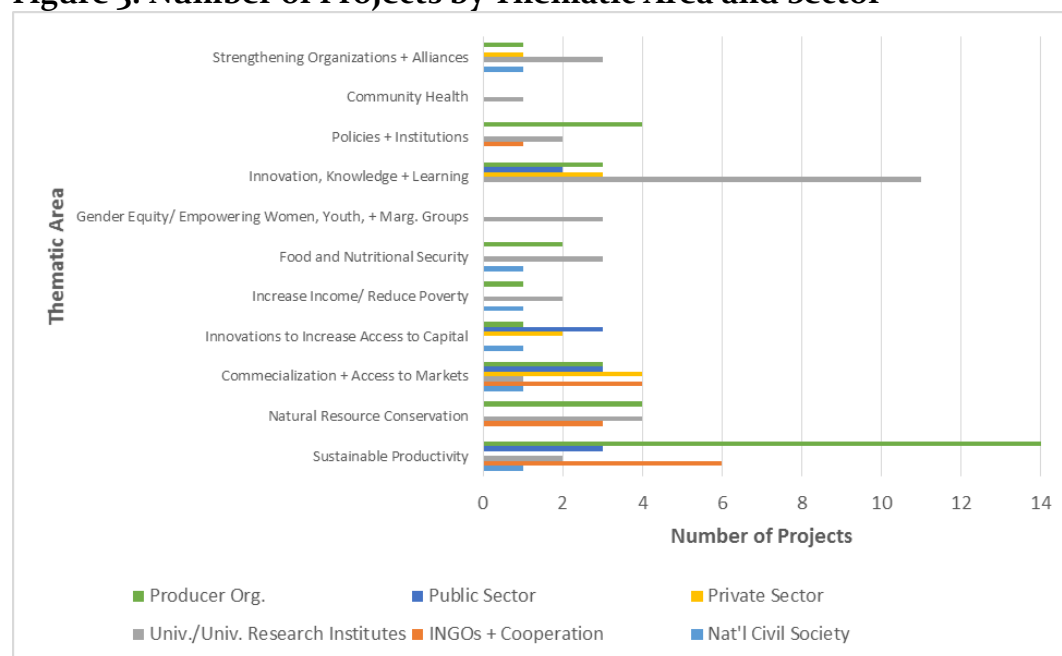
Table 4 shows the distribution of projects/initiatives by thematic area. It needs to be mentioned here that data was not collected on the nature of five (5) of the projects reported by INGOs/cooperation agencies, so this information could not be included in the analysis. From the results of the analysis of the available data, it is seen that most projects were strongly oriented towards sustainable productivity, followed by innovation, knowledge and learning and commercialization and access to markets. The thematic areas with the least number of projects included those to increase income/reduce poverty; gender equity/empowering women, youth, and marginalized groups; and community health.

Table 4. Distribution of Projects/Initiatives by Thematic Area

Thematic Area	Number of Projects/Initiatives
Sustainable productivity	26
Natural resource conservation	11
Commercialization and access to markets	16
Innovations to increase access to capital	7
Increase income/reduce poverty	4
Food and nutritional security	6
Gender equity/ empowering women, youth, and marginal groups	3
Innovation, knowledge, and learning	19
Policies and institutions	7
Community health	1
Strengthening organizations/ alliances	6

Figure 3 shows the distribution of projects and initiatives by thematic group and sector. Unsurprisingly, most of the projects with a strong sustainable productivity orientation were implemented by producer organizations followed by INGOs/cooperation with six projects. Most of the projects with a strong innovation, knowledge, and learning component were implemented by universities and university research institutes. It also should be noted that projects/initiatives implemented by producer organizations and universities/university research institutes spanned the greatest range of thematic areas (9 and 10, respectively).

Figure 3. Number of Projects by Thematic Area and Sector



Organizational Impacts and Humidtropics Desired Outcomes

This indicator analyzed the reported organizational impacts, or significant changes observed and documented as a result of organizational projects and initiatives, by each organization over the last five years and their relationship to the Humidtropics IDOs in the form of thematic areas. The

organizations identified different impacts they have made in the territory encompassed by the Nicanorte action site and, in some case, in other parts of the country. Annex 5 includes a list of all the impacts reported by organizations, as well as the location of the impact, if specified.

Ninety (90) different organizational impacts were reported by the organizations, with an average of 4.5 projects per organization. Table 5 below shows the number of impacts reported for each sector as well as the average number and median value of impacts for each sector of the sample. Figure 4 below shows the distribution of impacts by sector. As to be expected, more impacts were reported for INGOs/cooperation, universities/university research institutes, and producers, since organizations belonging to these groups were more represented in the study (see Figure 1 above). In looking at the average number of impacts for organizations by sector, INGOs and cooperation agencies reported the most projects, followed by producer organizations. National civil society and the public sector reported the fewest number of impacts.

Table 5. Number, Average, and Median Value of Impacts by Sector

Organizational Group	Number of Impacts	Average	Median Value
National Civil Society	3	3	--
INGOs and Cooperation	34	5.7	5
Universities/University Research Institutes	13	3.3	3.5
Private Sector	8	4	4
Public Sector	5	2.5	2.5
Producer Organizations	27	5.4	5
Overall	90	4.5	4

Figure 4. Distribution of Impacts by Sector

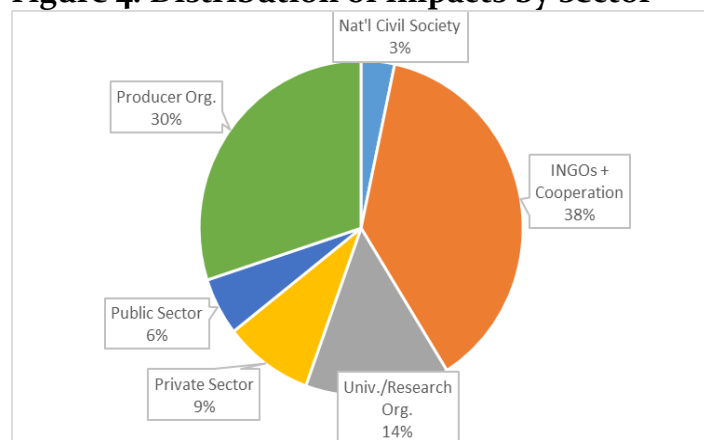


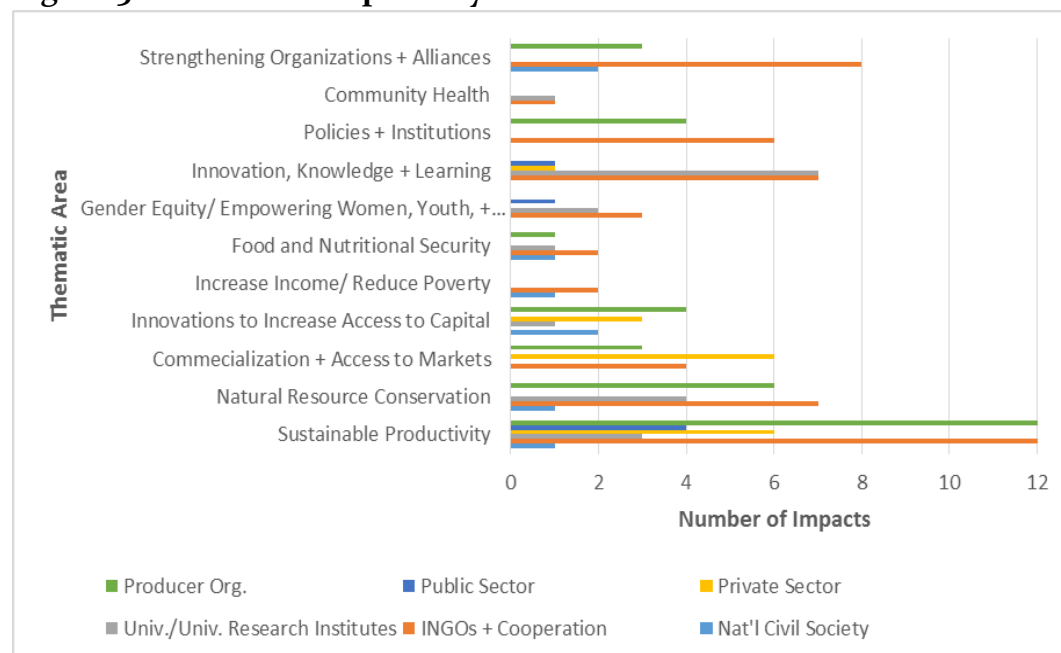
Table 6 shows the distribution of organizational impacts by thematic area. Like with projects and initiatives, impacts were coded for those thematic areas they addressed, and this could be more than one depending on the nature of the impact (see Annex 5). The results indicate that most organizational impacts addressed sustainable productivity. This was followed by natural resource conservation; innovation, knowledge, and learning; and commercialization and access to markets. The thematic areas that were least addressed by the impacts included those to increase income/reduce poverty, community health, and food and nutritional security.

Table 6. Distribution of Projects/Initiatives by Thematic Area

Thematic Area	Number of Impacts
Sustainable productivity	38
Natural resource conservation	18
Commercialization and access to markets	13
Innovations to increase access to capital	10
Increase income/reduce poverty	3
Food and nutritional security	5
Gender equity/empowering women, youth, and marginal groups	6
Innovation, knowledge, and learning	16
Policies and institutions	10
Community health	2
Strengthening organizations/ alliances	13

Figure 5 shows the distribution of impacts by thematic groups and sectors. The impacts reported by INGOs/cooperation agencies spanned the greatest range of thematic areas, followed by universities/university research institutes, producer organizations, and national civil society. The impacts of the public and private sectors addressed the fewest thematic areas. Most of the impacts reported by INGOs/cooperation agencies addressed sustainable productivity and strengthening organizations and alliances. Most of the impacts reported by producer organizations also addressed sustainable productivity as well as natural resources conservation. Impacts of universities/university research centers mostly addressed innovation, knowledge, and learning. Private sector impacts mostly addressed sustainable productivity and commercialization and access to markets. The impacts of the public sector and national civil society were more evenly distributed among those thematic areas that their impacts addressed.

Figure 5. Number of Impacts by Thematic Area and Sector



Recent Organizational Innovations and Changes

In the interviews, interviewees identified innovations and changes that their organizations had participated in over the last five years. A list of these innovations is available in Annex 6, which also includes innovation/change partners, sources of learning, and the primary thematic area(s) to which the innovation/change corresponded.

Eighty-five (85) innovations and changes were reported by the 20 organizations that participated in this study, with an average of 4.3 reported innovations and changes per organization. Table 7 below shows the distribution of innovations/changes across the six sectors, including number of and the median value for innovations/changes for each organizational group. Every organization reported at least two innovations, and one private sector organization, Ritter Sport reported the most innovations (nine) in the sample. Figure 6, also below, shows the percentage of reported projects/innovations for each organizational group. In looking at the average number of innovations and changes reported for each of the sectors, the private sector, INGOs and cooperation agencies, and universities/university research institutes had the highest averages for the overall sample.

Table 7. Number, Average, and Median Value of Innovations/Changes by Sector

Organizational Group	Number of Innovations/Changes	Average per Sector	Median Value
National Civil Society	3	3	3
INGOs and Cooperation	29	4.8	5
Universities/University Research Institutes	17	4.3	4
Private Sector	11	5.5	5.5
Public Sector	7	3.5	3.5
Producer Organizations	18	3.6	3
Overall	85	4.3	4

Figure 6. Distribution of Innovations/Changes across Sectors

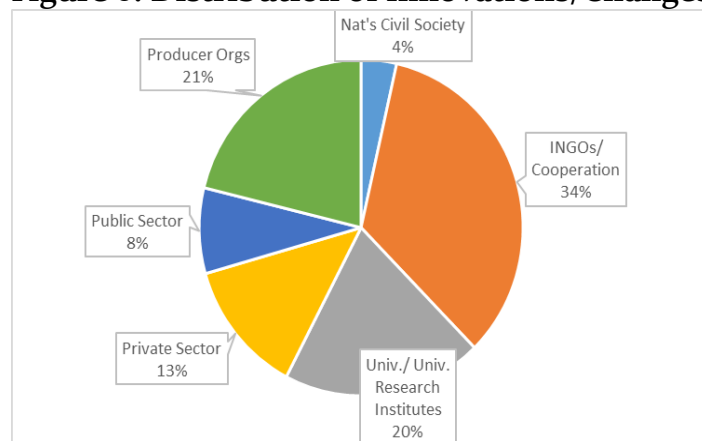


Table 8 lists the innovations and changes reported by the organizations according to the thematic area(s) to which the innovation/change corresponded. Like projects and initiatives, most innovations and changes addressed sustainable productivity. This was followed by innovations/changes involving innovation, knowledge and learning; natural resource conservation; commercialization and access to markets; and strengthening organizations and alliances. There were few innovations that corresponded to the areas of policies and institutions,

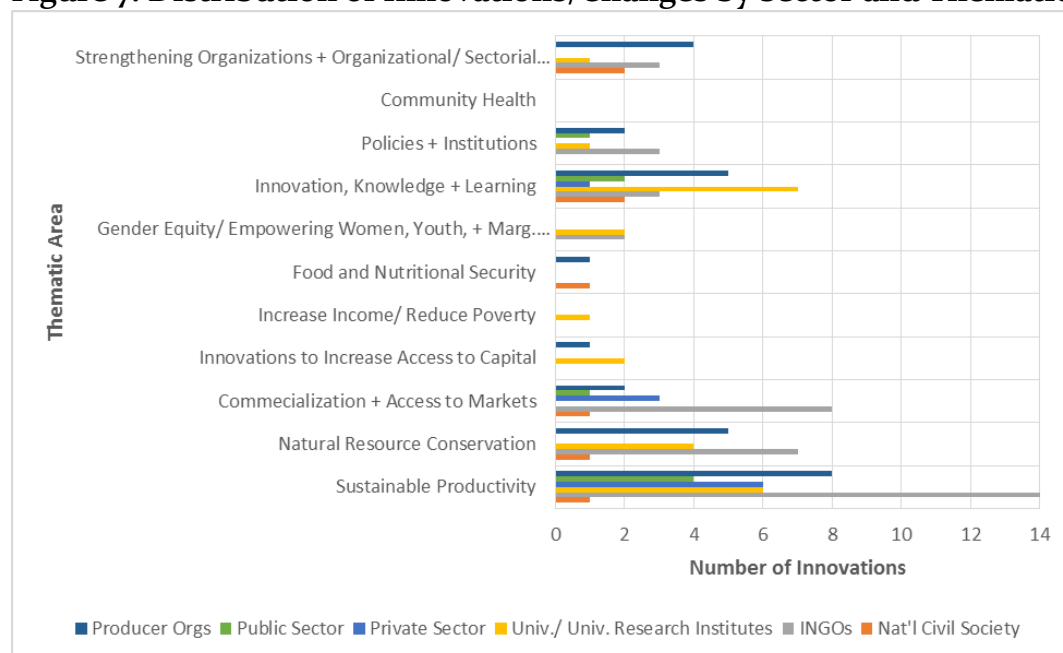
and very few that involved innovations for increasing capital, food and nutritional security, increasing income and reduce poverty, gender equity and empowering women/youth/marginalized youth, and community health.

Table 8. Distribution of Innovations/Changes by Thematic Area

Thematic Area	Number of Innovations/Changes
Sustainable productivity	39
Natural resource conservation	17
Commercialization and access to markets	15
Innovations to increase access to capital	3
Increase income/reduce poverty	1
Food and nutritional security	2
Gender equity/empowering women, youth, and marginal groups	4
Innovation, knowledge, and learning	20
Policies and institutions	7
Community health	0
Strengthening organizations/alliances	10

Figure 7 below shows the distribution of innovations and changes by thematic area and sector, and it serves to depict the extent to which the dsectorss have participated in certain kinds of innovations/changes. As seen, INGOs and cooperation agencies, universities/university research institutes, and producer organizations reported working on the broadest range of innovations, with the bulk of INGOs/cooperation and producer organization innovations/changes having a strong sustainable productivity component and most of the universities/university research institutes unsurprisingly participating in innovations that addressed innovation, knowledge, and learning. This being said, the innovations for these three sectors as well as national civil society spanned multiple thematic areas. The private and public sectors were more limited as far as the range of thematic areas addressed by the innovations on which they worked. The private sector mostly participated in innovations/changes that addressed sustainable productivity and commercialization/access to markets, while the public sector mostly worked on sustainable productivity. For gender equity and empowerment of women, youth, and marginalized groups, only INGOs/cooperation and universities/university research institutes reported working on innovations that addressed these areas.

Figure 7. Distribution of Innovations/Changes by Sector and Thematic Area



As can be seen in Annex 6, it should also be noted that the innovations and changes cited by the organizations of the sample were the result of partnerships between sectors. In other words, innovation and change was the product of multi-organizational initiatives between two or more sectors. According to the data presented in Annex 6, INGOs and cooperation agencies and public sector organizations figured prominently as innovation partners, but there was also a notable presence of producer and civil society partners as well.

Partnerships between the Organizations

This indicator examined organizational partnerships reported by the 20 organizations included in the sample. For this study, a partnership was defined as a working relationship that an organization included in the sample had with another organization, whether it be through collaboration on projects and/or the provision of some kind of support (e.g., financial, material, staff-related, and so on). Organizations in the sample reported having partnerships with other organizations within the sample as well as outside the sample.

In order to determine the existing partnerships between the organizations, information on project/initiative partners and innovation/change partners reported in the interview was considered. It is important to mention here that with respect to project/initiative partners, not all organizations reported this information since it was not included on the interview protocol. Furthermore, with respect to innovation/change partners, as per the interview protocol, this information was asked only for two innovations/changes that were prioritized by the representative(s) of the organization interviewed. Thus, this information was not collected for all innovations/changes. Finally, some organizations did not specifically identify their partners but rather mentioned an organizational sector or group of individuals (i.e., “cooperatives,” “universities,” “promoters,” etc.). It is for this reason that both named organizations and more general groups/sectors are presented in the data set (see Excel database), but, importantly, only specifically named organizations were included in the analysis. As such, it was anticipated that the findings reported here would not completely represent all of the existing partnerships for the 20 organizations included in this sample; however, based on what was reported in the interviews, at least a basic profile of such partnerships was achieved.

The results of the analysis reveal the organizations included in the sample reported working with 99 organizations, 9 of which are part of the sample and 90 of which did not participate in this study. The distribution of these 99 organizations according to sector is shown in Figure 8 below. INGOs and cooperation agencies make up the bulk of the partner organizations, followed by the public sector, producer organizations, and universities/university research institutes. Civil society and private sector organizations are least represented among those organizations with which the sample organizations have alliances. Table 9 below presents a list of partner organizations aside from those in the sample by sector.

Figure 8. Distribution of Partner Organizations

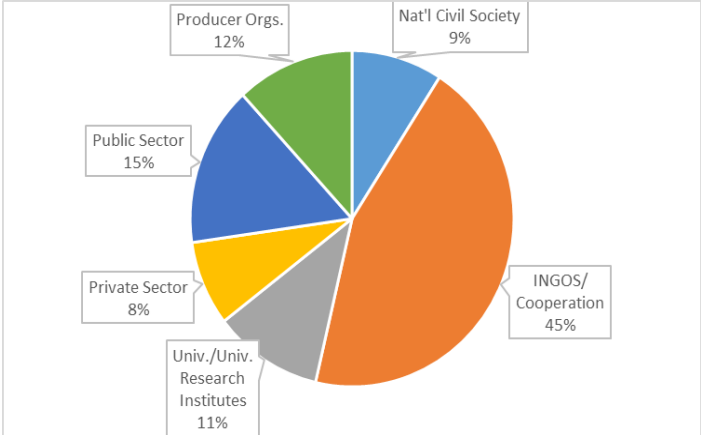


Table 9. Partner Organizations for Projects/Initiatives and Innovations/Changes by Sector

(* indicates organizations belonging to the sample)

Public Sector (15)	Producer Organizations (10)	National Civil Society (10)	Universities/ Univ. Research Institutes (10)	Private Sector (9)	INGOs/ Cooperation (45)	
CNP	Association of Plantain Growers	ADDAC*	ADAA	APEN	Action Aid Denmark	GIZ
CONYCIT	Association of Pitaya Growers	CIPRES	BCIE	Biolatina	AECID	Green Mountain Coffee
GRAAN	ATC	FUNICA	CIDEA	Exportadora Atlantic/Ecom*	ALFA III	IFC
IDR	CACAONICA	GPAE	CNU	HENTCO	Ayuda en Acción	IICA
INAFOR	CAFENICA	IPADE	Colegio Posgrado (Mexico)	Mayacert	BCIE	JICA
INTA	CECOCAFEN	Juventud Sandinista	FDL	Nespresso	BID	LWR
MAGFOR	Central de Cooperativas de Sébaco	LIDECONIC	UNA	Ritter Sport*	Bread for the World	MEDA
MARENA	Soppexcca*	Native Seed Network	UNAN-FAREM (Matagalpa)*	Starbucks	Bruck Le Pont	OCIA
MEFCCA	UNAG*	Semilla de Identidad Criolla Alliance	UNAN-León*	Valuelink	Catholic Church	OIRSA
MEF MEM MIFIC	UPANIC	SIMAS	URACCAN		Christian Aid CATIE* CIAT	Oxfam PCI Red Cross International
MIPYME MITRAB SETAB					CIC-Bata CIRAD CISA CONSUDE DED DGRV EIRENE EED EU FAO* French Embassy	Red-SICTA Root Capital SERIDAR SI SNV SWISSAID TROCAIRE UNIDO USDA VECO

Table 10 below lists the average and median values for the number of partners for each sector as well as for the entire sample. As far as the number of organization partners reported by the organizations in the sample, producer organizations as a whole reported the most alliances, followed by universities/university research institutes, INGOs and cooperation agencies, the private sector, and the public sector. The least number of partners was reported for national civil society organizations. On average, producer organizations had the highest number of partners per organization, followed by the private sector and universities/university research centers. Despite the high overall number of reported organizational partners, the average number of partners for INGOs and cooperation agencies was one of the lowest among the sectors.

Table 10. Number, Average, and Median Value of Alliances by Sector

Sector	Number of Reported Partners	Average Number of Partners	Median Value
National Civil Society	5	5	--
INGOs and Cooperation	25	5.2	4
Universities/University Research Institutes	29	8.5	9
Private Sector	18	9	9
Public Sector	10	5	5
Producer Organizations	44	11.3	10
Overall		7.2	7.5

Figure 9 shows the distribution of partnerships by sector in terms of the number of partnerships and Table 11 shows this in terms of percentage of partnerships by sector. This information helps us to understand with which organizations the organizations included in the sample tend to work. Based on the data presented below, some of the more outstanding findings are as follows:

- As a whole, organizations comprising the sample reported working with INGOs and cooperation agencies the most. More than 50% of the partnerships reported for national civil society, private sector, and producer organizations were with INGOs and cooperation agencies.
- Partnerships with public sector organizations were also prominent. All organizations in the sample apart from the one national civil society organization reported having partnerships with public sector organizations with public sector organizations, universities, and INGOs/cooperation having the highest proportions of partnerships with the public sector.
- INGOs/cooperation agencies and producer organizations in the sample reported working with the widest range of organizations, reporting partnerships with organizations from all six sectors, with the private sector following with five out of six organizations.
- Of the sample, only universities/university research institutes, INGOs/cooperation agencies, and producer organizations reported working with universities/university research institutes, and of these, universities/university research institutes that were part of the sample reported the most organizational partnerships with other universities.

Figure 9. Distribution of Partnerships by Sector (number of partnerships)

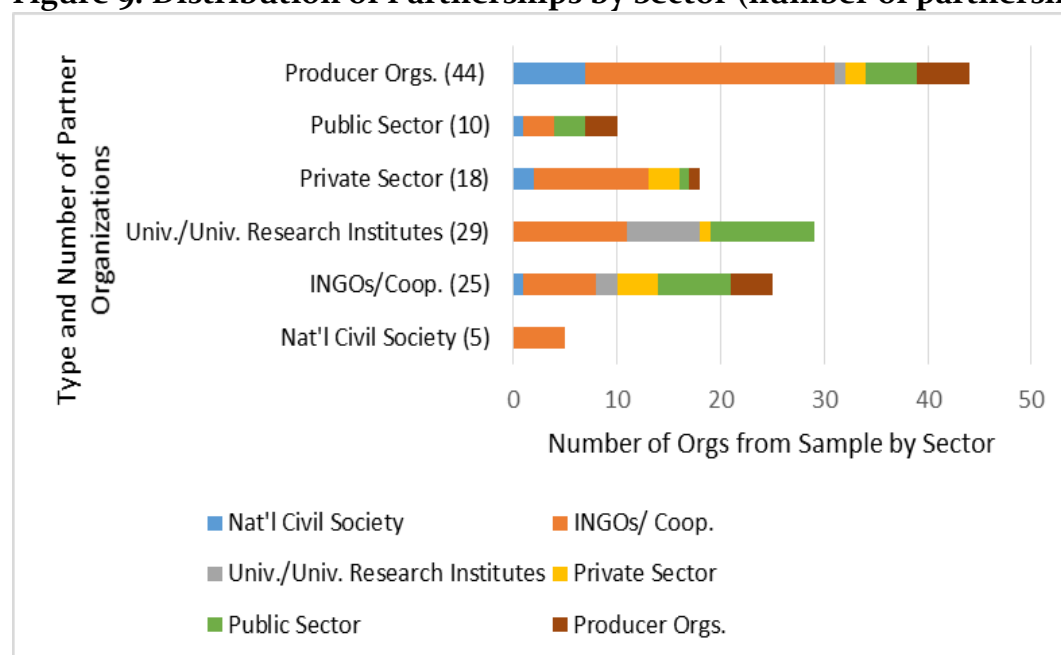


Table 11. Distribution of Partnerships for Each Sector (%)

Sector (sample)	Nat'l Civil Society	INGOs/ Cooperation	Univ./ Univ. Research Institutes	Private Sector	Public Sector	Producer Orgs.
Nat'l Civil Society	0%	100%	0%	0%	0%	0%
INGOs/ Cooperation	4%	28%	8%	16%	28%	16%
Univ./ Univ. Research Institutes	0%	38%	24%	3%	34%	0%
Private Sector	11%	61%	0%	17%	6%	6%
Public Sector	10%	30%	0%	0%	30%	30%
Producer Orgs.	16%	55%	2%	5%	11%	11%

Finally, it is important to note that 8 organizations from the sample of 20 reported that they have carried out innovations with the same partners with which they have worked on projects or initiatives. Of these eight organizations, three were INGOs/cooperation agencies (Bioersity, Fundación Solidaridad, and GIZ); two were universities/university research institutes (CGAT and UNAN-FAREM Matagalpa), and three were producer organizations (CONACAFE, MAONIC, and Soppexcca).

Common Themes in Work with Partner Organizations

In order to gain a better idea of the main themes of the projects/initiatives and innovations/changes for which the organizations collaborated with other organizations, the projects and innovations for which partner organizations were reported were considered. This indicator is also useful for examining the experience of the organizations with regard to partnerships with other organizations and areas of expertise. This examination went beyond the 11 thematic areas to look at the more specific topics on which organizations collaborated. To undertake the analysis for this indicator, the data was analyzed and common themes were identified based on the specific nature of the project or innovation. Twenty-one (21) themes were identified and used in the analysis. Following this part of the analysis, projects and innovations were classified based on the theme that most represented the nature of the project/innovation. It should be mentioned here that one organization (GIZ) reported collaborating with other organizations on four of their projects but the collected data did not specify the details of the projects; thus, this data was not included in the analysis. A complete list of the projects and innovations undertaken with partner organizations is available in Annex 7.

The analysis of the data found that, of the 158 reported projects/initiatives and innovations/changes, 80 projects/innovations were carried out with other organizations. Table 12 lists the number of projects/innovations for each theme by sector. Cells were highlighted in green for themes for which only one sector reported a corresponding project/innovation.

Several outstanding findings regarding the common themes in the work with partner organizations reported by the organizations is that the majority of the partnerships were on projects or innovations related to strengthening value chains, promoting agricultural technology, and public policy. Furthermore, while projects/innovations for which collaboration with partners was reported were fairly evenly distributed across the themes (1-4) and sectors (with 2-4 sectors having projects/innovations for each theme). Several of the most salient findings were that INGOs and cooperation agencies had the highest number of projects/innovations undertaken with partners that were related to strengthening value chains. Universities/university research institute collaborations were mostly on climate change initiatives/innovations and producer organizations heavily emphasized public policy when collaborating with other partner organizations.

Table 12. Number of Projects/Innovations with Partner Organizations by Theme

Theme	Nat'l Civil Society	INGOs/ Cooperation	Univ./Univ. Research Institutes	Private Sector	Public Sector	Producer Orgs.	Total
Access to credit/ investment	0	0	0	0	0	2	2
Capacity building	0	0	1	0	1	2	4
Climate change adaption	0	0	4	0	0	0	4
Education	0	1	2	0	0	1	4
Enhancing food security	1	1	1	0	0	1	4
Environmental protection	0	0	0	0	0	1	1
Farm sustainability	0	0	0	0	1	2	3
Human development	0	0	2	0	0	0	2
Knowledge management	0	1	0	0	0	0	1
Multidimensional innovations ⁶	1	2	2	0	0	0	5
Native seeds	0	0	0	0	0	2	2
Cattle production systems	0	0	2	0	0	1	3
Cocoa production systems	0	0	0	1	0	2	3
Coffee production systems	1	2	0	0	0	0	3
Promoting agricultural technology	0	1	2	2	1	3	9
Promoting business	1	0	0	0	0	2	3
Public policy	0	0	0	0	0	6	6
Research	0	1	1	0	1	1	4
Strengthening alliances	0	1	2	0	0	0	3
Strengthening local governance	0	4	0	0	0	0	4
Strengthening value chains	0	6	2	2	1	0	11

Desired Innovations and Changes

This indicator was concerned with the types of innovations and changes that the 20 organizations reported that they would like to work on over the next 5 to 10 years. A full list of desired innovations and changes appears in Annex 8 and also includes potential innovation/change partners identified by the organizations (when reported) as well as the primary thematic are(s) to which the innovation/change corresponded.

⁶ These are complex innovations that crossed multiple themes.

Seventy-three (73) desired innovations and changes were reported by the 20 organizations that participated in this study, with an average of 3.7 per organization. Table 13 below shows the number of desired innovations/changes for each sector as well as the median value for each group. Organizations reported between 1 and 8 desired innovations. The differences between the average number of desired innovations per sector was not very significant and, as can be seen in Table 13, ranged between 2 and 4.3. Figure 10, also below, shows the distribution of desired projects/innovations across the sectors by percentage.

Table 13. Number, Average, and Median Value of Desired Innovations/Changes by Sector

Sector	Number of Desired Innovations/Changes	Average per Sector	Median Value
National Civil Society	2	2	--
INGOs and Cooperation	24	4	4
Universities/University Research Institutes	16	4	3.5
Private Sector	7	3.5	3.5
Public Sector	7	3.5	3.5
Producer Organizations	17	4.3	3
Overall	73	3.7	3.5

Figure 10. Distribution of Desired Innovations/Changes across Organization Groups

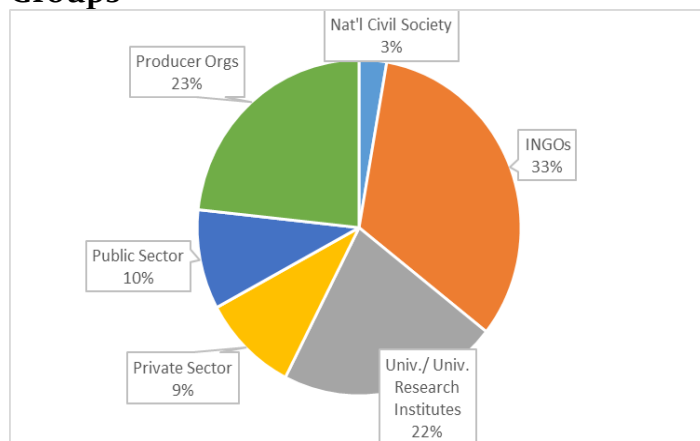


Table 14 lists the desired innovations and changes reported by the organizations according to the thematic area that the innovation/change strongly corresponded. The vast majority of the desired innovations/changes (40) reported by the sample of organizations strongly addressed sustainable productivity, followed by natural resource conservation, commercialization and access to markets, and innovation, knowledge, and learning. None of the reported desired innovations/changes explicitly addressed community health and very few of the reported desired innovations/changes explicitly addressed innovations to increase capital, the increasing of income/poverty reduction, or gender equity and empowering women/youth/marginal groups.

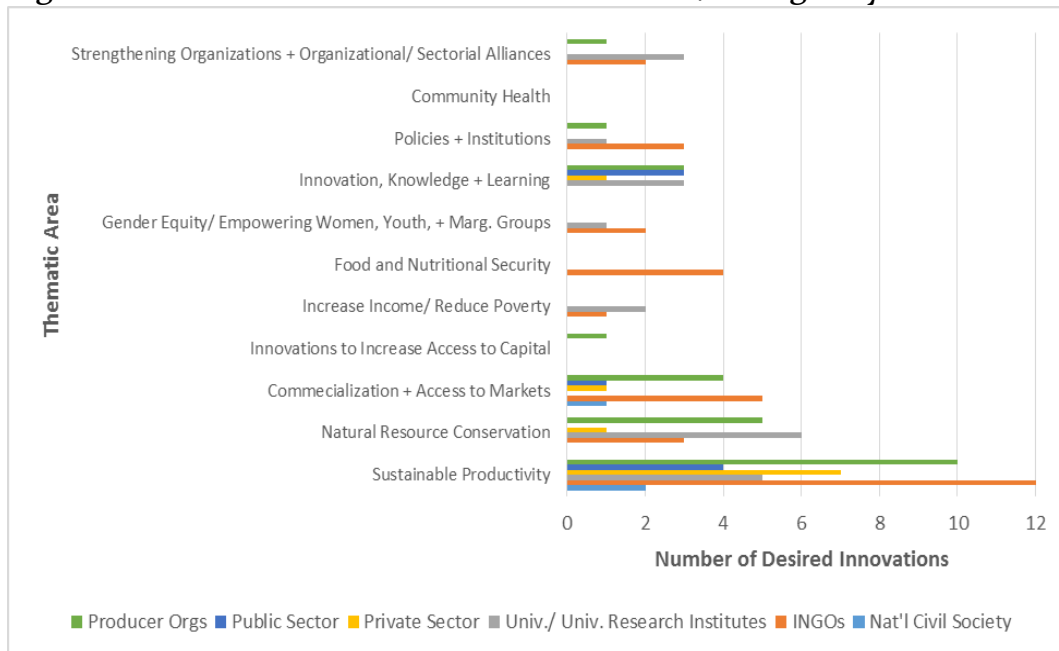
Table 14. Distribution of Desired Innovations/Changes by Thematic Area

Thematic Area	Number of Desired Innovations/Changes
Sustainable productivity	40
Natural resource conservation	15
Commercialization and access to markets	12
Innovations to increase access to capital	1
Increase income/reduce poverty	3
Food and nutritional security	4
Gender equity/empowering women, youth, and marginal groups	3
Innovation, knowledge, and learning	10
Policies and institutions	5
Community health	0
Strengthening organizations/alliances	6

Figure 11 below shows the distribution of desired innovations and changes by thematic area and sector, and it serves to depict the thematic areas for which the organizations seek to foster innovation and change in coming years according to the results for each sector. Similar to reported innovations/changes over the last five years (see above), the reported innovations and changes desired by INGOs/cooperation, universities/university research institutes, and producer organizations spanned the greatest range of thematic areas (7 to 8). Innovations and changes desired by national civil society, the private sector, and the public sector were more limited as far as the range of thematic areas they addressed (2–4). Most of the desired innovations/changes reported by national civil society, INGOs/cooperation agencies, the private sector, the public sector, and producer organizations addressed sustainable productivity, while universities/university research institutes focused slightly more on natural resource conservation. Few organizations reported interest in pursuing innovations/changes that addressed the areas of:

- Innovations to increase access to capital (producer organizations only);
- Increase income and reduce poverty (INGOs/cooperation and universities/university research institutes only);
- Food and nutritional security (INGOs/cooperation only);
- Gender equity/empowering women, youth, and marginal groups (INGOs/cooperation and universities/university research centers only); and
- Community health (none).

