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DOING AGRIBUSINESS IN LATIN AMERICA AND THE CARIBBEAN **NICARAGUA**

JULY 2011

This publication was produced for review by the U.S. Agency for International Development. It was prepared by SEGURA Consulting LLC.

DOING AGRIBUSINESS IN LATIN AMERICA AND THE CARIBBEAN NICARAGUA

Cover image: Lake south of Masaya, Nicaragua.

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ACRONYMS

ACODEP Empresa	Asociación de Consultores para el Desarrollo de la Pequeña y Mediana
ADIM	Asociación Alternativa Para el Desarrollo Integral de las Mujeres
ADR	Assessment of Development Results
AFODENIC	Asociación para el Fomento del Desarrollo de Nicaragua
Agri-CORP	Corporación Agrícola S.A.
ALBA	Bolivarian Alliance for the People of Our America
ALBALINISA	Alimentos de Nicaragua
ALBANISA	ALBA de Nicaragua, S.A.
AMCHAM	American Chamber of Commerce
ANA	Autoridad Nacional del Agua (ANA)
ANAPA	Asociación Nacional de Avicultores y Productores de Alimentos
ANAR	Asociación Nicaragüense de Arroceros
ANIEX	Asociación de Industriales Exportadores de Nicaragua
ANIFODA Agroquímicos	Asociación Nicaragüense de Formuladores y Distribuidores de
ANPROSOR	Asociación Nacional de Productores de Sorgo
APEN	Asociación de Productores y Exportadores de Nicaragua
ASOBANP	Asociación de Bancos Privados de Nicaragua
ASODERI	Asociación del Desarrollo de Rivas
ASOMIF	Asociación Nicaragüense de Instituciones de Microfinanzas
ASTI	Agricultural Science & Technology Indicators
BAC	Banco de América Central
BAGSA	Bolsa Agropecuaria de Nicaragua
BOLSAGRO	Bolsa Agroindustrial UPANIC
BANADES	Banco Nacional de Desarrollo
BANEX	Banco del Exito
BANPRO	Banco de la Producción
BCN	Central Bank of Nicaragua
BDF	Banco de Finanzas
BENCAFE	Beneficiadora Norteña de Café, S.A.
BPIs	Bonos de pago de Indemnización
BTI	Bertlesmann Transformation Index
CABEI	Central American Bank for Economic Integration
CAC	Cooperativa de Ahorro y Crédito
CACONIC	Cámara de Comercio de Nicaragua
CADIN	Cámara de Industrias de Nicaragua
CAFTA-DR	Central America Free Trade Agreement and Dominican Republic
CANSILAC	Cámara Nicaragüense del Sector Lácteo
CAPENIC	Cámara de la Pesca de Nicaragua
CARUNA	Caja Rural Nacional
CASEIF	Central America Small Enterprise Investment Fund
CATHALAC	Centro del Agua del Trópico Húmedo para América Latina y el Caribe
CATIE	Centro Agronómico Tropical de Investigación y Enseñanza
CCACF	Central de Cooperativas de Ahorro y Crédito Financieras de Nicaragua
CECOOPSEMEIN.	Central de Cooperativas de Servicios Múltiples Exportación e Importación
CEI	Centro de Exportaciones e Inversiones
CENACoop	Central Nicaragüense de Cooperativas de Ahorro y Crédito
CEPAL	Comisión Económica para América Latina y el Caribe
CEPRODEL	Centro de Promoción del Desarrollo Local

CETREX	Centro de Trámites de las Exportaciones
CIAT	Centro Internacional de Agricultura Tropical
CINASE	Centro de Identificación y de Asesoría Socio-Económica
CISA	Comercial Internacional S.A
CLIR	Commercial, Legal and Institutional Reforms
CNPE	Comisión Nacional de Promoción de Exportaciones
CNRH	Consejo Nacional de los Recursos Hídricos
CNZF	Comisión Nacional de Zonas Francas
COMASA	Comercializadora de Maní, S.A
CONAGAN	Comisión Nacional Ganadera de Nicaragua
CONASSAN	Comisión Nacional de Seguridad Alimentaria y Nutricional
CONACAFE	Consejo Nacional del Café
CONIMIPYME	Consejo Nicaragüense de la Micro, Pequeña y Mediana Empresa
COPADES	Consultores para el Desarrollo Económico Empresarial, S.A
COSEP	Consejo Superior de la Empresa Privada
COSUDE	Agencia Suiza para el Desarrollo y la Cooperación
CPN	Colegio de Periodistas de Nicaragua
CRS	Catholic Relief Services
CSM	Cooperativa de Servicios
CSE	Consejo Supremo Electoral
DANIDA	Danish International Development Agency
DCA	Development Credit Authority
DCHA	USAID/Democracy, Conflict, and Humanitarian Assistance
DGA	Dirección General de Aduanas
DGCC	Dirección General de Cambio Climático
DGPSA	Dirección General de Protección y Sanidad Agropecuaria
DGSPA	Dirección General de Sanidad y Protección Agropecuaria
DOD/PET	Department of Defense/Programming Environment and Training
DR	Dominican Republic
ECLAC	Economic Commission for Latin America and the Caribbean
E&E	Empresas y Empleo
ENABAS	Empresa Nicaragüense de Alimentos Básicos.
ENACAL	Empresa Nicaragüense de Acueductos y Alcantarillados
EFTZ	Economic Free Trade Zones
EIA	Environmental Impact Assessments
EXCAN	Asociación de Exportadores de Café de Nicaragua
FAO	Food and Agriculture Organization
FAGANIC	Federación de Asociaciones de Ganaderos de Nicaragua
FAITAN	Fondo de Apoyo a la Investigación Agropecuaria en Nicaragua
FASID	Foundation for Advanced Studies on International Development
FAT	Fondo de Asistencia Técnica
FDI	Foreign Direct Investment
FDL	Fondo Nacional de Desarrollo Local
FENACOOOP	Federación Nacional de Cooperativas Agropecuarias y Agroindustriales
FIAN Internacional	FoodFirst Information and Action Network
FIAS	World Bank's Foreign Investment Advisory Service
FIDEG	Fundación Internacional para el Desafío Económico Global
FIDES	Federación Interamericana de Empresas de Seguros
FINARCA	Financiera Arrendadora Centroamericana
FINNIDA	Finnish International Development Agency

FNI	Financiera Nicaragüense de Inversiones
FODEM	Fondo de Desarrollo para la Mujer
FONDO NATURA	Fondo Nicaragüense para la Conservación de la Naturaleza
FSLN	Frente Sandinista de Liberación Nacional
FTF	Feed the Future
FTZ	Free Trade Zones
FUDEMI	Fundación para el Desarrollo de la Microempresa
FUNDENICSOS	Fundación Nicaragüense para el Desarrollo Sostenible
FUNDENUSE	Fundación para el Desarrollo de Nueva Segovia
FUNDESER	Fundación para el Desarrollo Socioeconómico y Rural
FUNICA	Fundación Nicaragüense para el Desarrollo Tecnológico, Agropecuario y
Forestal FUNIDES	Fundación Nicaragüense para el Desarrollo Económico y Social
FY	Fiscal Year
GAP	Good Agricultural Practices
GCI	Global Competitiveness Index
GDP	Gross Domestic Product
GON	Government of Nicaragua
GTZ	German Technical Cooperation
HACCP	Hazard Analysis, Critical Control Points
IDB/IADB	Inter-American Development Bank.
IDR	Instituto de Desarrollo Rural
IFAD	International Fund for Agricultural Development
IICA	Inter-American Institute for Cooperation in Agriculture
IMF	International Monetary Fund
INAA	Instituto Nicaragüense de Acueductos y Alcantarillado Sanitario
INAFOR	Instituto Nacional Forestal
INCAE	Instituto Centroamericano de Administración de Empresas
INDE	Instituto Nicaragüense para el Desarrollo
INETER	Instituto Nicaragüense de Estudios Territoriales
INFOCOOP	Instituto Nicaragüense de Fomento Cooperativo
INISER	Instituto Nicaragüense de Seguros y Reaseguros
INPRUR	Instituto de la Propiedad Reformada Urbana Rural
INTA	Instituto Nicaragüense de Tecnología Agropecuaria
LAC	Latin America and the Caribbean
MAGFOR	Ministerio Agropecuario y Forestal
MARENA	Ministerio del Ambiente y los Recursos Naturales
MEM	Ministerio de Energía y Minas
MFI	Microfinance Institutions
MIFIC	Ministerio de Industria, Fomento y Comercio
MHCP	Ministerio de Hacienda y Crédito Público
MINSA	Ministerio de Salud
MIPYMEs	Micro, Pequeñas y Medianas Empresas
MSME	Micro, Small, and Medium-Size Enterprise
MITRAB	Ministerio de Trabajo
NASA	U.S. National Aeronautics and Space Administration
NOAA	U.S. National Oceanic and Atmospheric Administration
NGO	Non-Governmental Organization
OIC	Organización Internacional del Café
ONCC	Organismo Nacional de Certificación de la Calidad del Café
OAS	Organization of American States

PASC	Programa Agro-alimentario de Semilla Certificada
PETRONIC	Petróleos de Nicaragua
PDVSA	Petróleos de Venezuela SA
PFN	Programa Forestal Nacional de Nicaragua
PLC	Partido Liberal Constitucionalista
PNA	Programa Nacional de Alimentos
PNAIR	Plan Nacional de Agroindustria Rural
PNDH	Plan Nacional de Desarrollo Humano
PPA	Programa Productivo Alimentario
PRESTANIC	Fondo Nicaragüense para el Desarrollo Comunitario
PRODESA	Fundación para la Promoción y el Desarrollo
RAAN	Región Autónoma del Atlántico Norte
SESSAN	Secretaría de Seguridad y Soberanía Alimentaria Nacional
SGRs	Sociedades de Garantías Recíprocas
SIBOIF Nicaragua	Superintendencia de Bancos y otras Instituciones Financieras de
SINAP	Sistema Nacional de Áreas Protegidas
SITRADE	Sistema integrado de Trámite de Exportaciones
SME	Small- and medium-sized enterprises
SNV	Netherlands Development Organisation
SOW	Scope of Work
SPAR	Sector Público Agropecuario Rural
SPS	Sanitary and Phytosanitary Standards
UCA	Universidad Centroamericana
UCC	Universidad de Ciencias Comerciales
UCOSEMUN	Unión de Cooperativas de Servicios Múltiples del Norte
UNA	Universidad Nacional Agraria
UNAG	Unión Nacional de Agricultores y Ganaderos
UNAN	Unión Nacional Autónoma de Nicaragua
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNWFP	United Nations World Food Programme
UPANIC	Unión de Productores Agropecuarios de Nicaragua
UPOLI	Universidad Politécnica de Nicaragua
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
VCF	Value Chain Finance
WEF	World Economic Forum

PREFACE

This study is the product of the efforts of Robert S. Landmann, Team Leader, Financial Specialist Alexander Shapleigh, and Agri-Business Specialists Charles Smith, III and Fausto Medina. Tatiana Prada of SEGURA Consulting was instrumental in providing key home office backstopping support, ably assisted by Patricia Muñoz. Maritza Baltodano was indispensable in coordinating our activities in Nicaragua and opening doors.

Many other colleagues contributed to the completion of this report, among them: Tracy Quilter, Team Leader from the USAID Latin America and Caribbean (LAC) Bureau / Broad Based Economic Growth (BBEG) Team, who provided feedback and guidance; BBEG Senior Program Specialist Dr. Kerry Byrnes, who gave valuable insights and direction with good humor and a critical eye; and Food Security Advisor Alice Brooks also provided important input. Mission Director Norma Parker at the USAID Mission in Nicaragua played a pivotal role in supporting the study, making herself readily available and offering information and insight. Aurora Bolaños was also key, never hesitating to respond to the team's needs for logistical support. Special thanks go to Lilliam Baez, Daniel Handel, and Julio Terán from the Economic Growth Office at USAID/Nicaragua, who always responded quickly and thoroughly to our requests for assistance with grace and humor, no matter how unreasonable they were. Doug Sheldon and Joe Goodwin from USAID gave us good counsel and useful insights for which we are very grateful. Finally, thanks go to all those in the agribusiness chains, business associations, cooperatives, financial institutions, and government agencies who gave generously of their time and knowledge. Their input, along with survey responses from small producers, provided essential information and feedback. They are too numerous to name here, but are listed in the Persons Interviewed Appendix.

Staff at SEGURA Consulting also played an important role in the study: Jorge Segura offered guidance, insight, and advice, and Nicolas Segura and Marius Virsilas provided essential administrative and logistical support.

EXECUTIVE SUMMARY

Despite the impressive growth rates of the Latin American economies during the ten-year period leading up to the global economic crisis that began in 2008, distribution of the newly created wealth was not significant, irrespective of poverty rates declining by 10%.¹ According to the World Bank, 683 million people continue to live on less than \$1.25 per day,² not enough to acquire adequate food supplies, let alone to ensure a balanced and nutritious diet. Indeed, in Latin America and the Caribbean, 53 million people are classified as chronically hungry.³ The situation had become so dire by 2008, that the Obama administration created the Feed the Future (FTF) initiative to address food security issues on a global basis. This initiative could not have been more timely in Nicaragua, where poverty rates remain the highest in Central America, reaching 48% nationally and 68% in the rural areas.⁴

In response to this situation, USAID contracted SEGURA Consulting to examine the impact of constraints to a stronger enabling environment for the agribusiness sector. Nicaragua has been selected as the second of a series of country studies in Central America to identify and examine the key impediments to a more favorable climate for conducting agribusiness, and to develop a set of detailed recommendations for the USAID Mission on alternative strategies and interventions to strengthen the agricultural and agribusiness sectors. The focus of the assessment is on food security, especially improved access to food through the poor having increased incomes to be able to afford purchasing sufficient and more nutritious foods.

The study examines not only the key policy, regulatory, institutional, and natural barriers to the creation of a hospitable environment for the agribusiness sector, but analyzes them within the political, social, and cultural contexts that shape the attitudes and behaviors that impact production, processing, packaging, and marketing of agricultural products along the value chain. The particular focus of the assessment is on small producers, many of whom are indigenous people and women, and most of whom are poor. These constitute the most vulnerable populations who are the focus of the Feed the Future initiative that is providing assistance to help meet the food security needs of Nicaragua, especially in the country's North Central region.

Figure 1 in the Introduction section, shows the role of the constraints to doing agribusiness in relation to the components of food security, and how improving productivity and incomes and generating jobs along the value chain are essential to expanding access to nutritious foods. It also illustrates the USAID Mission's role within the framework of the FTF initiative, and how its support to small producers is vital to promoting greater food security in Nicaragua.

¹ Economic Commission for Latin America and the Caribbean (ECLAC) as cited in Latin American Poverty Rises, www.latinbusinesschronicle.com.

² www.goworldbank.org.

³ *Ibid.*

⁴ *Ibid.*

A. PRINCIPAL FINDINGS

Political, Policy, and Institutional Framework

- The Government of Nicaragua (GON) is highly politicized and this has an impact on the agribusiness sector.
- While some policy instability exists, there is mostly policy uncertainty, characterized to some extent by political rhetoric that is not consonant with many policy and institutional actions.
- The government is centralized and extremely hierarchical in its decision-making, making already weak public institutions even more ineffective.
- There is basically no system of checks and balances, with power being concentrated in the executive branch.
- There is widespread judicial uncertainty which discourages greater foreign and domestic investment.
- The civil service is weak, undercut in large measure by excessive patronage and arbitrary decisionmaking based on political and personal interests.

Market Access and Competitiveness

- Significant institutional and technical weaknesses affect the GON's capacity to perform effectively its public goods functions in agricultural research, technical assistance, and Sanitary and Phytosanitary (SPS) services.
- As a result, private sector organizations have taken an increasing role in providing technical and market assistance to affiliated small and medium-sized producers, but the resources of these organizations are limited.
- Micro and small producers are particularly affected by lack of access to finance, affordable inputs, technology, and market opportunities, which restrict their productive and income potential.
- Small producers have limited capacity to join higher-level value chains.
- Anchor or lead companies play a critical role in linking small producers into value chains and providing them technical assistance, market access, and increased value-added opportunities.
- While there is a need for greater *asociatividad*, cooperatives are not considered by exporters and anchor firms to be uniformly reliable in producing quality crops. There is a tendency for many, though not all, to produce to the lowest common denominator.

- Despite being endowed with ample resources (e.g., land) and clear comparative advantages for agricultural production, the Nicaraguan agribusiness sector is the most decapitalized and has the lowest productivity in Central America.
- Deficiencies in human capital development are the key determinant in low labor productivity and under-employment in the rural areas.
- Increasing openness of the Nicaraguan economy has brought about new market opportunities flowing from trade and investment agreements, but small producers are not well-prepared to take full advantage of them due to lack of product diversification and weak entrepreneurship.
- Cultural traditions have impeded development of an entrepreneurial mentality among small farmers, impeding their understanding of how markets work and how to meet shifting market demand.
- The GON has in place medium-term national and agribusiness strategies, but they lack policy tools for their implementation and a long-term vision.
- Most of the GON's development programs rely heavily on official development assistance, which impacts unfavorably on program continuity and sustainability.
- The lack of *acopios*—storage facilities—is a key constraint to production and availability of food crops at the local, regional, and international levels. Public-private partnerships are helping to alleviate the problem, but more needs to be done.
- Nicaragua lags behind other countries in the region, such as Costa Rica and Guatemala, in branding its products.

Credit, Finance, and Investment

- Government financial sector policy is firmly centered on strict and prudent regulation and supervision of the country's commercial banks, finance companies and other *regulated* financial institutions, to protect depositors and to avoid any recurrence of preventable bank failures.
- Rigorous supervision remains the top priority. At the same time, Nicaragua has moved forward on a range of policies aimed at broadening access of financial services to low-income individuals and businesses, in urban as well as rural/agricultural areas.
- There are two significant gaps in core legislation related to *non-regulated* institutions. One is the absence of a comprehensive law and regulatory framework for microfinance institutions. The other concerns weaknesses in the regulation of savings and loan cooperatives—also referred to as “financial cooperatives.”

- Available data indicates that \$279.2 million or 14.2% of commercial bank credit is for agricultural activities, compared to agriculture's 17.5% of GDP (2010 figures).
- Value Chain Finance (VCF): Various forms of VCF are already in use by Banpro and Lafise—the two commercial banks most engaged in providing agricultural credit.
- The Law on Reciprocal Guarantee Companies (SGRs) holds great promise for resolving insufficient micro, small and medium enterprise (MSME) credit collateral through cross-guarantees of credits by SGR members.
- Nicaragua has not yet passed a comprehensive secured transactions law (collateral law covering all forms of movable property). A draft law is before the National Assembly.
- The perceived and real constraints to bank lending to small producers include weak producer associations/cooperatives, insufficient integration into value chains, the need for more reliable forms of collateral and/or third-party guarantees, and rigid Superintendencia de Bancos y Otras Instituciones Financieras de Nicaragua (SIBOIF) criteria for agricultural credits.
- The impacts of Alba-Caruna, the lending institution owned in part by the President's family and supported in part by an arrangement with Venezuela, on the financial sector are already being felt. For example, direct loans to large and medium agro-enterprises are a source of competition for the commercial banks. The enormous size of the new Alba-Caruna is what lies behind the IMF insistence that the regulations on all financial cooperatives be tightened.
- Up to 50% of small producer farms have insecure land tenure. There is a large volume of still unresolved "double-registry" cases.
- Crop insurance currently covers less than 1% of cultivated land. The joint government-private sector "Comité de Seguro Agropecuario," led by MAGFOR, is seeking practical solutions to increase crop insurance availability.