Figure 11. Distribution of Desired Innovations/Changes by Sector & Thematic Area



Current Innovation/Change Partners vs. Potential Innovation/Change Partners

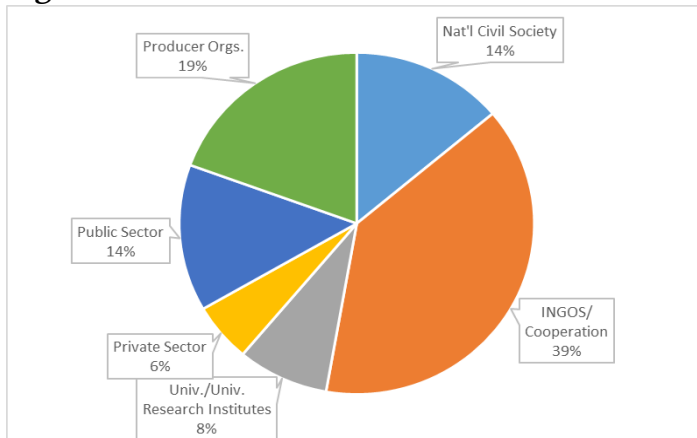
This indicator examined partnerships between the organizations and partners (as per those reported for projects/initiatives and innovations/changes) versus the potential partners the organizations identified during the interview with which they would consider working to carry out desired innovations and changes. It is important for assessing the extent to which organizations are considering continuing their work with current or past partners and/or are interested in possibly branching out to work with new partners. Two dimensions were explored: the main organizations with which organizations in the sample have collaborated and those with which they expressed interest in collaborating.

It cannot be guaranteed with certainty that the potential partners identified by the organizations were not past partners/collaborators since this analysis is only considering the data collected via the interviews. However, as with organizational partnerships (see above), a basic profile can be obtained of the similarities and differences between actual and potential organizational partners. Furthermore, organizations were only asked to identify potential partners for two prioritized desired innovations. As such, the information collected about potential partners only reflects those identified for up to two of the desired innovations/changes the organization expressed interest in carrying out. Finally, like with organizational partnerships, some organizations did not specifically identify potential partners by name but rather mentioned an organizational sector or group of individuals (i.e., “cooperatives,” “universities,” “promoters,” etc.). It is for this reason that both named organizations and more general groups/sectors is presented in the data set (see Excel database), but, importantly, only specifically named organizations were included in the analysis. Thus, no data was used in the analysis on potential partners for six organizations (CRS, CGAT, Exportadora Atlantic/Ecom, INATEC, DGPSA, and UPANIC) because these organizations did not specifically name potential partners but rather only general groups. Potential innovation partners are listed by organization and desired innovation/change in Annex 8.

A total of 42 organizations were identified as potential innovation/change partners. Figure 12 (below) shows the distribution of potential innovation partners by sector. As shown

INGOs/cooperation agencies made up the bulk of the identified potential partners, followed by producer organizations, national civil society, and public sector organizations, the latter two of which were equal in number. Universities/university research institutes and the private sector were the least represented in the organizations identified as potential innovation partners. This distribution is slightly different from that of actual project/innovation partners in that although INGOs/cooperation continue to make up the bulk of partners, producer organizations and national civil society organizations are slightly more represented as potential partners, public sector and private sector organizations are more or less in the same proportion, and universities/university research centers make up a smaller proportion in the distribution of potential partners.

Figure 12. Distribution of Potential Partners by Sector



Ten of the potential partner organizations were members of the sample of 20 organizations that participated in this study and 32 of the identified potential partners were not part of the sample. Sixteen of the 42 organizations (three belonging to the sample and 13 not belonging to the sample) were organizations with which members of the sample did not report carrying out projects or innovations. To clarify further, 13 organizations did not belong to the sample nor were they cited as organizations with which the sample reported to have had carried out previous projects or innovations. Table 15 lists all the organizations identified as potential innovation/change partners and distinguishes members of the sample and previous project/innovation partners from organizations not previously named in reported partnerships.

Table 15. Potential Innovation/Change Partners by Sector

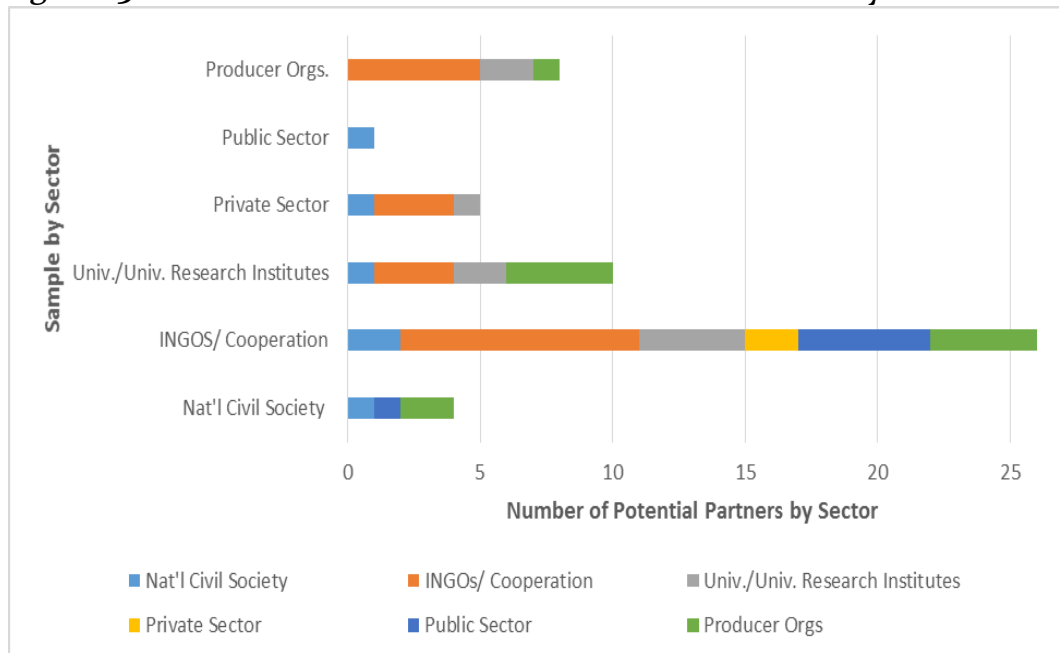
Public Sector (5)	Producer Organizations (7)	Nat'l Civil Society (5)	Universities/ Univ. Research Institutes (9)	Private Sector (2)	INGOs/ Cooperation (14)
CNP	CACAONICA	ADDAC	BICU*	Exportadora	Bioversity*
INTA	CAFENICA	FADCANIC*	EARTH University (Costa Rica)*	Atlantic/Ecom	CATIE
MAGFOR	CECOCAFEN	FUNICA	FDL	Ritter Sport	CIAT
MARENA	PCAC*	National Popular Education Program*	UCA*		CIAT-CATIE Learning Alliance*
SETAB	MAONIC*	Red GESCON*	UNA		CIPAV*
	Soppexcca		UNAN-León		CIRAD
	UNAG		University of Wageningen (The Netherlands)*		FAO
			URACCAN		EMBRAPA*
			Zamora Agricultural University (Honduras)*		FHIA*
					IICA
					IITA*
					LWR
					SNV
					SWISSAID

*Highlighted purple: organizations belonging to the sample; * indicates organizations that were not identified as project/innovation partners.*

Figure 13 shows the number of potential innovation partners by sector. Some of the salient findings of this analysis show that:

- Like the results of the analysis of organizational partnerships, the organizations most commonly identified as potential innovation partners were INGOs/cooperation agencies, followed by producer organizations and universities/university research institutes.
- INGOs/cooperation organizations as a whole identified the broadest range of potential partners (from all six sectors) followed by universities and university/research institutes (organizations from four of the sectors).
- Private sector organizations were the least identified potential partners (only INGOs/cooperation organizations identified them), followed by the public sector and civil society, both of which were cited slightly more. It is worth noting that several organizations from different organizational sectors cited civil society organizations as potential partners because they were not highly represented in the analysis of organizational partnerships.

Figure 13. Distribution of Potential Innovation Partners by Sector



Finally, as shown in Table 16, organizations reported interest in carrying out innovations with organizations they named as project/innovation partners as well as organizations they did not name as project/innovation partners. Of the 20 organizations in the sample, 9 reported that they were interested in carrying out desired innovations with organizations with whom they had undertaken projects and/or innovations and 13 of the organizations reported interest in carrying out desired innovations with organizations they did not report working with on projects and innovations.

Table 16. Reported Potential Partners for Desired Innovations

Sector	Organization	Identified desired innovation partners with whom they reported undertaking projects and innovations?	Identified desired innovation partners with whom they did not undertake projects and innovations?
National Civil Society	ADDAC	No	Yes
INGOs/ Cooperation	Bioversity	Yes	Yes
	CATIE	No	Yes
	CRS	Inadequate data.	
	FAO	No	No
	GIZ	Yes	Yes
	Fundación Solidaridad	Yes	Yes
Universities/ University Research Institutes	CGAT	Yes	Inadequate data.
	Nitlapan	No	Yes
	UNAN-León	No	Yes
	UNAN-FAREM	Yes	Yes
	Matagalpa		
Private Sector	Exportadora Atlantic/ Ecom	Inadequate data.	
	Ritter Sport	Yes	Yes
Public Sector	INATEC	Inadequate data.	
	DGPSA	Inadequate data.	
Producer Organizations	CONACAFE	Yes	Yes
	MAONIC	Yes	Yes
	PCAC	No	Yes
	Soppexcca	Yes	Yes
	UPANIC	Inadequate data.	

Sources of Learning to Carry Out Innovations

This indicator was concerned with exploring how and from where organizations access information to carry out innovations. In the interviews, organizations were asked about sources of learning and consultation for undertaking the prioritized innovations they identified. Examining the responses of the organizations to this question enabled understanding more about how organizations have been and are currently learning.

In order to assess how the organizations learn, data on the sources of learning for innovations and changes that the organizations participated in carrying out was analyzed for all but two organizations (CATIE and UNAN-León, for which no data was available on this indicator). Similar to the themes of work partnerships, common sources of learning were identified from the data. In total, 21 sources of learning were identified. Table 17 provides a summary of the ways of learning for each sector of the sample and the average number of sources of learning per organization as reported by the sample was 3.2 (see Annex 9 for complete information for each organization).

Table 17. Number of Reported Sources of Learning to Carry Out Innovations by Sector

Sector	Number of Sources of Learning Utilized	Average Number of Sources of Learning Utilized	Median Value
National Civil Society	3	3	--
INGOs and Cooperation (excluding CATIE)	12	3.2	3
Universities/University Research Institutes (excluding UNAN-León)	9	4	4
Private Sector	6	3.5	3.5
Public Sector	3	1.5	1.5
Producer Organizations	11	3.8	4
Overall		3.2	3

Table 18 shows the different sources of learning and the number of organizations that reported learning from these sources. As seen, the most frequently reported sources of learning were businesses (including exporters, buyers, certifiers, etc.), internal experience and teamwork, and international research organizations/INGOs (i.e., CATIE, CIAT, CIRAD, etc.). Very few organizations reported learning from clients/customers, international partnerships/alliances, political alliances, producers, or from national/international training.

Table 18. Sources of Learning for Carrying Out Innovations (number of organizations)

Number of Organizations Reporting Learning from Each Source	Businesses (exporters, buyers, certifiers, etc.)	Clients/Customers	Exchange with international actors	Experience of other programs/projects	Foreign governments (ministries, agencies, laws, etc.)	Foreign universities	Internal Experiences/Teamwork/Exchange	International partnerships/alliances	Learning trips to other countries	Locally/nationally operating alliances/platforms	Local/national producer organizations	Methodological approaches (literature)	National NGOs/CSOS	Political alliances	Producers	Research organizations (international – INGOs)	Research organizations (national universities/research institutes)	Regional Producer Associations/Organizations	Reports and Studies	Specialists/Experts	National/International Training	
Less than 2 organizations		X						X						X	X							X
2 - 4 organizations			X	X	X	X			X	X	X	X	X				X	X	X	X		
5 - 7 organizations	X						X									X						

Information Needed to Carry Out Desired Innovations

This indicator was concerned with the kinds of information that organizations foresee needing in order to carry out desired innovations. This information is important because it provides an idea as to what kinds of knowledge organizations need to carry out future changes. In the interviews, organizations were asked to identify key types of information they need to undertake desired innovations and changes. Data was analyzed from 14 organizations of the sample (data concerning this indicator was not specified in the interviews for six organizations, which were

CATIE, CGAT, CRS, Exportadora Atlantic/Ecom, FAO, and Nitlapan). Of the 73 desired innovations and changes reported by the organizations, data on the kinds of information needed to carry out the innovations was collected for 29 desired innovations.

In order to analyze the types of information needed by the organizations, the 29 desired innovations were analyzed and 12 common themes were identified. The 29 innovations were then coded according which theme the desired innovation most represented (see Annex 10 for a list of coded desired innovations by organization and theme, as well as the reported information needed to carry out the innovation). Table 19 provides a summary of the information needed to carry out desired innovations as per data collected by the organizations.

As seen in Table 19 below, the types of information the organizations reported needing to carry out desired innovations is very broad and, in certain cases, quite specific to the desired innovations. This being said, some overarching observations can be made from the data, and these are as follows:

- The importance of technical knowledge in order to make changes and foster innovation at different stages of value chains was emphasized (production to agroindustry/ processing to commercialization).
- Accessing genetic material (i.e., plants, seeds, etc.) that is adapted to local and changing climate conditions was another issue that was stressed in the findings.
- A cross-cutting need is for studies to determine current conditions (baselines) and identify opportunities and challenges (particularly for local territories, markets at multiple scales, and public policies).
- Techniques to build capacity and strengthen producer associations and the production sector as a whole were reported as being needed.

Table 19. Themes of Desired Innovations and Information Needed to Carry Them Out

Theme of Desired Innovation	Information Needed
Agricultural Research for Productivity	Technical knowledge on production and commercialization systems; knowledge of training farm personnel
Capacity Building and Knowledge Enhancement	Methodologies for uniting and monitoring sectors and actors within sectors; general baseline studies on distinct territories and challenges they face
Energy/Infrastructure Development	Trained human resources to provide necessary skills and services
Enhancing Food and Nutritional Security	Technical knowledge on crops and germoplasm to diversify diets and redesign food production systems; cultural perspectives on change
Fighting Pests and Diseases	Trained human resources on diagnostic molecular biology; causal agents of pests/disease and agents to control them; applying technological control
Genetic (Plant) Resources for Production	Technical training; management of soil and genetic resources (i.e., seeds); diversification and adaption of genetic resources to local climates
Public Policy	Baseline on current regulations and their impacts
Soil Fertility	Soil diagnostics, nutrient recycling and plant use; evolution of soil fertility
Strengthening Agroindustry/ Value Added Products	Financing and investment for projects; technology; existing products, markets, and services
Strengthening Commercialization/ Value Chains	Genetic origin of plant material and germoplasm (i.e., from CATIE or FHIA); markets and demand; functioning of value chains; processing goods for the market
Strengthening Organizations + Alliances	Methods of strengthening sectorial alliances and encouraging participation and unity (especially among producers); general baseline studies on distinct territories and challenges they face
Strengthening Sustainable Production	Genetic material/origin; improving soil fertility and management; diversified production; improving quality; commercialization; training programs for farm personnel; local water and mineral properties and implications for production; fertilizer quality; pest management; plant nutrition; demand of producers for inoculants and how inoculants work under different climate and soil conditions

Actual and Perceived Limitations for Fostering Innovation and Change

Organizations were also asked to identify limitations to carrying out the two prioritized innovations/changes they identified in the interviews as well as potential limitations for carrying out desired innovations and changes. Examining the two is an initial step towards understanding obstacles to innovation and facilitating change as well as the perceptions of organizations in terms of foreseeable limitations. In effect, it is an indicator that serves to inform about considerations that need to be taken into account in planning future innovations and changes.

Analysis of actual and potential limitations was carried out by examining the data for both limitations to carrying out innovations and changes and foreseen limitations to carrying out desired innovations. Out of the 85 innovations/changes reported by the organizations in the sample, data on limitations encountered in carrying out innovations/changes was available for 32 (38%), and for the 73 desired innovations and changes that were reported, data was available for

24 (33%). Based on the available data, the limitations were coded and grouped into general categories. Annexes 11 and 12 list the limitations identified by the organizations for carrying out innovations and changes and potential limitations for carrying out desired innovations, respectively.⁷

Table 20 lists general limitations and the number of organizations that identified these limitations as either actual limitations they encountered in carrying out innovations or foreseen limitations in carrying out their reported desired innovations/changes. The general limitations were further coded into 9 categories: productive, economic, technical, commercialization, institutional, attitude/cultural, human capacity, and alliance/partnership limitations, as well as factors related to the process of carrying out the innovations (other limitations).

As the data shows in this table, the most common limitations reported by the organizations in carrying out innovations and changes were those related to economic, human capacity, and attitude/cultural limitations. Economic and human capacity limitations were also the most cited potential limitations to carrying out desired innovations. Also noteworthy here is that while limitations regarding alliances/partnerships were not cited as limitations to carrying out innovations, they were cited as potential limitations to carrying out future changes.

⁷ CATIE, FAO, UNAN-León, and CATIE did not report any limitations with regard to executed innovations and changes, and CATIE, CGAT, Exportadora Atlantic/Ecom, INATEC, PCAC, and UNAN-León did not report any potential limitations for carrying out desired innovations. Thus, these organizations do not appear in the lists included in Annexes 11 and 12.

Table 20. Reported Limitations and Perceived Limitations

Category	Limitation	# of Organizations Encountering Limitation	# of Organizations Reporting as Potential Limitation
Productive	Limited volume/supply, quality, or productivity of commodity	2	2
	Limited productive resources (inputs, genetic material, seeds, inventory, etc.)	0	1
	Climate restrictions	1	1
	Production model failure	2	0
	Lack of appropriate management	1	1
	Lack of quality or appropriate inputs	2	1
	Pests/Diseases	1	1
Economic	Lack of financing opportunities	0	6
	Limited economic capacity to foster change	10	4
	Cost of inputs	2	0
Technical	Methodological limitations	0	1
	Lack of information	1	3
	Limited adoption of technology	1	1
	Lack of industrial development	1	0
	Other technical limitation	1	0
Commercialization	Dependence on one buyer	1	0
	Marketing	1	0
	Limited access to markets	1	0
Institutional	Weak public sector	1	0
	Weak institutional capacity	1	0
	Public sector policies	0	1
Attitude/Cultural	Lack of will/interest/participation on the part of key actors	3	3
	Traditional attitudes or mentalities that limit change	5	1
	Disagreements/conflict	1	0
	Negative attitudes that hinder change	4	1
Human capacity	Lack of trained/experienced human resources	10	5
	Lack of time on the part of key actors	0	1
	Limited facilitation of the innovation	3	0
	Inability to determine appropriate practices	2	1
Alliance/Partnership	Limited coordination with partners	0	2
	Lack of strong partnerships	0	3
Other	Lack of immediate impact/consequences	0	1
	Previous negative experiences	1	0
	Weak infrastructure	1	1
	Limited M&E of innovation/change process	1	0
	Elements of innovation process	2	2

Lessons Learned

As stated in the beginning of this report, the purpose of undertaking this analysis was twofold: (1) to learn more about the current status of activities, innovations, and future directions of organizations working in the Nicanorte Humidtropics' action site and (2) to provide a starting point as a baseline study for monitoring and evaluating the changes in organizational activities, learning, and innovation. The lessons learned from this study are especially useful and important because the organizations that participated in this study are slated to be members of the national level Humidtropics Research for Development (R4D) platform for the Nicanorte action site. While all of the organizations considered to be potential members of this platform did not participate in interviews (others attended a workshop in October 2013 that was one of the first collective and participatory steps to make strategic decisions about the direction of Humidtropics in Nicanorte), the results of this organizational analysis provide an initial baseline study of the organizations that will participate in the R4D platform. Thus, this study provides an overview of important trends in the existing nature of the work of the organizations. This information is particularly key assessing to what extent the organizations are already working towards the Humidtropics IDOs and, as such, is very useful for creating awareness whilst making future strategic decisions concerning Humidtropics.

In summing up the lessons learned from this study, this following discussion looks at the themes of organizational activity over the last five years as well as potential activities in the future based on the projects/initiatives, impacts made, innovations, and desired innovations reported by the organizations; trends in innovation and change; and finally organization partnerships.

To assist in discussing the themes of organizational activities and trends in organizational partnerships, a profile of the sectors is presented in Table 21. A profile of each sector was created by drawing on information concerning the themes of the projects and innovations the organizations participating in this study have carried out, the themes of the impacts they have made, the themes of the innovations they would like to execute, and the partners they have had and with whom they would like to work. This information is very useful for gaining a general idea about the nature of the work of the organizations as well as their past and future partnerships, and it is also useful for gauging overall trends. As such, it serves to create a general baseline that can be used to assess change in organizational activities.

Table 21. Profile of Organizations by Group

Main findings	National Civil Society	INGOs/ Cooperation	Univ./ Univ. Research Institutes	Public Sector	Private Sector	Producer Organizations
Predominant thematic area(s) of projects ^a	Mixed	1. Sustainable productivity 2. Commercialization + access to markets	1. Innovation, knowledge, + learning 2. Natural resource conservation	Sustainable productivity, Commercialization + access to markets, Innovations to increase access to capital*	1. Commercialization + access to markets 2. Innovation, knowledge + learning	1. Sustainable productivity 2. Policies + Institutions
Predominant themes of organizational impacts ^b	1. Innovations to increase access to capital 2. Strengthening organizations and alliances	1. Sustainable productivity 2. Strengthening organizations + alliances	1. Innovation, knowledge + learning 2. Natural resource conservation	1. Sustainable productivity ⁺	Sustainable productivity and commercialization + access to markets	1. Sustainable productivity 2. Natural resource conservation
Types of innovations ^c	Innovation, knowledge + learning; Strengthening organizations + alliances*	1. Sustainable productivity 2. Commercialization + access to markets	1. Innovation, knowledge + learning 2. Sustainable productivity	1. Sustainable productivity 2. Commercialization + access to markets	1. Sustainable productivity 2. Innovation, knowledge + learning	1. Sustainable productivity 2. Natural resource conservation and Innovation, knowledge + learning*
Most reported project/ innovation partners ^d	1. INGOs/ cooperation ⁺	INGOs/ cooperation and the public sector*	1. INGOs/ cooperation 2. Public sector	1. INGOs/ cooperation 2. Private sector	INGOs/ cooperation, public sector, and producer organizations*	1. INGOs/ cooperation 2. National civil society
Not partnering with on project/ innovations	National civil society, Universities/ university research institutes, private + public sectors, producer organizations	None	National civil society and producer organizations	Universities/ university research institutes and producer organizations	Universities/ university research institutes and the private sector	None

Main findings	National Civil Society	INGOs/ Cooperation	Univ./ Univ. Research Institutes	Public Sector	Private Sector	Producer Organizations
Themes of organizational alliances (predominant) ^e	No predominant.	Strengthening value chains; strengthening local government	Climate change adaptation	Promoting agricultural technology; strengthening value chains	No predominant.	Public policy; promoting agricultural technology
Areas of desired innovations ^f	1. Sustainable productivity 2. Commercialization/ access to markets	1. Sustainable productivity 2. Commercialization / access to markets	1. Natural resource conservation 2. Sustainable productivity	1. Sustainable productivity	1. Sustainable productivity 2. Innovation, learning + knowledge	1. Sustainable productivity 2. Natural resource conservation
Potential innovation partners ^g	1. Producer organizations 2. Public sector/ national civil society	1. INGOs/ cooperation 2. Public sector	1. Producer organizations 2. INGOs/ cooperation	1. INGOs/ cooperation 2. Civil society + universities/ university research institutes*	1. Civil society	1. INGOs/ cooperation 2. Universities/ university research institutes

^a Lists the two most cited by each sector; ^b Lists the two most cited for each sector; ^c Lists the two most cited thematic groups for each sector; ^d Lists two sectors that the organizations most cited as project/innovation partners pertained; ^e Lists the two most predominant themes of organizational partnerships; ^f Lists the two most cited by each sector; ^g Lists the two most cited by each group; * indicates findings that were equally cited; + indicates that there was only one predominant finding.

Themes of Organizational Activities

- The major themes in the projects/initiatives, impacts, and innovations that the organizations have carried out or made over the last five years have addressed three major themes: sustainable productivity, commercialization and access to markets, and innovation, knowledge, and learning. This indicates that there is ample activity already geared towards IDOs 1, 3, 4, and 6.
- Based on the findings of this study, there is far less attention being directed towards food and nutritional security and gender equity, which correlate with IDOs 2 and 5. This is a particularly noteworthy observation that needs to be evaluated further, especially because of the mainstreaming of gender components in development projects and also the importance of food and nutritional security in development work more generally in Nicaragua. Here the question arises as to whether and how organizations are conceptualizing gender equity and food/nutrition and how they are addressing these issues in their activities.
- The trend towards activities addressing sustainable productivity, in particular, remains strongly evident in the innovations desired by the organizations, with organizations from all sectors expressing interest in carrying out changes addressing this theme.

Trends in Innovation and Change

- Innovation and change is being carried out by partnerships between organizations belonging to different sectors. Such processes are multi-organizational. Private sector organizations, INGOs and cooperation agencies, and universities/university research institutes reported a greater number of innovations and changes, but this should not obscure the possibility that the other sectors under-reported innovation and change as, according to the collected data presented in Annex 6, these other sectors were often cited as innovation partners.
- The major themes of desired innovations – sustainable productivity, commercialization, natural resource conservation, and innovation, knowledge, and learning – did not significantly deviate from the major themes of the reported innovations and changes previously initiated by the organizations. As mentioned above, this suggests a lesser focus on innovation related to food and nutritional security and gender and youth.
- The organizations that participated in this gain knowledge to innovate from a diverse array of sources, which include existing partnerships and opportunities. The predominance of learning occurring through internal experience and also with research organizations is promising in terms of the potential for self-reflection and partnerships with programs like Humidtropics, respectively. The more limited extent to which organizations are learning from other programs, local/national organizations and producers is noteworthy, as it suggests that this is an opportunity for the Humidtropics territorial learning alliances (innovation platforms) to engage member organizations in learning from each other and empowering them to draw on each other's expertise.
- The organizations have faced many different kinds of limitations in carrying out innovations, including productive, economic, commercialization, technical, institutional, attitude/cultural, human capacity, and alliance/partnership limitations, among others. Economic, human capacity, and attitude/cultural limitations have been the main source of challenges for the organization according to the findings of this study. The organizations also see these kinds of limitations as hindering future innovation and change.

Trends in Organizational Partnerships

- There is ample opportunity for innovations either introduced or emerging from the R4D platform to be shared. The wide range of organizations with which the organizations participating in this study have worked or continue to work with clearly evidences this potential, which will assist in meeting the objectives set forth in IDO 6.
- There is an overall predominance of partnerships with INGOs/cooperation for all sectors both in terms of current project/innovation partners and potential innovation partners. However, in comparing the two, it is noted that some organizations expressed interest in working with organizations from different sectors with which they are not currently working. This suggests openness to diversifying partnerships.

The Way Forward: Recommendations

In light of the findings of this study and the lessons learned, there are several important recommendations to consider for the future, especially in terms of raising awareness among the members of the platforms and also in terms of carrying out future studies similar to this one.

1. In terms of the work of Humidtropics as both a facilitator and member of the territorial learning alliances that are being established in Nicanorte, the issues of gender/youth and nutrition need to be kept in mind in order to conform to the overall vision elaborated by Humidtropics as well as work towards IDOs 2 and 5.
2. The potential for the scaling out of innovations – and scaling up – is evidenced by the wide assortment of potential receivers of such knowledge, which is important for achieving the objectives of IDO 6. Moving forward with Humidtropics, it is important to consider strategies early on for how innovations will be shared with the broader Nicaraguan community – both among members of the national R4D platform and territorial learning alliances, and beyond.
3. The modes of learning and the types of limitations encountered by organizations need to be considered in planning platform/alliance activities. By bearing in mind these trends, activity planning and implementation can be strengthened, which can in turn increase potential for success. Special attention should be paid to economic limitations, as well as those regarding human capacity and attitudes/cultural constraints.
4. Keeping in mind that this was the first analysis conducted of the organizations, the data collection methods could stand revision. One of the main limitations of this study is the inconsistency with which data was collected and reported. While some interviews were completed, others had important gaps that affected the extent to which conclusions could be drawn about the organizations. Potentially valuable information failed to be collected. It is important that those collecting data are on the same page with regard to their conceptualizations of key ideas and the administration of data collection instruments (e.g., interviews or surveys). A training session with interviewers and other individuals involved in data collection and analysis is highly suggested before conducting a future study.
5. A further recommendation on the methodology is the concept of innovation is defined and consistently used throughout the study. The data suggests that the concept of innovation was not uniformly understood by participants (or researchers conducting the study?) and this may have influenced – if not compromised – the amount and type of data collected.
6. Connecting with the previous recommendation, in the future it might be useful to administer a survey followed by a semi-structured interview informed by the results of the survey to obtain deeper perspective and richer data.

Annex 1 – Organizations Working in Nicanorte and Participation in Semi-Structured Interviews

Sector	Organization	Participated in Interview? (Yes/No)
Public Institutions	Ministry of Agriculture and Forestry (MAGFOR)	No
	DGPSA-MAGFOR	Yes
	Ministry of the Environment and Natural Resources (MARENA)	No
	Ministry of Health (MINSA)	No
	Ministry of Education (MINED)/National Institute of Technology (INATEC)	Yes
	Ministry of Family Economy (MEF)	No
	National Institute of Agricultural Technology (INTA)	No
Producer Organizations	Programa Campesino a Campesino/National Farmers and Ranchers Union (UNAG)	Yes
	Agricultural Producers Union of Nicaragua (UPANIC)	Yes
	Nicaraguan Movement of Agroecological and Organic Producers (MAONIC)	Yes
	National Livestock Commission of Nicaragua (CONAGAN)	No
	National Coffee Council (CONACAFE)	Yes
	SOPPEXCCA Union of Agricultural Cooperatives	Yes
National NGOs	Centro Humboldt	No
	Association for Diversification and Community Agricultural Development (ADDAC)	Yes
	Institute for Development and Democracy (IPADE)	No
	Foundation for Agricultural and Forestry Technological Development of Nicaragua (FUNICA)	No
	Fundación entre Mujeres (FEM)	No
	Mesoamerican Sustainable Agriculture Information System (SIMAS)	No
Universities/Research Organizations	NITLAPAN Institute of Research and Development, Central American University (UCA)	Yes
	National Autonomous University of Nicaragua (UNAN), Matagalpa	Yes
	National Agrarian University (UNA)	No
	National Autonomous University (UNAN)–León	Yes
	Center for Environmental and Technological Management (CGAT), Central American University (UCA)	Yes
Private Sector Organizations	Ritter Sport Nicaragua	Yes
	Exportadora Atlantic-ECOM	Yes
	Producer and Exporter Association of Nicaragua (APEN)	No
	Exportation and Investment Center (CEI)	No
INGOs and Cooperation Agencies	SNV Netherlands Development Organization	No
	Tropical Agriculture Research and Higher Education Center (CATIE)	Yes
	International Center for Tropical Agriculture (CIAT), CGIAR	No
	Bioversity, CGIAR	Yes
	Catholic Relief Services (CRS)	Yes
	Food and Agriculture Organization of the United Nations (FAO)	Yes
	German Federal Enterprise for International Cooperation (GIZ) – Program for the Sustainable Management of Natural Resources and Promotion of Competitive Enterprise (MASRENACE)	Yes
	Lutheran World Relief (LWR)	No
	Solidaridad Internacional	Yes
	Heifer International	No

Annex 2 – Minutes from MAGFOR Meetings

MINISTERIO AGROPECUARIO Y FORESTAL

PROGRAMA DE FOMENTO A LA PRODUCTIVIDAD AGROPECUARIA SOSTENIBLE

MEMORIA DE REUNION MAGFOR/PASOS-INTA-WUR-CIAT, 5 DE MARZO DEL 2014

La reunión se desarrolló en las oficinas del MAGFOR, dio inicio a las 10:15 am, el tema central de abordaje fue: Proyecto de Investigación en fomento a la producción agroecológica, con ello se pretende identificar el objetivo principal del estudio y los actores interesados en el mismo.

Participantes en la reunión

Nombre	Organización	Correo	Teléfono
Ligia Saballos	PASOS/MAGFOR	Ligia.saballos@magfor.gob.ni	86262950
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Falguni Guharay	CIAT	f.guharay@cgiar.org	
Rein van der Hoek	CIAT	r.vanderhock@cgiar.org	86659797
Anne Marike Lohhorst	WUR	annemarike@wur.nl	
Laurens klerkx	WUR	Laurens.klerkx@wur.nl	

La sesión dio inicio haciendo auto presentación rápida de cada uno de los participantes, posteriormente tomando como base anotaciones compartidas elaboradas por el Cro. Falguni Guharay respecto al tema, se hizo una referencia al contexto respecto al tema, donde se compartieron afirmaciones y puntos de vista que a continuación se rescatan:

- El estudio de investigación propuesto por el MAGFOR más que identificar políticas públicas que fomenten la producción

agroecológica, pretende identificar los mecanismos que incentivan o desincentivan la producción agroecológica en el sector privado.

- Existe La Ley 765, el reglamento, la norma técnica y otros instrumentos que fueron elaborados recientemente, los que establecen en su contenido algunos mecanismos, el estudio debe rescatar la funcionalidad de estos mecanismos ya establecidos, rescatar el ex antes, identificar lo que funciona y no funciona y construir escenarios a partir de los aprendizajes, que serían las nuevas propuestas de mecanismos.
- Tenemos Ley 765, pero el documento de política no ha sido aprobado.
- Actualmente en el marco del PASOS se ha iniciado el estudio con ENSOME denominado "Estado de la producción agroecológica en Nicaragua" se considera que este brindará insumos muy importantes a el estudio que se pretende desarrollar, actualmente está en revisión la encuesta que se pretende aplicar la que enfatiza en el nivel primario el de finca, aunque se ha pedido incorporar información del nivel de suministro/servicios, el instrumento va a validarse.
- El estudio además del documento en si va a facilitar una base de datos que posteriormente puede ser compartida y se puede explotar al máximo la información haciendo otro tipo de análisis de interés de varios actores.
- Se consideró importarte revisar y ajustar continuamente las políticas públicas, de tal manera, que los lineamientos de trabajo contenidas en ellas se puedan ir ajustando a las realidades en los diferentes territorios, en vista que sea observado algunos dificultades tales como:

1: Vínculo entre el técnico, promotor y productor, al final el producto es que el productor no hay adopción de tecnologías.

2: Información que recibe el promotor

3: El productor que recibe información del promotor

- El elemento cultural es clave debe ser considerado en el estudio como un eje transversal. Así mismo el rescate del conocimiento rural que no es despreciable.
- En el programa PASOS hemos identificado que el tema de administración requiere de seguimiento y acompañamiento sistemático.
- Se mencionó la necesidad de brindar al productor un abanico de opciones tecnológicas para que incorpore tecnologías identificadas en el campo y que ya están validadas.
- Los flujos en el sistema, la retroalimentación y el conocimiento indígena son elementos importantes, por lo que debemos identificar como hacer tangible los incentivos para ser más efectivos.
- En el PASOS se contempla establecer un sistema de gestión del conocimiento, en este sentido la investigación propuesta puede brindar insumos para el mejor funcionamiento de este sistema.
- El Vínculo entre la Universidad y el CIAT, contempla el modelo de desarrollo de doctorados, en que se contempla la obtención de conocimiento que es relevante pero que es barato, que da insumos para implementar acciones en el corto y mediano plazo y se incorpora a personas locales dejando capacidades locales, la otra modalidad es contratación para la elaboración de estudios puntuales que da resultados concretos a más corto plazo, ambos modelos son funcionales. Puede hacerse algo mixto o sea combinar una persona que hace doctorado y un contratado para resultados de corto, mediano y largo plazo.
- Existen experiencia de modelos que han desarrollado en otros países que son de periodos de hasta 5 años que van generando resultados anuales e intermedios, facilitando instrumentos y conocimientos relevante para diferentes niveles y actores donde los resultados han sido muy útiles y efectivos.
- Se debe de identificar claramente los actores interesados en el tema de investigación, los que ya están hasta ahora es la dirección de políticas, para el monitoreo de la política, El PASOS para la identificación de mecanismos de incentivos y la unidad que monitoreo de la producción, sería importante identificar que actores externos al

MAGFOR, como por ejemplo la FAO están interesados en el estudio y que además disponga también de información respecto al tema o vinculado que fortalezca la investigación.

- Se deben considerar alternativas de mercado, cadenas de valor. Comercialización. Producción sana, limpia y saludable, son temas a incorporar muy importantes, así como Hipótesis. Que permitan Construir y estudiar el modelo de innovación y transferencia del INTA.
- La investigación debe además incluir la ganadería, para obtener propuestas que tengan impacto en este sector que también es relevante en el país, si logramos intensificar la ganadería con 2 a 3 prácticas, logramos que se maneja en menos áreas, se liberan áreas para la reforestación y/o el manejo de la regeneración natural.
- El estudio de investigación debe tener enfoque participativo como sondeo ya se ha contactado a MAONIC, al Banco Central y la FAO que puede tener interés.
- Se puede hacer un proceso de doble vía de compartir información según las necesidades en diversos temas, por lo que podemos disponer la información que tengamos en diversos temas.

Acuerdos:

1. Las personas a través del cual se establece el mecanismo de comunicación desde las instituciones (MAGFOR e INTA) hacia el programa son Falguni Guharay y Rein van der Hoek.
2. Como mecanismo de ejecución se sugiere hacer un programa de investigación con un modelo mixto; involucrando candidatos a Doctorado y mediante la Contratación de una persona de tiempo completo.
3. El programa, a través del CIAT debe presentar un documento propuesta, para finales de marzo del 2014.
4. La propuesta se formulará para el corto y mediano plazo, pero con resultados a lo inmediato.
5. Dentro de los lineamientos del estudio se incluirá: la factibilidad de la certificación pública, la factibilidad de ser país tercero y la factibilidad del sello agroecológico.

6. Para realizar Intercambio de información. El MAGFOR/PASOS propone la creación de una carpeta compartida. El PASOS pondrá a disposición información básica que sirva de insumo para la elaboración de la propuesta al 15 de marzo.
7. MAGFOR/PASOS compartirá los TDR y el instrumento de la encuesta agroecológica que realiza la firma ENSOME, para obtener sugerencias al mismo y eventualmente, previo permiso, facilitará las bases de datos del estudio, para utilidad del programa.
8. Dentro de la investigación se incluirá los aspectos técnicos, de mercado (incentivo, impuesto, cuentas nacionales), de innovación tecnológica (modelos de innovación, flujos de procesos, otros) priorizando la ganadería y como eje transversal los aspectos culturales que influyen en la implementación de sistemas agroecológicos.

La sesión concluyó a las 11:30am.

Annex 3 – Interview Protocol

Interviews with Organizations Current situation and perspectives about work strategies in the territories to generate changes anticipated by Humidtropics

1. Interviewee information:

Name:.....Organization:.....
 Position:.....Department:.....
 Email:.....Phone #:.....

2. Organization

Name	
Legal Status	
Year founded and operation	
Owner, President, Director	
Number of activists or members	
Local and/or national address	
Phone number	
Fax number	
Email	

2. Organization’s projects and initiatives in the Nicanorte-Humidtropics site. *(Show the map and let the interviewee(s) point out where the initiatives are located.)*

Desired Outcomes	Projects and initiatives	Location(s)	Status
- Higher and sustainable productivity			
- Increase income and reduce poverty			
- Improve child nutrition			
- Sustainable management of the natural resources on farms			
- Promote equitable Access and control of resources			
- Promote innovation and local scaling			

3. Organization’s human resources within the Nicanorte action site.

4. Most relevant organizational impacts in the last 5 years concerning the desired outcomes of Humidtropics.

Desired Outcomes	Location(s)	Impact(s)
<ul style="list-style-type: none"> - Higher and sustainable productivity - Increase income and reduce poverty 		
<ul style="list-style-type: none"> - Improve child nutrition - Sustainable management of the natural resources on farms 		
<ul style="list-style-type: none"> - Promote equitable Access and control of resources - Promote innovation and local scaling 		

4. Productive or organizational changes or innovations in which your organization has participated in the last five years in the region.

Desired Outcomes	Location(s)	Innovation(s)
<ul style="list-style-type: none"> - Higher and sustainable productivity - Increase income and reduce poverty 		
<ul style="list-style-type: none"> - Improve child nutrition - Sustainable management of the natural resources on farms 		
<ul style="list-style-type: none"> - Promote equitable Access and control of resources - Promote innovation and local scaling 		

Prioritize two (2) innovations for the following section.

5-a. Who were the main partners or collaborators that helped to give way to these changes or innovations and how did you collaborate with them?

Innovation 1	Innovation 2

5-b. What were the main limitations that affected the success of these innovations?

Innovation 1	Innovation 2

5-c. What were the most important sources of learning and consultation within or outside of the region?

Innovation 1	Innovation 2

6. What changes or innovations would your organization like to work on in the next 5–10 years?

Desired Outcomes	Location(s)	Innovation(s)
<ul style="list-style-type: none"> - Higher and sustainable productivity - Increase income and reduce poverty 		
<ul style="list-style-type: none"> - Improve child nutrition - Sustainable management of the natural resources on farms 		
<ul style="list-style-type: none"> - Promote equitable Access and control of resources - Promote innovation and local scaling 		

Prioritize two (2) innovation ideas.

6-a. What partners or collaborators do you visualize as being key for carrying out these changes?

Innovation 1	Innovation 2

6.b What information do you see as being necessary or key for carrying out these changes in the region?

Innovation 1	Innovation 2

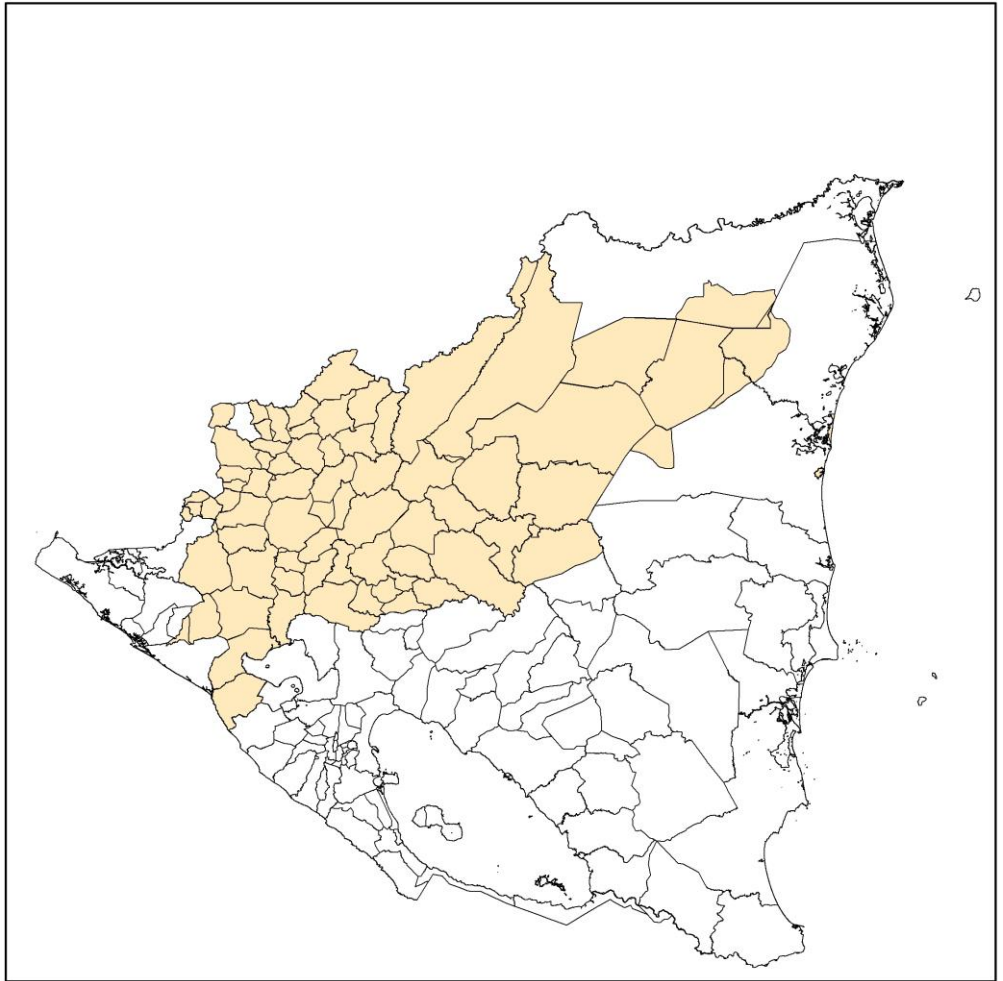
6-c. What potential limitations do you foresee in carrying out these changes in the region?

Innovation 1	Innovation 2

7-a. Considering the desired outcomes, can you identify three (3) field sites where Humidtropics should develop activities with local partners? (Take out the maps and let the interviewee(s) point out the sites.)

Desired Outcomes	Locations	Why were these sites chosen?
<ul style="list-style-type: none"> - Higher and sustainable productivity - Increase income and reduce poverty - Improve child nutrition - Sustainable management of the natural resources on farms - Promote equitable Access and control of resources - Promote innovation and local scaling 	1.	
	2.	
	3.	

7-b. What kind of role could your organization play in the selected field sites?



Annex 4 – Organizational Projects, Desired Outcomes, Partners, and Locations

Organization	Project	Desired Outcomes	Partners	Location
ADDAC	Food Security	Enhance food security and nutrition	SWISSAID, LWR, TROCAIRE	Waslala, Rancho Grande, Matiguas, and La Dalia
	Agribusiness for income generation	Increase income	Norwegian Embassy, Bruck Le Pont, and Project PROGRESA (CRS), with financing from USDA	Not specified
	Strengthening of local cooperatives	Organizational strengthening	Not specified	Waslala, Rancho Grande, Matiguas, Tuma-La Dalia, and Matagalpa
	Individual, Institutional, and Cooperative Credit	Access to credit	Not specified	Not specified
Bioversity	Musaceae in coffee fields	Increase income, enhance productivity, increase access to better markets (post-harvest and value chains), and strengthen food security	UNAN-León	San Ramón, Matagalpa, and Asturias, Jinotega.
	Clone selection to improve productivity	Increase income and enhance productivity	UNAN-León	Rivas
	Project proposal for genetic resource conservation to mitigate climate change	Genetic resource conservation and climate change mitigation	Not specified	Not specified
	Proposal for FONTAGRO	Create multi-level platforms, multi-strata farms, and integrating coffee-banana systems to mitigate climate change	CRS and CCAFS	Not specified
CATIE	Nicacentral Project	Enhance livelihoods of 2,500 producer families	Not specified	Central north of Nicaragua
CRS	Progresa	Increase productivity and enhance the value chains of beans, vegetables, and cattle	Multiple, but not specified	Matagalpa, Nueva Segovia, and Madriz

Organization	Project	Desired Outcomes	Partners	Location
CRS (cont'd)	Puentes Project	Develop value chains parallel to coffee	Coffee producer	San Juan de Río Coco and Tekpaneca
	Passion Fruit Value Chains	Increase production, market insertion, value-added products, and good practices	Not specified	San Dionisio, San Ramón, and La Dalia
	Cocoa Project: Phase 2	Increase cocoa production, income derived from cocoa via market insertion, and applying good practices	Not specified	Not specified
CGAT	Binational environmental watershed management for climate change adaption	Sustainable natural resources management, gender equality, strengthening local capacity	Financed by Red Cross International and COSUDE	Río Tapaclí, Somoto, La Sabana, and San José de Cusmapa
	Climate Change	Strengthening academic innovation for risk management and climate change adaption and research on migration and climate change	Financed by CONSUDE	Not specified
	Climate Change/Gulf of Fonseca	Sustainable natural resource management, climate change adaption, and strengthening of local actors	CIDEA and ADAA	Gulf of Fonseca
CONACAFE	Promotion of Coffee Development	Not specified	Not specified	Not specified
	Raising organizational awareness of policy and investment.	Not specified	Not specified	National level
	Coffee policy	Productive reorganization	BCIE	National level
	Promoting innovation technology for food security and technology transfer for improved coffee production.	Enhance food security; increase technical knowledge to improve production	CATIE and CIAT	Not specified
	National Program for Sustainable Coffee Production	Not specified	Not specified	Not specified

Organization	Project	Desired Outcomes	Partners	Location
CONACAFE (cont'd)	Minimum Wage Initiative	Not specified	ATC, MITRAB, producers, and government entities	Not specified
DGPSA	Phytosanitary monitoring	Monitoring and quarantine of epidemic plant diseases.	Not specified	Nationwide
	Phytosanitary campaign	Pest monitoring	Not specified	Nationwide
	Areas free of fruit flies	Eradicate fruit flies	Not specified	Nationwide
Exportadora Atlantic/Ecom	Buying/Selling Coffee + Cocoa and Commercial Credit	Commercialization	No	Matagalpa, Jinotega, Nueva Segovia, and Madriz
	Sustainable Management Services	Research and technical assistance	IFC, GIZ, LWR, UNIDO, SNV, PCI, SI, MEDA	Matagalpa, Jinotega, Nueva Segovia, and Madriz.
FAO	Strengthening Potato and Corn Agricultural Value Chain	Increase productivity, organizational strengthening, and credit	INTA, CNP, UNAG, cooperatives	Matagalpa, Jinotega, and Estelí
	Facility project – mechanisms for forests and farms	Strengthening local governance in indigenous communities and promoting agroforestry	MARENA and SETAB	Las Minas
	PESA	Enhance food security and nutrition	Not specified	Dry corridor Nicaragua
Fundación Solidaridad Network	PROCASO	Increase coffee productivity, support certification, improve quality, and support commercialization	Financed by the EU	Matagalpa, Jinotega, and Nueva Segovia
	Cocoa Certification	Not specified	Not specified	Not specified
GIZ- MASRENACE	MASRENACE	Not specified	Not specified	RAAN
	Project	Not specified	UNAG	Siuna
	Project	Not specified	URACCAN	Rosita and Bonanza
	Project	Not specified	GRAAN	Wiwilí and San José de Bocay
	Project	Not specified	MAGFOR, INAFOR, MARENA, and SETAB	Not specified
INATEC	Training centers	Training in agriculture, agroindustry, and business administration	Not specified	Nationwide, including Estelí, Somoto, Matagalpa, and RAAN
	Diagnostic Studies	Knowledge to better design curriculum and courses	Curriculum and Staffing Experts	Nationwide

Organization	Project	Desired Outcomes	Partners	Location
MAONIC	Improving productivity, reducing costs, and renewing soils	Increase productivity and increase soil fertility	Support from VECO, SWISSAID, and CAFENICA	Condega, Palacaguina, Mozote, Jinotega, Matagalpa, Pueblo Nuevo, San Juan del Río Coco, San Ramón, and Siuna
	Pilot project on Agroecological regulations (Law 765)	Not specified	Biolatina, VECO, and SIMAS	National level
	Consultations of agroecological regulations	Policy research	Support from SWISSAID	National level
	Master's Degree in Agroecology		UNA	National level
	Farm Resilience Study	Not specified	UNA and Semilla de Identidad Criolla Alliance	Matagalpa, El Crucero, Chinandega, Nueva Guinea, San Juan del Río Coco, and Condega
Nitlapan	Business Development Services Program	Increase productivity in coffee, cocoa, and cattle productions and improve food security through technical assistance	Not specified	Las Segovias, Matagalpa, Jinotega
	Business incubation	Social inclusion, economic sustainability, increase in income, and poverty reduction through the leasing of the means of production (cattle and agricultural and commercial production equipment) and working with youth	Not specified	Not specified
	Rural legal services, territorial notary offices (mediation), and promoting human development	Not specified	FDL	Nationwide
PCAC	Rescue and Improvement of Native Seeds	Rescue and improve native seeds	Financed by EED, SWISSAID, and the EU	Matagalpa, San Ramón, San Dionisio, Esquipulas, Waslala, Estelí, Condega, Pueblo Nuevo, Macuelizo, Mozote, Santa Maria, San Fernando, Ocotol,

Organization	Project	Desired Outcomes	Partners	Location
PCAC (cont'd)				Totogalpa, La Sabana, Somoto, San Lucas, Palacaguina, and Ciudad Antigua)
	Promoting cocoa production in agroforestry systems	Increase productivity	Support from LWR, GIZ, and UNIDO	RAAN and RAAS
	Promoting Sustainable Cattle Production and Watershed Management	Increase productivity and natural resource management	Support from OXFAM and GIZ	Rosita and Siuna, RAAN
	Rural commercialization	Commercialization	Action Aid Denmark and CIC-BATA	Siuna, Rosita, Matagalpa, San Ramón, San Dionisio, and Ocotal
	Improving soil fertility with biominerals	Natural resource management	Support from SWISSAID and SI	Matagalpa, Boaco, Siuna, Rosita, Mozonte, Macuelizo, San Fernando, Ciudad Antigua, and Quilalí
Ritter Sport	Collection/receiving, purchasing, storage, and exportation of cocoa.	Not specified	Not specified	Siuna and Rosita, RAAN
	Cooperative voucher for trust and delivery	Improve functioning of cooperatives and marketing	Not specified	Not specified
	No-cost harvest and post-harvest field advising	Increase capacity of cooperative staff and logistics	Not specified	Not specified
	Free cocoa bean drying services and quality control	Increase capacity of cooperative staff and logistics	Not specified	Not specified
	Loans for collection sites near to cooperatives	Not specified	Not specified	Not specified
	Guarantees from cooperatives for financing from banks	Improve access to credit for cooperatives	Not specified	Not specified
UCA Soppexcca	Coffee investment	Not specified	Root Capital	Jinotega
	Cocoa diversification (Phase I)	Not specified	LWR, EIRENE, Christian Aid, and BID	Jinotega
	Food security	Enhance food security	Green Mountain Coffee	Jinotega

Organization	Project	Desired Outcomes	Partners	Location
UNAN-FAREM-Matagalpa	Formal education (Master's and PhDs in Local Development)	Enhance academic training	Two advisers from Colegio Posgrado, Mexico	Matagalpa
	Research in Climate Change and Food Security, Local Development Planning, Public Policy and Impact on Local Rural Development, and Agricultural Extension Methodology	Knowledge creation	Collaboration with Colegio Posgrado (Mexico) and seed investment from UNAN and small project funds	Matagalpa (San Dionisio, San Ramón, and Esquipulas) and Jinotega
	Matagalpa and Jinotega Rural Development Knowledge Management Network	Knowledge co-creation and circulation	60 institutional and individual actors (not specified)	Matagalpa and Jinotega
UNAN-León	Development of courses on agroecology and veterinary medicine with local actors	Enhance academic training	Not specified	Jinotega, Madriz, Chinandega, Río San Juan, and León
	Joint project to develop small business	Develop small business	GRUN, specifically MIPYME	Jinotega, Madriz, and León
	Training the children of producers	Academic training	MEFCCA	León and Chinandega
	Strengthening association, cooperatives, and territorial developments	Organizational strengthening	Financing from Spanish cooperation	Pacific region of Nicaragua
	Local research and development	Enhance knowledge of farms located near volcanoes	Not specified	Pacific region of Nicaragua near volcanoes
	Synergy between UNAN and other institutions working on production	Knowledge exchange between UNAN and agricultural sector	MAGFOR, MARENA, CONYCIT, and others	Nationwide
	Human Health	Analyze programs addressing poverty and malnutrition	Not specified	Chinandega, Madriz, and Jinotega, as well as others
	Gender + Food	Cultivate national	Italian cooperation agencies	León

Organization	Project	Desired Outcomes	Partners	Location
	Production	gastronomy		
UPANIC	Development and promotion of inoculant use with beans and soy	Development and promotion of inoculant use with beans and soy	Not specified	Northern Nicaragua where beans and soy are produced
	Seed conditioning plant	Not specified	Not specified	Leon and Chinandega
	Natural resources	Control fires on sugarcane plantations	MARENA	Chinandega and Rivas

Annex 5 – Organizational Impacts and IDOs of Humidtropics

Organization	Impact	Location	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
ADDAC	Creation of a movement of acknowledged cooperatives in the region, with five cooperatives that were helped by ADDAC and now have total independence without subsidies and six other cooperatives with their own management, credit systems, and agreements.	Rancho Grande, Waslala, La Dalia, San Ramón, Matagalpa, + Matiguás				X							X
	Validation of a sustainable rural development model with the following components: 1) environmental protection; 2) food security; 3) rural organization; 4) diversification of production for sale/trade; and 5) increase in income.	Rancho Grande, Waslala, La Dalia, San Ramón, Matagalpa, + Matiguás	X	X			X	X					X
	Development of a credit system, especially for micro- and small producers (owners of less than 10 manzanas)	Not specified				X							
Bioversity	Increase in musaceae productivity through the selection of elite seeds and plants.	Rivas	X										
	Increase in productivity and income through the management of Panama wilt disease (pruning, fertilization, light management, and optimizing the overall system).	San Ramón	X				X						
CATIE	Management and sustainable use of watersheds and the sustainable production of coffee, cattle, and basic grains	Somoto and Matagalpa	X	X									
	Implementation of the climate smart territories initiative.	Nicentral	X					X	X	X			

Organization	Impact	Location	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
CGAT	Changed ways of fishing in the Gulf of Fonseca to protect natural resources.	Gulf of Fonseca, Chinandega	X	X									
	Strengthened the capacity and raised awareness about watershed management.	Madriz		X									
	Organizational strengthening with youth.	Cuidad Dario + Chinandega							X				
CONACAFE	Participated in the reform of Law 368, the Coffee Law	National level									X		
	Developed a proposal for coffee production policy, delivered to MAGFOR	National level									X		
	Structured a permanent consultation system for the coffee production industry to facilitate the monitoring of production to shape policy	National level									X		
	Ongoing monitoring of production costs, commercialization processes, clean production, and agroforestry production.	National level	X										
	Strengthened territorial planning on coffee, specifically production plan for Robusta coffee in Atlantic Coast analyzed by CONACAFE.	National level	X										
	Established a national coffee certification laboratory.	National level			X								
	Created an official registry of coffee producers and distribution of identification cards to producers – to avoid the robbery of coffee and deepen alliances with municipalities.	National level											X

Organization	Impact	Location	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
CRS	Increase in productivity of the agricultural commodities addressed by projects (mainly coffee and cocoa). With good practices in coffee production, productivity has increased 30%.	Not specified	X										
	Agricultural production with value added. Ninety-five percent of produced cocoa fulfills requirements for exportation.	Not specified	X										
	Increase in income.	Not specified					X						
	Strengthening of local capacity (association, cooperativism, administration of credit portfolios, and governance)	Not specified							X				X
	Environmental impacts (reforestations, live barriers, efficient water use for crops via the Agua Verde project)	Not specified		X									
	Creation of alliances and strengthening of municipalities, which has allowed for the narrowing of relationships between producers and development organizations, recognition of producer organizations by municipal governments, and support for infrastructure development projects, including roads, potable water (min-aqueducts administered by Water Committees), and energy.	Not specified											
DGPSA	Reduction of the impact of rice stink bug (<i>Eysarcoris ventralis</i>) in rice through a change in the date of planting.	Not specified	X										
	Reduction in damage by rats and other diseases through enhanced vigilance on the part of producers.	Not specified	X										

Organization	Impact	Location	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
DGPSA (cont'd)	Control over phytosanitary conditions (keep phytosanitary conditions updated nationwide) to ensure compliance with export requirements.	Not specified	X										
	Reduction of the risk of Tula absoluta and zebra chip in solanaceae plants through the use of macro tunnels, changes in production methods, increases in productivity, and less pesticides.	Not specified	X										
Exportadora Atlantic/Ecom	Increase in productivity in Wiwili, Waslala, and El Cúa from 5-10 quintals of coffee per manzana to 8-30 quintals per manzana attributable to technical assistance, credit, and marketing services in the territories as well as agroforestry practices and a land legalization program component.	Wiwili, Waslala, + El Cúa	X		X	X							
	Increase in access to credit for partners.					X							
	Increased access for partners to coffee and cocoa markets.	Matagalpa, Jinotega, Nueva Segovia, + Madriz			X								
	Improvements in infrastructure as well as the wet coffee processing to enhance quality with medium-term credit also being offered.	Not specified	X			X							
FAO	Good response from and participation of local governments in FAO projects and programs.												X
	Increase support for the creation and implementation of Law 693 through										X		X

Organization	Impact	Location	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
FAO (cont'd)	municipal committees that bring together municipal governments and organizations.												
	Established seed banks in Las Minas, RAAN, that, through organization and training, have increased the availability of improved seeds in this zone.		X										X
	Creation of an early warning system for the prevention of forest fires, which has helped decrease the incidence of forest fires in the territories.			X									
	Through PESA, the School Lunch Program has been strengthened, promoting school gardens, local purchase of foods from producers in the vicinity, and the construction of kitchens to prepare food for children in schools.		X						X		X		
Fundación Solidaridad Network	Increased coffee productivity and quality.	Not specified	X										
	Strengthened direct links to the market.	Not specified			X								
	Promoted equality (PROCASO) with more than 20% of participants being women.	Not specified							X				
	Supported field schools for coffee producers and farm managers	Jinotega, Matagalpa, + Ocotal								X			
	Decreased susceptibility to Roya.	Not specified	X										
	Developed extension tools for coffee production to support or to be used by local organizations.	Not specified								X			
GIZ-MASRENACE	Policy promotion for sustainable ranching (technical regulations for processing).	Siuna, Mulukukú,									X		
	Secured authorization for a dairy processing plant in Siuna led by four		X										

Organization	Impact	Location	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances	
GIZ- MASRENACE (cont'd)	cooperatives in Rio Blanco.	Rosita, + Bonanza												
	Strengthened ranching value chain governance and advocacy in the steering committee.													X
	Increased Forest Stewardship Certification in indigenous territories.	Layasiksa + Indigenous Territories		X										
	Simplified of forest management procedures.			X										
	Conducted a forest study to support national policies.									X	X			
	Strengthened community forest enterprises.					X								
	National cocoa policy, inter-institutional services for the cocoa sector, National Cocoa Platform with MAGFOR and MEFCCA, and promotion of the essential oil industry (sweet pepper) in Siuna.	Las Minas			X							X		
	Promotion of 400 hectares of cocoa production in indigenous territories working with the territorial government of Mayangna Sauni Bas in the Uli watershed and through agroforestry promotion by COOPESIUNA and UNAG.		X							X				
	Strengthening governance – cocoa committee, municipal committees on cocoa, modernizing the value chain.				X							X		X
	Strengthening of territorial management negotiations in Mayangna Sauni Bas.											X		X
	Documentation, management plans, and land-use plans and maps.				X						X			
	Created soil use maps in Bosawás.				X						X			

Organization	Impact	Location	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
INATEC	Creation of a training program on agricultural, forestry, and industrial issues, which was offered for rural youth who have a basic education level of only being able to read and write.	Mountainous regions, especially Somoto							X	X			
MAONIC	Multi-organizational and sectorial structural coordination of MAONIC	National + territorial levels											X
	Reconsideration of the use of fertilizer through a pilot project on mineral and biomineral fertilizers/compost to increase productivity and lower costs.	San Juan del Río Coco, Condega, Palacagüina, Teustepe, Chinandega, Siuna, + Rosita.	X	X									
	Approval of Law 765, its accompanying regulation and also technical regulations.	National level									X		
Nitlapan	92% of the coffee producers that Nitlapan assisted with credit and technical assistance did not have problems with Roya.	Not specified				X				X			
	Improvement in the relationship between partners who raise cattle together, sharing responsibility (<i>mediería</i>), with a focus on social equity and environmental sustainability.		X	X					X				
	Improvement in the relationships between families and communities through the revalorization of local resources.									X			
	Capacity building and boosting auto-esteem of individuals and communities.									X			

Organization	Impact	Location	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
PCAC	Trained promoters in human development, leadership, and the promotion of organizational capacity that is less political and rather more oriented towards production.	Las Segovias, Matagalpa, Madriz, + Las Minas											X
	Improved food security of more than 50% of the 20,000 families that participate in PCAC-UNAG through the redesigning of production systems from monocultures to diversified systems.	Nueva Segovia, Madriz, + Las Minas	X	X				X					
	Increased agroforestry systems.	Matagalpa, Las Minas, + Nueva Segovia	X	X									
	Identified the need for greater commercialization assistance.	Las Minas + Matagalpa			X								
Ritter Sport	Centralized cocoa collection and fermentation was the result of an innovation process that shifted cocoa collection from farms, where cocoa used to be dried before being sold, to a collection site (<i>acopio</i>) where fresh cocoa is brought in by farmers and fermented under controlled conditions. This resulted in modernizing the cocoa industry in Nicaragua.	Waslala, Rancho Grande, Matiguás, Rio San Juan, El Cúa, and San José de Bocay	X		X					X			
	Ritter Sport cocoa standards have been implemented with all value chain partners and has resulted in increased volume and quality of certified cocoa as well as the introduction of protocols for harvesting,	Not specified	X		X								

Organization	Impact	Location	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
Ritter Sport (cont'd)	fermentation, and drying.												
	The modification of the cocoa post-harvest process and implementation of new protocols resulted in increasing the access of attractive markets for a number of cooperative in different parts of Nicaragua, especially through the help of a jointly implemented public-private project financed by GIZ. This has assured a better price for certified cocoa, which passes through a rigorous process of quality control at all stages. This also generated more competition in the local non-fermented market and the prices in local value chains has risen in tandem with Ritter Sport's value chain.	Not specified	X		X								
	Over the last two years, Ritter Sport has been planting 1800 hectares of cocoa to produce cocoa beans of sufficient quality and complement their collection so that the value chain is on par with the costs of operation in Nicaragua.	Not specified	X		X								
Ritter Sport (cont'd)	Renewal of 80–100 manzanas of coffee fields per year for the last 10 years.	Jinotega + other locations	X	X									
	Off-set the effects of Roya mostly in Jinotega and to a lesser extent in El Cúa by increasing the area under cultivation, thus maintaining increased productivity levels in terms of the amount of coffee collected.	Jinotega	X										
	Sustained the price of their coffee when the	Jinotega											

Organization	Impact	Location	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
Soppexcca	market price dropped through fair trade certification and better quality.				X								
	Stabilized the coffee value chain in terms of quality and price.	Jinotega			X								
	Diversified Soppexcca's business model beyond buying and selling bulk coffee to also roasting and selling packaged coffee (Flor de Jinotega Coffee) to the local market, operating cafés (Flor de Jinotega cafés in Jinotega and Managua).	Jinotega/ Managua				X							
	Provided dry coffee processing to a variety of clients and centralized wet coffee processing to members of Soppexcca.	Not specified	X										
	Produced and sold of organic manure, such as Bio-Perla and Super-Magro.	Not specified	X			X							
	Broadened access to both short- and long-term credit to members of Soppexcca.	Jinotega				X							
UNAN-FAREM Matagalpa	Twenty students graduated from UNAN-FAREM's Local Rural Development program with 25 other students currently enrolled in the program.	Matagalpa+ Jinotega							X				
	Formed the Rural Development Knowledge Management Network to deepen rural development.	Matagalpa + Jinotega							X				
	Participated in the construction of a Local Innovation System in collaboration with the public sector, producer/farmer organizations, and the academia.	Matagalpa + Jinotega							X				
	Produced twenty publications in the form of books about local development, which are available in digital format.	Matagalpa, Jinotega, + Nueva								X			

Organization	Impact	Location	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
		Segovia											
UNAN-León	Introduced musaceae in coffee fields and using an integrated systems approach.	Matagalpa + Jinotega	X	X									
	Enhanced health and nutrition among the population through nutritional innovation.	Northern region of Nicaragua						X				X	
UPANIC	Increased bean productivity through the use of inoculants. More than 35% of producers are familiar with this technology.	Matagalpa + Jinotega	X										
	Increased sugarcane productivity and mechanization to make it available in a timely manner.	Rivas	X										
	Peanut productivity increase.	León + Chinandega	X										
	Reduced fires on sugarcane plantations.	León + Chinandega		X									
	Generated funds through BOLSAGRO, a brokerage firm, to cover different services including technical assistance and mechanization of some crop production.	Not specified					X						