Climate Change

- The El Niño and La Niña phenomena are more frequent and severe and have been causing prolonged droughts.
- Global warming is damaging coffee crops and pushing more producers into higher altitudes as a way of mitigating damage.
- Growing deforestation is degrading watersheds and soils, making it more difficult for small producers, whose options are limited, to produce quality crops.
- The national agricultural technology institute (INTA) is working on better seeds, including hybrids, but not seeds that are resistant to droughts and excessive rainfall.

- INETER, the national weather service institute, does not produce adequate mid-range forecasts to help producers decide on which seed to use.

Infrastructure

- Rural and access roads are in a state of disrepair, which results in additional costs to small producers who suffer delays in getting their crops to exporters on a timely basis.
- The absence of a port on the Caribbean impedes cheaper and quicker access to the U.S. and European markets.
- There is a wide spread lack of storage facilities, especially cold storage.
- The Puerto de Corinto needs upgrading and expansion in order to expedite exports.

B. CONCLUSIONS

Political, Policy, and Institutional Framework

- While the macroeconomic policy climate is stable, and the overall legal framework reportedly favorable to business, the institutional capacity of the GON is generally inefficient, weak, politicized, and corrupt.
- There are, however, some government agencies that function relatively effectively, including the food safety and certification agency (DGSPA), the Rural Development Institute (IDR), and the grains storage service (ENABAS) in the Ministry of Agriculture and Forestry. Still, even these entities are not immune to the overall politicization of public institutions.
- The GON has expressed the desire to promote more efficient and profitable agribusiness, especially as expressed in the recently introduced PNAIR plan. However, the lack of action to streamline decision making and professionalize and strengthen implementing institutions reveals a fundamental inconsistency between words and deeds.
- This is reflected to a great extent by a plethora of plans and a paucity of results. Specific impacts of the weak institutional environment on constraining agribusiness will be documented in the following chapters with respect to the key impediments to conducting agribusiness in Nicaragua.

Market Access and Competitiveness

- The Nicaraguan agribusiness sector is not performing at the level of its production and export potential, but is still doing relatively well, despite some weaknesses in government agency support in the areas of technology development, technical assistance, and SPS services. Well-focused institutional strengthening, including additional human and

financial resources, especially in the context of public-private partnerships, hold the potential to yield high returns to the sector.

- The prevalence of low productivity levels, traditional technologies, little to no product diversification, and limited higher value-added crops in the sector are mainly due to those deficiencies in the provision and adaptation of new technologies.
- The lack of entrepreneurial skills among micro and small producers has reduced productivity and income potential, resulting in widespread poverty and food insecurity in rural areas.
- Lack of opportunities in the agribusiness sector has been driving many micro and small producers to neighboring countries to seek better employment and income opportunities, frequently leaving behind women who are not able to farm the small plots of land that lay fallow. This increases rural poverty and food insecurity.
- Nicaraguan micro and small producers substantially benefit when they join producer associations, cooperatives, or other similar organizations, which allows them to achieve economies of scale in accessing inputs, technologies, finance, and marketing services.
- Fostering *asociatividad* among small producers is a key factor in connecting micro and small producers to markets and services which, in turn, improves their incomes and standard of living.
- Given the lack of qualified personnel in government agencies, as well as constricted resources, private sector institutions have become a critical instrument in providing services not offered by weak and underfunded public agencies.
- The government's national and agribusiness strategic and policy frameworks are quite ambitious in their stated goals and targets, but lack substance with regard to their operationalization.
- The GON's high reliance on donor funding for implementation of the goals set forth in the various agricultural development plan makes them highly vulnerable to changing donor priorities and the subsequent availability of resources.

Credit, Finance, and Investment

- Inadequate access to credit, finance, and investment is a significant factor impeding the growth of the agribusiness sector in Nicaragua, particularly the expansion of smallholder production of high-value export crops.
- Overall, current policy incorporates a balanced view of the complementary roles of the government and the private sector in credit expansion. There is a clear recognition that

mainstream credit via the commercial banks and other private providers is essential, with gaps to be filled as needed and possible by government funds.

- There is an emerging consensus that the most promising long-term solutions to credit access for small producers will be through different models of “value chain finance” and innovative agricultural finance products.
- The agribusiness associations are key players in building alliances with commercial banks, financial cooperatives, Banco Produzcamos, and microfinance institutions aimed at finding solutions for the different agribusiness finance challenges facing each agricultural subsector.
- As a group, a key issue in expanding commercial bank agricultural credit will be the degree of competition among the banks. Healthy competition among the banks is essential for the development and expansion of the credit markets, and this issue will need to be closely watched.
- The size of the microfinance industry in Nicaragua has precipitously contracted over the past two to three years. The MFIs are still in recovery mode, with much riding on the passage of the new Law on Microfinance Institutions.
- Property disputes and insecure land tenure are serious impediments to Nicaraguan agribusiness activity. Without clear land titles, owners have disincentives to invest in land and infrastructure improvement, and financial institutions are unable to count on land as real collateral against working capital or investment loans.
- Implementation of the SGR law, adoption of the microfinance law as well as a new secured transactions law, and the design of practical crop insurance products can go a long way toward expanding credit to MSMEs.

Climate Change

- Climate change and the GON response to climate change have had a significant and pervasive effect on agriculture in Nicaragua. These effects have impacted large and small producers as well as private companies dedicated to the processing and export of agricultural commodities.
- It is clear that Nicaragua will increasingly be affected by climate change and that action to reduce greenhouse emission, although helpful, will have a limited effect on climate change impacts. As a result, the GON will need to undertake measures focusing on water conservation and management, including irrigation.
- Deforestation is exacerbating the water management issue because it reduces that capacity of the land to hold water in the watersheds and to percolate the water down

to underground aquifers. Therefore, any water management system (drainage, catchment storage, and irrigation) is jeopardized by the lack of water in watersheds and aquifers.

- The El Niño and La Niña effects have resulted in smaller yields and lower quality coffee, which decreases the volume of coffee exports and the incomes of coffee producers.
- It will become increasingly more difficult for Nicaragua to produce coffee at elevations below 1,000 meters (currently most coffee is produced between 600 and 800 meters) due to the impact of global warming.

Infrastructure

- Good quality rural roads are among the best strategies for achieving a reduction in rural poverty, as they are essential for transporting crops and inputs, as well as giving micro and small producers increased and sustainable opportunities to sell to local, regional, and export markets as a vehicle for generating income and ensuring food security for themselves and their families.
- The lack of an adequate international port on the Caribbean coast has a significant, measurable cost that Nicaraguan exporters and importers incur. These added costs as well as the reduced demand for Nicaraguan products in international markets impact producers through reduced competitiveness, lower incomes, and greater food insecurity.
- Construction of an adequate port facility on the Caribbean coast would be a productive investment that could yield significant returns for producers, small and large. A public-private partnership could be a feasible and desirable arrangement for the construction and/or management of the facility.
- Access to electric power and its high cost are both significant constraints to the Nicaraguan agribusiness sector.
- Without adequate GON response, the cost for processing as well as irrigation will result in declining competitiveness.
- The rural electrification program has very optimistic targets for the extension of electric coverage in rural areas and there is an agreement between MEM and Gas Natural Fenosa to implement the program to achieve the goals. The lack of public cold storage facilities in the agricultural regions of Nicaragua as well as in the seaports has affected not only the quality of crops, milk, and seafood but also the food safety of these products, due to increasing levels of bacteria. Without public and/or private investment in cold storage facilities to ensure food safety of perishable goods, Nicaraguan producers will continue to be unable to maximize sales in both local and external markets, depressing food availability and profits.

C. RECOMMENDATIONS

Given the nature and scope of the issues that have been examined, it will be necessary to offer two sets of recommendations: operational and strategic. Operational recommendations are more immediate, manageable, and achievable, at least in the short term. Strategic recommendations focus on actions that are longer term and more challenging, especially those that involve policy and institutional reform. Many pose difficult problems that require solutions that will doubtless be subject to intense political debate. Yet they cannot be ignored if real, sustained reform is to be achieved and the enabling environment for agribusiness improved. Formulating and implementing strategies to confront these issues will require close cooperation by the various international donor agencies. Neither USAID nor any donor institution alone will be able to achieve sustainable results in addressing all the strategic issues.

Given the Mission's limited resources, Table I lists the recommendations in priority order by constraint, recognizing that relatively few will be actionable over the next two to three years. Detailed information on each recommendation may be found in the Recommendations section of the report.

TABLE I. OPERATIONAL AND STRATEGIC RECOMMENDATIONS BY CONSTRAINT IN PRIORITY ORDER

CONSTRAINT	RECOMMENDATION
Political, Policy, and Institution Framework - Strategic	
Policy inconsistency, judicial uncertainty, and institutional inefficiency and politicization	Seek to develop and implement joint donor technical assistance and training initiatives for the GON focusing on institutional strengthening, professionalization of the civil service, and creating mechanism to ensure greater transparency
Market Access and Productivity - Operational	
Lack of access to markets, crop certification, and extension services	Promote top-down value chains – i.e., based on demand from the top down through all activities in the chain to the producer – and strengthen <i>asociatividad</i>
Lack of technical knowledge and crop diversification	Expand TA and training to small producers through existing projects and replicate successes Strengthen technology/innovation - institutions
Inadequate GON services	Develop and expand public-private partnerships to expand technical, training, and information services to small producers
Lack of country and product branding	With key sectoral associations, develop and implement country and product branding strategies to promote selected Nicaraguan exports such as coffee and bean
Lack of knowledge of how to take advantage of CAFTA-DR (and other treaties)	Conduct awareness/training workshops
Market Access and Productivity - Strategic	
Lack of coherent and manageable competitiveness	Support joint public-private development and implementation of coherent and manageable strategy for the agribusiness sector
Weak rural human capital base	Support expansion of vocational education
Credit, Finance, and Investment - Operational	
Lack of small producer access to credit	Design and implement comprehensive value chain initiative led by private sector on supply side (financial institutions) and demand side (agribusiness chains) Design and implement new DCA agreements with 3-4 commercial banks aimed at guarantees backing value chain finance Support approval and operationalization of proposed Microfinance Institutions Law, and Moveable Collateral and Reciprocal Guarantee Companies legislation Encourage improved regulation of financial cooperatives
Risk of Crop failure	Within the Ministry of Agriculture, promote agricultural insurance
Credit, Finance and Investment - Strategic	
Unclear land tenure	Promote expansion of land titling initiative such as the World Bank PRODEP project and the completed MCA program

CONSTRAINT	RECOMMENDATION
<i>Climate Change - Operational</i>	
Lack of irrigation	Develop and implement water management and capture systems
Deforestation	Develop watershed conservation efforts that include forest conservation and reforestation
Climate event impacts	Promote agricultural meteorological forecasting and research, including linkages with SERVIR.net and NOAA
<i>Climate Change - Strategic</i>	
Climate event impacts	Encourage GON participation in regional and international climate change treaties
<i>Infrastructure - Operational</i>	
Poor secondary and access roads	Develop project with MT to work with municipalities to rehabilitate and maintain roads
Lack of cold storage facilities	Develop projects to install cold storage facilities in key regions: coordinate with IDB and/or CABEL to acquire financing
Lack of port on Caribbean coast	Conduct feasibility study for construction of a port at Monkey Point
<i>Infrastructure - Strategic</i>	
Lack of PPP enabling legislation	Support GON in design of enabling legislation to promote and regulate PPPs for infrastructure construction and management

I. INTRODUCTION

A. BACKGROUND

Despite the impressive growth rates of the Latin American economies during the ten-year period leading up to the global economic crisis that began in 2008, distribution of the newly created wealth was not significant, irrespective of poverty rates declining by 10%.⁵ According to the World Bank, 683 million people continue to live on less than \$1.25 per day⁶, which is not enough to acquire adequate food supplies, let alone to ensure a balanced and nutritious diet. Indeed, in Latin America and the Caribbean, 53 million people are classified as chronically hungry.⁷ The situation had become so dire by 2008 that the Obama administration created the Feed the Future (FTF) initiative to address food security issues on a global basis. This initiative could not have been more timely in Nicaragua, as poverty rates remain the highest in Central America, reaching 48% nationally and 68% in the rural areas.⁸

In response to this situation, USAID contracted SEGURA Consulting to examine the impact of constraints to a stronger enabling environment for the agribusiness sector. Nicaragua has been the second of a series of country studies in Central America to identify and examine the key impediments to a more favorable climate for conducting agribusiness, and to develop a set of detailed recommendations for the USAID Mission on alternative strategies and interventions to strengthen the agricultural and agribusiness sectors. The focus of the assessment is on food security, especially improved access to food through the poor having increased incomes to be able to afford purchasing sufficient and more nutritious foods.

The study examines not only the key policy, regulatory, institutional, and natural barriers to the creation of a hospitable environment for the agribusiness sector, but analyzes them within the political, social, and cultural contexts that shape the attitudes and behaviors that impact the production, processing, packaging, and marketing of agricultural products along the value chain. The particular focus of the assessment is on small producers, many of whom are women, and most of whom are poor. They constitute the most vulnerable populations who are the focus of the FTF initiative that will be providing assistance to help meet the food security needs of Nicaragua, especially with a geographic focus on the poor in the country's North Central region.

⁵ Economic Commission for Latin America and the Caribbean (ECLAC) as cited in Latin American Poverty Rises, www.latinbusinesschronicle.com.

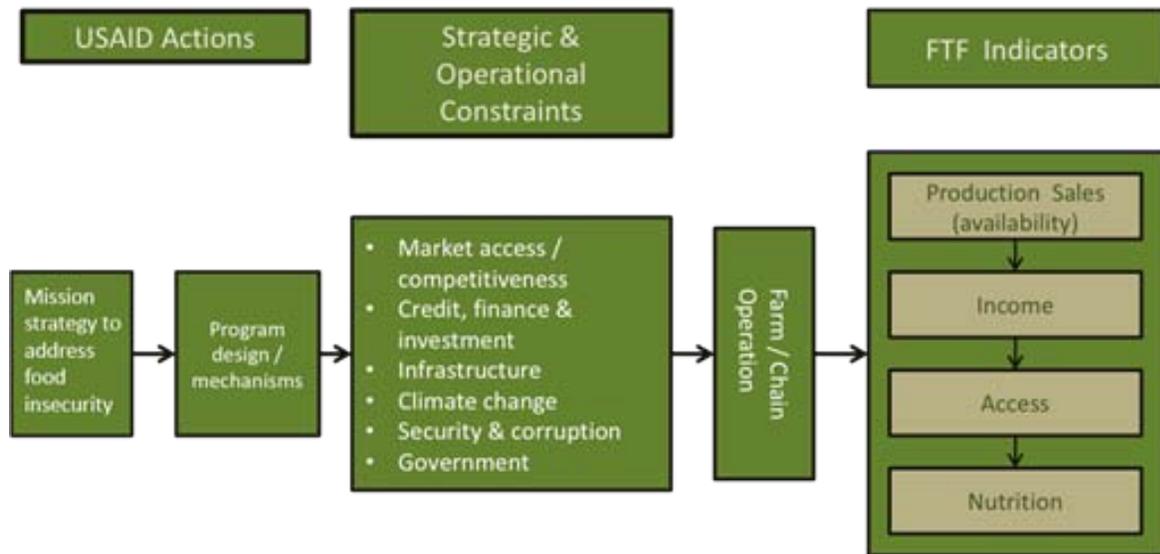
⁶ www.goworldbank.org.

⁷ *Ibid.*

⁸ *Ibid.*

This study’s conceptual framework is depicted in the Figure I below. It shows the role of the constraints to doing agribusiness in relation to the components of food security, and how improving productivity and incomes and generating jobs along the value chain are essential to expanding access to nutritious foods. It also illustrates the USAID Mission’s role within the framework of the FTF initiative, and how its support to small producers is vital to promoting greater food security in Nicaragua.

FIGURE I. CONCEPTUAL FRAMEWORK



As part of the study, SEGURA Consulting also developed and is implementing an assessment approach, or methodology, that can be replicated for the subsequent analyses. The approach will be used to conduct a comprehensive examination of the agribusiness sector and the business climate in which it operates, identifying first-hand the obstacles to enhancing a more supportive policy, regulatory, and institutional environment and measuring their impacts.

The study will examine cross-cutting issues as well, including gender, poverty, and food security. In addition, a separate report will be prepared that looks at regional concerns that have been identified in the course of the country studies.

B. OBJECTIVES

The overall objective of the Doing Agribusiness in Latin America and the Caribbean (LAC) Assessment is to conduct a comprehensive review of the agribusiness sector in FTF focus countries, including Nicaragua (as an FTF-aligned country)⁹.

⁹ See “Feed the Future Guide,” USAID, loc. cit.

The second objective is to prioritize recommendations for the USAID Mission on policy, regulatory, and institutional reforms that will enhance the agriculture and agribusiness enabling environment in each country.

The third objective is to prepare a cross-cutting regional assessment to address the key constraints to doing agribusiness common to the Central American region.

The fourth objective of the study is to promote informed dialogue among the key stakeholders as a way to promoting consensus on needed reforms.

The fifth objective is development and application of the assessment methodology.

The purpose of the study is to provide the Mission with empirical information to assist in designing country strategies and programs to address critical rural and economic development, food security, gender, poverty reduction, and climate change issues.

C. ASSESSMENT MODEL AND METHODOLOGY

The methodology for this assessment is based, in part, on the AgCLIR and BizCLIR¹⁰ instruments, but also draws from proven methodological approaches, including structural-functional analysis and content analysis. Unlike the World Bank Doing Business index that is used to assess and rank business climates, and from which the CLIRs—i.e., “Commercial, Legal and Institutional Reforms”—are derived, the approach taken by SEGURA to implementing the SOW does not rely solely on a set of pre-established indicators. Rather, the methodology seeks to identify current barriers to doing business on the ground by highlighting, examining, and verifying those issues that entrepreneurs and producers are directly experiencing and consider to be critical impediments to a more effective business climate. At the same time, having identified what the value chain stakeholders (producers, processors, and exporters) are running into as obstacles to conducting agribusiness, the SEGURA team analyzes whether those obstacles are actually key constraints or symptomatic of underlying causes in the institutional and policy environment.

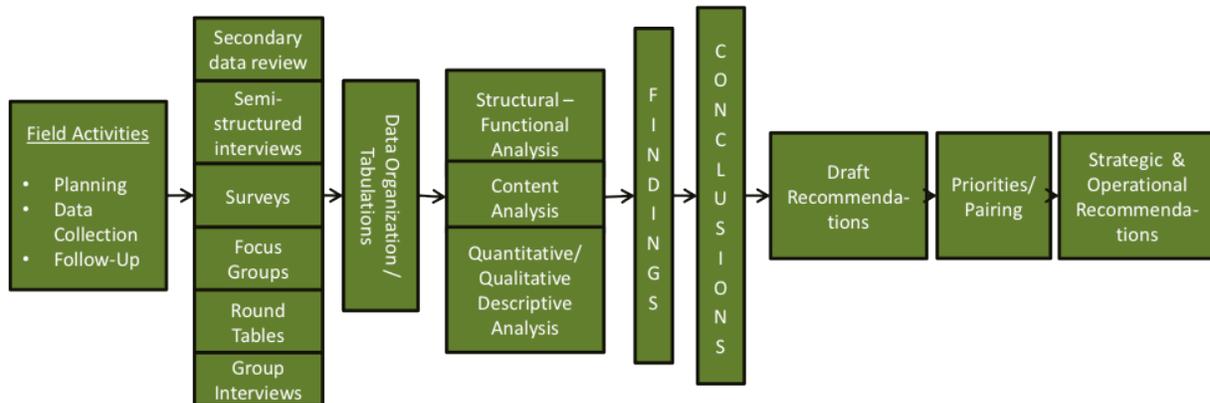
Figure 2 below depicts the methodological model and shows the specific methodological and analytical techniques used:

- The methodological techniques included semi-structured personal interviews following a set protocol with the key actors in the production/value-added chain, with particular focus on small producers and processors, representatives of NGOs, financial industry and private sector associations, and government officials, as well as selected donor agencies

¹⁰ AgCLIR and BizCLIR are assessment tools that were developed for USAID and have been used in different parts of the developing world to identify and analyze respectively constraints to the enabling environment for doing agribusiness and business in general.