Annex 6 – Recent Innovations and Changes Fostered by Participating Organizations in the Last Five Years

* - denotes an innovation prioritized by the organization

Organization	Change/Innovation	Partners	Sources of Learning	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Micro-Enterprises	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
ADDAC	Organizational strengthening, which has namely focused on creating an effective community organizational scheme with counter parts, the establishment of community committees, and the training of community leaders.*	Not specified	Cooperative 20th April (Quillali); Cooperative Santiago (El Jicaro); UCOSEMUN; ICI								X			X
	Scaling-up of alternative methods to the production process starting from natural resource conservation, then to food security and diversification, increasing volume and surplus, getting into commercialization, and improvement of genetic material. To scale out from small planting to experimental plots to large scale farm operations.*	Donors; international organizations	CATIE	X	X	X			X		X			
	Create truly participatory processes, which is reflected in the emergence of democratic cooperatives (they do not	Not specified	Not specified											X

Organization	Change/Innovation	Partners	Sources of Learning	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Micro-Enter.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
	permanently elect the same leaders).													
Bioversity	Technology for small plantain producers for the selection of better plants.	Not specified	Not specified	X										
	Soil health with local amendments and green fertilizers.	Not specified	Not specified	X	X									
	Management of bacterial rot (<i>Erwinia carotovora</i>).	Not specified	Not specified	X										
	Ecological intensification in San Ramón consisting of fertilization, balancing nutrients with tree management, redesign of multi-strata systems to allow for light to enter, and banana marketing.*	UNAN-León; CATIE students; producers; cooperatives	CATIE; CIRAD	X		X								
	Participatory experimentation in multi-strata models as a complex system and the development of more effective tools to assist with this process.*	UNAN-León; producers	Sources of participatory methods; interaction with team and producers	X							X			
CATIE	Methodological innovations through employing participatory models to manage the knowledge of producers and their families.*	CIAT; CACAONICA; MezaCacao (LWR); INTA; MAGFOR; Soppexcca, CECOCAFEN; FUNICA; IICA	Not specified								X			

Organization	Change/Innovation	Partners	Sources of Learning	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Micro-Enter.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances	
CATIE (cont'd)	Strengthened organizational management capacity through accounting and business development.	Not specified	Not specified											X	
	Scaling out of multi-subject farmer field schools with the participation of women and youth as promoters, who are also providing similar services to other organizations.	Not specified	Not specified							X	X				
	Development of promising genetic material from different plant groups with high potential, including botanical genetic collections in coffee, cacao, and squash (for example, <i>ayote</i> , which can complement the diet in many places).	Not specified	Not specified	X											
	Strengthened technical forest issues mostly related to forest value chains.	Not specified	Not specified			X									
CGAT	Good manufacturing and diversification practices in dairy processing.*	CONSUDE; JICA; MIFIC/MYPIM ES; local organizations (cooperatives/producer orgs; Red-SICTA	Foreign universities; project evaluation reports; local org networks; national/international professor trainings	X											
	Quality management with	MIPYMES/	Not specified												

Organization	Change/Innovation	Partners	Sources of Learning	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Micro-Enter.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
CGAT (cont'd)	MIPYMES (part of MIFIC) and to increase productivity.	MIFIC		X										
	Social infrastructure – construction of houses with economic resources for rural families.	Not specified	Not specified					X						
	Water management (wastewater, wastewater management, and the protection of water sources).	Not specified	Not specified		X									
	Renewable energy for irrigation.	Not specified	Not specified	X	X									
	Better fishing and shellfish capture techniques.	Not specified	Not specified	X	X									
	Local capacity for disaster risk prevention and climate change management.*	EU; CONSUDE; MARENA; INAFOR; MEM; MAGFOR; MIFIC; local actors	national/international professor trainings; specialists from CONSUDE; EU; consultants			X						X		
CONACAFE	Sectorial representation systems that reflect democratic representation within the organization as well as establishing and implementing rules for organizational functioning.	Not specified	Not specified											X
	Broadcasting of prices and other information via cellular phones.	Not specified	Not specified			X					X			
	Coffee field renovation and organization, which has had to be done hand-in-hand with diversification and food	Not specified	Not specified	X					X					

Organization	Change/Innovation	Partners	Sources of Learning	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Micro-Enter.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
CONACAFE (cont'd)	production.													
	Coffee industry policy.*	CATIE; SNV; FUNICA; MAGFOR; CIAT	exporters; UNAG									X		
	Territorial sector planning.*	CATIE; SNV; FUNICA; MAGFOR; CIAT	Not specified								X			X
CRS	Established a centralized cocoa collection site where producers sell cocoa <i>en baba</i> (fresh cocoa beans) at better prices and the pulp is processed at the center to ensure market standards.*	Cooperatives; producers	producers; research centers; universities; businesses; international learning trip to Ecuador			X								
	Development of value chains.	Not specified	Not specified			X								
	Encouraging good practices (cocoa and coffee).	Not specified	Not specified	X										
	Promoting the use of soil analysis for passion fruit production and making decisions about using agrochemicals.	Not specified	Not specified	X										
	Processing of passion fruit pulp and creating value-added products for the hotel and tourism industries.	Not specified	Not specified			X								
	Innovating project execution through: a) strengthening	municipal governments;	CIAT + CATIE learning											

Organization	Change/Innovation	Partners	Sources of Learning	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Micro-Enter.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
CRS (cont'd)	relationships with municipal governments to improve relationships with communities and producers, improving the social and productive infrastructure; and b) use of funds from technological innovation (competitive funds so that cooperatives and private companies who provide services present proposals to increase productivity and value added).*	cooperatives; private service-providing companies	alliance	X		X						X		X
	Environmental protection and conservation (reforestation, live barriers, protection of water sources, and efficient water use, like the Agua Verde Project).	Not specified	Not specified		X									
	Technological package for production: mulch, drip irrigation, fertigation, and agribond, among other practices.	Not specified	Not specified	X	X									
DGPSA	Good agricultural practices.*	cooperatives; producers; producer associations (UNAG, Association of Plantain Growers, Association of Pitaya Growers);	agricultural ministries in Mexico, Chile, and the US; exchanges with Central American nations	X										

Organization	Change/Innovation	Partners	Sources of Learning	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Micro-Enter.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
DGPSA (cont'd)		NGOs; USDA; OIRSA; BID												
	Phytosanitary monitoring.	Not specified	Not specified	X										
	Phytosanitary certification.	Not specified	Not specified	X										
	Macro tunnels for control of zebra chip.*	UPANIC; UNAG; NGOs	SAG (Chile); SAGARPA (Mexico); MAGA (Guatemala)	X										
Exportadora Atlantic/Ecom	Hybrid varieties (plants and seeds) to enhance resistance to pests and diseases.*	CIRAD; Ecom	CIRAD; Ecom	X										
	Tubes for growing seeds in nurseries.	Not specified	Not specified	X										
	Micro-irrigation for coffee that is 100% profitable.	Not specified	Not specified	X										
	Eco-weeder and electrostatic weed control.	Not specified	Not specified	X										
	Soil analysis, interpretations, and recommendations.	Not specified	Not specified	X										
	Improvement in the quality, volume, and agreed market terms.*	Not specified	Not specified			X								
	Farm, income, and expense planning.	Not specified	Not specified								X			
	Improved quality through wet milling	Internal network with staff from Mexico and Brazil; Starbucks; Nespresso	Client demands; coffee buyers; other countries in the region	X		X								

Organization	Change/Innovation	Partners	Sources of Learning	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Micro-Enter.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
	Assistance with certification (Rainforest Alliance/RFA and UTZ).	Not specified	Not specified			X								
FAO	Work with municipal governments.*	municipal governments; producer organizations; development organizations	Not specified									X		
	Good practices in the production of potatoes and basic grains.	Not specified	Not specified	X										
	Water harvesting.	Not specified	Not specified	X	X									
	Implementation of Law 693 and the creation of municipal committees to work together with organizations and communities.*	municipal governments; producer organizations; development organizations	Local platforms; COMUSSANs; ODESAR									X		X
	Conservation of natural resources and organic fertilizers.	Not specified	Not specified	X	X									
Fundación Solidaridad Network	Coffee production, including pruning and replanting, fertility, shade management, plant density management, and quality control.	Technicians from cooperatives; producers; promoters;	CENICAFE; ANACAFE (Guatemala)	X										
	Coffee commercialization with a focus on value chains, quality, certification, and commercialization.	Exportadora Atlantic; Cisa				X								
	Added value and the opening of markets for dairy, cocoa, honey,	Valuelink; UNAG;	partnerships between			X								

Organization	Change/Innovation	Partners	Sources of Learning	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Micro-Enter.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
GIZ- MASRENACE	and essential oils.*	URACCAN; product/commodity committees; cooperatives; businesses (HENTCO, Ecom, Ritter Sport); public-private partnerships	DGRV, Bolivia, and Mexico; CIAT/CATIE/ LWR/CRS learning alliance											
	Local value chain governance for cocoa, dairy, and watershed management.	Not specified	Not specified			X								
	Strengthening of association between cooperatives.	DGRV	Not specified											X
	Land use governance in indigenous territories.*	internal experience; territorial governments; state organizations	community consultation; alliances between political forces and powerful leaders; anthropological focus by GIZ							X		X		
INATEC	Introduction of courses in industry, like taking advantage of local resources to make jam and jellies.*	government institutions specializing in agriculture (INTA and MAGFOR); local	curriculum experts (some from MAGFOR and INTA)			X					X			

Organization	Change/Innovation	Partners	Sources of Learning	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Migrant, Cities	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
INATEC (cont'd)		governments; Juventud Sandinista; churches; youth; local businesses												
	Introduction of forestry courses, including training in forest management, with collaboration from local institutions.*	government institutions; local governments; Juventud Sandinista; churches; youth	Curriculum experts		X	X					X	X		
	Mobile courses in agricultural regions.	Not specified	Not specified								X			
MAONIC	Organizing producers and farmer organizations into MAONIC.	Not specified	Not specified											X
	Applying biomineral and mineral composts to increase productivity and renew soils.*	Jairo Restrepo; Eugenio Gras; Sebastian Pinero; SIMAS certificate course	permaculture literature + diploma course materials; internal studies	X	X									
	Formulation and approval of Law 765 (including its primary regulations and technical regulations).*	SIMAS; MIFIC; INTA; MAGFOR; MARENA; UNA; GPAE; LIDECONIC; BIOLATINA; OCIA; MAYACERT; VECO;	organic production laws of other nations (esp. Argentina, Brazil, Chile, Mexico, Costa Rica, and the EU); BIOLATINA									X		

Organization	Change/Innovation	Partners	Sources of Learning	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Migrant, Children	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
		consumers												
Nitlapan	The rescue and improvement of the historic <i>mediería</i> system (i.e., rent in-kind or sharecropping).*	Local cattle ranchers; industrial slaughterhouses; Catholic Church	Jesuit inspiration; local studies of the Medieria	X										
	Communication methodologies with producers focused on the use of images, parables, and comparisons, as well as the use of narratives or testimonials from producers.	Not specified	Not specified								X			
	Technicians immerse themselves in the communities and with families and write about the changes that most caught their attention.	Not specified	Not specified								X			
	Field schools, micro-leasing, and seeking business alternatives for women.	Not specified	Not specified				X			X	X			
	Credit incentives for the best clients of FDL to employ better practices in ranching to conserve and protect natural resources.*	FDL; BCIE	"Proyecto Pago por Servicios Ambientales" through GEF; CATIE; FDL; Nitlapan; BCIE				X							
PCAC	Actions to improve livelihoods, focusing specifically on how to change the way people think.	Not specified	Not specified								X			
	Developing work strategies based on networks of	Promoters; Bread for the	San Vicente community								X			X

Organization	Change/Innovation	Partners	Sources of Learning	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Micro-Enter.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
PCAC (cont'd)	promoters.*	World; exchanges with partners in Honduras	(State of Guerrero, Mexico)											
	Rescue of native seeds, focusing on seed saving, selection, storage, sharing, improvement, and the establishment of a seed bank.*	CIPRES; Native Seed Network	its own team (esp. Andum Pol); CIPRES	X	X						X			X
	Diversified farms, modeled on agroforestry systems and with permanent recycling-production system.	Not specified	Not specified	X	X									
	Biominerals fertilizers, which are used to improve soil fertility and increase organic material in soil.	Not specified	Not specified	X	X									
Ritter Sport	Increase in the volume of production of Grade A cocoa	ADDAC; DED; CACAONICA	AGROINRA; Ritter Sport; PROMUNDO; FHIA; CATIE	X										
	Consolidation of Cocoa Value Chain	ADDAC; DED; cooperatives; IPADE; IDR; CATIE; CACAONICA	LRR project "Honduras with Quality"; Ritter Sport Germany; Ritter Sport laboratory			X								
Soppexcca	Establishing of a business center in Jinotega.	LWR; Root Capital; EIRENE; BID; Christian Aid	visits to cooperatives in Colombia; Peets Coffee;			X								

Organization	Change/Innovation	Partners	Sources of Learning	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Micro-Enter.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
Soppexcca (cont'd)			Green Mountain Coffee; Industria San Carlos (Guatemala); CECOCAFEN											
	Small technical assistance and investment project including a credit component.	CATIE; CAFENICA; CECOCAFEN; AECID; LWR	CATIE; project consultations; internal teamwork; exchanges with SCAA, RAMACAFE, CAFENICA				X				X			
UNAN-FAREM Matagalpa	Human resource training, which is linked to the development of the knowledge management network in Matagalpa and Jinotega (see above) and is an important social innovation.	Not specified	Not specified								X			
	Human talent training, which is a technological innovation process that is carried out in collaboration with Colegio Posgraduado and utilizing information technology and communication (ITC) with video/online conferencing.	Colegio Posgrado (Mexico); ITC (UNAN-FAREM)	Colegio Posgrado (Mexico)								X			
	Development of the Matagalpa and Jinotega Rural Development	Fundación ETEA; French	Colegio Posgrado											

Organization	Change/Innovation	Partners	Sources of Learning	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Micro-Enter.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
UNAN-FAREM Matagalpa (cont'd)	Knowledge Management Network, which is linked to the CNU Rural Development Inter-Institutional Committee through the work of both entities on political advocacy at the national level.	Embassy; CNU; Ayuda en Acción; SERIDAR, the EU; ALPHA3	(Mexico); CATIE								X			X
UNAN-León	Strengthening partnerships and synergies with municipalities, MEFCCA, and MIFIC to identify gender issues at the territorial level.	MEFCCA; MIFIC; municipalities	Not specified							X		X		
	Selecting elite musaceae plants on the Pacific coast in collaboration with MEF and APEN.	MEF; APEN	Not specified	X										
UPANIC	The promotion of inoculant use in bean production.*	UNAG promoters; FAO + INTA "Pro-Semilla" Project; Central de Cooperativas en Sébaco; FUNICA; CONSUDE	First soy experience in the country; USAID; UPANIC own experience	X										
	Mechanization of sugarcane production.	Not specified	Not specified	X										
	Water harvesting for animal consumption and irrigation (by ANAR).	Not specified	Not specified	X	X									

Annex 7 – Themes of Project/Innovations with Partner Organizations

Organization	Project/ Innovation	Title/Subject	Partners	Theme
ADDAC	Project	Food Security	SWISSAID, LWR, TROCAIRE	Enhancing food security
	Project	Agribusiness for income generation	Norwegian Embassy, Bruck Le Pont, and Project PROGRESA (CRS), with financing from USDA	Promoting business
	Innovation	Scaling-up of alternative methods to the production process starting from natural resource conservation, then to food security and diversification, increasing volume and surplus, getting into commercialization, and improvement of genetic material. To scale out from small planting to experimental plots to large scale farm operations.	Donors; international organizations	Multidimensional innovation
Bioversity	Project	Musaceae in coffee fields	UNAN-León	Coffee production systems
	Project	Clone selection to improve productivity	UNAN-León	Promoting agricultural technology
	Innovation	Ecological intensification in San Ramón consisting of fertilization, balancing nutrients with tree management, redesign of multi-strata systems to allow for light to enter, and banana marketing.	UNAN-León; CATIE students; producers; cooperatives	Multidimensional innovation
	Innovation	Participatory experimentation in multi-strata models as a complex system and the development of more effective tools to assist with this process.	UNAN-León; producers	Research
CATIE	Innovation	Methodological innovations through the employment of participatory models to manage the knowledge of producers and their families.	CIAT; CACAONICA; MezaCacao (LWR); INTA; MAGFOR; Soppexcca, CECOCAFEN; FUNICA; IICA	Knowledge management
CGAT	Project	Binational environmental watershed management for climate change adaption	Financed by Red Cross International and COSUDE	Climate change adaption
	Project	Climate Change	Financed by CONSUDE	Climate change adaption
	Project	Climate Change/Gulf of Fonseca	CIDEA and ADAA	Climate change adaption
		Good manufacturing and diversification practices in dairy	CONSUDE; JICA; MIFIC/MYPIMES; local organizations	

Organization	Project/ Innovation	Title/Subject	Partners	Theme
CGAT (cont'd)	Innovation	processing.	(cooperatives/producer orgs; Red-SICTA	Strengthening value chains
	Innovation	Quality management with MIPYMES (part of MIFIC) and to increase productivity.	MIPYMES/ MIFIC	Strengthening value chains
	Innovation	Local capacity for disaster risk prevention and climate change management.	EU; CONSUDE; MARENA; INAFOR; MEM; MAGFOR; MIFIC; local actors	Climate change adaption
CONACAFE	Project	Coffee policy	BCIE	Public policy
	Project	Promoting innovation technology for food security and technology transfer for improved coffee production.	CATIE and CIAT	Promoting agricultural technology
	Project	Minimum Wage Initiative.	ATC, MITRAB, producers, and government entities.	Public policy
	Innovation	Coffee industry policy.	CATIE; SNV; FUNICA; MAGFOR; CIAT	Public policy
	Innovation	Territorial sector planning.	CATIE; SNV; FUNICA; MAGFOR; CIAT	Capacity development
CRS	Project	Progresa	Multiple, but not specified	Strengthening value chains
	Project	Puentes Project	Coffee producers	Enhancing food security
	Innovation	Established a centralized cocoa collection site where producers sell cocoa <i>en baba</i> (fresh cocoa beans) at better prices and the pulp is processed at the center to ensure market standards.	Cooperatives; producers	Strengthening value chains
	Innovation	Innovating project execution through: a) strengthening relationships with municipal governments to improve relationships with communities and producers, improving the social and productive infrastructure; and b) use of funds from technological innovation (competitive funds so that cooperatives and private companies who provide services present proposals to increase productivity and value added).	Municipal governments; cooperatives; private service- providing companies	Multidimensional innovation
DGPSA	Innovation	Good agricultural practices.	cooperatives; producers; producer associations (UNAG, Association of Plantain Growers, Association of Pitaya Growers); NGOs; USDA; OIRSA; BID	Farm sustainability
DGPSA (cont'd)	Innovation	Macro tunnels for control of zebra chip.	UPANIC; UNAG; NGOs	Promoting agricultural technology

Organization	Project/ Innovation	Title/Subject	Partners	Theme
Exportadora Atlantic/Ecom	Project	Sustainable Management Services	IFC, GIZ, LWR, UNIDO, SNV, PCI, SI, MEDA	Promoting agricultural technology
	Innovation	Hybrid varieties (plants and seeds) to enhance resistance to pests and diseases	CIRAD; Ecom	Promoting agricultural technology
	Innovation	Improved quality through wet milling	Internal network with staff from Mexico and Brazil; Starbucks; Nespresso	Strengthening value chains
FAO	Project	Strengthening Potato and Corn Agricultural Value Chain	INTA, CNP, UNAG, cooperatives	Strengthening value chains
	Project	Facility project – mechanisms for forests and farms	MARENA and SETAB	Strengthening local governance
	Project	PESA	Municipalities in dry corridor.	Enhancing food security
	Innovation	Work with municipal governments	municipal governments; producer organizations; development organizations	Strengthening local governance
	Innovation	Implementation of Law 693 and the creation of municipal committees to work together with organizations and communities	municipal governments; producer organizations; development organizations	Strengthening local governance
Fundación Solidaridad Network	Project	PROCASO	Financed by the EU	Strengthening value chains
	Innovation	Coffee production, including pruning and replanting, fertility, shade management, plant density management, and quality control	Technicians from cooperatives; producers; promoters; Exportadora Atlantic; Cisa	Coffee production systems
	Innovation	Coffee commercialization with a focus on value chains, quality, certification, and commercialization.	Technicians from cooperatives; producers; promoters; Exportadora Atlantic; Cisa	Strengthening value chains
GIZ- MASRENACE	Project	Project	UNAG	Not discernible from data
	Project	Project	URACCAN	Not discernible from data
	Project	Project	GRAAN	Not discernible from data
	Project	Project	MAGFOR, INAFOR, MARENA, and SETAB	Not discernible from data
	Innovation	Added value and the opening of markets for dairy, cocoa, honey, and essential oils	Valuelink; UNAG; URACCAN; product/commodity committees; cooperatives;	Strengthening value chains

Organization	Project/ Innovation	Title/Subject	Partners	Theme
GIZ- MASRENACE (cont'd)			businesses (HENTCO, Ecom, Ritter Sport); public-private partnerships	
	Innovation	Strengthening of association between cooperatives.	DGRV	Strengthening alliances
	Innovation	Land use governance in indigenous territories.	Internal experience; territorial governments; state organizations	Strengthening local governance
INATEC	Project	Diagnostic Studies	Curriculum and Staffing Experts	Research
	Innovation	Introduction of courses in industry, like taking advantage of local resources to make jam and jellies.	government institutions specializing in agriculture (INTA and MAGFOR); local governments; Juventud Sandinista; churches; youth; local businesses	Strengthening value chains
	Innovation	Introduction of forestry courses, including training in forest management, with collaboration from local institutions.	Government institutions; local governments; Juventud Sandinista; churches; youth	Capacity building
MAONIC	Project	Improving productivity, reducing costs, and renewing soils	Support from VECO, SWISSAID, and CAFENICA	Farm sustainability
	Project	Pilot project on agroecological regulations (Law 765)	Biolatina, VECO, and SIMAS	Public policy
	Project	Consultation on the agroecological regulations	Support from SWISSAID	Public policy
	Project	Master's Degree in Agroecology	UNA	Education
	Project	Farm Resilience Study	UNA and Semilla de Identidad Criolla Alliance	Research
	Innovation	Applying biomineral and mineral composts to increase productivity and renew soils.	Jairo Restrepo; Eugenio Gras; Sebastian Pinero; SIMAS certificate course	Farm sustainability
	Innovation	Formulation and approval of Law 765 (including its primary regulations and technical regulations).	SIMAS; MIFIC; INTA; MAGFOR; MARENA; UNA; GPAA; LIDECONIC; BIOLATINA; OCIA; MAYACERT; VECO; consumers	Public policy
	Project	Rural legal services, territorial notary offices (mediation), and promoting human development	FDL	Human Development

Organization	Project/ Innovation	Title/Subject	Partners	Theme
Nitlapan	Innovation	The rescue and improvement of the historic <i>mediería</i> system (i.e., rent in-kind or sharecropping).	local cattle ranchers; industrial slaughterhouses; Catholic Church	Cattle production systems
	Innovation	Credit incentives for the best clients of FDL to employ better practices in ranching to conserve and protect natural resources.	FDL; BCIE	Cattle production systems
PCAC	Project	Rescue and Improvement of Native Seeds	Financed by EED, SWISSAID, and the EU	Native seeds
	Project	Promoting cocoa production in agroforestry systems	Support from LWR, GIZ, and UNIDO	Cocoa production systems
	Project	Promoting Sustainable Cattle Production and Watershed Management	Support from OXFAM and GIZ	Cattle production systems
	Project	Rural commercialization	Action Aid Denmark and CIC-BATA	Promoting business
	Project	Improving soil fertility with biominerals	Support from SWISSAID and SI	Agricultural technology
	Innovation	Developing work strategies based on networks of promoters.	Promoters; Bread for the World; exchanges with partners in Honduras	Capacity building
	Innovation	Rescue of native seeds, focusing on seed saving, selection, storage, sharing, improvement, and the establishment of a seed bank.	CIPRES; Native Seed Network	Native seeds
Ritter Sport	Innovation	Increase in the volume of production of Grade A cocoa	ADDAC; DED; CACAONICA	Production systems
	Innovation	Consolidation of Cocoa Value Chain	ADDAC; DED; cooperatives; IPADE; IDR; CATIE; CACAONICA	Strengthening value chains
UCA Soppexcca	Project	Coffee investment	Root Capital	Strengthening value chains
	Project	Cocoa diversification (Phase I)	LWR, EIRENE, Christian Aid, and BID	Cocoa production systems
	Project	Food security	Green Mountain Coffee	Enhancing food security
	Innovation	Establishing of a business center in Jinotega.	LWR; Root Capital; EIRENE; BID; Christian Aid	Promoting business
	Innovation	Small technical assistance and investment project including a credit component.	CATIE; CAFENICA; CECOCAFEN; AECID; LWR	Access to credit/investment

Organization	Project/ Innovation	Title/Subject	Partners	Theme
UNAN-FAREM- Matagalpa	Project	Formal education (Master's and PhDs in Local Development)	Two advisers from Colegio Posgrado, Mexico	Education
	Project	Research in Climate Change and Food Security, Local Development Planning, Public Policy and Impact on Local Rural Development, and Agricultural Extension Methodology	Collaboration with Colegio Posgrado (Mexico) and seed investment from UNAN and small project funds	Research
	Project	Matagalpa and Jinotega Rural Development Knowledge Management Network	60 institutional and individual actors (not specified)	Multidimensional innovation
	Innovation	Human talent training, which is a technological innovation process that is carried out in collaboration with Colegio Posgraduado and utilizing information technology and communication (ITC) with video/online conferencing.	Colegio Posgrado (Mexico); ITC (UNAN-FAREM)	Human development
	Innovation	Development of the Matagalpa and Jinotega Rural Development Knowledge Management Network, which is linked to the CNU Rural Development Inter-Institutional Committee through the work of both entities on political advocacy at the national level.	Fundación ETEA; French Embassy; CNU; Ayuda en Acción; SERIDAR, the EU; ALPHA3	Multidimensional innovation
UNAN-León	Project	Joint project to develop small business	GRUN, specifically MIPYME	Promoting business
	Project	Training the children of producers	MEFCCA	Education
	Project	Strengthening association, cooperatives, and territorial developments	Financing from Spanish cooperation	Capacity building
	Project	Synergy between UNAN and other institutions working on production	MAGFOR, MARENA, CONYCIT, and others	Strengthening alliances
	Project	Gender and Food Production	Italian cooperation agencies	Enhancing food security
	Innovation	Strengthening partnerships and synergies with municipalities, MEFCCA, and MIFIC to identify gender issues at the territorial level.	MEFCCA; MIFIC; municipalities	Strengthening alliances
	Innovation	Selecting elite musaceae plants on the Pacific coast in collaboration with MEF and APEN.	MEF; APEN	Agricultural technology
UPANIC	Project	Natural resources	MARENA	Environmental protection
	Innovation	The promotion of inoculant use in bean production.	UNAG promoters; FAO + INTA "Pro-Semilla" Project; Central de Cooperativas en Sébaco; FUNICA; CONSUDE	Agricultural technology

Annex 8 – Desired Innovations/Changes by the Organizations in the Next 5–10 Years

* - denotes an innovation prioritized by the organization

Organization	Desired Change/Innovation	Potential Partners	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
ADDAC	Achieving rural agro-industrialization.*	Not specified	X		X								
	Increasing and intensifying production.*	INTA; Soppexcca; CAFENICA; territorial alliances; GESCON	X										
Bioversity	Multi-strata coffee production systems with banana to increase the scale of farms.	No specified.	X										
	Methodological innovations to monitor components and understand how multi-strata systems function (e.g., effects, vulnerabilities, producer reflection, and suggestions for research topics).	Not specified	X										
	Ecological intensification.	Not specified	X										
	Modeling tree design based on functional characteristics.	CIRAD; CATIE; University of Wageningen	X										
	Agrobiodiversity for food security and the diversification of farms and diets.	INTA; FAO	X					X					

Organization	Desired Change/Innovation	Potential Partners	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
CATIE	Strengthen ecosystem services.	Current partners; EMPRABA; CIPAV; CIAT; universities; private sector	X	X									
	Strengthened climate change adaption efforts.			X									
	Deepen value chain development.				X								
CGAT	Good manufacturing and diversification practices in dairy processing.	Local organizations; international centers; universities in Europe (Spain and others) and South America	X										
	Quality management with MIPYMES (part of MIFIC) and to increase productivity.		X										
	Social infrastructure – construction of houses with economic resources for rural families.						X						
	Water management (wastewater, wastewater management, and the protection of water sources).			X									
	Renewable energy for irrigation.		X	X									
	Better fishing and shellfish capture techniques.		X	X									
	Local capacity for disaster risk prevention and climate change management.			X						X			X
	Carry out research on the relationship between climate change and migration.			X									

Organization	Desired Change/Innovation	Potential Partners	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
CONACAFE	Establish a gene bank and foster research on genetics.*	Affiliates in territories.	X							X			
	Basic formation process for coffee professionals including a focus on information, training, credit, and technical assistance.	Not specified								X			
	Financial innovation for providing long-term credit for coffee renovation and reorganizations of 80,000 manzanas.	Not specified				X							
	Grow coffee production services.*	CIAT; CATIE; Bioversity; SNV	X								X		
CRS	Continue focus on value chains.	Not specified			X								
	Business development.	Not specified			X								
	Good practices in passion fruit production.*	Producer cooperatives	X										
DGPSA	Production of certified material to propagate citrus trees (tree shoots will need to be imported). 450,000 shoots per year would be produced to cover national demand.	Not specified	X										
	Citrus certification.*	Producers; cooperatives; plant nursery specialists/breeders	X		X								
	Agroecological agriculture.	Not specified	X										
	Online (electronic) certification to	Not specified											

Organization	Desired Change/Innovation	Potential Partners	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
DGPSA (cont'd)	do paperwork online (with assistance from Chile).									X			
	Molecular biology (PCR) to identify and diagnose plant diseases.*	Producers; importers; producer associations; NGOs	X										
Exportadora Atlantic/Ecom	Coffee productivity and quality.	Not specified	X										
	Vegetative material and genetic renewal.	Not specified	X										
	Integrated crop management, diversification, and common certification codes and practices.	Not specified	X	X	X								
FAO	Organization processes and results management.	Not specified									X		X
	Food security.*	Same organizations with which they have been working.						X					
	Water harvesting.	Not specified	X	X									
	Focus on individuals as the objects of comprehensive human development (simultaneously address their basic needs).	Not specified					X						
Fundación Solidaridad Network	Cocoa production, including pruning and replanting, fertility, shade management, plant density management, and quality control.*	Ritter Sport; Exportadora Atlantic/Ecom; producers	X										

Organization	Desired Change/Innovation	Potential Partners	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
Fundación Solidaridad Network (cont'd)	Cocoa commercialization with a focus on value chains, quality, certification, and commercialization.*				X								
	Agroforestry systems with cocoa.	Not specified	X										
	Integrated production systems with a focus on food security.	Not specified	X					X					
	Agroindustry and markets.	Not specified	X		X								
GIZ- MASRENACE	Strengthen work platforms and systems, creating harmony between territorial, regional, and national governments.	Not specified									X		
	Innovate food security frameworks in indigenous territories for all foods.*	Women's organizations; EARTH University; CIAT; CATIE; BIOVERSITY; FADCANIC						X	X				
	Generate action around development strategies through partnerships and committees.	Not specified											X
	Regulation of laws, policies, regulations, and ordinances pertaining to social concerns and production, especially to foster equity.*	FADCANIC; URACCAN; BICU							X		X		

Organization	Desired Change/Innovation	Potential Partners	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
INATEC	Participate in one of the first mega-development projects – the construction of the hydroelectric dam, Tumarín.	Not specified								X			
	Provide local training in areas where the inter-ocean canal will be constructed. The canal will require different kinds of professionals. Because of this INATEC would like to work to develop different kinds of curricula for areas where canal activities will take place and integrate local actors in the development of these curricula.	Not specified									X		
MAONIC	Rescue and improve the potential of native seeds.*	Its organizational network; UNA; SWISSAID	X	X									
	Use biomineral and mineral composts to improve the functioning of plant nurseries and overall productivity.*	Its organizational network; UNA; UNAN-León; SWISSAID	X	X									
	Synergizing improvements in seeds with improvement of the environment.	Not specified	X	X									
Nitlapan	Territorial development.	Local actors; FDL; UCA; alliances with other national and international universities		X			X		X				

Organization	Desired Change/Innovation	Potential Partners	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
PCAC	Improvement and reconstruction of soils.*	Promoters; MAONIC; UNA; CIAT	X	X									
	Growing and diversifying the rural economy.*	Promoters; others (not yet decided whom)			X								
Ritter Sport	Use of biological controls with causal agents of external and internal mold to maintain cocoa quality.*	Cooperatives; organizations with technological knowledge and tools (International Institute of Tropical Agriculture; Zamorano Pan-American Agricultural School in Honduras, and CATIE)	X										
	Integrated agroecological management targeting productivity and quality and focusing on genetic material, soil fertility, and forestry management.*	Cooperatives; ADDAC; FHIA; CATIE	X										
	Rehabilitation plan for old and new fields and farm investment.	Not specified	X										
	Zoning and adaptability and quality mapping.	Not specified	X							X			

Organization	Desired Change/Innovation	Potential Partners	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
Soppexcca	Improved organic production.	Research organizations (CATIE, UNAN-León, UNA); experience exchanges with similar initiatives in Peru, Colombia, and Mexico; local networks of promoters	X										
	Establishment of additional and more diverse business initiatives specializing in value-added products.	Coffee and cocoa buyers; LWR; CATIE; Root Capital; Christian Aid			X								
UNAN-FAREM Matagalpa	Strategic vision and plan to establish a local knowledge network and have the resources to support it.*	CIAT Learning Alliance; PCAC								X			
	Communication for development and policy incidence.	Not specified									X		
	Make the relationships between sectors more functional and dynamic.*	CATIE; CIAT											X
UNAN-León	Consolidate the agricultural production sector.	Cultural promoters; the National Popular	X										X
	Strengthen the qualifications of the workforce.									X			