- A mixed closed- and open-ended survey of a purposive sample of producers
- A focus group including producers and representatives from private sector associations, think tanks, cooperatives, and export companies
- A workshop or round table with a cross-section of individuals who were interviewed to validate findings

FIGURE 2. METHODOLOGICAL MODEL



The analytical techniques employed were:

- qualitative and quantitative descriptive analysis
- content analysis
- structural-functional analysis

The approach does not seek to score countries subjectively on specific indicators as the purpose is not to make country comparisons but rather to provide a complete picture of local issues, permitting USAID missions to have access to a range of information that can be used in developing strategies and designing programs. By the same token, that information will assist the Mission in developing benchmarks by which to measure the continued relevance of its program objectives and progress in implementing overall strategies on an annual basis, serving to guide any necessary adjustments in activities and approaches. The planning phase included an extensive literature review as well as analysis of documents and secondary data. This was followed by the field work that included a survey, which provided a larger body of information based on direct respondent experiences at the producer and value-chain levels with respect to impediments faced by the agribusiness sector. Personal interviews complemented the survey. In addition, a focus group served as a forum for dialogue on and reaction to selected issues that were identified in the course of the interviews and surveys. Lastly, a roundtable with selected respondents validated the research findings and conclusions.

Based on the issues/themes identified by the data collection and analysis, the report presents those issues in the context of three thematic areas: (1) policy, legal, and regulatory environment; (2) implementing institutions; and (3) supporting institutions such as NGOs, private sector associations, universities, and others. In addition, the SEGURA approach begins with a political, socio-cultural and macroeconomic overview, providing at the outset an overall framework in which the issues can best be understood and interpreted. The report also defines the interrelationships between and among the key independent variables, showing how they impact each other. This is essential to developing strategies that take into account the effects of program interventions in one area on other critical variables, thereby creating a multiplier effect and/or avoiding unintended consequences.

Finally, it is important to underscore the fact that this report deals only with the obstacles to creating a more favorable climate for business in the agricultural sector. Other studies on agriculture in Nicaragua have addressed complementary issues in a broader food security context and will only be touched upon tangentially in the course of the analysis. For example, the FTF Implementation Plan—developed by each of the three Central American Missions to guide FY 2010 investments in support of FTF—provides a wealth of information that, to varying degrees or indirectly, addresses some of the issues examined in this report.¹¹ Yet other analyses deal more directly with the business climate for agriculture in Nicaragua, such as the FUNIDES report on rises in food prices¹², which explores and confirms many of the findings identified in this report.

D. OPERATIONAL DEFINITION

For the purposes of this report, the term “agribusiness” is defined as the production, transformation, processing, packaging, transportation, financing, marketing, and/or sale of agricultural products. It does not include aquaculture or forestry.

E. CAVEATS

Despite repeated attempts to arrange for meetings, including letters from the USAID Director, it was not possible to interview some public officials. While the reviews of documents, data, and Web sites produced a substantial amount of information, the ideal would have been to supplement it with more extensive personal interviews than the Segura team unfortunately was not able to have. In a similar vein, the response rate to the questionnaires for the survey of producers was not as high as would have been desirable—77 respondents returned completed questionnaires. But the consensus of the responses, combined with universal agreement on the issues from the personal interviews, as well as validation from the workshop and focus group, show strong patterns that support the findings and conclusions.

¹¹ “Feed the Future Guide, May 2010,” Feed the Future, U.S. Government.

¹² “Alza en el precio de los alimentos,” a report prepared by FUNIDES, Managua, 2008.

II. KEY QUESTIONS

The basic question to be answered in this study is what are the key business environment constraints faced by the agribusiness sector and what has been their impact on small producers in particular. Specific inquiries include:

- Which issues are of greatest concern to producers, companies and cooperatives in doing agribusiness and improving their incomes and profit margins? What has been the role of the government in promoting a more favorable climate for agribusiness?
- What policies and programs have been put in place to deal with the issue?
- What have been the results?
- What have been the principal reasons for successes/failures?
- Which institutions have been most involved and effective in managing the environment for doing agribusiness?
- What have been the major obstacles they have faced in carrying out their respective mandates?
- How have the constraints faced by the agribusiness sector affected producers, cooperatives and companies involved in the value chain?
- What has been the role of the private sector, specifically agricultural/agribusiness associations, in dealing with the constraints to a stronger business enabling environment?
- What have been the results, and what has accounted for the attendant successes/failures?
- What kinds of mechanisms are in place to promote private-public sector dialogue and cooperation? How well have they functioned?
- What has been the role of international donors in strengthening the climate for doing agribusiness?
- What has been the focus on women in developing and implementing measures to improve the climate for conducting agribusiness?
- How and in what ways have women and indigenous people been able to participate in the production/value chain?
- How has climate change impacted agricultural production?

III. PRINCIPAL FINDINGS

Political, Policy, and Institutional Framework

- The GON is highly politicized and this has an impact on the agribusiness sector
- While some policy instability exists, there is mostly policy uncertainty, characterized to some extent by political rhetoric that is not consonant with many policy and institutional actions
- The government is centralized and is extremely hierarchical in its decision-making, making already weak public institutions even more ineffective
- There is basically no system of checks and balances, concentrating power in the executive branch
- There is widespread judicial uncertainty which discourages greater foreign and domestic investment
- The civil service is weak, undercut in large measure by excessive patronage and arbitrary decision-making based on political and personal interests

Market Access and Competitiveness

- Significant institutional and technical weaknesses affect the GON's capacity to perform effectively its functions in the areas of agricultural research, technical assistance, and Sanitary and Phytosanitary (SPS) services.
- As a result, private sector organizations have taken an increasing role in providing technical and market assistance to affiliated small and medium-size producers, but the resources of these organizations are limited.
- Micro and small producers are particularly affected by lack of access to finance, affordable inputs, technology, and market opportunities, which restrict their productive and income potential.
- Small producers currently have limited capacity to join higher-level value chains.
- Anchor or lead companies play a critical role in linking small producers into value chains and providing them technical assistance, market access, and increased value-added opportunities.
- While there is a need for greater *asociatividad*, cooperatives are not considered by exporters and anchor firms to be uniformly reliable in producing quality crops. There is a tendency for many, though not all, to produce to the lowest common denominator.

- Despite being endowed with ample resources and clear comparative advantages for agricultural production, the Nicaraguan agribusiness sector is the most decapitalized and has the lowest productivity in Central America.
- Deficiencies in human capital development are the key determinant in low labor productivity and under-employment in the rural areas.
- Increasing openness of the Nicaraguan economy has brought about new market opportunities flowing from trade and investment agreements, but small producers are not well- prepared to take full advantage of them due to lack of product diversification and greater entrepreneurship.
- Cultural traditions have impeded development of an entrepreneurial mentality among small farmers, impeding their understanding of how markets work and how to meet shifting market demand.
- The GON has in place medium-term national and agribusiness strategies, but they lack policy tools for their implementation and a long-term vision.
- Most of the GON's development programs rely heavily on official development assistance, which impacts on program continuity and sustainability.
- The lack of *acopios*—storage facilities—is a key constraint to production and availability of food crops at the local, regional, and international levels. Public-private partnerships are helping to alleviate the problem, but more needs to be done.
- Nicaragua lags behind other countries in the region, such as Costa Rica and Guatemala, in branding its products.

Credit, Finance and Investment

- Government financial sector policy is firmly centered on strict and prudent regulation and supervision of the country's commercial banks, finance companies and other *regulated* financial institutions, to protect depositors and to avoid any recurrence of preventable bank failures.
- Rigorous supervision remains the top priority. At the same time, Nicaragua has moved forward on a range of policies aimed at broadening access of financial services to low-income individuals and businesses, in urban as well as rural/agricultural areas.
- There are two significant gaps in core legislation related to *non-regulated* institutions. One is the absence of a comprehensive law and regulatory framework for microfinance institutions. The other concerns weaknesses in the regulation of savings and loan cooperatives—also referred to as “financial cooperatives.”

- Available data indicates that \$279.2 million or 14.2% of commercial bank credit is for agricultural activities, compared to agriculture's 17.5% of GDP (2010 figures).
- Value Chain Finance (VCF): Various forms of VCF are already in use by Banpro and Lafise—the two commercial banks most engaged in agricultural credits.
- The Law on Reciprocal Guarantee Companies (SGRs) holds great promise for resolving insufficient MSME credit collateral through cross-guarantees of credits by SGR members.
- Nicaragua has not yet passed a comprehensive secured transactions law (collateral law covering all forms of movable property). A draft law is before the National Assembly.
- Ley de Moratoria: No one now favors a repeat of such debt recovery laws, including the government that will strive to protect the new state development bank from future non-payment movements.
- The perceived and real constraints to bank lending to small producers include weak producer associations/cooperatives, insufficient integration into value chains, the need for more reliable forms of collateral and/or third-party guarantees, and rigid SIBOIF criteria for agricultural credits.
- The impacts of Alba-Caruna, the lending institution owned in part by the President's family and supported in part by an arrangement with Venezuela, on the financial sector are already being felt. For example, direct loans to large and medium agro-enterprises are a source of competition for the commercial banks. The enormous size of the new Alba-Caruna is what lies behind the IMF insistence that the regulations on all financial cooperatives be tightened.
- Up to 50% of small producer farms have insecure land tenure. There is a large volume of still unresolved "double-registry" cases.
- Crop insurance currently covers less than 1% of cultivated land. The joint government-private sector "Comité de Seguro Agropecuario," led by MAGFOR, is seeking practical solutions to increase crop insurance availability.

Climate Change

- The impacts of the El Niño and La Niña phenomena are more frequent and severe and cause longer droughts.
- Global warming is damaging coffee crops and pushing more producers into higher altitudes as a way of mitigating damage.
- Growing deforestation is degrading watersheds and soils, making it more difficult for small producers, whose options are limited, to produce quality crops.

- The national agricultural technology institute (INTA) is working on better seeds, including hybrids, but not seeds that are resistant to droughts and excessive rainfall.
- INETER, the national weather service institute, does not produce adequate mid-range forecasts to help producers decide on which seed to use.

Infrastructure

- Rural and access roads are in a state of disrepair and result in additional costs to small producers who suffer delays in getting their crops to exporters on a timely basis.
- The absence of a port on the Caribbean impedes cheaper and quicker access to the U.S. and European markets.
- There is a widespread lack of storage facilities, especially cold storage.
- The Puerto de Corinto needs upgrading and expansion in order to expedite exports.

IV. ANALYSIS

A. POLITICAL AND SOCIO-CULTURAL CONTEXT

The political culture of Nicaragua traditionally has been characterized by authoritarianism, clientelism, and personalism. With the exception of the first Sandinista government, a privileged economic class has existed that has been allied, if not always outwardly, with the political class that has conceded to it a favored economic position. As elsewhere in Latin America, this was both a cause and effect of protected and monopolistic economies in which businesses did not feel compelled to develop a capacity to compete in an open market.

While globalization of the economy and negotiation of free trade agreements changed the rules of the game, forcing the privileged economic class to take steps to become more competitive, most of the old clientelistic relationships still exist and small producers in the rural areas continue to face a series of obstacles to improving their production, productivity, and profitability. Nevertheless, as will be seen, some notable improvements have been made and more small producers are diversifying their crops to be able to respond successfully to shifting market demands.

At the core of the larger national socio-cultural value framework is the collection of institutional actors that either are directly involved with agribusiness or affect its activities at the national, value-chain, firm, and producer levels. Actors at each level have a role in and impact the system, and the linkages and relationships among them also determine the business climate for the agriculture sector. By the same token, internal institutional operations and administrative processes impact production, productivity, and income. These too are in part a cause and effect of the national culture that in turn affects institutional priorities, decision making, and economic performance.

Finally, the prevailing value framework results in the creation of a set of sociocultural and institutional norms and behaviors that either support or impede the ability to conduct agribusiness. In Nicaragua the picture is mixed. While there have been improvements in the climate for doing business, some significant obstacles exist that constitute challenges to strengthening and expanding agribusiness.

B. ECONOMIC OVERVIEW

According to the IMF, as well as local analysts, Nicaragua's macroeconomic environment is stable and will continue that way into next year. Indeed, growth for 2010 is estimated at 3.0%, which would represent an increase of 4.5% from 2009, more than had been expected. Growth

in the GDP for 2011 is projected to remain at 3%, maintaining the trend toward stability, if not additional expansion.¹³

As of 2010, the private sector in Nicaragua generated about 88.1% of GDP. Agriculture accounted for 17.5% of GDP, an estimated 60% of exports, and 28% of the labor force.¹⁴ However, the percentages fail to take into account the impact of agricultural production on other sectors of the economy. That is, primary products that produce cotton and wool for clothing, for example, are categorized as manufactures and not agriculture, distorting the real contribution of agricultural production to GDP.¹⁵

TABLE 2. SELECTED ECONOMIC INDICATORS 2009

GDP	\$6,375 billion
GDP/capita (PPP)	\$1,126
Agriculture GDP	17.5%
Industry GDP	26.5%
Services GDP	56%
Growth	3%
Agriculture Labor Force	28.0%
Industry Labor Force	19%
Services Labor Force	53%
Unemployment	8%
Budget Revenues	\$1,421 billion
Budget Expenditures	\$1,511 billion
Public Debt	78% of GDP
Inflation Rate	4.7%

Sources: Banco Central de Nicaragua and CIA World Fact Book, 2011

¹³ Global Finance, www.gfmag.com, 2010.

¹⁴ CEPAL, "Nicaragua: Evolución Económica Durante 2010," Mexico, D.F., December 2010.

¹⁵ See Rafael Trejos, "More Than Food on the Table: Agriculture's True Contribution to the Economy," in which the author demonstrates the actual - and larger - contribution of agriculture to GDP in ten Latin American countries. While Nicaragua was not included in the study, the main conclusions are applicable to its economy.

Table 3 below details leading agricultural exports by crop. It is clear that coffee is by far the largest export earner, although the lack of effective branding has yet to make Nicaraguan coffee more competitive with its Costa Rican, Guatemalan, and Colombian counterparts.

TABLE 3. LEADING AGRICULTURAL EXPORTS FOB (IN MILLIONS OF US\$)

YEAR	2009	2010	DIFFERENCE
Coffee	236.7	341.6	23.3%
Peanuts	65.9	61.8	-6.3%
Beans	61.3	59.4	21.3%
Cattle (per head)	17.7	21.5	-3.1%
Tobacco	5.1	7.4	44.6%
Sesame	6.5	7.4	1.4%
Banana	11.7	6.6	-43.7%

Source: COPADES, "Pronóstico Económico de Nicaragua 2011," COPADES, Managua, February 28, 2010.

As may be seen, the export picture is uneven, with some products such as tobacco registering substantial gains while others, such as bananas, falling precipitously. Details concerning these patterns may be found in the chapter on Competitiveness and Productivity. In general, however, the picture is positive and reflects the importance of agricultural exports to the economy and generation of foreign exchange.

The World Bank Doing Business Indicators shed further light on the Nicaraguan economy, specifically with respect to the impact of selected indicators on the business climate. Nicaragua's overall ranking is presently 117 out of 183 economies.¹⁶ The two largest constraints to a favorable environment for doing business, as may be observed in Table 4 below, are paying taxes (158) and registering property (142), although taxes were not mentioned as a problem for improving the climate for doing agribusiness in any of the interviews conducted for the report. By contrast, interviews with all small producers, bankers, and small farmer associations, indicated that access to credit for micro producers, as will be documented elsewhere in the report, is in fact a major problem, although it is ranked as 89. In somewhat the same vein, the World Economic Forum (WEF) Global Competitiveness Index (GCI) also ranked Nicaragua at 89 in terms of access to financing, but out of a total of 139 countries, making its finding more in keeping with those who directly experience trying to gain access to financing. Overall, the GCI puts Nicaragua 112 in its rankings.

¹⁶ World Bank, "Doing Business 2011," Washington DC, 2010.

TABLE 4. THE WORLD BANK DOING BUSINESS INDICATORS FOR NICARAGUA, 2011 AND 2010

INDICATOR	2011 RANKING	2010 RANKING
Ease of Doing Business	117	119
Starting a Business	97	95
Dealing with Construction Permit	138	137
Registering Property	142	144
Getting Credit	89	87
Protecting Investors	93	92
Paying Taxes	158	164
Trading Across Borders	85	100
Enforcing Contracts	66	67
Closing a Business	75	71
Total number of DB countries	183	183

Unlike the Doing Business indicators, the World Economic Forum’s GCI presents a much more comprehensive picture of the climate for conducting business. It takes into account the broad issues that impact the economic and business environment, as well as specific constraints to the business enabling environment, including the agribusiness sector.

As presented in Table 5 below, corruption, inefficient bureaucracy, and especially policy instability are by far the three greatest impediments to a more favorable climate for doing business, constituting 46.2% of all 15 indicators. However, as will be seen, other factors have been identified by the respondents to the surveys and interviews as the key constraints to doing agribusiness.

TABLE 5. WEF GCI MOST PROBLEMATIC FACTORS FOR DOING BUSINESS IN NICARAGUA FOR 2009 (PERCENTAGE OF RESPONSES)

Policy instability	21.5
Corruption	12.9
Inefficient government bureaucracy	11.8
Inadequately educated work force	8.3
Inadequate supply of infrastructure	7.2
Government instability/coups	6.5
Tax rates	6.2
Access to financing	5.7
Tax regulations	5.6
Poor work ethic in national labor force	3.7
Crime and theft	3.3
Restrictive labor regulations	2.9
Inflation	2.4
Foreign currency regulations	1.8
Poor public health	0.2

One reason the macro economy is doing relatively well may be attributed in large measure to investments and revenue transfers from ALBA—the Bolivarian Alliance for the People of Our America—founded and presided over by Venezuelan President Hugo Chavez as an alternative to CAFTA-DR and other free trade agreements. This single source of financial investment and stability, while presently a boon for the Nicaraguan economy, nonetheless puts the country potentially at great risk if (and when) oil prices decline substantially and/or Venezuelan president Hugo Chavez is replaced by a Venezuelan administration that does not support ALBA. In fact, this was reported to be a concern of the IMF as well as members of the National Assembly, including members of Nicaraguan president Daniel Ortega’s own party.¹⁷

One effect that can already be seen is the apparent lack of attention to the “real” economy, or that which is not distorted by reliance on ALBA. As part of the relationship with Chavez and ALBA, a private company called ALBANISA (*ALBA de Nicaragua, S.A.*) was set up to manage the flow of investment funds from Venezuela. ALBANISA is an opaque entity that has been subject

¹⁷ “FMI desconfía que bono-regalo perdure,” *La Prensa*, March 9, 2011.

to much speculation. Its relatively complex operations have been succinctly summarized in an article published on the Council of Hemispheric Affairs Web site:

The creation of ALBANISA followed the commencement of Venezuelan oil transfers to Nicaragua, cemented by the signing of the ALBA Energy Agreement. The company plays an unusual role in the fairly complex process of ALBA's oil cooperation model. PETRONIC, the semi-private Nicaraguan petroleum conglomerate that features partial state ownership, purchases and receives oil from Venezuela's state-owned oil enterprise, PDVSA. PETRONIC then resells the oil and delivers all revenue to ALBANISA, a private company featuring joint-ownership between Venezuela's PDVSA and Nicaragua's PETRONIC. Then ALBANISA sends half of this revenue back to Venezuela in exchange for the oil while delivering another twenty-five percent to an ALBA social fund. ALBANISA itself retains the remaining twenty-five percent of oil revenue. In the end, this intricate process is intended to benefit Nicaragua through reduced oil prices.