Organization	Desired Change/Innovation	Potential Partners	Sustainable Productivity	Natural Resource Conservation	Commercialization and Access to Markets	Innovations to Increase Access to Capital	Increase Income/ Reduce Poverty	Food and Nutritional Security	Gender Equity / Empowering Youth, Women, Marg. Grp.	Innovation, Knowledge + Learning	Policies + Institutions	Community Health	Strengthening Organizations/ Alliances
UNAN-León (cont'd)	Identify problems and challenges.	Culture Program; UNAN staff and professors								X			
	Strengthen synergies and alliances in these zones with organizations like, for example, FUNICA.												X
UPANIC	The use of transgenics (including modification of current national policy).	Not specified									X		
	Promotion of agroindustry.	Not specified	X		X								
	Diversification of exports (especially chia seed and cocoa).	Not specified			X								
	Water harvesting.	Not specified	X	X									
	Use of inoculants with maize.*	Producer associations; central cooperatives	X										
Strengthening of producer organizations.*	Producer organizations											X	

Annex 9 – Reported Sources of Learning for Carrying Out Innovations and Change

Organization	Sources of Learning (Innovations)	Businesses (exporters, buyers, certifiers, etc.)	Clients/Customers	Exchange with international actors	Experience of other programs/projects	Foreign governments (ministries, agencies, laws, etc.)	Foreign universities	Internal Experiences/Teamwork/Exchange	International partnerships/alliances	Learning trips to other countries	Locally/nationally operating alliances/platforms	Local/national producer organizations	Methodological approaches (literature)	National NGOs/CSOS	Political alliances	Producers	Research organizations (international – INGOs)	Research organizations (national universities/research institutes)	Regional Producer Associations/Organizations	Reports and Studies	Specialists/Experts	Training
ADDAC	Cooperative 20th April (Quillali); Cooperative Santiago (El Jicaro); UCOSEMUN; ICI; CATIE											X					X		X			
Bioversity	CATIE; CIRAD; Sources of Participatory Methods; interaction with innovation team and producers							X					X				X					
CATIE	Not specified																					
CGAT	Foreign universities; project evaluation reports; local org networks; national/international professor trainings; specialists from CONSUDE; EU; consultants					X	X				X									X	X	X
CONACAFE	Exporters; UNAG	X									X											
CRS	Producers; research centers; universities; businesses; international learning trip to Ecuador; CIAT + CATIE learning alliance	X								X	X					X	X	X				

Organization	Sources of Learning (Innovations)	Businesses (exporters, buyers, certifiers, etc.)	Clients/Customers	Exchange with international actors	Experience of other programs/projects	Foreign governments (ministries, agencies, laws, etc.)	Foreign universities	Internal Experiences/Teamwork/Exchange	International partnerships/alliances	Learning trips to other countries	Locally/nationally operating alliances/platforms	Local/national producer organizations	Methodological approaches (literature)	National NGOs/CSOS	Political alliances	Producers	Research organizations (international – INGOs)	Research organizations (national universities/research institutes)	Regional Producer Associations/Organizations	Reports and Studies	Specialists/Experts	Training
DGPSA	Agricultural ministries in Mexico, Chile, and the US; exchanges with Central American nations; SAG (Chile); SAGARPA (Mexico); MAGA (Guatemala)			X		X																
Exportadora Atlantic/Ecom	CIRAD; Ecom; Client demands; coffee buyers; other countries in the region	X	X	X																		
FAO	Local platforms; COMUSSANs; ODESAR										X			X								
Fundación Solidaridad Network	CENICAFE; ANACAFE (Guatemala)																		X			
GIZ-MASRENAC E	Partnerships between DGRV, Bolivia, and Mexico; CIAT/CATIE/LWR/CRS learning alliance; community consultation; alliances between political forces and powerful leaders; anthropological focus by GIZ								X		X		X		X							
INATEC	Curriculum experts (some from MAGFOR and INTA)																				X	

Organization	Sources of Learning (Innovations)	Businesses (exporters, buyers, certifiers, etc.)	Clients/Customers	Exchange with international actors	Experience of other programs/projects	Foreign governments (ministries, agencies, laws, etc.)	Foreign universities	Internal Experiences/Teamwork/Exchange	International partnerships/alliances	Learning trips to other countries	Locally/nationally operating alliances/platforms	Local/national producer organizations	Methodological approaches (literature)	National NGOs/CSOS	Political alliances	Producers	Research organizations (international – INGOs)	Research organizations (national universities/research institutes)	Regional Producer Associations/Organizations	Reports and Studies	Specialists/Experts	Training
MAONIC	Permaculture literature + diploma course materials; internal studies; organic production laws of other nations (esp. Argentina, Brazil, Chile, Mexico, Costa Rica, and the EU); BIOLATINA	X				X							X							X		
Nitlapan	Local studies of the Medieria; Proyecto Pago por Servicios Ambientales" through GEF; CATIE; FDL; Nitlapan; BCIE				X												X	X		X		
PCAC	San Vicente community (State of Guerrero, Mexico); its own team (esp. Andum Pol); CIPRES			X				X						X								
Ritter Sport	AGROINRA; Ritter Sport; PROMUNDO; FHIA; CATIE; LWR project "Honduras with Quality"; Ritter Sport Germany; Ritter Sport laboratory	X			X			X									X					
Soppexcca	Visits to cooperatives in Colombia; Peets Coffee; Green Mountain Coffee; Industria San Carlos (Guatemala); CECOCAFEN; CATIE; project consultations; internal teamwork; exchanges with SCAA, RAMACAFE, CAFENICA	X		X				X		X							X					

Organization	Sources of Learning (Innovations)	Businesses (exporters, buyers, Clients/Customers	Exchange with international actors	Experience of other programs/ projects	Foreign governments	Foreign universities	Internal Experiences/	International partnerships/	Learning trips to other countries	Locally/nationally operating	Local/national producer	Methodological approaches	National NGOs/CSOS	Political alliances	Producers	Research organizations	Research organizations	Regional Producer Associations/	Reports and Studies	Specialists/Experts	Training
UNAN-FAREM Matagalpa	Colegio Posgrado (Mexico); CATIE					X										X					
UNAN-León	Not specified																				
UPANIC	First soy experience in the country; USAID; UPANIC own experience			X	X		X				X										

Annex 10 – Information Needed by Organizations to Carry Out Desired Innovations

Organization	Desired Innovation	Agricultural research for productivity	Capacity building + knowledge enhancement	Energy/ infrastructure development	Enhancing food + nutritional security	Fighting pests + diseases	Genetic (plant) resources for production	Public policy	Soil fertility	Strengthening agroindustry/ value-added products	Strengthening commercialization/ value chains	Strengthening organizations + alliances	Strengthening sustainable production	Information Needed
ADDAC	Achieving agroindustrialization								X					Technology; financing; knowledge processes; investment
	Increasing and intensifying production											X		Genetic material; soil and fertility improvement; post-harvest processing/production
Bioversity	Modeling tree design	X												More knowledge on the concept of modeling and also on vulnerability, resilience, and risks.
	Agrobiodiversity for food security				X									Information on how to select adapted crops that can diversify diets; capacity of basic crops to adapt to multi-strata systems; redesign of food production system
CONACAFE	Research on coffee production	X												Coffee diversification; commercialization; quality; school for the training of coffee technicians, farm managers, and workers
	Coffee production services											X		Coffee diversification; commercialization; quality; school for the training of coffee technicians, farm managers, and workers
DGPSA	Citrus certification						X							Training from the Taiwan International Development and Cooperation Fund in Citrus certification
	Diagnostic molecular biology					X								Trained staff from Belize and Mexico
Fundación Solidaridad Network	Cocoa production, including pruning and replanting, fertility, shade management, plant density management, and quality control.											X		Previously collected information by Solidaridad Network on changes in genetic origin; information on germoplasm from CATIE and FHIA

Organization	Desired Innovation	Agricultural research for	Capacity building + knowledge enhancement	Energy/ infrastructure	Enhancing food + nutritional	Fighting pests + diseases	Genetic (plant) resources for production	Public policy	Soil fertility	Strengthening agroindustry/ value-added products	Strengthening commercialization/ value	Strengthening organizations +	Strengthening sustainable	Information Needed
Fundación Solidaridad Network (Cont'd)	Cocoa commercialization with a focus on value chains, quality, certification, and commercialization.										X			Previously collected information by Solidaridad Network on changes in genetic origin; information on germoplasm from CATIE and FHIA
GIZ-MASRENA CE	Food security in indigenous territories			X										Germoplasm; knowledge of cultural perspectives on change
	Adjustment of regulations pertaining to social concerns and production to foster equity							X						Impacts of current regulations and current conditions
INATEC	Participate the mega-development project – the construction of the hydroelectric dam, Tumarín			X										Need trained staff with specific skills and who can provide specific services.
MAONIC	Use biomineral and mineral composts to improve the functioning of plant nurseries and overall productivity												X	Soil conditions in selected sites with local analysis; local water properties; mineralization dynamics and interactions with diseases; content of rock banks and heavy metal content
	Rescue and improve the potential of native seeds						X							Types of soil management; seed and crop rotation techniques; seed bank management; and study of diversification and adaptation to local climates
PCAC	Soil improvement and reconstruction								X					Current diagnostic of the state of the soil in selected areas; information about different products and their contents; information about nutrient recycling and plant use and evolution of soil fertility
	Growing + diversifying the rural economy										X			Studies of markets; knowledge about demand investment; functioning of value chains; processing of goods for market

Organization	Desired Innovation	Agricultural research for	Capacity building + knowledge enhancement	Energy/ infrastructure	Enhancing food + nutritional	Fighting pests + diseases	Genetic (plant) resources for production	Public policy	Soil fertility	Strengthening agroindustry/ value-added products	Strengthening commercialization/ value	Strengthening organizations +	Strengthening sustainable	Information Needed
Ritter Sport	Biological control of mold					X								Causal agents of mold; agents to control mold; production methods; facilitating technological application
	Integrated agroecological management												X	Agroecological management and technology; appropriate seeds
Soppexcca	Improved organic production												X	Fertilizer quality; raw materials; soil studies; pest management; plant nutrition
	Business center specializing in value added products								X					Studies of existing products, markets, and services; sources of financial support for project
UNAN-FAREM Matagalpa	Establishment of local knowledge network	X												Methodologies for bringing sectors together; monitoring of actors and sectors
	Deepening sectorial relationships											X		Methodologies on how to strengthen sectorial alliances.
UNAN-León	Consolidate the agricultural production sector												X	Basic information about territories and current challenges
	Strengthen the qualifications of the workforce	X												
	Identify problems and challenges	X												
	Strengthen synergies and alliances in these zones with organizations like, for example, FUNICA										X			
UPANIC	Use of inoculants with maize												X	Current demand of producers for this kind of knowledge; how technology functions under different climate and soil conditions
	Strengthening producer organizations											X		How to encourage the participation of producers and strengthen unity between them

Annex 11 – Reported Limitations to Carrying Out Innovations and Changes

Organization	Innovation	Limitations in Implementing Innovation and Changes
ADDAC	Organizational strengthening	Previous negative experiences; youth training and acceptance of leadership roles
	Scaling up alternative production methods	Severe climate restrictions in dry zones; repeated failure of production models; change in production model (from agroecological to conventional) at the point of large scale expansion
Bioversity	Ecological Intensification	Local partners did not facilitate processes or promote interaction between producer groups; local partners had limited presence in territories; main partner had limited experience/capacity in working with coffee
	Multi-Strata Participatory Experiment	Limited capacity of national researchers to facilitate processes with producers; reduction of facilitation groups
CGAT	Agroindustrial processing (dairy)	Limited physical capacities of human resources; limited financial resources
	Disaster risk prevention and climate change	Limited training and capacity of staff due to the novelty of the subject in Nicaragua
CONACAFE	Coffee Industry Policy	Disagreements and debates within CONACAFE; carrying out public consultations
	Territorial sectorial planning	Conflict of interest in defining areas
CRS	Centralized cocoa collection site	Low rates of adoption of new technologies; determining which practices most contributed to increasing productivity; dependence on one buyer; lack of industrial development to create added value (chocolate); limited capacity to invest; the lack of increase in the volume of cocoa produced
	Innovating project execution	Political factors related to jealousy, fear, or centralism of municipal governments; few people were able to formulate and present proposals for innovation projects; and a lack of analysis of technologies to determine which components have a bigger influence on increasing net productivity and income
DGPSA	Good agricultural practices	Mentality and traditional habits of producers; economic limitations of producers; export market opportunities for traditional crops
	Macro tunnels	The fabric used for the macro tunnels is imported and expensive

Organization	Innovation	Limitations in Implementing Innovation and Changes
Exportadora Atlantic/ Ecom	Improved quality through better wet milling	Difficulties in changing attitudes and building trust in the short term; the need for funds to invest in improving infrastructure; lack of qualification among coffee pickers
	Development of hybrid varieties	Instability of the plant embryos; the need for improved infrastructure and human resources training; finally, the cost of production of each plant
Fundación Solidaridad Network	Coffee production, including pruning and replanting, fertility, shade management, plant density management, and quality control	Lack of education among producers and promoters, which led to having to redesign training instruments to be more demonstrative; limited economic capacity of producers to fertilize their fields
	Coffee commercialization with a focus on value chains, quality, certification, and commercialization	Lack of education among producers and promoters, which led to having to redesign training instruments to be more demonstrative; limited economic capacity of producers to fertilize their fields
GIZ-MASRENACE	Added value and value chains	Involvement of the public sector in the value chains; the history of paternalism in RAAN; the lack of existing quality institutional services
	Land use governance	Limited capacity of indigenous territory governments; corrupt practices by actors
INATEC	Courses in agroindustry and jam/jelly production	Adapting the courses to be taught to students with low levels of education (who could only read and write); there were limited resources with which to develop the courses
	Forestry courses	Limited education level of students
MAONIC	Applying biomineral and mineral composts to increase productivity and renew soils	Patterns of fertilizer use prior to the introduction of the innovation; the lack of organic material; the lack of capital on the part of farmers to implement the new fertilizers; farm planning
	Formulation and approval of Law 765	Limited familiarity of government functionaries with agroecology; lack of recognition of rural knowledge and thus there was an attempt to impose policy on the producers without listening to and recognizing the inputs and knowledge of producers
Nitlapan	Promotion and improvement of the <i>mediería</i>	Institutions involved in the change were set in their ways; the change in consciousness that was needed on the part of technicians and providers to implement the changes and make improvements was difficult to attain; an attitude of non-payment that hindered the process
	Incentives for sustainable ranching	A lack of interest on the part of producers to intensify since the former model was still profitable; lack of interest in intensifying the horizontal expansion of ranching

Organization	Innovation	Limitations in Implementing Innovation and Changes
PCAC	Training of promoters	A team facilitator is not always present in the communities and this is necessary for scaling up the innovation; limited documentation of the overall process and its successes
	Native seeds	Limited ability to invest in the storage of seeds due to a lack of available funds
Ritter Sport	Increase in volume of production of Grade A cocoa	Harvest and post-harvest management; the incidence of monila; fertility and drought management
	Consolidation of cocoa value chain	the supply of cocoa; the cocoa supply of the cooperatives fluctuated and this resulted in collection problems; it was challenging for the cooperatives to realize that they were creating this problem
Soppexcca	Business center	Product marketing; economic investment; lack of qualified human resources with training in marketing
	Technical assistance and investment project	The lack of studies on technology and organic production; some difficulties with regard to decision making concerning producer investment in the project
UNAN-FAREM Matagalpa	Human talent training process	Lack of economic resources and technological viability; the process itself
	Development of knowledge management network	Advances have been stalled by the lack of a facilitation team; policymakers have no conceptual base from which to run the networks

Annex 12 – Potential Limitations to Implementing Innovations Desired by Organizations

Organization	Desired Innovation	Limitations in Implementing Potential Innovation
ADDAC	Achieving rural agroindustrialization	Low volume and productivity; low quality; not finding source of financing with low interest
	Increasing and intensifying production	Lack of connection and coordination between R&D organizations; poor participation of state organizations territorial collaboration
Bioversity	Modeling tree design	Need for multidisciplinary team of agronomists and social-economists; need available producers to systematize data; difficulty in capturing in introducing to the model data on perceptions and tendencies; ability to transform data into decision-making tools for producers
	Agrobiodiversity for food security	Lack of information or experience for redesigning food production systems; lack of financing; inability to identify local partners who work on ecophysiology
CATIE	Potential limitations not specified for desired innovations.	
CGAT	Potential limitations not specified for desired innovations.	
CONACAFE	Research on coffee production	Accessing financing/ lack of investment in the sector
	Coffee production services	
CRS	Good practices in passion fruit production	Lack of technical capacity, lack of willingness or producer skills for making this change happen
DGPSA	Citrus certification	The slow process of adopting the technology and the appearance of consequential impacts
	Diagnostic molecular biology	Staff with limited capacity to assist with the change; the acquisition process could delay the renewal of inventory
Exportadora Atlantic/ Ecom	Potential limitations not specified for desired innovations.	
FAO	Food security	Departure of donors from Nicaragua and limited resources for carrying out this change
Fundación Solidaridad Network	Cocoa production, including pruning and replanting, fertility, shade management, plant density management, and quality control	The lack of characterization of existing germoplasm; the demand for fine cocoa; old cocoa plantations with low plant density; lack of economic capacity to fertilize; scattered producers in zones with limited infrastructure and few resources; the incidence of diseases like Moniliasis and Phytophthora due to the lack of knowledge on the part of producers
	Cocoa commercialization with a focus on value chains, quality, certification, and commercialization	Lack of characterization of existing germoplasm, the demand for fine cocoa; old cocoa plantations with low plant density; lack of economic capacity to fertilize; scattered producers in zones with limited infrastructure and few resources; incidence of diseases like Moniliasis and Phytophthora due to the lack of knowledge on the part of producers

Organization	Desired Innovation	Limitations in Implementing Potential Innovation
GIZ- MASRENA CE	Food security in indigenous territories	Traditions of paternalism and dependence that characterize the territories
	Adjustment of regulations	Vicious cycle of power and false leadership characterized by much interest
INATEC	Potential limitations not specified for desired innovations.	
MAONIC	Using biomineral and mineral composts to improve functioning of plant nurseries and overall productivity	Heavy metal content in rocks, which will need to be mapped out and monitored; need for investment for the farms
	Rescue and improve potential of native seeds	Successful operation of the seed banks; the lack of organized inventory and geographical location of seed materials
Nitlapan	Territorial development	The breadth of the innovation and the difficulty in fostering change and the clashing of paradigms between application (economic) and conceptualization following listening to realities (anthropological)
PCAC	Potential limitations not specified for desired innovations.	
Ritter Sport	Biological control of mold	Investment and funds for research; difficulties creating stable and lasting partnerships
	Integrated agroecological management	Lack of alliances with other organizations
Soppexcca	Improved organic production	Obtaining resources for creating rural field experiments; training of a research team
	Business center specializing in value-added products	Lack of information, quality, and competence
UNAN- FAREM Matagalpa	Establishment of local knowledge network	Political orientation of public sector guidelines
	Deepening sectorial relationships	Actors volunteering to support the relationship-building process do not have the sufficient time to dedicate to carrying out the process
UNAN-León	Potential limitations not specified for desired innovations.	
UPANIC	Use of inoculants with maize	Difficulty establishing partnerships with the public sector for the development of this technology (which has been their experience in the past); obtaining the resources necessary for campaigns to train and spread the technology
	Strengthening producer organizations	A lack of producer interest; a lack of unity among producers to carry out collective territorial planning; a lack of unity between producer organizations

Annex 13 – Organizational Narratives

Asociación para la Diversificación y el Desarrollo Agrícola Comunal (ADDAC)

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The Asociación para la Diversificación y el Desarrollo Agrícola Comunal (Association for Diversification and Community Agricultural Development, or ADDAC) is a non-government organization that was founded in 1989. Its assembly has 21 members. The organization partners with some six cooperatives and has offices in Matagalpa, Rancho Grande, Waslala, La Dalia, Pancasán, and San Ramón. It also has a shop, La Antorcha Ecológica, in Matagalpa. Seventy-four technicians and administrative staff are employed by ADDAC, of which 34 work solely as technicians.

Projects and Initiatives in Nicanorte Action Site

ADDAC has four projects and initiatives within the territory covered by the Nicanorte Humidtropics action site, which are as follows:

1. **Food security.** This initiative is currently active and is comprised of three separate projects. It was undertaken with the support of SWISSAID, LWR, and TROCAIRE in the territories of Waslala, Rancho Grande, Matiguás, and La Dalia.
2. **Agribusiness for income generation.** This initiative works in partnership with the Norwegian embassy, Bruck Le Pont, Project PROGRESA (CRS) with financing from USDA. The focus of the initiative has been on the following products: cacao, coffee, milk, honey, passion fruit, and black beans.
3. **Strengthening of local organizations and cooperatives.** This initiative is being carried out in the territories of Waslala, Rancho Grande, Matiguás, Tuma-La Dalia, and Matagalpa.
4. **Individual, Institutional, and Cooperative Credit.** An estimated \$36 million cordobas in credit is provided to some 3,000 clients.

Most Relevant Organizational Impacts over the Last Five Years

In the last five years, ADDAC has had three major impacts in the territories where they work that relate to the desired outcomes of Humidtropics:

1. Creation of a movement of acknowledged cooperatives in the region, with five cooperatives that were helped by ADDAC and now have total independence without subsidies and six other cooperatives with their own management, credit systems, and agreements. (Location: Rancho Grande, Waslala, La Dalia, San Ramón, Matagalpa, and Matiguás)
2. Validation of a sustainable rural development model with the following components: 1) environmental protection; 2) food security; 3) rural organization; 4) diversification of production for sale/trade; and 5) increase in income. It was mentioned that it was difficult to achieve results in dry zones because of the lack of available funds. (Location: Rancho Grande, Waslala, La Dalia, San Ramón, Matagalpa, and Matiguás)
3. Development of a credit system, especially for micro- and small producers (owners of less than 10 manzanas). There are some 3,000 clients with credit from US\$200 to US\$5,000. Of the credit provided, 75% is for production and 25% is for services for the community. Farm households have access to small funds through community revolving accounts through which they can take out short-term loans of less than C\$5,000. Cooperatives also provide credit in the amount of C\$5,000 to C\$15,000 to the families for crop maintenance and infrastructure improvement. Finally, the

institutional credit managed by ADDAC provides credit in the amount of US\$200 to US\$10,000 for farm improvement, cattle purchase, and land purchase.

Productive and Organizational Changes and Innovations

Over the last five years, ADDAC has fostered three important changes and/or innovations with the help of partner organizations in the territories where it works. These include:

1. Organizational strengthening, which has namely focused on creating an effective community organizational scheme with counter parts, the establishment of community committees, and the training of community leaders. Later, cooperatives were formed as the base for advancing the community groups – there is a culture of working in organized form to manage funds and establishing network of promoters and communal houses constructed in neutral places.
2. Scaling-up of alternative methods to the production process starting from natural resource conservation, then to food security and diversification, increasing volume and surplus, getting into commercialization, and improvement of genetic material. To scale out from small planting to experimental plots to large scale farm operations.
3. Create truly participatory processes, which is reflected in the emergence of democratic cooperatives (they do not permanently elect the same leaders as is the case with many).

Of these three changes/innovations, ADDAC prioritized two, which are described in further detail in the following:

Organizational Strengthening

This innovation was carried out by ADDAC internally based on their own experiences as well as from the experiences of Cooperative 20th April in Quillali, Cooperativa Santiago in El Jícaro and UCOSSEMUN. Also there was the rich experience of 12 years working in the area of Pancasán. The main limitations that affected carrying out this innovation included previous bad experiences of cooperatives that slowed the

acceptance of the cooperative model as well as the formation of youth and their acceptance of cooperative leadership roles. The most important sources of learning and consultation for carrying out this innovation came from the experience of ICI, which provides training to grassroots organizations in Panama and ran a course accredited by INFOCOOP that ADDAC partners and technicians attended.

Scaling-Up Attention to Production

This innovation has been primarily but not entirely carried out by ADDAC. ADDAC has had experiences with other organizations but has not had diversified support. In Rancho Grande the work was supported by four donors and in Waslala by three. Other support was provided by international organizations helping to consolidate the institutional credit system. Important limitations for carrying out this change were severe climate restrictions in the dry zones, the repeated failure of production models, and in some cases, when time came for large-scale expansion of production and commercialization, some producers shifted from agroecological mode to conventional mode using fertilizers and pesticides. The most important sources of learning and consultation for carrying out this innovation were internal reflection and also visits, evaluations, and internships with CATIE and meetings on organic agriculture in Latin America.

Desired Changes/Innovations

ADDAC identified and prioritized two changes/innovations they would like to move towards in the next five to ten years, which are as follows:

1. **Achieving rural agro-industrialization.** There is not yet an example of this in the nation. Examples of the types of agro-industrialization that ADDAC has in mind include value-added products, coffee mill and toasting, supplying restaurant franchises with products for food preparation, and using cocoa to make cocoa butter and cocoa liquor. The main sites for this innovation would be in La Dalia, Rancho Grande, and Matiguás. ADDAC envisions collaborators as helping to strengthen the harvest collection network at right levels, provide

adequate sources of financing and technology, and establish a centralized cocoa processing plant. Information necessary for achieving this innovation includes that concerning technology, financing, knowledge processes, and investment. Some potential limitations foreseen by ADDAC include low productivity, low volume, low quality, and the possibility of not encountering a source of financing with low interest.

2. **Increasing and intensifying production.** The idea for this innovation is to analyze the causes through interviews in order to find ways to intensify production (for example, natural pasture as rotating cattle feedlots). Potential collaborators for carrying out this innovation identified by ADDAC are INTA, SOPPEXCCA, CAFENICA, territorial alliances, and GESCON. Information that ADDAC anticipates needing to carry out this innovation includes that concerning genetic material, soil and fertility improvement, and post-harvest processing/production. Potential limitations foreseen by ADDAC include lack of connection and coordination between research and development organizations and poor participation of the state organizations to mediate the territorial collaboration.

Working with Humidtropics

ADDAC recommended several potential field sites for Humidtropics. These are listed below as well as the reasons why ADDAC chose these sites:

1. **Rancho Grande, Waslala, La Dalia, and Matiguás.** Chosen because ADDAC already has a presence in these zones, and the municipalities have common frontiers and number of crops in common (coffee, cocoa, basic grains, cattle, etc.), and they share environmental similarities as well as differences.
2. **San Ramón, San Dionisio, Esquipulas, and Terranova.** These are dry zones where there is basic grain and cattle production, low altitudes, and an opportunity to create the technological base needed to overcome

the current situation of environmental degradation.

3. **San Juan de Limay, San Francisco del Norte, Achuapa, and Somoto.** These municipalities are located in the driest of the dry zones where there is a high level of poverty and a need for technology.

ADDAC envisions its role in Humidtropics as:

1. Maintaining the link between local technological and knowledge generation and transfer, and
2. Creating links with other research organizations.

Based on an interview with Otoniel Matus, Head of Production and Commercialization, ADDAC.

Bioversity

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Bioversity is an international nongovernment organization that specializes in agricultural and forest biodiversity and research for development. Its main headquarters are located in Rome, Italy, and it is one of the 15 research centers belonging to the CGIAR consortium. Alongside CIAT, Bioversity is the other founding member of Humidtropics that works in the Humidtropics CAC action area. At the time of this interview, the organization was looking to contract an agroecologist to coordinate activities with local partners in three regions of Latin America, two of which are located in the CAC action site (Haiti-Dominican Republic and Nicaragua). In the Latin American region, there is already support from the Production Systems Coordination and other staff at other Bioversity locations in Montpellier, France, and Cali, Colombia.

Projects and Initiatives in Nicanorte Action Site

Bioversity has two projects and initiatives within the territory covered by the Nicanorte Humidtropics action site as well as two project proposals that were underway at the time of this interview. These are as follows:

1. **Musaceae in coffee fields.** For this initiative, Bioversity partnered with the UNAN-León. The initiative began in 2009 and was carried out until 2013, upon which point UNAN-León continued the project with remaining funds. The project aimed to increase income, enhance productivity, increase access to better markets (post-harvest and value chains), and strengthen food security. It was carried out in San Ramón, Matagalpa, and Asturias, Jinotega.
2. **Clone selection to improve productivity.** This project began in 2010 and will end in 2016. It is being carried out in Rivas and León and seeks to increase income and enhance productivity.

3. **Project proposal for genetic resource conservation to mitigate climate change.** This proposed initiative seeks to work with 10 crops at the national level.
4. **Proposal for FONTAGRO.** This project proposes the creation of multi-level platforms, multi-strata farms, integrating coffee-banana systems to mitigate climate change. Partners for this project include CRS and CGIAR's CCAFS core research program.

Most Relevant Organizational Impacts over the Last Five Years

In the last five years, Bioversity has had two major impacts in the territories where they work that relate to the desired outcomes of Humidtropics:

1. Increase in musaceae productivity in Rivas through the selection of elite seeds and plants.
2. Increase in productivity and income in San Ramón through the management of Panama wilt disease (pruning, fertilization, light management, and optimizing the overall system).

Productive and Organizational Changes and Innovations

Over the last five years, Bioversity has fostered a number of different changes and/or innovations in Rivas and San Ramón where the organization works. These include:

1. Technology for small plantain producers for the selection of better plants. (Location: Rivas)
2. Soil health with local amendments and green fertilizers. (Location: Rivas)
3. Management of bacterial rot (*Erwinia carotovora*). (Location: Rivas)

4. Ecological intensification in San Ramón consisting of fertilization, balancing nutrients with tree management, redesign of multi-strata systems to allow for light to enter, and banana marketing. (Location: San Ramón)
5. Participatory experimentation in multi-strata models as a complex system and the development of more effective tools to assist with this process. (Location: San Ramón)

Of these changes/innovations, Bioversity prioritized two, which are described in further detail in the following:

Ecological Intensification

This innovation was carried out by Bioversity in partnership with UNAN-León (their studies focused on value chains), CATIE students (thesis research), and producer experimenters and their cooperatives. The main limitations encountered in carrying out this innovation were that local partners did not support the facilitation of processes nor monitoring, nor did they promote interaction between groups of producers; local partners had limited presence in the territories where the initiative was undertaken; and, finally, UNAN-León had only recently began working in coffee, and thus their capacity was limited. The most important sources of learning included CIRAD and CATIE's agroforestry platform on perennial crops, CIRAD, and the group dynamics of the team involved in the project.

Multi-Strata Participatory Experiment

Bioversity again partnered with UNAN-León and producer experimenters to carry out this innovation. The main limitations encountered in carrying out this innovation included the limited capacity of national researchers to facilitate processes with producers and the reduction of the number of facilitating groups. The most important sources of learning for the innovation was the capacity of the team involved, diverse sources of participatory methods and "knowledge self-management," and interaction with the team and producers.

Desired Changes/Innovations

Bioversity identified five changes/innovations they would like to move towards in the next five

to ten years. They are all focused on adapting to climate change and are as follows:

1. Multi-strata coffee production systems with banana to increase the scale of farms.
2. Methodological innovations to monitor components and understand how multi-strata systems function (e.g., effects, vulnerabilities, producer reflection, and suggestions for research topics).
3. Ecological intensification.
4. Modeling tree design based on functional characteristics.
5. Agrobiodiversity for food security and the diversification of farms and diets.

Of these desired innovations, Bioversity prioritized two, which are described in more detail in the following.

Modeling Tree Design

Bioversity envisions working with CIRAD/CATIE and the University of Wageningen on this change. The information it sees as key to carrying out this innovation includes more knowledge on the concept of modeling and also on vulnerability, resilience, and risks. Potential foreseen limitations include the need for a multidisciplinary team of agronomists and social-economists; availability of producers to systematize data; difficulty in capturing data on perceptions and tendencies as well as being able to introduce these into the model; and, finally, validity in terms of using data to transform it into tools to help producers make decisions.

Agrobiodiversity for Food Security

Bioversity envisions working with INTA and the FAO on this innovation. The key knowledge that Bioversity sees as being needed includes that on how to select adapted crops that contribute to diversifying diets; the capacity of basic crops to adapt to a multi-strata system; and the redesign of the system. Potential limitations Bioversity foresees include the lack of information or experience to redesign the system, financing, and the ability to identify local partners that work on the subject of ecophysiology.

Working with Humidtropics

Bioversity recommended several potential field sites for Humidtropics. These are listed below as well as the reasons why each of these sites was chosen:

1. **San Ramón/Banana–Coffee Zone.** This site was chosen because Bioversity already has an institutional presence there and also because of the FONTAGRO proposal that is underway.
2. **Asturias, Jinotega/Coffee Zone.** This site was chosen because it presents an opportunity to continue to promote ecological intensification on small coffee farms through the integration of banana.
3. **Waslala + Rancho Grande/Cocoa Zone.** Bioversity chose this site because it has

worked on genetic resources for fine and gourmet cocoa. Moreover, banana can be introduced in cocoa systems to promote ecological intensification.

Bioversity envisions its role in Humidtropics as:

1. Engaging in formal research;
2. Participatory experimentation and learning;
3. Modeling the integration of farms (agrobiodiversity and mixed-systems); and
4. Creation and strengthening of platforms.

Based on an interview with Charles Staver, Coordinator of Production Systems and Bioversity Focus Point for Humidtropics.

Catholic Relief Services

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Catholic Relief Services (CRS) began its work in Nicaragua in 1964. It currently has a team in Managua and another smaller team based in Estelí. CRS is more of a facilitator and adviser, and the organization works with technicians from the organizations with which it partners on projects.

Projects and Initiatives in Nicanorte Action Site

CRS has four projects and initiatives within the territory covered by the Nicanorte Humidtropics action site, which are as follows:

1. **Progresá.** This project began in 2013 and will end in 2015 (with a possibility that it will be extended to July of 2016). The desired outcomes of the project are to increase bean, vegetable, and cattle productivity and strengthen their respective value chains. The project is being carried out in partnership with a variety of organizations and selected municipalities in Matagalpa, Nueva Segovia, and Madriz.
2. **Puentes Project.** This project will end in 2014. The desired outcome is to develop complementary value chains parallel to that of coffee to strengthen food security and diet diversity during the months when coffee is not being harvested. The project is being undertaken with coffee producers in San Juan de Río Coco and Telpaneca.
3. **Development of passion fruit value chain.** This three-year long project has one year remaining. The desired outcome is to increase passion fruit production, increase income through market insertion, create value-added products, and to apply good practices. The project is being carried out in Matagalpa (municipalities of San Dionisio, San Ramón, and La Dalia).
4. **Phase two of cocoa project.** The second phase began in April of 2013 and will end in

2015. The desired outcomes are to increase in cocoa production, increase income derived from cocoa through its market insertion, create value-added products (improvement in the fermentation process of cocoa), and the application of good practices.

Most Relevant Organizational Impacts over the Last Five Years

In the last five years, CRS has had a number of impacts that relate to the desired outcomes of Humidtropics:

1. Increase in productivity of the agricultural commodities addressed by projects (mainly coffee and cocoa). With good practices in coffee production, productivity has increased by 30%.
2. Agricultural production with value added. Ninety-five percent of produced cocoa fulfills requirements for exportation.
3. Increase in income.
4. Strengthening of local capacity (association, cooperativism, administration of credit portfolios, and governance).
5. All CRS projects have an environmental component: reforestation, live barriers, and efficient water use for crops, with the latter being through the Agua Verde project.
6. Creation of alliances and strengthening of municipalities, which has allowed for the narrowing of relationships between producers and development organizations, recognition of producer organizations by municipal governments, and support for infrastructure development projects, including roads, potable water (min-aqueducts administered by Water Committees), and energy.