Controversy surrounds the future of the funds held by ALBANISA. Because it technically remains a private company, ALBANISA does not need to subject its finances to the constraints of Nicaragua's national budget. However, it is widely known that the Ortega administration oversees the expenditures of such funds through its participation in PETRONIC. Given its autonomy, ALBANISA appropriates and allocates funds without any oversight by the National Assembly, which approves the national budget each year. This means that ALBANISA expenditures of such funds are not subject to any effective checks; no one knows how much money the company handles, how much it spends, or where that money goes. The lack of transparency surrounding ALBANISA expenditures suggests the possibility of corruption and mishandling of funds.¹⁸

ALBANISA's reach may be seen in the several companies it holds, including: Alba Caruna, Alba Security, Alba Equipment, Alba Transport, Alba Generation, Alba Ports, Alba Food, Alba Wind Power, Alba Deposits, and Alba Tenosa.

It is instructive to show the relative size of Venezuelan participation in the Nicaraguan economy. In 2010, the contribution of Venezuelan financial assistance was estimated to be between \$450 and \$500 million. This is slightly more than all other foreign assistance which is reported to be \$442 million. Total foreign direct investment (FDI) was estimated to be \$600 million.¹⁹

While the macroeconomic picture is largely favorable, including accounting for the impact of ALBA, it masks a much more challenging environment to doing business at the company, chain, and producer levels. The analysis will show how the issues addressed in the GCI, as well as other indices, represent a serious set of problems with which the government and international donor agencies will have to deal in order to develop a climate for improving agribusiness that is sustainable and conducive to the promotion of legitimate economic activity and opportunity in the sector.

¹⁸ Brendan Riley, "Nicaragua and ALBANISA: The Privatization of Venezuelan Aid," The Council on Hemispheric Affairs, Washington, D.C., August 13, 2010.

¹⁹ Consultores para el Desarrollo Económico Empresarial, S.A. (COPADES), "Pronóstico Económico de Nicaragua 2011," Managua, February 28, 2010.

C. CROSS-CUTTING ISSUES

The SOW calls for examination of four cross-cutting issues: climate change, food security, gender, and poverty. In the course of the research it was discovered that one of the most important constraints faced by the agribusiness sector is climate change. Consequently, climate change will be examined in detail separately as one of five main factors negatively impacting the agribusiness environment. The other three issues will be addressed throughout the text of the report under each of the major constraints. Indeed, it is not possible to speak of impediments to doing agribusiness without taking into account the role of women, the impacts on the poor, and the need to enhance food security.

1. Food Security

Consistent with the SOW, this study focuses on access to food, or the ability to generate income in order to purchase food. Nicaragua is the poorest country in Central America and the second poorest in all of Latin America. More to the point, 27% of the population of Nicaragua are undernourished, the highest level in Central America.²⁰ The USAID Mission's FTF Strategic Review makes it abundantly clear that access to food—as well as food utilization—is critical to economic growth and development, especially in the rural areas. Of the 46% of people under the poverty line, 68% live in rural areas.²¹ The North Central region has the largest percentage of stunted and underweight children in Nicaragua.

In order to expand food access, it is vital to provide poor and low-income producers with the skills and access to markets that are essential to generate additional income with which to acquire nutritious food. Stephen Wingert's observation on food security in Guatemala applies equally to Nicaragua: “[F]ood insecurity does not result [so much] from inadequate national or local food supplies, [as it does from] an inability of the poor to access food due to inadequate incomes, and sometimes by inappropriate consumption decisions by the poor that lead to poor food utilization.”²² The one exception to this finding is the red bean which is a traditional staple of the Nicaragua diet and this year has been scarce. Still, other foods may be found in adequate supplies.

According to the Mission's FtF Strategic Review, 21.7% of children in Nicaragua are stunted, despite the fact that the food supply has increased. Yet despite its potential for greater nutritious food production, Nicaragua is hobbled by a set of bottlenecks that impedes the rural economy from its full production potential, and from generating jobs, increasing income, and reducing poverty, all of which are essential for strengthening food security for the rural poor. Indeed, the requirement to enhance access, or the income base with which to purchase healthy

²⁰ “The State of Food Insecurity in the World,” UNWFP and FAO, 2009.

²¹ “Strategic Review: Feed the Future,” USADI/Nicaragua, December 17, 2010.

²² “Feed the Future Initiative: Constraints to Improved Food Security in Guatemala, a report for USAID by Stephen Wingert, September 2010.

food, is critical to the success of any comprehensive food security strategy²³ and is consistent with USAID/Nicaragua’s approach for promoting food security increasing “incomes among small-holder producers through market-based agriculture and expanding/strengthening value chains and value-added processing.”²⁴

The GON has been very active in dealing with food security issues. For example, among other initiatives it has created the Secretariat for Food Security and Nutrition (SESSAN), the National Commission for Food and Nutritional Security and Sovereignty (CONASSAN), and the Hambre Cero (Zero Hunger) program that offers animals to eligible persons to be used primarily to produce income—such as chickens producing eggs to be sold. Most critics, however, have observed that it appears that a majority of beneficiaries consume the animals instead of using them for productive purposes. Still, the GON is acutely aware of the need to improve food security and even passed The Food Security and Sovereignty Act in 2009 guaranteeing the right to healthy and safe food for all Nicaraguans.

2. Gender

Gender is a crucial issue in developing greater food security in Nicaragua, as it is throughout LAC, in terms of food availability, access, and nutrition. The literature is clear that the role of women as heads of households or income generators is key to maximizing rational allocation of income for the purchase of basic necessities. As the principal or sole food purchasers and preparers, women are also essential to better nutrition based on how nutritious is the food that they select and prepare.²⁵

Women are increasingly becoming land owners, or at least possessors, and small producers. There has been large-scale outward migration of males from the rural areas, principally to the U.S., Costa Rica, and Nicaraguan urban centers. This has left many women to work the fields, although a large percentage lacks the necessary production and business management skills. In fact, 28% of heads of households in the rural areas are women.²⁶

Nicaragua has made some progress in achieving gender equality, but a gap between males and females still exists. While girls and women are now enrolled at higher rates in primary and secondary schools than males, females still earn less than men for comparable work, including in the lower skilled jobs. They are also under-represented in the professions and government. The rate of violence against women is high and they have limited recourse to the justice system. Out of 11,313 cases of domestic violence reported in 2009, more than 70% of the victims were

²³ *Ibid.*

²⁴ “Strategic Review: Feed the Future, *loc. cit.*”

²⁵ For a comprehensive examination of the importance of women in development, see *Strategies for Promoting Gender Equity in Developing Countries*, edited by Elizabeth Bryan with Jessica Varat, the Woodrow Wilson International Center for Scholars, July 2008.

²⁶ *Ibid.*

women. Nevertheless, the GON has taken steps to deal with the issue, such as Usura Cero (Zero Usury) program that has benefitted over 35,000 women, as well as the Bono Productivo (Productive Bonus), initiative that has benefitted more than 50,000 females²⁷

The Ministry of the Family was established in 1997 to provide protection to vulnerable women and children. In addition there is the Nicaraguan National Women's Institute which is part of the Ministry, but has a budget that represents only 0.04% of total public expenditure. A "Special" Attorney General for Women also exists, but despite all these institutions, gender inequality is still an issue. Indeed, no gender equality law exists to give force to the decisions by the various government agencies set up to protect women and girls.²⁸ The situation of women may best be summed up in Nicaragua's standing on gender equality where it was ranked 115 out of 169 countries on the UN's Human Development Index, and had the second worst rating in Central America. Its score was 0.565, 0.41 below the 0.706 average for all of Latin America and the Caribbean.

3. Poverty

As of 2010, Nicaragua had one of the more relatively unequal income distributions in the hemisphere. The comparatively discouraging Gini coefficient of 43.0 reflects basically what might be characterized as a distribution of poverty rather than wealth. In fact Nicaragua is the poorest country in Central America and the second poorest in Latin America and the Caribbean. Fully 46% of Nicaraguans are poor, 79.9% of who live on less than \$1.25 per day. In addition, while the official unemployment rate is 5.2%, 46.5% are classified as underemployed.²⁹

At the same time, the wealthiest 20% of the population consumes 56.9% of Nicaragua's GDP. At the same time, social development indicators, such as infant mortality, chronic child malnutrition, and illiteracy, are among the worst in the hemisphere.³⁰

Although the GON has taken steps to deal with poverty, as noted earlier, it is a pressing issue that will require greater and more sustained efforts. The implication for food security initiatives, in particularly FTF, is compelling and challenging.

²⁷ "Nicaragua on Obstacle Course to Women's Equality," José Adán Silva, www.globalgeopolitics.net, November 6, 2010. The statistics quoted are from the UNDP.

²⁸ "Nicaragua Profile," www.gendermatters.eu.

²⁹ "World Bank Development Indicators," 2011.

³⁰ See UNWFP and FAO, *loc. cit.*

D. THE AGRIBUSINESS ENVIRONMENT: ISSUES, CONSTRAINTS, AND IMPACTS

The interviews, survey data, and document reviews used in carrying out the analysis revealed near universal consensus on five issues that were considered to be the most pressing with respect to improving and sustaining a climate favorable to doing agribusiness in Nicaragua, including:

- The Political, Policy, and Institutional Framework
- Competitiveness and Productivity
- Finance, Credit, and Investment
- Climate Change
- Infrastructure

These issues constitute the overall constraints to promoting a more favorable climate for conducting agribusiness. They will be examined in detail, identifying specific factors that make it difficult for the agribusiness sector to achieve its full potential, including in particular small producers.