Productive and Organizational Changes and Innovations

Over the last five years, CRS has fostered a number of important changes and/or innovations with the help of partner organizations. These include:

1. An established centralized cocoa collection site where producers sell cocoa *en baba* (fresh cocoa beans) at better prices and the pulp is processed at the center to ensure market standards. This helps producers enhance their ability to process cocoa and create stronger links to markets. At the same time this arrangement offers producers an alternative to processing the cocoa on their farms, thus lowering costs and freeing their time for other agricultural activities.
2. Development of value chains.
3. Encouraging good practices (cocoa and coffee).
4. Promoting the use of soil analysis for passion fruit production and making decisions about using agrochemicals.
5. Processing of passion fruit pulp and creating value-added products for the hotel and tourism industries.
6. Innovating project execution through: a) strengthening relationships with municipal governments to improve relationships with communities and producers, improving the social and productive infrastructure; and b) use of funds from technological innovation (competitive funds so that cooperatives and private companies who provide services present proposals to increase productivity and value added).
7. Environmental protection and conservation (reforestation, live barriers, protection of water sources, and efficient water use, like the Agua Verde Project).
8. Technological package for production: mulch, drip irrigation, fertigation, and agribond, among other practices. An analysis was done to determine what practices were those that were found to increase net productivity and income, which has resulted

in further narrowing the number of practices that are promoted.

Of these three changes/innovations, CRS prioritized two, which are described in further detail in the following:

Centralized Cocoa Collection Site

This innovation was carried out in collaboration with cooperatives and individual producers. The main limitations that affected carrying out this innovation were the low rates of adoption of new technologies (of 26 technologies introduced, only 50% were implemented), determining which practices most contributed to increasing productivity, dependence on one buyer, lack of industrial development to create added value (chocolate), limited capacity to invest, and the lack of increase in the volume of cocoa produced. The most important sources of learning and consultation for this innovation were producers, research centers, universities, businesses, and an international learning trip to Ecuador.

Innovating Project Execution

Partners for this innovation included municipal governments, cooperatives, and private service-providing companies. The main limitations encountered in carrying out this innovation included political factors related to jealousy, fear, or centralism of municipal governments; few people were able to formulate and present proposals for innovation projects; and a lack of analysis of technologies to determine which components have a bigger influence on increasing net productivity and income. The source of learning and consultation that was most important for the success of this innovation was the learning alliance promoted by CIAT and CATIE, in which CRS participated actively.

Desired Changes/Innovations

CRS identified three changes/ innovations they would like to move towards in the next five to ten years, which are as follows:

1. Continue the focus on value chains.
2. Business development.
3. Good practices in passion fruit production.

Of these three desired changes/innovations, CRS identified one as being a priority, which is described in more detail in the following:

Good Practices in Passion Fruit Production

CRS envisions working with producer cooperatives to undertake this innovation. Potential limitations it foresees include the lack of technical capacity, lack of willingness or producer skills for making this change happen.

Working with Humidtropics

CRS recommended several potential field sites for Humidtropics. These are listed below as well as the reasons why CRS chose these sites:

1. **Las Minas** (Rosita, Bonanza, and Siuna), North Atlantic Autonomous Region (RAAN). This site was chosen because there are opportunities to: increase productivity and income due to the limited amount of organizational work dedicated to research and development done there, for natural resource management due to the proximity to Bosawás, and for innovation (for example, a collection site for cocoa *en baba* and centralized processing in order to transform the product).
2. **San Juan de Río Coco**. This site was chosen because of the available space for diversification of small coffee farms with other crops (i.e., cocoa, honey, and bananas); the need to improve soil fertility in this region; and the cooperatives there are much more developed and strengthened than in Las Minas and, for this reason, efforts can focus on technical assistance interventions and also access to financial resources.
3. **Selected municipalities in Madriz, Nueva Segovia, and Matagalpa**. These sites were chosen because CRS works on bean, produce, and cattle value chains. With regard to the issue of how to increase income through increasing productivity and better links to markets, access to roads and relationships to local institutions could be very useful.

CRS commented that it was important for institutions forming the Humidtropics' alliances to focus on institutional strengthening. CRS's

experience has been most focused on business management and governance. The role it envisions for itself in Humidtropics is to analyze value chains and intervene to support the following objectives:

1. Increase agricultural productivity
2. Improve water and soil resources
3. Increase the use of improved agricultural techniques and technologies
4. Improve the support infrastructure for production on the farms
5. Increase the access and use of financial resources
6. Improve farm management
7. Expand trade of agricultural products
8. Increase the added value of agricultural products
9. Improve the post-harvest infrastructure
10. Increase market access for agricultural products
11. Increase access to market information

Based on an interview with Jorge Brenes (Director of PROGRESA) and Juan Carlos Tellería (Director of Agribusiness), CRS.

Centro Agronómico Tropical de Investigación y Enseñanza (CATIE)

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The Centro Agronómico Tropical de Investigación y Enseñanza (Tropical Agriculture Research and Higher Education Center, or CATIE) is a non-government organization based in Costa Rica. The organization is carrying out one project in Nicaragua and there are specialists working on a number of different crop systems, including basic grains, cacao, coffee, and livestock. The long-term objective of CATIE is to reduce poverty. CATIE has selected several different zones of Nicaragua to focus their work, especially in the central northern region of Nicaragua (Nicacentral).

Projects and Initiatives in Nicanorte Action Site

CATIE has one major project in the central zone of the Nicacentral region. The desired impact is to significantly contribute to the development of 2,500 producer families in the next 4 years.

Most Relevant Organizational Impacts over the Last Five Years

In the last five years, CATIE has had two broad impacts that relate to the desired outcomes of Humidtropics. These are described in the following:

1. **Management and sustainable use of watersheds and the sustainable production of coffee, cattle, and basic grains.** These impacts resulted in changes in land use and more interaction and harmonization between actors around watersheds. (Location: Somoto and Matagalpa)
2. **Implementation of the climate smart territories initiative** Part of the initiative was to implement agroforestry on farms with a strong emphasis on food security. One of the ways agroforestry was introduced was in the family *patio* (outdoor space next

to the home). Other components of the program focused on training rural facilitators, increasing the participation of women, and establishing multi-subject farmer field schools.

Productive and Organizational Changes and Innovations

Over the last five years, CATIE has fostered five changes and/or innovations in Nicacentral with the help of partner organizations. These include:

1. Methodological innovations through employing participatory models to manage the knowledge of producers and their families. Attempts have been made to institutionalize learning through the inclusion of more institutions and through better coverage.
2. Strengthening organizational management capacity through accounting and business development.
3. Scaling out of multi-subject farmer field schools with the participation of women and youth as promoters, who are also providing similar services to other organizations.
4. Development of promising genetic material from different plant groups with high potential, including botanical genetic collections in coffee, cacao, and squash (for example, *ayote*, which can complement diets in many places).
5. Strengthening technical forest issues mostly related to forest value chains.

Of these changes/innovations, CATIE prioritized methodological innovations. As stated above, CATIE has tried to promote participatory methodologies for learning and managing knowledge and the inclusion of a broader spectrum of institutions in learning processes. In CATIE, the idea is to generate, share, and adapt

information with others. Much of the information in CATIE is generated by students completing their Master's degrees, but information is also adapted from the research and knowledge of other partners. For example CIAT generates knowledge about pastures, forage, and basic grains. Thus, as CATIE explained, there were many key partners involved in carrying out this innovation. For cocoa, there were several partners, including CACAONICA and MezaCacao (a work platform with LWR). For cattle, INTA partnered with CATIE and together they considered the reconversion of cattle with the government and MAGFOR. With coffee, CATIE has collaborated with local cooperatives, like SOPPEXCCA and CECOCAFEN. Current programs have allocated more resources to work more closely with the government and with Heifer International for lesser species. Research has been conducted in partnership with universities and there has been a general attempt to build relationships with INTA, FUNICA, and with universities to take advantage of the knowledge that these partners have. Finally, CATIE stays in contact and works with some regional partners, like CIAT and the IICA, on regional platforms to influence policy at different levels of governance.

Desired Changes/Innovations

CATIE's strategy for the next 10 years in the region is to focus on ecosystem services, climate change adaption, and value chains. The impacts it envisions having include continuing their work to reduce poverty. The organization already has a social base in Nicacentral and will work in specific key areas: *patios*, cocoa and coffee production systems (agroforestry systems), basic grains, silvopastoral systems, and forest value chains. Nicacentral is a key territory for CATIE for several reasons, including the presence of CATIE in this zone, the activities it has previously carried out, the monitoring of the social base with which the organization works, ecosystem services, biodiversity, and finally, between 50–70% of national agroforestry production of coffee, cocoa, and cattle occurs in this zone.

To realize these innovations and changes, CATIE envisions continuing to work with partners with whom the organization has already worked. They are considering working more closely with EMBRAPA, CIPAV, and CIAT in the future on other issues, especially Humidtropics. With universities, they would like to better articulate a common work agenda and improve strategies to communicate with and support one another more. Finally, CATIE is considering working more closely with the private sector by broadening their work in an effort to collaborate with businesses and work on issues such as human resources, value chains, and quality in cocoa production, as this is a crop that is rapidly evolving.

Working with Humidtropics

CATIE recommended several potential field sites for Humidtropics. These are listed below as well as the reasons why these sites were chosen:

1. **Nicacentral.** This site was chosen because there a lot of development potential in this region. Currently, the major agricultural production activities involve coffee, cocoa, livestock, and basic grains. Furthermore, this region is important with regards to conservation because it is close to the agricultural frontier and agroforestry systems in the region can serve to deepen conservation efforts.
2. **Mulucucu, Siuna, Pantasma, Wililí, Río Blanco, and Piswas** (municipalities surrounding Nicacentral). These municipalities were chosen because of their enormous potential for agricultural production in the future. Livestock production in these areas is important for economic reasons but it is questionable from an environmental point of view, thus highlighting the challenge of creating more sustainable systems with less environmental degradation.
3. **Chinandega and León.** CATIE had activities in these areas when Nicaragua received funds from the Millennium Challenge Corporation (United States). They chose this region because of its current potential in many environmentally-degraded

areas. Projects, like that of Millennium Challenge, have been influential throughout the region and many have implemented tree farms. It would be worthwhile to evaluate and document these projects.

In previous meetings with CIAT, CATIE has expressed its interest and willingness to collaborate with Humidtropics. CATIE's current projects have a development focus that is very

aligned with that of Humidtropics and it envisions participating in Humidtropics by working in the Nicacentral region.

Based on an interview with Estela Aléman (National Representative and Agroforestry Specialist) and Amilcar Aguilar (Gender and Agroforestry) from CATIE.

Centro de Gestión Ambiental y Tecnológica (CGAT)

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The Centro de Gestión Ambiental y Tecnológica (Center for Environmental and Technological Management, or CGAT) is part of the Faculty of Science, Technology, and the Environment at the Universidad Centroamericana (UCA) located in Managua. The center has 30 professors representing six disciplines: architecture, civil engineering, industrial engineering, information systems and technology engineering, environmental quality engineering, and graphic design. In addition, they have two technicians in Ciudad Dario.

Projects and Initiatives in Nicanorte Action Site

CGAT has three projects and initiatives within the territory covered by the Nicanorte Humidtropics action site, which are as follows:

1. Binational environmental watershed management for climate change adaptation.

This binational project located in Nicaragua and Honduras began in January of 2013 and ended that same year in December. The sites of the project in Nicaragua included sub-watershed Río Tapaclí, Somoto, La Sabana, and San José de Cusmapa. The project was financed by Red Cross International and COSUDE. The desired outcomes of the project included:

- Sustainable natural resource management through the creation of a management plan that includes risk prevention in the event of disasters and zoning plans, all with the participation of local actors.
- Promotion of gender equality through the transversal implementation of a focus on gender and women's empowerment to propose and manage projects.

- Strengthening local skills – an academic diploma in watershed management in which 30 technicians participated.

2. **Climate change.** This project focuses on strengthening academic innovation for risk prevention (in the event of disasters) and climate change adaptation as well as a research component on the subject of national and international migration as a result of effects of climate change. The project has 12,000 beneficiaries. It began in September 2013 and will end in July of 2017, and it operates at the national level. Financing is provided by CONSUDE. The desired outcomes of the project are as follows:

- Academic strengthening through an emphasis on science in a general and the subject of risk at times of disaster in all the departments of the UCA, and also identifying issues related to these subjects.
- Strengthening of the university network working on the subject of disaster risk prevention and climate change.
- Inclusion of the subject of disaster risk prevention and climate change in training curriculum for teachers so that they can teach it to their students in rural communities and create maps of risks at their schools.

3. Climate change in the Gulf of Fonseca.

This project is being carried out in conjunction with CIDEA and ADAA, two other UCA research centers. The project began in December 2009 and will end in December of 2015 and is being carried out in the Gulf of Fonseca on the Pacific Coast of Nicaragua. The desired outcomes are:

- Sustainable natural resource and environmental management.
- Climate change adaptation and disaster risk prevention and climate change management through the validation and adoption of new fishing and agricultural technologies.
- Strengthening of local actors through disaster risk prevention and climate change management.

Most Relevant Organizational Impacts over the Last Five Years

In the last five years, CGAT has had four major impacts that relate to the desired outcomes of Humidtropics:

1. Rational use of natural resources in marine areas (coasts and sea) in the Gulf of Fonseca. The major impact has pertained to ways of fishing. Before fisherman fished indiscriminately, while today they fish and collect shellfish in mangrove swamps in a more controlled way taking into account biological cycles.
2. Capacity strengthening and change of attitude of technicians towards watershed management. The impact occurred in the department of Madriz and involves raising awareness among rural families in order to better manage the Tapacalí watershed that is shared by both Nicaragua and Honduras.
3. Local capacity strengthening for the management and execution of projects in all sites where CGAT has activities.
4. Rural organizational strengthening with youth in Ciudad Darío and Chinandega. Local youth in these places have developed their farms and communities and learned about value chains – from planning to market insertion.

Productive and Organizational Changes and Innovations

CGAT has not worked in primary production, as this is not part of their strategy because they see other universities and organizations as having stronger capacities to address this area. Thus,

CGAT has focused its activities on fostering other changes and innovations over the last five years. These include:

1. Good manufacturing and diversification practices in dairy processing.
2. Quality management with MIPYMES (part of MIFIC) and to increase productivity.
3. Social infrastructure – construction of houses with economic resources for rural families.
4. Water management (wastewater, wastewater management, and the protection of water sources).
5. Renewable energy for irrigation.
6. Better fishing and shellfish capture techniques.
7. Local capacity for disaster risk prevention and climate change management.

Of these changes/innovations, CGAT prioritized two, which are described in further detail in the following:

Agroindustrial Processing (Dairy)

This innovation was carried out in collaboration with two cooperation agencies (COSUDE and JICA), alliances with public institutions (specifically MIFIC and MIPYMES), local organizations (cooperatives and producer associations), and Red-SICTA. The main limitations encountered in carrying out this innovation included those regarding human resources (limited physical capabilities) and also limited financial resources. The most important sources of learning and consultation for carrying out this change included exchange with foreign universities, project evaluation reports, local organizational networks, and national and international training of university professors.

RRDDCC Management

Partners for this innovation included the EU, CONSUDE, MARENA, INAFOR, MEM, the MAGFOR, MIFIC, and local actors. The main limitation encountered in carrying out this innovation was that the training and capacity of national staff on the subject was limited because work on this subject is in its nascence in Nicaragua. The most important sources of learning and consultation for realizing this

innovation included national and international training of university professors; specialists from CONSUDE, the EU, and consultants; and the sub-contracting of national staff.

Desired Changes/Innovations

CGAT would like to continue working on the same kinds of innovations that it has been implementing in recent years (see above). In addition, it would also like to carry out studies on the relationship between climate change and migration. CGAT envisions working with local organizations, alliances with international centers, and alliances with universities in Europe (Spain and others) and South America.

Working with Humidtropics

CGAT recommended several potential field sites for Humidtropics. These are listed below as well as the reasons why these sites were chosen. The desired outcomes of Humidtropics converge with the work being done in each of these sites.

1. **Cuidad Darío, Matagalpa.** This location was chosen because the UCA has been working in Cuidad Darío for more than 10 years and has carried out social, agricultural, and environmental work there. An alliance of local organizations for development alternatives has participated alongside the UCA and has an established and running presence. There has also been support on behalf of the rural population for local, sustainable development.
2. **Gulf of Fonseca, Chinandega.** This location was chosen for reasons similar to those for Cuidad Darío. CGAT has been working there on projects concerning climate change adaptation, disaster risk reduction, and mainly strengthening local capacities in preservation and controlled management of marine resources as productive black shells for self-sustainability.
3. **Las Segovias** (Somoto, San Lucas, La Sabana, and San José de Cusmapa). This location was chosen because a social base is being constructed around an environmental management plan for the river basin of River Tapacali. The idea is to stay in this

zone and take action to preserve the environment and foster integrated production management, diversification, and alternative rural development of small family businesses, among others.

CGAT envisions its role in Humidtropics as:

- Interaction in the territories through the participation of academic staff in activities related to the topics mentioned in previous sections above. All actions are based on developing outreach projects. CGAT seeks to support those initiatives which have a social impact in addition to economic and technological impacts, among others.
- Availability for strategic alliances in the context of alternative development projects to improve the socio-cultural and economic capacities in a given area.

The UCA works with strategic guidelines based on the national development plan of Nicaragua, including academia, research and outreach, all with transverse axes such as gender equity, ethics, and local capacity building.

Based on an interview with Miguel Lacayo, Director of CGAT.

Consejo Nacional de Café (CONACAFE)

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Founded in 2005, the Consejo Nacional de Café (National Coffee Council, or CONACAFE) was established to coordinate between all the actors in the coffee sector to fulfill Law 368, the Coffee Law, which was passed in 2001. The council is comprised of eight coffee producers, each representing a different department where coffee is grown; MIFIC, a representative of coffee processing plants, and a representative of coffee exporters. The current Executive Secretary is Juan Ramón Obregón. The organization has six office staff members, six technicians, and three technical advisers.

Projects and Initiatives in Nicanorte Action Site

CONACAFE has six projects and initiatives within the territory covered by the Nicanorte Humidtropics action site, which are as follows:

1. **Promotion of coffee development.**
2. **Raising organizational awareness of policy and investment.** (National level)
3. **Coffee policy.** Active project at the national level, productive reorganization with the BCIE.
4. **Promoting innovation technology for food security and technology transfer for improved coffee production.** Strategic alliance with CATIE and CIAT.
5. **National program for sustainable coffee production.**
6. **Minimum wage initiative.** Collaboration with the ATC, MITRAB, producers, and government entities.

Most Relevant Organizational Impacts over the Last Five Years

In the last five years, CONACAFE has had a number of impacts in the territories where they work that relate to the desired outcomes of Humidtropics. These are as follows:

1. Participated in the reform of Law 368, the Coffee Law.
2. Developed a proposal for coffee production policy, delivered to MAGFOR.
3. Structured a permanent consultation system for the coffee production industry to facilitate the monitoring of production to shape policy.
4. Ongoing monitoring of production costs, commercialization processes, clean production, and agroforestry production.
5. Strengthened territorial planning on coffee, specifically production plan for Robusta coffee in Atlantic Coast analyzed by CONACAFE.
6. Established a national coffee certification laboratory.
7. Created an official registry of coffee producers and distribution of identification cards to producers – to avoid the robbery of coffee and deepen alliances with municipalities.

Productive and Organizational Changes and Innovations

Over the last five years, CONACAFE has fostered three important changes and/or innovations with the help of partner organizations in the territories where it works. These include:

1. Sectorial representation systems that reflect democratic representation within the

organization as well as establishing and implementing rules for organizational functioning.

2. Broadcasting of prices and other information via cellular phones, which has been a challenging innovation to implement due to the lack of resources to provide technical training and the lack of access to technology on the part of producers.
3. Coffee field renovation and organization, which has been done hand-in-hand with diversification and food production.

Based on the innovations mentioned above and working out specific components of the innovations, CONACAFE prioritized two ideas, which are described in further detail in the following:

Coffee Industry Policies

This innovation was carried out in collaboration with CATIE, SNV, FUNICA, MAGFOR, and CIAT. The two main limitations faced in carrying this change out were debates and disagreements within CONACAFE and conducting public consultations. The two most important sources of learning and consultation in carrying out this innovation were exporters and UNAG.

Territorial Sector Planning

This innovation was carried out with the collaboration of CATIE, SNV, MAGFOR, FUNICA, and CIAT. The main limitation encountered in carrying out this innovation was conflict of interest with regard to defining areas.

Desired Changes/Innovations

CONACAFE identified three changes/innovations they would like to move towards in the next five to ten years, which are as follows:

1. Gene bank. They would like to see more research in general but especially on genetics.
2. Basic training process for coffee professionals including a focus on

information, training, credit, and technical assistance.

3. Financial innovation for providing long-term credit for coffee renovation and reorganization of 80,000 manzanas.

Of the desired changes/innovations, CONACAFE prioritized two: Research on the Coffee Production and Coffee Production Services. For the first innovation, CONACAFE envisions collaborating with affiliates in the territories. It also sees the creation of coffee specialists as a necessity. For the second innovation, coffee production services, CONACAFE envisions working with CIAT, CATIE, BIODIVERSITY, and SNV. For both innovations, CONACAFE expects to need all kinds of information, including that on diversification, commercialization, quality, and a training school of coffee technicians, farm managers and workers. Potential limitations for carrying out this innovations include financing and a lack of investment in the sector.

Working with Humidtropics

CONACAFE recommended several potential field sites for Humidtropics. These are listed below as well as the reasons why CONACAFE chose these sites:

1. The **municipalities of “Las Minas”** (Siuna, Rosita, and Bonanza) where there is a good climate and soil quality for many crops, including Robusta coffee.
2. **Municipalities of Nueva Segovia and Madriz** where conditions exist for high quality coffee but the climate conditions are restricting and soil fertility is poor.
3. **Dry areas like San Isidro, Terrabona and San Dionisio** where special attention is needed for diversified small-scale farming.

Based on an interview with Luis Osorio (Technical Secretary) and Juan Rosales (Ecom Adviser), CONACAFE.

**Dirección General de Sanidad y Protección Agropecuaria (DGPSA),
Ministerio Agropecuario y Forestal (MAGFOR)**

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DGPSA was a unit within the Ministry of Agriculture and Forestry that managed phytosanitary measures at the national level. It was replaced by INPSA in February of 2014. Before the institutional change, it had a team of 76 phytosanitary inspectors at the national level (including 30 that worked on good agricultural practices and traceability), except in Waspán, with eventual help from agricultural facilitators from MAGFOR delegations. The services it provides include quarantine, risk analysis, phytosanitary surveillance, and a reference farm. They sample and monitor 2 million hectares of animals annually and 100,000 monthly. For budget reasons, they stopped monitoring Roya, but now they have begun to again.

Projects and Initiatives in Nicanorte Action Site

DGPSA's main projects and initiatives within the territory covered by the Nicanorte Humidtropics action site are as follows:

1. **Phytosanitary monitoring.** This program began in 1998 and the last phase will close in 2014. It is being undertaken at the national level. It is monitoring endemic diseases of interest (18) and quarantined diseases (32) in 23 crops.
2. **Phytosanitary campaign.** This initiative is also being carried out at the national level. It is addressing Roya, "Mancha de Asfato" fungus, zebra chip, pink bollworm, citrus greening disease (HLB), and locusts. In 2012, they also began monitoring chinche globo.
3. **Areas free of fruit flies.** This initiative is being carried out at the national level and there are 40,000 hectares free of fruit flies in San Francisco.

Most Relevant Organizational Impacts over the Last Five Years

In the last five years, DGPSA has had four major impacts in the territories where they work that relate to the desired outcomes of Humidtropics:

1. Reduction of the impact of rice stink bug (*Eysarcoris ventralis*) in rice through a change in the date of planting.
2. Reduction in damage by rats and other diseases through enhanced vigilance on the part of producers.
3. Control over phytosanitary conditions (keep phytosanitary conditions updated nationwide) to ensure compliance with export requirements.
4. Reduction of the risk of Tula absoluta and zebra chip in solanaceae plants through the use of macro tunnels, changes in production methods, increases in productivity, and less pesticides.

Productive and Organizational Changes and Innovations

Over the last five years, DGPSA participated in carrying out four important changes and/or innovations with the help of partner organizations in the territories where it works. These include:

1. Good agricultural practices.
2. Phytosanitary monitoring.
3. Phytosanitary certification.
4. Macro tunnels for the control of zebra chip.

Of these three changes/innovations, DGSPA prioritized two, which are described in further detail in the following:

Good Agricultural Practices

This innovation was carried out by DGPSA in conjunction with cooperatives, individual producers, producer associations (e.g., UNAG, the Association of Plantain Grower, the Association of Pitaya Growers), and NGOs. USDA, OIRSA, and BID all provided financing. The main limitations that were encountered in carrying out this innovation included the mentality and traditional habits of producers, economic limitations faced by producers, and export market opportunities for traditional crops. The most important sources of learning and consultation included agricultural ministries and public organizations in Mexico, Chile, and the United States as well as exchanges between Central American nations.

Macro Tunnels

This innovation was promoted after zebra chip disease was detected. It was carried out with tomato producer associations, UPANIC, UNAG, and NGOs. The main limitations encountered in carrying this innovation out were that the fabric used for the macro tunnels is imported and expensive. The primary sources of learning and consultation for this change included SAG in Chile, SAGARPA in Mexico, and MAGA in Guatemala.

Desired Changes/Innovations

DGPSA identified five changes/innovations they would like to move towards in the next five to ten years, which are as follows:

1. Production of certified material to propagate citrus trees (tree shoots will need to be imported). 450,000 shoots per year would be produced to cover national demand.
2. Citrus certification.
3. Agroecological agriculture.
4. Online (electronic) certification to do paperwork on line (with assistance from Chile).
5. Molecular biology (PCR) to identify and diagnose plant diseases.

DGPSA prioritized two of these innovations/changes that they would like to see,

and these are described in more detail in the following.

Citrus Certification

This desired innovation foresees the establishment of a production center for certified citrus plant material. DGPSA envisioned working with producers, cooperatives, and plant nursery specialists/breeders. In order to carry out this innovation, DGPSA reported that it will be necessary to receive training from the Taiwan International Cooperation and Development Fund in citrus certification. The limitations they foresee having in carrying out this innovation include the slow process of adopting the technology and the appearance of consequential impacts.

Diagnostic Molecular Biology

DGPSA envisions carrying out this innovation with producers, importers, producer associations, and NGOs. It sees trained staff in Belize and Mexico as well as in Nicaragua as being key to fostering this change. Potential limitations identified by DGPSA include staff with limited capacity to assist with the change and that the acquisition process could delay the renewal of inventory.

Working with Humidtropics

DGPSA recommended several potential field sites for Humidtropics. These are listed below as well as the reasons why these sites were chosen:

1. **Jinotega, Matagalpa, and Estelí.** This region was chosen because of the presence of Roya and also existing diversification with bananas and citrus trees.
2. **Jalapa.** This site was chosen because of the interest on the part of the local government in producing basic grains to strengthen food security.
3. **RAAN and RAAS.** These zones were chosen because of the potential to grow Robusta coffee.

DGPSA envisions its role in Humidtropics as integrating agricultural testing and oversight services and certifying good agricultural practices.

Based on an interview with Guillermo José Barquero, National Coordinator of the Phytosanitary Campaign.

Exportadora Atlantic

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Founded in 1997, Exportadora Atlantic, is the Nicaraguan branch of Ecom Agroindustrial Corporation. In addition to the coffee, the company also buys and sells cocoa. Operating in northern Nicaragua, the enterprise has 56 collection sites, 36 permanent agents, three branches during the harvest season, 37 field technicians, and a staff of more than 280 people. Furthermore, Exportadora Atlantic operates two coffee cupping laboratories and two processing plants – one of each in both Sébaco and Condega. The company also has one laboratory with an estimated 1 million in vitro plants and produces seeds with a holding of over 10 million seeds on 3,000 manzanas.

Exportadora Atlantic has 4,000 to 4,500 direct partners in Matagalpa, Jinotega, Nueva Segovia, and Madriz. Of these, 20% are large coffee producers (more than 50 manzanas of land), 40% are medium coffee producers (10–50 manzanas of land), and 40% are small producers (less than 10 manzanas of land).

Projects and Initiatives in Nicanorte Action Site

Exportadora Atlantic has two major initiatives within the territory covered by the Nicanorte Humidtropics action site in conjunction with and/or with the support of various partners.

1. **Buying/selling of coffee and cocoa and commercial credit.** These operations are located in the departments of Matagalpa, Jinotega, Nueva Segovia, and Madriz. They export 27–30% of all exported coffee annually. Twenty-five percent of their all exported coffee is certified. Of this, 40–60% is certified by Rainforest Alliance, UTZ, Starbucks, and Nespresso, and 20% is certified by Biolatina. In total 450–500

metric tons of exported coffee is certified organic.

2. **Providing research and technical assistance by Sustainable Management Services (SMS), subsidiary of Exportadora Atlantic.** This initiative to expand technological research on coffee and cocoa is just beginning and is also being undertaken in Matagalpa, Jinotega, Nueva Segovia, and Madriz. Organizations that are partners in this initiative include IFC, GIZ, LWR, UNIDO, SNV, PCI, SI, and MEDA.

Most Relevant Organizational Impacts over the Last Five Years

In the last five years, among those impacts that Exportadora Atlantic has had, the organization identified several that relate to the desired outcomes of Humidtropics:

- Increase in productivity in Wiwili, Waslala, and El Cúa from 5–10 quintals of coffee per manzana to 8–30 quintals per manzana. This is attributable to technical assistance, credit, and marketing services in the territories. A special project financed by Nestle Coffee and carried out in the same locations registered an increase from 5–6 quintals of green coffee per manzana to 20–30 quintals over the last eight years. Agroforestry practices resulted in making the coffee fields more diverse and the land legalization component of the project benefitted farmers.
- Increase in access to credit for partners. One hundred percent (100%) of partners have access to short-term credit, 30% have access to medium-term credit, and 5% have access to long-term credit.

- Increased access for partners in Matagalpa, Jinotega, Nueva Segovia, and Madriz to coffee and cocoa markets.
- Improvements in infrastructure as well as the wet coffee processing to enhance quality with medium-term credit also being offered.

Productive and Organizational Changes and Innovations

Over the last five years, Exportadora Atlantic has collaborated with partner organizations to foster a number of important changes and/or innovations in the departments of Matagalpa, Jinotega, Nueva Segovia, and Madriz. These include:

1. Hybrid varieties (plants and seeds) to enhance resistance to pests and diseases.
2. Tubes for growing seeds in nurseries.
3. Micro-irrigation for coffee that is 100% profitable.
4. Eco-weeder and electrostatic weed control.
5. Soil analysis, interpretations, and recommendations.
6. Improvement in the quality, volume, and agreed market terms.
7. Farm, income, and expense planning.
8. Assistance with certification (Rainforest Alliance/RFA and UTZ).

Of these changes/innovations, Exportadora Atlantic identified the development of hybrid varieties and improved quality through better wet milling as particularly important changes/innovations and these are discussed in more detail below.

Development of Hybrid Varieties

Exportadora Atlantic has developed hybrid varieties with improved resistance in collaboration with CIRAD and Ecom, which have been validated by IFC and Ecom. There is a Central American network that is growing and testing varieties in Costa Rica, Guatemala, Honduras, and Mexico in new plant laboratories. The main limitations identified in this initiative included: instability of the plant embryos, the need for improved infrastructure and human

resources training, and, finally, the cost of production of each plant, which amounted to US\$0.60 per plant. The most important sources of learning and consultation for the project included CIRAD and Ecom.

Improved Quality through Better Wet Milling

People were brought from Mexico as well as others from Ecom Brazil via an internal network. The initiative was executed as part of a government project in which Starbucks and Nespresso also participated. Part of this initiative focused on training staff. The primary limitations encountered during this initiative were difficulties in changing attitudes and building trust in the short term, the need for funds to invest in improving infrastructure, and the lack of qualification among coffee pickers. The most important sources of learning and consultation for the initiative included the demand from clients, coffee buyers and clients for whom price was an incentive, and, finally, from other countries in the region.

Desired Changes/Innovations

In the next five to ten years, Exportadora Atlantic would like to work towards three major changes/innovations:

1. Coffee productivity and quality.
2. Vegetative material and genetic renewal.
3. Integrated crop management, diversification, and common certification codes and practices.

Working with Humidtropics

Exportadora Atlantic recommended four potential field sites for Humidtropics. These sites and the reasons they were chosen are as follows:

1. **Rancho Grande and Waslala.** These sites were chosen for the sufficient area, producers want changes, favorable climate, and mid-level altitude.
2. **Esquipulas, San Dionisio, and Matiguás.** These sites were chosen because of the sufficient size of the territory for production, the network of producers there want changes, and the zone is at mid-level altitude.

3. **Pantasma, Wiwili, and El Cúa.** These sites were chosen for the variety of altitudes, favorable climate, and it is pro-change.
4. **Dipilto, Macuelizo, Mozonte, Ocotol, San Fernando, and Jalapa** (located in the Cordillera Dipilto). These sites were chosen for the diversity of soil types that have potential for good production and quality coffee.

Exportadora Atlantic sees their potential role in Humidtropics in these sites as working with collection and markets, market studies, and genetic material. SMS is one of their research partners and is influential in policy making.

Based on an interview with Reynaldo Soza, Project Manager for Exportadora Atlantic.

Food and Agriculture Organization of the United Nations (FAO)
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The Food and Agriculture Organization of the United Nations (FAO) has had permanent representation in Nicaragua since 1982. Currently the institution works in a number of different areas related to agriculture and food security. Each of their projects has a coordinator and small technical team, but mostly they work with the technical teams of the local organizations which they partner.

Projects and Initiatives in Nicanorte Action Site

FAO-Nicaragua has three projects and initiatives within the territory covered by the Nicanorte Humidtropics action site, which are as follows:

1. **Strengthening of agricultural value chains for potato and corn.** This project is being carried out in Matagalpa, Jinotega, and Estelí, and it is slated to end this year. Organizational partners include INTA, CNP, UNAG, and different cooperatives. The desired outcome of the project is to increase productivity and organizational strengthening, including credit.
2. **Facility project – mechanisms for forests and farms.** This project is being carried out in Las Minas (Siuna, Bonanza, and Rosita) and will conclude in 2015. Partner organizations include MARENA and the SETAB. Desired outcomes include strengthening local governance in indigenous communities and promoting agroforestry.
3. **Special Program for Food Security (FAO-PESA).** This began in 40 municipalities in the dry corridor of northern Nicaragua. Currently there is a pilot project in two municipalities as part of an initiative to eradicate world hunger. One is in San Juan de Limay. Nicaragua was selected as one of

few countries to pilot the project due to positive results from the implementation of Law 693, the Food and Nutritional Sovereignty and Security, and the promotion of synergies between local organizations.

Most Relevant Organizational Impacts over the Last Five Years

In the last five years, FAO-Nicaragua has had a number of impacts that relate to the desired outcomes of Humidtropics:

1. Good response from and participation of local governments.
2. Increase support for the creation and implementation of Law 693 through municipal committees that bring together municipal governments and organizations.
3. Established seed banks in Las Minas, RAAN, that, through organization and training, have increased the availability of improved seeds in this zone.
4. Creation of an early warning system for the prevention of forest fires, which has helped decrease the incidence of forest fires in the territories.
5. Through PESA, the School Lunch Program has been strengthened, promoting school gardens, local purchase of foods from producers in the vicinity, and the construction of kitchens to prepare food for children in schools.

Productive and Organizational Changes and Innovations

Over the last five years, FAO-Nicaragua has fostered a number of important changes and/or innovations with the help of partner organizations. These include:

1. Working with municipal governments.
2. Good practices in the production of potatoes and basic grains.
3. Water harvesting.
4. Implementation of Law 693 and the creation of municipal committees to work together with organizations and communities.
5. Conservation of natural resources and organic fertilizers.

Of these changes/innovations, FAO-Nicaragua prioritized two: the implementation of Law 693 and its focus on working with local organizations and government. For both of these innovations, FAO-Nicaragua collaborated with municipal governments and local organizations, such as producer and development organizations. It was reported that there were no relevant limitations encountered in carrying out these innovations. While FAO-Nicaragua did not cite any important sources of learning and consultation for the second innovation (working with local organizations and government), they did state that the two most important sources of learning and consultation for the first innovation included local platforms, COMUSSANs, and ODESAR.

Desired Changes/Innovations

FAO-Nicaragua identified four changes/innovations they would like to move towards in the next five to ten years, which are as follows:

1. Organization processes and results management.
2. Food security.
3. Water harvesting.
4. Focus on individuals as the objects of comprehensive human development (simultaneously addressing their basic needs).

Of these four desired changes/innovations, FAO-Nicaragua identified one as being a priority, which is described in more detail in the following:

Food Security

FAO-Nicaragua envisions working with the same organizations it has been partnering with to undertake this innovation. Potential limitations it foresees include the departure of donors from Nicaragua and limited resources for carrying out this change.

Working with Humidtropics

FAO-Nicaragua did not comment on how they envision working with Humidtropics.

Based on an interview with Leonardo Chávez and Olga Lazo (both Forestry Officials), FAO-Nicaragua.

Fundación Solidaridad Network

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The Fundación Solidaridad Network (hereafter Solidaridad Network) is a non-government organization based in Holland and its management is funded by the Dutch Ministry of Foreign Relations.

Projects and Initiatives in Nicanorte Action Site

The Solidaridad Network has two main projects and initiatives within the territory covered by the Nicanorte Humidtropics action site, which are as follows:

1. **PROCASO.** This five-year project is currently in its last year. It is focus on sustainable quality and is being carried out in Matagalpa, Jinotega, and Nueva Segovia with financing from the EU. Its goals are to increase coffee productivity, support certification, improve quality, and create better links to markets. There are three staff members based in Nicaragua for this project and, depending on need, additional consultants are contracted. They are looking to create a business to provide technical assistance with certification.
2. **Cocoa certification.** This project began in 2013 and is currently underway at the national level. A Best Practices Guide for cocoa was produced for the Central American and Caribbean region and supported with experiences in the Ivory Coast, Ghana, and Ecuador.

Most Relevant Organizational Impacts over the Last Five Years

In the last five years, the Solidaridad Network has made a number impacts that relate to the desired outcomes of Humidtropics:

1. Increased coffee productivity and quality.

2. Strengthened direct links to the market.
3. Promoted equality (PROCASO) with more than 20% of participants being women. This has also come with increasing integration of their children in post-harvest activities and improvement of quality control.
4. Supported field schools for coffee producers and farm managers. (Location: Jinotega, Matagalpa, and Ocotal)
5. Decreased susceptibility to Roya.
6. Developed extension tools for coffee production to support or to be used by local organizations. A list of all the instruments for each link of the value chain is available.

Productive and Organizational Changes and Innovations

Over the last five years, the Solidaridad Network has fostered a number of changes and/or innovations in the coffee sector, specifically with regards to production and commercialization. These include:

1. Coffee production, including pruning and replanting, fertility, shade management, plant density management, and quality control.
2. Coffee commercialization with a focus on value chains, quality, certification, and commercialization.

For these changes/innovations, the Solidaridad Network worked with technicians from cooperatives in the territories and they trained producers and promoters. They also worked with coffee exporters, including Exportadora Atlantic and Cisa, which provided resources for training, and their technicians, who supported coffee purchasing and collection. The main limitations for carrying out these innovations reported by

the Solidaridad Network included the lack of education among producers and promoters, which led to the need to redesign training instruments to be more demonstrative as well as the limited economic capacity of producers to fertilize their fields. The most important sources of learning and consultation for carrying out these changes included research from the CENICAFE, in particular, as well as research from ANACAFE in Guatemala.

Desired Changes/Innovations

The Solidaridad Network identified three changes/innovations they would like to move towards in the next five to ten years, which are as follows:

1. The same impacts they have had with coffee only with cocoa (see above).
2. Agroforestry systems with cocoa.
3. Integrated production systems with a focus on food security.
4. Agroindustry and markets.

Of these desired changes/innovations, the Solidaridad Network identified cocoa as being a priority. In order to repeat the innovations they made in coffee production and commercialization with cocoa, they envision working with groups of producers and cocoa “collectors”, like Ritter Sport and Exportadora Atlantic/Ecom, who operate cocoa collection sites (*acopios*). The information they anticipate needed to carrying out these changes include previously collected information by Solidaridad on changes in genetic origin (Ghana, Ivory Coast, Ecuador, and Colombia) as well as an information on germoplasm from CATIE and FHIA. Potential limitations that they foresee in carrying out these changes include the lack of characterization of existing germoplasm, the demand for fine cocoa, old cocoa plantations with low plant density, lack of economic capacity to fertilize, scattered producers in zones with limited infrastructure and few resources, and the incidence of diseases like Moniliasis and Phytophthora due to the lack of knowledge on the part of producers.

Working with Humidtropics

The Solidaridad Network recommended several potential field sites for Humidtropics. These are listed below:

1. **Waslala**, which was chosen because of its potential for cocoa production and diversification.
2. **Muy Muy and Matiguás**
3. **Las Minas** (Bonanza, Rosita, and Siuna)

The Solidaridad Network envisions their role in Humidtropics as one of leadership in providing technical content and illustrating the relationships between different links in value chains. They further highlighted their experience in forming consortiums, roundtables, and the integrated developed of value chains.

Based on an interview with Edgar Berríos, Coffee Coordinator for Central American and the Caribbean, Fundación Solidaridad Network.

German Federal Enterprise for International Cooperation (GIZ) – Program for the Sustainable Management of Natural Resources and Promotion of Competitive Enterprise (MASRENACE)

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The German Federal Enterprise for International Cooperation (GIZ) is a state-owned company specializing in international cooperation that was founded in 1975. The company works with 22 organizations in Nicaragua (2 associations and 20 cooperatives). It provides assistance to the Program for the Sustainable Management of Natural Resources and Promotion of Competitive Enterprise (MASRENACE). MASRENACE is comprised of three components: Component I (Policy) is staffed by five technicians, Component II (Governance) is staffed by seven technicians, and Component III (Competitiveness) is staffed by nine technicians. Partner organizations include the National Farmers and Ranchers Union (UNAG; MSB and Cooperatives programs), Masangni Cooperative of Professionals, and Akukiwal.

Projects and Initiatives in Nicanorte Action Site

GIZ-MASRENACE has five projects and initiatives within the territory covered by the Nicanorte Humidtropics action site, which are as follows:

1. **MASRENACE.** This project was located in the North Atlantic Autonomous Region and ended in December 2013.
2. A project in Siuna in conjunction with UNAG. The project also worked in Talaspun.
3. A project with the University of the Autonomous Regions of the Caribbean Coast (URACCAN) in Rosita and Bonanza.
4. A project with the GRAAN in Wiwilí and San José de Bocay.

5. A project with MAGFOR, INAFOR, MARENA, and SETAB.

Most Relevant Organizational Impacts over the Last Five Years

In the last five years, GIZ-MASRENACE has had a number of impacts in three geographical areas where they work that relate to the desired outcomes of Humidtropics:

1. Siuna, Mulukukú, Rosita, and Bonanza:
 - Policy promotion for sustainable ranching (technical regulations for processing)
 - Secured authorization for a dairy processing plant in Siuna led by four cooperatives in Rio Blanco
 - Strengthened ranching value chain governance and advocacy in the steering committee.
2. Layasiksa and Indigenous Territories
 - Increased Forest Stewardship Certification in indigenous territories
 - Simplified of forest management procedures
 - Conducted a forest study to support national policies
 - Strengthened community forest enterprises
3. Bonanza, Siuna, and Rosita (Las Minas)
 - National cocoa policy, inter-institutional services for the cocoa sector, National Cocoa Platform with MAGFOR and MEFCCA, and promotion of the essential oil industry (sweet pepper) in Siuna
 - Promotion of 400 hectares of cocoa production in indigenous territories working with the territorial government

of Mayangna Sauni Bas in the Uli watershed and through agroforestry promotion by COOPESIUNA and UNAG

- Strengthening governance – cocoa committee, municipal committees on cocoa, modernizing the value chain
- Strengthening of territorial management negotiations in Mayangna Sauni Bas
- Created documentation, management plans, and land-use plans and maps
- Oil use maps in Bosawás

Productive and Organizational Changes and Innovations

Over the last five years, GIZ-MASRENACE has fostered four important changes and/or innovations in four geographical areas with the help of partner organizations. These include:

1. Added value and the opening of markets for dairy, cocoa, honey, and essential oils. This change was carried out in Siuna and Bonanza with the support of Valuelink.
2. Local value chain governance for cocoa, dairy, and watershed management. This innovation was carried out in Siuna, Rosita, Bonanza, and Mulukukú with the support of GIZ.
3. Strengthening of association between cooperatives. This innovation is still in its early stages. It is being carried out between cooperatives in Siuna, Bonanza, Rosita, Río San Juan, Waspán, and Puerto Cabezas with the support of GIZ and the DGRV.
4. Land use governance in indigenous territories. This innovation involves conservation and management of indigenous territories in 17 indigenous territories (Mayangna Sauni Bas, Mayangna Sauni As, and Awastingi).

Of these four changes/innovations, GIZ-MASRENACE prioritized two, which are described in further detail in the following:

Added Value and Value Chains

This innovation was undertaken in partnership with Valuelink, UNAG, URACCAN, product/commodity committees, cooperatives, businesses (HENTCO, Ecom Agroindustrial

Corp., and Ritter Sport), and the public–private partnerships. The main limitations encountered in carrying out this innovation included the involvement of the public sector in the value chains, the history of paternalism in RAAN, and the lack of existing quality institutional services. The most important sources of learning and consultation for carrying out this change included the creation of spaces with a high degree of appropriation and motivation for the innovation (except by the government); partnerships between DGRV, Bolivia, and Mexico; and a learning alliance between CATIE, CIAT, LWR, and CRS, which examined value chains, climate chain studies, and vulnerability.

Land Use Governance

Partners for this innovation included internal experience, territorial governments, and state organizations. The main limitations encountered in carrying out the change included the limited capacity of indigenous territory governments and corrupt practices by different actors. The most important sources of learning and consultation to carry out this project identified by GIZ-MASRENACE included community strengthening and consultation processes, alliances between political forces and powerful leaders, and the inclusion by GIZ of anthropological elements in the methodology.

Desired Changes/Innovations

GIZ-MASRENACE identified four changes/innovations they would like to move towards in the next five to ten years in the geographical areas where they work:

1. Strengthen work platforms and systems, creating harmony between territorial, regional, and national governments.
2. Innovate food security frameworks in indigenous territories for all foods.
3. Generate action around development strategies through partnerships and committees.
4. Regulation of laws, policies, regulations, and ordinances pertaining to social concerns and production, especially to foster equity.

Of these four desired changes/innovations, GIZ-MASRENACE identified the following two as

being priorities: food security in indigenous territories and the adjustment of regulations.

Food Security in Indigenous Territories

GIZ-MASRENACE envisions partnering with women's organizations, EARTH University, CIAT, CATIE, BIOVERSITY, and FADCANIC to realize this change. They anticipate needing information about germoplasm and knowledge of cultural perspectives on change. Two limitations they expect to encounter are traditions of paternalism and dependence that characterize the territories.

Adjustment of Regulations

GIZ-MASRENACE envisions partnering with FADCANIC, URACCAN, and BICU. They anticipate needing information about impacts of the regulations and the current conditions. Two potential limitations that they foresee include the vicious cycle of power and false leadership characterized by much interest.

Working with Humidtropics

GIZ-MASRENACE recommended several potential field sites for Humidtropics and these include **Siuna, Rosita, Bonanza, Prinsapolka, and Awastingi**. They did not, however, comment on why these sites were chosen nor how they envision working with Humidtropics.

Based on an interview with Melba Navarro Prado, Coordinator of Component III, GIZ-MASRENACE.

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The Instituto Nacional de Tecnológico (National Institute of Technology, or INATEC) is a national government institution and education center. It has 43 professional training centers throughout the country offering courses in different subjects, including agriculture, industry, and business.

Projects and Initiatives in Nicanorte Action Site

Currently, there are INATEC training centers in the Nicanorte Humidtropics site, which are located in Estelí, Somoto, Matagalpa, and RAAN. These centers offer courses/training in agriculture, agroindustry, and business administration.

Apart from offering technical training and courses, INATEC has been carrying out diagnostic studies in different regions of the country to better design training for these regions. Accompanying this process are curriculum and staffing experts to assist in identifying the types of training and courses for the least advantaged that are more oriented towards self-employment and provide support for cooperatives.

Most Relevant Organizational Impacts over the Last Five Years

In the last five years, one major impact that INATEC has had that relates to the desired outcomes of Humidtropics is the creation of a training program on agricultural, forestry, and industrial issues, which was offered for rural youth who have a basic education level of only being able to read and write. This initiative was carried out mainly in mountainous areas where INATEC works, above all in Somoto (Department of Madriz). Many of these courses were mobile, reaching out to youth closer to their communities.

Productive and Organizational Changes and Innovations

Over the last five years, INATEC has fostered three important changes and/or innovations with the help of partner organizations. These include:

1. Introduction of courses in industry, like taking advantage of local resources to make jam and jellies. This innovation, based in Nueva Guinea, was to promote small industry in agricultural regions.
2. Introduction of forestry courses, including training in forest management, with collaboration from local institutions. This change was carried out in Somoto, Department of Madriz. Many of these courses aligned with the National Human Development Plan.
3. Mobile courses in agricultural regions. This innovation was namely carried out in Somoto (Madriz) as well as other locations in the northern part of Nicaragua.

Of these three changes/innovations, INATEC prioritized two, which are described in further detail in the following:

Courses in Agroindustry and Jam/Jelly Production

This innovation was carried out in collaboration with organizations working in the agricultural sector, including government institutions, local governments, the *Juventud Sandinista* (youth from the FSLN), churches, and youth in general. More specifically, INATEC worked with INTA and MAGFOR to develop curricula that are aligned with the National Human Development Plan and they also participated in workshops to design the courses to be implemented. Local businesses participated in the courses to study the labor market. The main limitation for carrying out this innovation was adapting the courses to be taught to students with low levels

of education (who could only read and write). Furthermore, there were limited resources with which to develop the courses. The most important sources of learning and consultation were curriculum experts who accompanied the process, some of which were from institutions like MAGFOR and INTA that specialize in agricultural issues. For this reason, government institutions were key.

Forestry Courses

Partners for this innovation included government institutions, local governments, the *Juventud Sandinista*, churches, and youth in general. Like the previous innovation, the main limitation encountered was the limited education level of students. Furthermore, curriculum experts were the most important source of learning and consultation for this innovation as well.

Desired Changes/Innovations

INATEC identified two changes/innovations they would like to move towards in the next five to ten years, which are as follows:

1. Participate in one of the first mega-development projects – the construction of the hydroelectric dam, Tumarín. This megaproject will require staff with specific kinds of skills (for example, building roads). Thus, different commercial outlets and services will be in demand. INATEC sees its role as working to train actors who will participate in the project.
2. Provide local training in areas where the inter-ocean canal will be constructed. The canal will require different kinds of professionals. Because of this INATEC would like to work to develop different kinds of curricula for areas where canal activities will take place and integrate local actors in the development of these curricula. During 2014, INATEC intends to focus on sustainability, as an agroecology law exists with which there needs to be compatibility.

Working with Humidtropics

INATEC recommended several potential field sites for Humidtropics. These are listed below as well as the reasons why these sites were chosen:

1. **Somoto, Madriz.** This site was chosen because INATEC has worked on other programs in Somoto. It is an area with high levels of poverty and vulnerability. Specific courses can be developed for this site with the support of municipal governments and there are also opportunities to broaden the reach of the program by extending outward to Pueblo Nuevo, Sabanas, and Palacahuina.
2. **Jalapa, Ocotal, and Mozonte, Nueva Segovia.** This site was chosen because of the high level of poverty that exists there, the high population density, and high percentage of the population represented by youth. The population is vulnerable and at risk, though there are resources. There are possible opportunities in coffee and lumber production, and INATEC has already offered courses in forestry in this region, as per the information above.
3. **Jinotega.** This site was chosen because there is a polytechnic school in Jinotega and INATEC might be able to influence and/or collaborate with the school. Furthermore, Jinotega is a territory with much potential and there are a diverse number of important crops that are produced there.
4. **Jinotega, San Rafael, La Concordia, and Yalí.** Chosen because of the lack of technology and weak organization in these areas. SOPPEXCCA also works in these areas and there is a weak alliance with CUCULMECA.

INATEC envisions their role in working in these selected areas as leading training and courses in professional education and development.

Based on an interview with Daysi Rivas, Marina Penna, Marina Almanza, and Nelly Pedroza Carballo, Curriculum Department, INATEC.

Movimiento de Productoras y Productores Agroecológicos y Orgánicos de Nicaragua (MAONIC)

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The Movimiento de Productoras y Productores Agroecológicos y Orgánicos de Nicaragua (Nicaraguan Movement of Agroecological and Organic Producers, or MAONIC) was founded in 2009. Its organizational structure consists of a national council, three executive coordinators, and one primary coordinator (currently this role is filled by Miguel Sandino). MAONIC's membership is comprised of 162 organizations and 18,000 families. While the organization does not employ any paid staff, it counts on a network of activists and some 400 promoters in the Nicanorte territory from the following organizations: PCAC, PRODECOOP, CAFENICA Asociación de Cooperativas de Pequeños Productores de Café Nicaragua, CECOCAFEN, CECOCEMAC, COSATIN, and other affiliated cooperatives.

Projects and Initiatives in Nicanorte Action Site

MAONIC has five projects and initiatives within the territory covered by the Nicanorte Humidtropics action site, which are as follows:

1. **Improving productivity, reducing cost, and renewing soils.** This project is currently active and is being carried out with the support of VECO (Belgian development organization), SWISSAID, and CAFENICA. It is active in the following territories: Condega, Palacagüina, Mozonte, Jinotega, Matagalpa, Pueblo Nuevo, San Juan del Río Coco, San Ramón, and Siuna.
2. **Pilot project on agroecological regulations (Law 765).** This policy initiative is being carried out in partnership with BIOLATINA, VECO, and SIMAS at the national level.
3. **Consultations on agroecological regulations.** This policy research initiative is also being carried out via focus groups at the national level with the support of SWISSAID.
4. **Development of a Master's degree in agroecology.** This initiative is being developed with the UNA at the national level.
5. **Farm resilience study.** This project is being implemented with the support of UNA and the Semilla de Identidad Criolla alliance in the following territories: Matagalpa, El Crucero, Chinandega, Nueva Guinea, San Juan del Río Coco, and Condega.

Most Relevant Organizational Impacts over the Last Five Years

In the last five years, MAONIC has had three major impacts that relate to the desired outcomes of Humidtropics:

1. Multi-organizational and sectorial structural coordination of MAONIC. (Location: national and territorial levels)
2. Reconsideration of the use of fertilizer through a pilot project on mineral and biomineral fertilizers/compost to increase productivity and lower costs. The project was carried out in different territories on different crops, which are described in the following: Coffee in San Juan del Río Coco and Condega; corn in Palacagüina; beans and cabbage in Teustepe; rice in Chinandega; and cocoa in Siuna and Rosita.
3. Approval of Law 765, its accompanying regulation and also technical regulations. This impact was at the national policy level and with the participation of MAGFOR, MIFIC, GPAE, MARENA, SIMAS, UNA, UNAN-León, and the UCA.

Productive and Organizational Changes and Innovations

Over the last five years, MAONIC has fostered three important changes and/or innovations with the help of partner organizations. These include:

1. Organizing producers and farmer organizations into MAONIC. This innovation namely occurred in Condega, San Juan del Río Coco, Pueblo Nuevo, San Ramón, Jinotega, and Waslala.
2. Applying biomineral and mineral composts to increase productivity and renew soils. This innovation was carried out in Chinandega, Yasica Sur, San Juan del Río Coco, Condega, and Jinotega.
3. Formulation and approval of Law 765 (including its primary regulations and technical regulations). This innovation was carried out in Managua with the national government, though public consultations on the proposed legislation were carried out in the territories.

Of these three changes/innovations, MAONIC prioritized two, which are described in further detail in the following:

Applying Biomineral and Mineral Composts to Increase Productivity and Renew Soils

This innovation was carried out in collaboration with Jairo Restrepo, Eugenio Gras, Sebastián Piñero, and a certificate training course organized by SIMAS in 2007–2008 in which a number of MAONIC leaders participated. The main limitations encountered when carrying out this change included the patterns of fertilizer use prior to the introduction of the innovation (generally, only leaf mulch with manure was used or bocachi fertilizers, none of which were sustainably over the long run nor provided sufficient nutrient), the lack of organic material, the lack of capital on the part of farmers to implement the new fertilizers, and farm planning. The most important sources of learning and consultation to carry out this innovation included permaculture literature and diploma course materials to help identify where to look for nutrients, micro-organisms from the mountains (efficient micro-organisms and rock

mineral supplements), and studies conducted internally.

Formulation and Approval of Law 765

Partners for this innovation included SIMAS, MIFIC, INTA, MAGFOR, MARENA, UNA, GPAE, LIDECONIC, BIOLATINA, OCIA, MAYACERT, VECO (with public consultations and guidelines), and consumers. The main limitations encountered in carrying out this innovation included the limited familiarity of government functionaries with agroecology. Furthermore, there was a lack of recognition of rural knowledge and thus there was an attempt to impose policy on the producers without listening to and recognizing the inputs and knowledge of producers. The most important sources of learning and consultation for carrying out this change identified by MAONIC were the organic production laws of other nations, particularly Argentina, Brazil, Chile, Mexico, Costa Rica, and the European Union, and BIOLATINA. They did not have much contact with research organizations like CATIE or CIAT.

Desired Changes/Innovations

MAONIC identified three changes/ innovations they would like to move towards in the next five to ten years, which are as follows:

1. Rescue and improve the potential of native seeds. (Location: Matagalpa, San Ramón, Ciudad Darío, Teustepe, Carazo, and Rivas)
2. Use biomineral and mineral composts to improve the functioning of plant nurseries and overall productivity. (Location: Condega)
3. Synergizing improvements in seeds with improvement of the environment.

Of these three desired changes/innovations, MAONIC identified two as being priorities, which are described in more detail in the following:

Using Biomineral and Mineral Composts to Improve the Functioning of Plant Nurseries and Overall Productivity

MAONIC envisions working with its organizational network as well as the UNA (PhD

program in Agroecology) and SWISSAID to realize this innovation. MAONIC anticipates needing information about: the soil conditions in each selected site with local analysis, local water properties, mineralization dynamics and their interactions with diseases, and the content of rock banks and whether they contain heavy metals. Potential limitations that MAONIC foresees in carrying out this innovation are heavy metal content in rocks, which will need to be mapped out and monitored, as well as the need for investment for the farms.

Rescue and Improve the Potential of Native Seeds

MAONIC envisions working with its organizations network as well as UNA, UNAN-León, and SWISSAID to carry out this innovation. Information it expects to need includes that concerning: types of soil management, seed and crop rotation techniques, seed bank management, and a study on diversification and adaptation to local climates. Several limitations MAONIC foresees encountering include the successful operation of the seed banks and the lack of organized inventory and geographical location of seed materials.

Working with Humidtropics

MAONIC recommended several potential field sites for Humidtropics. These are listed below as

well as the reasons why MAONIC chose these sites:

1. **Condega, Palacagüina, Pueblo Nuevo, and Estelí.** Chosen because there is coffee, basic grain, and livestock production in these areas; the focus on agroforestry; water problems; good climate and altitude; and the MAONIC network is very active in these areas.
2. **Matagalpa, San Ramón, La Dalia, and San Dionisio.** Chosen because of the economic potential in these zones where there are territorial management and technology challenges, good motivation, and the MAONIC network is very active in these areas.
3. **Jinotega, San Rafael, La Concordia, and Yalí.** Chosen because of the lack of technology and weak organization in these areas. SOPPEXCCA also works in these areas and there is a weak alliance with CUCULMECA.

MAONIC did not comment on how they envision their role in Humidtropics.

Based on an interview with Orlando Valverde, National Facilitator, MAONIC.

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Nitlapan is a research institutes at the UCA that specializes in local rural and urban development. It was founded 25 years ago and its administration is autonomous from the university. Nitlapan has a staff of 170. There are 14 researchers, 5 experts, and 9 assistants at its main offices, and 110 staff members working in the territories, of which 35 work with the Business Development Services Program (30 technicians and 5 coordinators/supervisors).

Projects and Initiatives in Nicanorte Action Site

Nitlapan has three main projects and initiatives within the territory covered by the Nicanorte Humidtropics action site, which are as follows:

1. **Business Development Services Program.** The desired outcomes of this program are to increase productivity in coffee, cocoa, and cattle productions and improve food security through technical assistance. The program works in Las Segovias, Matagalpa, and Jinotega and it is currently underway.
2. **Business incubation.** The desired outcomes of this program are social inclusion, economic sustainability, increase in income, and poverty reduction through the leasing of the means of production (cattle and agricultural and commercial production equipment) and working with youth. In the past, the focus was solely on economic results, such as increases in productivity and income, while now the focus has been expanded to include people, communities, and networks.
3. **Rural legal services, territorial notary offices (mediation), and promoting human development.** This initiative is being carried out in all national territories where there are FDL offices.

Most Relevant Organizational Impacts over the Last Five Years

In the last five years, Nitlapan has had four major impacts in the territories where the organization works that relate to the desired outcomes of Humidtropics:

1. 92% of the coffee producers that Nitlapan assisted with credit and technical assistance did not have problems with Roya.
2. Improvement in the relationship between partners who raise cattle together, sharing responsibility (*mediería*), with a focus on social equity and environmental sustainability.
3. Improvement in the relationships between families and communities through the revalorization of local resources.
4. Capacity building and boosting auto-esteem of individuals and communities.

Productive and Organizational Changes and Innovations

Over the last five years, Nitlapan has fostered five important changes and/or innovations with the help of partner organizations in the territories where it works. These include:

1. The rescue and improvement of the historic *mediería* system (i.e., rent in-kind or sharecropping).
2. Communication methodologies with producers focused on the use of images, parables, and comparisons, as well as the use of narratives or testimonials from producers.
3. Technicians immerse themselves in the communities and with families and write about the changes that most caught their attention.
4. Field schools, micro-leasing, and seeking business alternatives for women.

5. Credit incentives for the best clients of FDL to employ better practices in ranching to conserve and protect natural resources.

Of these three changes/innovations, Nitlapan prioritized two, which are described in further detail in the following:

Promotion and Improvement of the Mediería

This innovation was carried out by Nitlapan in conjunction with local cattle ranchers, industrial slaughterhouses, and, in some places, the Catholic Church. One of the main limitations in carrying out this change was that the institutions involved in the change were set in their ways. Furthermore, the change in consciousness that was needed on the part of technicians and providers to implement the changes and make improvements was difficult to attain. Finally, there was also an attitude of non-payment that hindered the process. The most important sources of learning and consultation to foster this change included Jesuit inspiration and local studies that showed that the *mediería* still functioned and in different ways.

Incentives for Sustainable Ranching

This innovation was carried out with FDL and BCIE, the latter of which provided financing. The main limitations encountered in carrying out this innovation included a lack of interest on the part of producers to intensify sustainable practices since the former model was still profitable and there was also a lack of interest in intensifying the horizontal expansion of ranching. The primary sources of learning and consultation for this change included the “Proyecto Pago por Servicios Ambientales” through GEF and CATIE, FDL, Nitlapan, and BCIE.

Desired Changes/Innovations

Nitlapan identified and prioritized one change/innovation they would like to move towards in the next five to ten years, which is described below.

Territorial Development

This desired innovation would entail territorial and community development (but not individual). They would like to select interesting places that have environmental and socio-economic challenges. Nitlapan envisions

working with local actors, FDL, the UCA and its alliances with other national and international universities. The limitations they foresee having in carrying out this innovation include the scope of the innovation and the difficulty in fostering change and the clashing of paradigms between application (economic) and conceptualization following listening to realities (anthropological).

Working with Humidtropics

Nitlapan recommended several potential field sites for Humidtropics. These are listed below as well as the reasons why these sites were chosen:

1. **Sub-Humid Zone of Matagalpa, Jinotega, and Estelí.** This region was chosen because it has a great diversity of small producers with low productivity and a limited tendency to organize.
2. **El Cúa, Bocay, Abisinia, Pita, El Carmen, Wiwili, and La Dalia.** These sites were chosen because of diverse agricultural production occurring in these areas (33 different products) and the emergence of armed groups as a result of a lack of political and social conformity.

Nitlapan envisions its role in Humidtropics as fostering a focus on territorial development and involving all of its research programs.

Based on an interview with René Mendoza, Executive Director of Nitlapan.

Programa Campesino a Campesino (PCAC)

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Founded in 1987, Programa Campesino a Campesino (Farmer to Farmer Program, or PCAC) is a strategic program of UNAG. It has a membership of 20,000 families in 90 municipalities of Nicaragua. It has offices throughout the Humidtropics action site in the following municipalities: Siuna, Matagalpa, San Ramón, San Dionisio, Esquipulas, Rosita, Bonanza, Macuelizo, Ocotal, Somoto, San Lucas, Pueblo Nuevo, and Estelí.

Projects and Initiatives in Nicanorte Action Site

PCAC-UNAG currently has five projects and initiatives within the territory covered by the Nicanorte Humidtropics action site in conjunction with and/or with the support of various partners.

1. **Rescue and improvement of native seeds.** This is one of PCAC-UNAG's most active projects and it operates in a number of municipalities in the northern region of Nicaragua (Matagalpa, San Ramón, San Dionisio, Esquipulas, Waslala, Estelí, Condega, Pueblo Nuevo, Macuelizo, Mozonte, Santa María, San Fernando, Ocotal, Totogalpa, La Sabana, Somoto, San Lucas, Palacaguina, and Ciudad Antigua). Financing for the initiative is provided by the EED, SWISSAID, and the EU.
2. **Promoting cocoa production in agroforestry systems.** This initiative is based in municipalities in both the RAAN and RAAS, including Siuna, Rosita, Bonanza, Prinzapolka, Cruz de Rio Grande, Laguna de Perlas, Kukra Hill, and Bluefields, this project received support from LWR, GIZ, and UNIDO.
3. **Promoting sustainable cattle production and watershed management.** This project

also works in several municipalities in RAAN (Rosita and Siuna) and it receives support from OXFAM and GIZ.

4. **Rural commercialization.** With the support of Action Aid Denmark and CIC-BATA, this project works in the municipalities of Siuna, Rosita, Matagalpa, San Ramón, San Dionisio, and Ocotal.
5. **Improving soil fertility with biominerals.** This project receives a small amount of support from SWISSAID and SI and works in the municipalities of Matagalpa, Boaco, Siuna, Rosita, Mozonte, Macuelizo, San Fernando, Ciudad Antigua, and Quilali.

Most Relevant Organizational Impacts over the Last Five Years

PCAC-UNAG has had the following impact through its activities over the last five years:

1. Trained promoters in human development, leadership, and the promotion of organizational capacity that is less political and rather more oriented towards production. (Location: Las Segovias, Matagalpa, Madriz, and Las Minas)
2. Improved food security of more than 50% of the 20,000 families that participate in PCAC-UNAG through the redesigning of production systems from monocultures to diversified systems. (Location: Nueva Segovia, Madriz, and Las Minas)
3. Increased agroforestry systems. (Location: Matagalpa, Las Minas, and Nueva Segovia)
4. Identified the need for greater commercialization assistance. There is a greater surplus on the farms and a greater diversity of products, but this is not yet

effectively linked to the market. (Location: Las Minas and Matagalpa)

5. More people have bought land and as a result incomes has been increasing and there have been home improvements, but there is little available data at the farm level to monitor such changes.

Productive and Organizational Changes and Innovations

Over the last five years, PCAC-UNAG has fostered several important changes and/or innovations in the region with the help of partner organizations. These include:

1. Actions to improve livelihoods, focusing specifically on how to change the way people think.
2. Development of work strategies based on networks of promoters. (Location: Strongest presence in Nueva Segovia, Madriz and has since spread to other areas)
3. Rescue of native seeds, focusing on seed saving, selection, storage, sharing, improvement, and the establishment of a seed bank. (Location: Nueva Segovia and Matagalpa)
4. Diversification of farms, modeled on agroforestry systems and with permanent recycling-production system. (Location: Las Minas and Matagalpa)
5. Biomineral fertilizers, which are used to improve soil fertility and increase organic material in soil. (Agricultural System/ Location: Cocoa/Las Minas and basic grains/Matagalpa)

Of these changes/innovations, PCAC identified the training of promoters and their promotion of native seeds as particularly important and these are explained in more detail below.

Training of Promoters

This training program has developed through the experience of UNAG and PCAC and is being implemented by the PCAC team. Six classroom modules have been developed to provide academic training to promoters. The idea with this program is that they will evolve with their own interests. The training process is very

practical, culturally-appropriate, and is farmer-driven but with technical support. The program receives support from Bread for the World. There has also been exchanges of experience with partners in Honduras. PCAC-UNAG identified two limitations as hindering the advancement of the program. First, a team facilitator is not always present in the communities and this is necessary for scaling up the innovation. Second, there has been limited documentation of the overall process and its successes. Two important sources of learning and consultation for this innovation include the experiences of Mexican farmers belonging to the community of San Vicente in the State of Guerrero who have extensive experience practicing the Campesino a Campesino method and the effective connection made by the first coordinator of PCAC with nongovernment organizations in Mexico that work with the Campesino a Campesino methodology.

Native Seeds

The native seeds initiative began 15 years ago in a community in Nueva Segovia. With the help of CIPRES, the initiative expanded into the Native Seed Network, which is comprised of 200 native seed banks that serve 5,000 families and 400 peasants involved in genetic improvement of native seeds. The network has a team that works at both the local and national levels to facilitate its work. According to PCAC-UNAG, the main challenge facing the initiative is the limited ability to invest in the storage of seeds due to a lack of available funds. Some important sources of learning and consultation for the program have been members of its team, specifically Andum Pol, and CIPRES.

Desired Changes/Innovations

In the next five to ten years, PCAC-UNAG would like to work towards two major changes/innovations: 1) the improvement and reconstruction of soils and 2) growing and diversifying the rural economy.

Improvement and Reconstruction of Soils

PCAC-UNAG would like to work towards improving soil quality on coffee plantations in Matagalpa and Nueva Segovia and on cocoa plantations in Las Minas (the three

municipalities of Rosita, Bonanza, and Siuna in RAAN). To undertake this initiative, they identified promoters, MAONIC, UNA, and CIAT as being key potential partners. The information they see as critical for undertaking this initiative include: a current diagnostic of the state of the soil in these areas, information about different products and their contents, and information about nutrient recycling and plant use as well as evolution of soil fertility.

Growing and Diversifying the Rural Economy

The second change/innovation that PCAC-UNAG identified is the diversification of rural markets throughout all areas where the organization works to include, for example, black beans, cocoa, and corn. The idea is to create rural value chains. Part of the impetus towards this approach is PCAC-UNAG's belief that farmer's markets (*mercados campesinos*) are not a solution for producers to distribute locally. Although PCAC-UNAG sees promoters as playing a key role in this initiative, it has not yet identified other key organizations with which to collaborate. Information needed to drive this innovation includes studies of the market and knowledge about demand, investment, the functioning of value chains, and the processing of goods for the market.

Working with Humidtropics

PCAC-UNAG recommended several potential field sites for the Humidtropics program. These include:

1. **Nueva Segovia and Madriz** (Totogalpa, San Lucas, La Sabana, Somoto, Telpaneca, Mozonte, Macuelizo, San Fernando, Santa Maria, and Ciudad Antigua). These sites were chosen because of the high levels of poverty in these departments, the large population, the established base for action (including the network of promoters), and experience with seed and soil management.
2. **Matagalpa** (Matagalpa, San Ramón, San Dionisio, Esquipilas, and Ciudad Darío). These sites were chosen because of the active network of promoters and cooperatives working in these locations, existing conditions that allow for short-term success, and the urgent need to create

effective impacts in terms of market quality and productivity.

3. **RAAN** (Las Minas). This site was chosen for a number of reasons including the high agricultural production potential of the area, especially with regard to agroforestry systems; the need to improve soil fertility and foster domestic food production; the climate; the need to restore forests and protect the Bosawás Reserve; the need to diversify agricultural systems; and the existence of water sources there.

PCAC-UNAG did not comment on its potential role in Humidtropics. However, they did state that they did not have much experience working with organizations belonging to CGIAR, mostly because there has been a lack of trust of international (research) centers on their part.

Based on an interview with Manuel Morales, coordinator of PCAC-UNAG.

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Ritter Sport began working in Nicaraguan in 1990 with Promundo Humano in Waslala. Later, in 2007, they expanded and began working with ADDAC in Rancho Grande, Matagalpa. Since then, they have further broadened their operations throughout the entire country and in 2011 they created a subsidiary, Ritter Sport Nicaragua. The company works with 22 organizations in Nicaragua (2 associations and 20 cooperatives). It employs three engineers, two field staff that support cooperatives, and several staff members (a director, a stock manager, and an assistant) who oversee operations at a vegetative material nursery in Rancho Grande.

Projects and Initiatives in Nicanorte Action Site

Ritter Sport currently has a number of projects and initiatives within the territory covered by the Nicanorte Humidtropics action site, which are as follows:

1. **Collection/receiving, purchasing, storage, and exportation of cocoa.** At their sites in Siuna and Rosita, Ritter Sport received 500 metric tons of Grade A cocoa in 2012, 30% of which was organic. Sometimes the national price is very high and collection/purchase decreases. At their collection sites in Rancho Grande, Matiguas Wasala, Tuma-La Dalia, El Cúa, San José de Bocay, Rama, Muelle de los Buelles, Nueva Guinea, and El Castillo, 800 metric tons of organic and conventional cocoa with fair trade, UTZ, and Biolatina certification was received. The price of conventional cocoa is fixed at \$200 more than the NY commodity exchange price. Organic cocoa is fixed at \$500 more than the NY commodity exchange price.
2. **Cooperative voucher for trust and delivery.** This initiative assists with

professional development of cooperative staff, cooperative logistics, and marketing plans.

3. **No-cost harvest and post-harvest field advising.** This initiative also provides professional development on harvesting as well as assistance with cooperative logistics for cooperative staff.
4. **Free drying services and quality control.** This initiative provides professional development to cooperative staff and assistance with cooperative logistics in the area of drying of cocoa beans and quality control.
5. **Loans for collection sites near to cooperatives.** These included short-term loans of \$50,000.
6. **Guarantees for cooperatives for financing from banks.** As there is no credit program for cooperatives, Ritter Sport acts as a guarantor for cooperatives to obtain financing from banks.

Most Relevant Organizational Impacts over the Last Five Years

In the last five years, among those impacts that Ritter Sport has had, the company identified several that relate to the desired outcomes of Humidtropics:

1. Centralized cocoa collection and fermentation was the result of an innovation process that shifted cocoa collection from farms, where cocoa used to be dried before being sold, to a collection site (*acopio*) where fresh cocoa is brought in by farmers and fermented under controlled conditions. This resulted in modernizing the cocoa industry in Nicaragua. (Location: Waslala, Rancho Grande, Matiguás, Rio San Juan, El Cúa, and San José de Bocay)

2. Ritter Sport cocoa standards have been implemented with all value chain partners and this has resulted in increasing the volume and quality of certified cocoa as well as the introduction of protocols for harvesting, fermentation, and drying. This was achieved with the technical cooperation of Ritter Sport and the construction of adequate cooperative infrastructure.
3. The modification of the cocoa post-harvest process and implementation of new protocols resulted in increasing the access of attractive markets for a number of cooperative in different parts of Nicaragua, especially with the help of a jointly implemented public-private project financed by GIZ. This has assured a better price for certified cocoa, which passes through a rigorous process of quality control at all stages. This also generated more competition in the local non-fermented market and the prices in local value chains has risen in tandem with Ritter Sport's value chain.
4. Over the last two years, Ritter Sport has planted 1,800 hectares of cocoa to produce cocoa beans of sufficient quality and complement their collection so that the value chain is on par with the costs of operation in Nicaragua.

Productive and Organizational Changes and Innovations

Over the last five years, Ritter Sport has fostered two important changes and/or innovations in the region with the help of partner organizations. These are described in the following:

Increase in Volume of Production of Grade A Cocoa

This innovation has had the greater impact of the two innovations listed in this section. Volume increased from 200 metric tons in 2007 to 800 metric tons in 2013, and it is estimated that production will reach 1,000 metric tons in 2014. Partners working with Ritter Sport on this innovation include ADDAC, DED, and CACAONICA cooperatives. The main limitations encountered in implementing this change included harvest and post-harvest management, the incidence of monila, and

fertility and drought management. Sources of learning and consultation to facilitate the innovation included the experience of national cocoa programs; the experience of AGROINRA (Agrarian Reform Agroindustries); and support from Ritter Sport, PROMUNDO Humano (training), FHIA, and CATIE.

Consolidation of Cocoa Value Chain

As this change is currently underway, its impact is incipient. It is taking place locations where Ritter Sport works in Rio San Juan, RAAS, and RAAN. It involves the modernization of the process of fermenting and collecting fresh cocoa, cocoa management, and the increase in the area of cocoa production. It has attracted the interest of the government and the potential for public policies to support cocoa production. Partners working with Ritter Sport on this innovation include ADDAC, DED, cooperatives, IPADE in Rio San Juan, IDR in Matiguás, CATIE, and CACAONICA. The main limitations encountered in implementing this innovation included fluctuations in the supply of cocoa that resulted in collection problems and the difficulty faced by cooperatives in realizing that this was a problem that they were creating. Several important sources of learning and consultation for this innovation included the LWR-supported program in Honduras, "Honduras with Quality", Ritter Sport Germany (provided individual training), and Ritter Sport's cocoa quality laboratory.

Desired Changes/Innovations

In the next five to ten years, Ritter Sport identified four changes/innovations they would like to move towards in the Northern region of Nicaragua (Waslala, Siuna, Rosita, and Rancho Grande):

1. Use of biological control of causal agents of external and internal mold to maintain cocoa quality.
2. Integrated agroecological management targeting productivity and quality and focusing on genetic material, soil fertility, and forestry management.
3. Rehabilitation plan for old and new fields and farm investment.

4. Zoning and adaptability of cocoa varieties and adaptability and quality mapping.

Of these four desired changes/innovations, Ritter Sport identified the following two as being priorities: biological control of mold and integrated agroecological management.

Biological Control of Mold

Ritter Sport envisions working with cooperatives and organizations that have technological knowledge and tools (for example, the International Institute of Tropical Agriculture, Zamorano Pan-American Agricultural School in Honduras, and/or CATIE) to assist in implementing this innovation. They envision needing information on causal agents of mold, agents to control mold, and knowledge of methodologies for production and to facilitate technological application. Several potential limitations they foresee include investment and funds for research and difficulties creating stable and lasting partnerships.

Integrated Agroecological Management

Ritter Sport envisions working with cooperatives, ADDAC, FHIA (seeds), and CATIE (research) to facilitate this innovation. Several types of information it foresees needing include agroecological management knowledge and technology and appropriate seeds. The lack of alliances with other organizations is seen as a potential limitation to realizing this innovation.

Working with Humidtropics

Ritter Sport recommended several potential field sites for the Humidtropics program for different reasons. These are described in the following:

1. **Las Minas** (Siuna, Rosita, and Bonanza): This site was selected because cocoa is produced in these areas and Ritter Sport already has operations there. Some problems with local organizations have resulted in the need to support producers. Furthermore, only short-term projects have been executed in these areas and long-term projects are needed.
2. **Rancho Grande, Kuskawás, and East Waslala**. The reasons for choosing this site were twofold: first, there is cocoa production in these locations but it has been somewhat

abandoned and, second, organizations and cooperatives are weak.

3. **Matiguás, Río Blanco, and Patriota**. These sites were chosen because they are potential locations for producing cocoa and there is an existing base of rural organizations.

Ritter Sport did not comment on its potential role in Humidtropics.

Based on an interview with Miguel Malespin Fariñas, Quality and Collection Evaluator, Ritter Sport Nicaragua.

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Founded in 2002, Soppexcca is a union of agricultural cooperatives. To date, it has a membership of 237 women and 413 men producers organized into 18 cooperatives. Largely but not exclusively focused on coffee production, Soppexcca exported 22,000 quintals of *grano oro* (coffee beans) in 2011–2012 and 21,000 quintals in 2012–2013. Currently its coffee is 100% fair trade and 10% organic. Within the territory covered by the Nicanorte Humidtropics action site, Soppexcca has the following human resources working on the ground: 12 agronomists, 6 staff members working on business and sales (all with university degrees), 1 manager, and 90 promoters in El Cúa, Jinotega.

Projects and Initiatives in Nicanorte Action Site

Soppexcca has three active organizational projects/initiatives underway in El Cúa, Jinotega, with different partners:

1. **Coffee investment** (with Root Capital)
2. **Cocoa diversification** (Phase I; with LWR, EIRENE, Christian Aid, and BID)
3. **Food security** (with Green Mountain Coffee)

Most Relevant Organizational Impacts over the Last Five Years

Soppexcca has made important advances that connect to the desired outcomes of Humidtropics. These are as follows:

1. Renewal of 80–100 manzanas of coffee fields per year for the last 10 years in Jinotega and other locations.
2. Off-setting of the effects of Roya mostly in Jinotega and to a lesser extent in El Cúa by increasing the area under cultivation, thus

maintaining productivity levels in terms of the amount of coffee collected. Furthermore, productivity has increased over the last 10 years: while only 6 quintals of coffee was collected per manzana in 2004, 2012 and 2013 saw productivity levels of 16 and 15 quintals per manzana of green coffee, respectively.

3. When the market price of coffee dropped, the price of their coffee was sustained via fair trade certification and better quality.
4. Stabilized the coffee value chain in terms of quality and price.
5. Diversified Soppexcca's business model beyond buying and selling bulk coffee to also toasting and selling packaged coffee (Flor de Jinotega Coffee) to the local market, operating cafés (Flor de Jinotega cafés in Jinotega and Managua).
6. Provided dry coffee processing to a variety of clients and centralized wet coffee processing for members of Soppexcca.
7. Production and sale of organic manure, such as Bio-Perla and Super-Magro.
8. Broadened access to both short- and long-term credit to members of Soppexcca. All members of Soppexcca have access to short-term credit of up to C\$10,000 per manzana with a 14% annual interest rate. Forty percent of Soppexcca members have access to long-term credit of up to US\$1,800 per manzana available in three yearly installments and payable in six years with a grace period of three years and a 14% annual interest rate.

Productive and Organizational Changes and Innovations

Over the last five years, Soppexcca has participated alongside other organizations and partners in fostering several important changes and/or innovations in the region. Two important changes/innovations identified by Soppexcca and to which the organization has contributed include: 1) the establishing of a business center and 2) a small technical assistance and investment project.

Business Center

The business center has been an important innovation that provides members with resources. The center includes a café, cupping and barista service, and wet and dry coffee mills. The center was established in collaboration with a number of organizations, including LWR, Root Capital, EIRENE, BID, and Christian Aid. Soppexcca participated by holding assemblies and contributing ideas, as well as investing funds obtained from external and internal sources. Several constraints encountered in the process of carrying out this innovation involved product marketing, economic investment, and the lack of qualified human resources with training in marketing. Some important sources of learning and consultation included visits to coffee cooperatives in Colombia to learn about their experience in the manufacture of organic manure; Peets Coffee and Green Mountain Coffee, which assisted with the café and barista service; and, finally, the experience of Industria San Carlos from Guatemala and CECOCAFEN with wet coffee mills and dry coffee mills, respectively.

Technical Assistance and Investment Project

In collaboration with CATIE and CAFENICA/CECOCAFEN, and with the support of AECID and training from LWR, Soppexcca participated in a project that provided technical assistance to families and access to short- and long-term credit. The objective of this project was to improve productivity and quality using a sustainable and affordable approach, as well as strengthen farm plans. Several limitations that affected the project's execution included the lack of studies on technology and organic production and also some difficulties with regard to decision making concerning producer

investment in the project. Several sources of learning and consultation that helped support the success of the project included CATIE, the project consultants, and internal team work and exchange between the SCAA, RAMACAFE, and CAFENICA. Moreover, the results of several experiments found that applying organic manure to coffee fields increased productivity from 12 quintals of green coffee per manzana to 16 quintals per manzana; however, more in-depth studies have yet to be conducted.

Desired Changes/Innovations

In the next five to ten years, Soppexcca would like to work towards two major changes/innovations: 1) improved organic production and 2) establishment of additional and more diverse business initiatives specializing in value-added products.

Improved Organic Production

Through investments in technology and productivity, Soppexcca would like to improve organic production of coffee and cocoa in diversified systems. In order to move towards this goal, the organization visualizes working with research institutions (e.g., CATIE, UNAN-Leon, and the UNA); holding experience exchanges with similar initiatives in Peru, Colombia, and Mexico; and, finally, working with a network of local promoters. Key types of information needed to move towards this goal include those concerning fertilizer quality, raw materials, and soil studies, as well as the pest management and plant nutrition. Expected constraints include obtaining resources for creating rural field experiments and the training of a research team.

Business Center Specializing in Value-Added Products

A second innovation that Soppexcca would like to realize in the coming years is the development of another business center that specializes in value-added products to generate more resources. The information that is seen as key to realizing this innovation include studies of existing products, markets, and services as well as sources of financial support for the project. Potential partners in this project include coffee and cocoa buyers, LWR, CATIE, Root Capital, and Christian Aid. An important anticipated

constraint identified by Soppexcca is a lack of information, quality, and competence.

Working with Humidtropics

Soppexcca recommended several potential field sites for Humidtropics and also visualized what kind of role the organization might play in these field sites.

Three sites for Humidtropics to work recommended by Soppexcca are as follows:

1. **El Cúa, Jinotega.** This site was chosen because there are already members of Soppexcca and a network of promoters and technicians there. Furthermore, there is an existing business center and coffee and cocoa value chains.
2. **Pantasma and San José de Bocay in Matagalpa.** These sites were chosen because the issues of climate change and the protection of the Bosawás Reserve are pressing issues and there is ample opportunity to carry out research.
3. **Cordillera Dipilto, Macuelizo Mozonte, Ocotal, and San Fernando in Nueva Segovias.** These sites were chosen because soil diversity and improvement as well as coffee quality are important issues in this zone.

Soppexcca sees its potential role in each of these field sites as being an active member of the platform that contributes to initiating the platform's work in Jinotega and El Cúa.

Based on an interview with Rigoberto Pineda, Head of Technical Certification, Soppexcca.

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Founded in 1984, the UNAN-FAREM in Matagalpa is an autonomous university with an enrollment of approximately 3,200 students. The university offers undergraduate and graduate degrees and certificates. At the time of this interview, there were 40 professors at UNAN.

Projects and Initiatives in Nicanorte Action Site

UNAN-FAREM's work can be divided into three broad areas of focus:

1. **Implicit focus on formal education, especially in the area of Local Development for which it offers both a Master's of Science (MSc) and Doctorate (PhD) degrees.** The university mostly serves and works in the departments of Matagalpa and Jinotega. In addition to the 25 MSc and 20 PhD students, the program counts on the support of two advisers from the Colegio Posgraduado in Mexico.
2. **Four major areas of research, including Climate Change and Food Security, Local Development Plans, Public Policy and Its Impact on Local Rural Development, and Agricultural Extension Methodology.** The primary geographical areas where this research is taking place are in the departments of Matagalpa (particularly in the municipalities of San Dionisio, San Ramón, and Esquipulas) and Jinotega. Furthermore, some research projects are being undertaken in collaboration with the Colegio Posgraduado in Mexico, specifically with seed capital from UNAN and small project management funds.
3. **Matagalpa and Jinotega Rural Development Knowledge Management Network.** The coordinator of this initiative at the time of the interview was UNAN-FAREM professor, Dr. Jairo Rojas. There

are 60 institutional and individual actors belonging to the network, forming a political advocacy platform in the departments of Matagalpa and Jinotega. To date, there is a need for the network to nuance its local development vision and to outline its plan for prioritizing and managing its innovation agenda.

Most Relevant Organizational Impacts over the Last Five Years

UNAN-FAREM has made several important advances towards achieving desired outcomes (see above) in the northern region of Nicaragua.

1. Twenty students graduated from UNAN-FAREM's Local Rural Development program with 25 other students currently enrolled in the program. (Location: Matagalpa and Jinotega)
2. Formed the Rural Development Knowledge Management Network to deepen rural development. (Location: Matagalpa and Jinotega)
3. Participated in the construction of a Local Innovation System in collaboration with the public sector, producer/farmer organizations, and academia. (Location: Matagalpa and Jinotega)
4. Produced 20 publications in the form of books about local development, which are available in digital format. (Location: Matagalpa, Jinotega, and Nueva Segovia)

Productive and Organizational Changes and Innovations

Over the last five years, UNAN-FAREM has participated alongside other partners in fostering several important changes and/or innovations in the region. Three important changes/innovations identified by UNAN-FAREM include:

1. Human resource training, which is linked to the development of the knowledge management network in Matagalpa and Jinotega (see above) and is an important social innovation.
2. Human talent training process, which is a technological innovation process that is carried out in collaboration with Colegio Posgraduado and utilizing information technology and communication (ITC) with video/online conferencing.
3. Development of the Matagalpa and Jinotega Rural Development Knowledge Management Network, which is linked to the CNU Rural Development Inter-Institutional Committee through the work of both entities on political advocacy at the national level.

Of these three changes/innovations, UNAN-FAREM prioritized two: the human talent training process and the development of the Knowledge Management Network.

Human Talent Training Process

This innovation was the product of collaboration between UNAN-FAREM and the Colegio Posgraduado in Mexico. It also included the participation of trained producers, the support of ITC (FAREM) and involved the buying of hardware and support packages. The main limitations encountered during the innovation process were the lack of economic resources and technological viability, as well as the process itself. Sources of knowledge that proved to be key for the success of the process was advice and support from the Colegio Posgraduado in Mexico.

Development of the Knowledge Management Network

The formation of the Matagalpa and Jinotega Rural Development Knowledge Management Network originated from UNAN-FAREM and Colegio Posgraduado in Mexico. Other institutions and organizations then supported the process: Fundación ETEA funded the workshops, the French Embassy assisted with territorial dialogue, and the CNU supported the formation of the Rural Development Inter-Institutional Committee. Other collaborators

included Ayuda en Acción, SERIDAR, the EU, and ALFA III. The further development of the network is hindered by two limitations. First, although a work plan has been made, advances have been stalled by the lack of a facilitation team. Second, policymakers have no conceptual base from which to run the networks. Despite these challenges, there have been several institutions that have been important sources of learning and advice. These include the Colegio Posgraduado in Mexico, which has provided theoretical and conceptual training, and also CATIE.

Desired Changes/Innovations

In the next five to ten years, UNAN-FAREM would like to work towards three major changes/innovations:

1. Strategic vision and plan to establish a local knowledge network and have the resources to support it.
2. Communication for development and policy incidence.
3. Improve the relationships between sectors so that they are more functional and dynamic.

Of these three desired changes/innovations, UNAN-FAREM prioritized the establishment of a local knowledge network and the deepening of sectorial relationships.

Establishment of Local Knowledge Network

In order to establish the local knowledge network, UNAN-FAREM identified potential partners as the existing CIAT Learning Alliance and PCAC. The PCAC methodology is visualized as being the central methodology used by the network. UNAN-FAREM also plans to draw on its own experience in knowledge networks to assist in developing this local knowledge network. Key types of information needed to promote the establishment of the network include: 1) methodologies for bringing sectors together and 2) monitoring of actors and sectors. A potential key challenge for establishing the network is the political orientation of public sector guidelines.

Deepening Sectorial Relationships

UNAN-FAREM identified several potential partners with whom to work to deepen the

functioning and dynamics between different sectors working in the region. These included CATIE based on its experience in MAP networks and platforms as well as CIAT for its experience with the existing Learning Alliance. In order to facilitate this desired innovation, more information is needed concerning on methodologies outlining how to approach such a change. Furthermore, an important anticipated limitation is that actors volunteering to support the relationship-building process do not have the sufficient time to dedicate to carrying out the process.

Working with Humidtropics

Within the territory covered by the Nicanorte Humidtropics action site, UNAN-FAREM recommended several potential field sites for the Humidtropics program and also visualized the kind of role the organization might play in these field sites.

Three sites recommended by UNAN-FAREM and the reasons they were chosen are as follows:

1. **Matagalpa, San Ramón, San Dionisio, Esquipulas, and Muy** (Department of Matagalpa). This zone was chosen because although there is a high potential for food production there and it is currently in a state of increasing degradation and decreasing productivity due to the crisis of conventional agriculture. Furthermore, there are many active organizations in the zone.
2. **El Cúa, Jinotega, El Tuma-La Dalia, Rancho Grande, and Waslala** (Departments of Matagalpa and Jinotega and North Atlantic Autonomous Region). These locations were chosen because these are areas where there is extensive production of coffee and cacao, high density of pastures, employment, high vulnerability to climate change, and the focus on agroforestry systems and environmental services.
3. **San Isidro, Sébaco, Cuidad Dario, and Terrabona** (Department of Matagalpa). These areas were chosen because these municipalities are located in dry zones where there is a more extensive production of rice using irrigation. Furthermore, these areas

have been affected by climate change. Finally, they are highly linked to markets.

UNAN-FAREM sees its potential role in Humidtropics as contributing to generating methodology, transferring knowledge, human resources training in research, political incidence, and promoting the creation and operation of local research centers.

Based on an interview with Jairo Rojas, Professor at UNAN-FAREM and coordinator of the Matagalpa and Jinotega Rural Development Knowledge Management Network.

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The Universidad Nacional Autónoma de Nicaragua in León (UNAN-León) was founded in 1812 and it is the oldest university in Nicaragua. The UNAN has campuses in various locations throughout Nicaragua, including Somotillo, Jinotega, and Matagalpa. These campuses provide technical training to students.

Projects and Initiatives in Nicanorte Action Site

UNAN-León works on eight projects and initiatives within the territory covered by the Nicanorte Humidtropics action site, which are as follows:

1. **Development of courses on agroecology and veterinary medicine with local actors.** This project began between 2007 and 2008 and has continued since. It is mainly located in Jinotega, Madriz, Chinandega, and Río San Juan with common core components and then continued in León.
2. **Joint project to develop small businesses.** This is a joint project between the government and UNAN, specifically the Department of Economic Sciences at UNAN and MIFIC's MIPYME program. This initiative is being carried out in Jinotega, Madriz, and León until it is updated.
3. **Training the children of producers.** This initiative is being carried out in partnership with MEFCCA in the departments of León and Chinandega. It is currently underway.
4. **Strengthening association, cooperatives, and territorial development.** This initiative is also underway in the Pacific region of Nicaragua with funds from Spanish cooperation agencies.
5. **Local research and development.** This project involves on-farm research carried out in sites near volcano ranges.
6. **Synergy between UNAN with other institutions working on production.** Above all, this project aims to share what the UNAN offers and also learn about the agricultural sector's training demands. For example, working with MAGFOR on agroecology programs as per the national agroecology law (Law 765) and with others, like MARENA, to form research teams and discuss research policies. Another example is visits from CONYCIT to learn about research programs on food security and added value.
7. **Human health.** There is concern because there has been limited impact in terms of reducing poverty and malnutrition. This initiative promoted an analysis of programs. It is focused mainly on the northwestern part of the country (Chinandega and Madriz) as well as other departments, like Jinotega.
8. **Gender and food production.** Italian cooperation agencies are working with UNAN and supporting initiatives to cultivate national gastronomy. This is taking place in León.

Most Relevant Organizational Impacts over the Last Five Years

UNAN-León identified two major impacts it has had over the last five years that relate to the desired outcomes of Humidtropics:

1. Introduced musaceae in coffee fields and using an integrated systems approach (Jinotega and Matagalpa). This has resulted in good diversification practices. It focuses on conservation but at the same time the

production of another crop with a good market.

2. Enhanced health and nutrition among the population (Northern region of Nicaragua) through nutritional innovations. An example is the development of a cookie made of *jicaro* by food engineers that provides nutritional needs in a child's snack.

Increasing productivity and commercialization is one of the major limitations that the UNAN has faced. They focus on territories units, like Nagarote. Municipal governments have a lot of contact with UNAN, especially in Jinotega where the current mayor has been very supportive of the creation of a UNAN campus in Jinotega.

Productive and Organizational Changes and Innovations

Over the last five years, UNAN-León has fostered two important changes and/or innovations with the help of partner organizations. These include:

1. Strengthening partnerships and synergies with municipalities, MEFCCA, and MIFIC to identify gender issues at the territorial level.
2. Selecting elite musaceae plants on the Pacific coast in collaboration with MEF and APEN.

Desired Changes/Innovations

UNAN-León identified two regions of Nicaragua where they would like to foster changes/innovations in the next five to ten years: Jinotega/Matagalpa and Somotillo/Madriz. In both of these zones, they would like to work to:

1. Consolidate the agricultural production sector.
2. Strengthen the qualifications of the workforce.
3. Identify problems and challenges.
4. Strengthen synergies and alliances in these zones with organizations like, for example, FUNICA.

In order to foster these changes, they envision working with associations of cultural promoters to offer training in diverse subjects, the National Popular Culture Program (Programa Nacional APC), and with the support of UNAN staff and professors from campuses in Somoto, Jinotega/Matagalpa. The kinds of information that they foresee as being important include basic information about the territories and the current challenges.

Working with Humidtropics

UNAN-León recommended several potential field sites for Humidtropics. These are listed below as well as the reasons why these sites were chosen.

1. **Somotillo.** This site was chosen because there is potential for the development of agriculture and poultry production; there are existing relations with Honduras and El Salvador because of the geographical location; there is territorial potential; there are existing alliances already established in the municipality; and several international organizations work there, including the AECID and universities.
2. **Madriz.** This site was chosen because it shares similar characteristics to those of Somotillo. In addition, the INPHRU is working there.
3. **Jinotega and Matagalpa.** Coffee-musaceae systems have potential and already exist. These are sites of high biodiversity where the climate is changing. There is also a focus on coffee and cocoa production, and there is potential to develop eco-tourism with farm tours and Friends of the Earth.

UNAN-León commented on their potential role in Humidtropics in these selected sites, stating that they have a lot of interest in development processes as well as knowing who the other partners might be and what kinds of requests have already been made. They would like to contribute by strengthening relationships and synergies with other institutions in all respects. They would also like to teach the children of producers.

*Based on an interview with Maritza Vargas
(Vice Chancellor/Rector) and Juan Castellon
(Professor) of UNAN-León.*

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The Unión de Productores Agropecuarios de Nicaragua (Agricultural Producers Union of Nicaragua, or UPANIC) is an agricultural producers organization founded in 1979. It is comprised of 14 associations, with each representing a different agricultural commodity (i.e., coffee, sorghum, sugarcane, cattle, eggs, dairy products, bananas). While UPANIC does not have any technical staff in local areas, the associations belonging to UPANIC are its expression in localities and the union's technicians primarily work in coffee and cattle. UPANIC has an electronic network to distribute technical and economic information (e.g., agricultural input prices, agricultural product prices, and existing development projects) to its member associations and their members.

Projects and Initiatives in Nicanorte Action Site

Each association belonging to UPANIC runs its own projects. UPANIC assists in project formulation and helps to identify sources of project financing. The current Office of the President proposed searching for strategies and alternatives in the fight against Roya, which has largely affected small producers (20% of coffee production is in the hands of small producers who make up 80% of coffee producers). UPANIC cited three projects and initiatives within the territory covered by the Nicanorte Humidtropics action site, which are as follows:

1. **Development and promotion of inoculant use with beans and soy.** This project mainly works in zones where beans and soy are produced in the northern part of Nicaragua, although the project has also worked in other areas of the country. The project ended.
2. **Seed conditioning plant.** This project is located in León and Chinandega. It has been

active for seven years, although it is only currently working at 25% of its capacity.

3. **Natural resources.** This project is being carried out in conjunction with the MARENA in Chinandega and Rivas. It aims to control fires on sugarcane plantations.

Most Relevant Organizational Impacts over the Last Five Years

In the last five years, UPANIC has had five major impacts that relate to the desired outcomes of Humidtropics:

1. Increased bean productivity through the use of inoculants in the north of the country in Matagalpa and Jinotega. More than 35% of producers are familiar with this technology.
2. Increased sugarcane productivity and mechanization to make it available in a timely manner. The site of this impact was in Rivas.
3. Increased peanut productivity in León and Chinandega, which resulted from the implementation of a technological package promoted by the Peanut Growers Association.
4. Reduced fires on sugarcane plantations in León and Chinandega, which happened on account of the mechanization of harvesting and scheduling of deliberate fires in more remote areas and away from industrial plants.
5. Generation of funds through BOLSAGRO, a brokerage firm, to cover different services including technical assistance and mechanization of some crop production.

Productive and Organizational Changes and Innovations

Over the last five years, UPANIC has fostered three important changes and/or innovations. These include:

1. The promotion of inoculant use in bean production.
2. Mechanization of sugarcane production.
3. Water harvesting for animal consumption and irrigation (by ANAR).

Of these three changes/innovations, UPANIC prioritized one, which was the promotion of inoculant use in bean production. This innovation was carried out in collaboration with UNAG, which provided promoters; the *Pro Semilla* project, a partnership between the FAO and INTA that provided technological support; Red SICTA and IICA, which provided funds to support the strengthening of competition in the bean sector; the Central de Cooperativas de Sébaco, which provided promotional support for the use of the new technology; and FUNICA and COSUDE, which provided the early development of the market for the technology. UPANIC reported that there were not many limitations encountered in carrying out the innovation, as the technology was rapidly accepted by producers. The most important sources of learning and consultation for carrying out the innovation included the first national experience with soy, but due to the low market demand for soy, they began to test the inoculant technology with beans; USAID, which developed the program for inoculants with soy; and UPANIC's own experience.

Desired Changes/Innovations

UPANIC identified six changes/innovations they would like to move towards in the next five to ten years at the national level, which are as follows:

1. The use of transgenics (including modification of current national policy).
2. Promotion of agroindustry, e.g., integration of primary production with the industrial sector (CADIN).

3. Diversification of exports (especially chia seed and cocoa).
4. Water harvesting.
5. Use of inoculants with maize.
6. Strengthening producer organizations.

Of these desired changes/innovations, UPANIC identified two as being priorities, which are described in more detail in the following:

Use of Inoculants with Maize

UPANIC envisions carrying this innovation out with producer associations and central cooperatives. The information they foresee as being important to carrying out this innovation is actual demand of producers for this kind of technology and the how the technology functions under different climate and soil conditions. Potential limitations for realizing this innovation identified by UPANIC include difficulty establishing partnerships with the public sector for the development of this technology (which has been their experience in the past) and obtaining the resources necessary for campaigns to train and spread the technology.

Strengthening Producer Organizations

To carry out this innovation, UPANIC envisions working with producer organizations. The information that they see as key to the successful realization of this innovation is how to encourage the participation of producers and strengthen unity among them (and there are different cases here – some producer organizations focus on the same crop or common crops). Potential limitations they foresee include a lack of producer interest, a lack of unity among producers to carry out collective territorial planning, and a lack of unity between producer organizations.

Working with Humidtropics

UPANIC recommended several potential field sites for Humidtropics. These are listed below as well as the reasons why these sites were chosen:

1. **Matagalpa and Jinotega.** These sites were chosen because of the predominance of coffee and cattle. They also collaborate with ADDAC on the inoculant technology.

2. **Northern Chinandega.** This site was chosen because of the cultivation of soy and peanuts.

UPANIC envisions its potential role with Humidtropics as a source of support for producer organization in localities to carry out diagnostics, base lines, and the formulation of

proposals, as well as to promote partnerships with a focus on value chains.

Based on an interview with Michael Healy (Executive President) and Julio Palma of UPANIC.