1. Political, Policy, and Institutional Framework

a. Politics and Policy

While specific policies affecting the agribusiness climate are examined in detail in subsequent chapters, it is important to review the policymaking and political environment in general and how it impacts the priorities and direction of the government and public institutions. This will provide the background essential to understanding how public decisions are made and implemented. This was underscored by one observer of the Nicaraguan political economy when he concluded that growth depends on “solid institutions...a [favorable] business climate, rule of law, and a judicial authority that is not corrupt.”³¹ This review will also help to keep expectations realistic as to what is achievable by way of potential policy and institutional reforms to strengthen the agribusiness sector.

In a report for USAID entitled “The Governance Dimension of Food Security in Nicaragua,” the authors document the nexus between politics and policy on the one hand, and key constraints to strengthening the agribusiness sector, on the other, especially with respect to the needs of small producers. There is little question that the political situation in Nicaragua influences the enabling climate for conducting agribusiness.³² Several factors account for this

³¹ From an article in *El Nuevo Diario* by Cristhian Marenco, Managua, January 11, 2011.

³² “The Governance Dimension of Food Security in Nicaragua,” a report prepared for USAID/DCHA by Caroline Sahley et al., 2005.

and must be taken into account when assessing specific constraints handicapping the agribusiness sector, particularly the weak rule of law and politicization of public institutions.³³

Checks and Balances

Since assuming office in a relatively free and fair election, President Daniel Ortega has been maneuvering to consolidate power by coopting the judiciary and the Supreme Electoral Council (CSE), which constitutes a fourth branch of government and rules on electoral issues.³⁴ In addition, his party, the Sandinista National Liberation Front (FSLN), along with its sometime political ally, the Liberal Constitutionalist Party (PLC),³⁵ has a majority in the unicameral legislature, effectively giving him control over the entirety of government.

The purpose of this political gamesmanship has been to bypass the constitutional requirement that no president may immediately succeed himself or serve more than two terms. However, in what has been alleged by many analysts to be a violation of the constitution, the Supreme Court and CSE, whose members have been appointed by the ruling coalition, have ruled that President Ortega may indeed run for office for a third term. This reflects *inter alia* the lack of a system of checks and balances that enables an environment for corruption. One significant result is a government that is less efficient and more arbitrary in its decisionmaking, creating a climate for conducting agribusiness that is subject to shifting rules of the game. Uncertain political environments and corruption typically discourage investment, add to costs, and can alienate international buyers who are concerned that their suppliers be reliable in delivering their products on time and meet all contractual obligations. All this will be discussed in the succeeding sections.

Judicial Uncertainty

The politicization of the judiciary in Nicaragua creates uncertainty in the rule of law and opens a wide door for potential—and actual—corruption, political abuse, and lack of confidence in government. Indeed, the absence of judicial independence is starkly underscored on the GCI which ranks Nicaragua 132nd worst out of 139 nations. Application of the law is arbitrary and influenced by political considerations, and dispute resolution is not necessarily based on the merits of a case, but on the political and personal interests of judges. In fact, courts routinely grant injunctions to protect citizen rights by enjoining official investigatory and enforcement actions indefinitely.³⁶

³³ “Nicaragua Country Report,” www.bertelsmann-transformation-index, 2011.

³⁴ “BTI 2010 - Nicaragua Country Report,” Bertelsmann Stiftung, 2009.

³⁵ This unlikely alliance is referred to as The Pact, an agreement between two former political foes to advance each other’s political fortunes. However, for this year’s presidential elections, the PLC is not joining with the FSLN

³⁶ U.S. Department of State, “Diplomacy in Action,” www.state.gov, 2011.

The U.S. Department of State has noted that there exists great difficulty “in resolving commercial disputes, particularly the enforcement of contracts, [which] remains one of the most serious drawbacks to investment in Nicaragua. The legal system is weak and cumbersome. Members of the judiciary, including those at senior levels, are widely believed to be corrupt or subject to political pressure.”³⁷

Although experience suggests that judicial uncertainty depresses FDI, it is interesting to note that in Nicaragua investment grew substantially between 2006 and 2008, from \$241 million to \$628 million. However, FDI did suffer a 31% decrease in 2009, but largely as a result of the global financial and economic crisis. Expectations are for a rebound as of the end of 2010. More importantly, at least for Nicaragua, FDI was 9.8% of GDP in 2008 and 7.1% in 2009—the highest in Central America.³⁸ Yet, according to the leading economic think tank, FUNIDES, if the upcoming presidential election in November 2011 gains little to no international credibility, it would result in losses of up to 16% of FDI and reduce GDP by 1.5% to 2.5%.³⁹

Given the significance of FDI to the economy, it is important that foreign investors believe that their interests will be protected and, if necessary, adjudicated impartially. For example, the Director of the Commission on Free Trade Zones (FTZ) indicated that, while the GON supports FTZs, many potential investors have been reluctant to set up shop in Nicaragua because of what they see as a climate of judicial and political uncertainty.⁴⁰ Ironically, the World Bank’s “Doing Business” indicators show Nicaragua to be the best country in Central American in terms of protecting investors’ rights. This suggests the implicit pact between the private sector and government, and the latter’s determination to work with the business community in advancing mutual interests, despite a discrepancy between rhetoric and actions. But perceptions to the contrary still persist.

Policy Inconsistency

As was pointed out earlier, the WEF GCI shows “policy instability” to be the leading constraint to doing business in Nicaragua. While there is unquestionably some instability and uncertainty, especially during this presidential election cycle, there is a corollary problem which is policy *inconsistency*, which appears to be the key feature of the overall uncertainty. Cognitive dissonance is an underlying motif that runs throughout the policy process and is marked by what on the surface appear to be incongruities, but upon further examination makes political and economic policy sense. At times it is difficult to determine whether a stated policy actually reflects the real GON position on an issue or not. For example, despite pledges to fight

³⁷ *Ibid.*

³⁸ “Informe IED I Semestre 2010 Nicaragua,” www.pronicaragua.org, 2010.

³⁹ “I Informe de Coyuntura Económica 2011,” a PPT presentation by José Antonio Baltodano, Carlos Muñiz and Mario Arana sponsored by USAID, April 2011.

⁴⁰ Interview with Alfredo Coronel, Executive Director, Comisión Nacional de Zonas Francas, Managua, April 11, 2011.

corruption, the GON has demonstrated little interest in doing so. The case of Roberto Rivas, a CSE electoral judge and close ally of the President, who was accused of filing false expense claims, is instructive. The press commented that “Since the arrival to power of President Daniel Ortega, the Comptroller General has shown absolutely no interest in investigating acts of government corruption.” This theme was echoed by the Higher Private Sector Council (COSEP),⁴¹ which frequently remains publicly mute on these kinds of controversies, as well as several civil society groups.

GON economic policies are largely based on a free market while its rhetoric is mostly populist. Ideology appears to play only a relatively marginal role in many—though not all—economic policy decisions. As one analyst described it: “In this new correlation [with the private sector], the Sandinistas have implemented economy policies that tend to maintain financial stability, good relations with multilateral organizations, and continuity in the development of free enterprise. Currently, although we cannot speak of a honeymoon between the government and the private sector, there clearly exist good relations between the two.”⁴² While this is so, still the President encouraged the “*No Pago*” movement urging low income borrowers to not pay their obligations to private sector lenders. Eventually, the GON pulled back its support, around the same time that Alba-Caruna—part the Albanisa group partly owned by the Ortega family—was established as a financial cooperative.

Some observers assert there is no long range economic vision for the country, at least as expressed in any policy consistency and stability. By contrast, there does appear to be *political* consistency in the President’s efforts to succeed himself in office, supposedly to continue existing policies and programs. There is a national development plan—the “National Human Development Plan, 2008-2012” (PNDH)—which spells out the government’s medium-term guiding principles, policy goals, and programmatic intentions, and is used to help determine allocation of resources. But it does not articulate a succinct, coherent long-range vision. It is an extraordinarily ambitious document (252 pages) that would require more human, financial, and material resources than exist in the government or perhaps in the country.

In addition, PRORURAL Incluyente, the rural development program located in the Ministry of Agriculture and Forestry (MAGFOR), has a plan that is supposed to reflect and operationalize the goals and strategy laid out in the PNDH. In turn, this plan includes a section on the mandate and activities of the National Agroindustrial Program (PNAIR), which has unveiled its own plan. Like the others, the PNAIR plan includes a wish list of many goals and objectives, but little to no discussion of how it is to be implemented.

Little evidence could be found on any progress in achieving the scores of stated objectives of the various plans—with scarce exceptions such as the Hambre Cero program, which is basically the GON centerpiece for achieving greater food security and sovereignty and reducing poverty.

⁴¹ “Pacto protege a Rivas en CGR, *La Prensa*, February 25, 2011.

⁴² “Daniel Ortega y el Empresariado,” by Ariel Montoya, *La Prensa*, February 28, 2011. (Authors’ translation.)

It is instructive to note, however, that one objective is to help promote private sector activity as part of the overall effort to strengthen economic growth and development.

b. Institutions

Part of the policy confusion that has just been examined is compounded by weak, corrupt, and inefficient public institutions. The inefficiency of the GON is underscored in the World Bank's Governance Indicators, which ranked Nicaragua as the country with the least "Government Effectiveness" in Latin America, with a score of 14.3 out of 100.0.⁴³ The lack of "institutionality"—or strong public institutions—stems largely from the politicization of already weak public institutions where many policy decisions are made for political profit.

While a large number of respondents interviewed for this study indicated they believed that many of the laws affecting agribusiness were positive in their content, they complained that there was little to no effective implementation or enforcement of the statutes and corresponding regulations. One consequence was said to be that the lack of adequate regulation, SPS in particular, has limited access of Nicaraguan agricultural products into foreign markets.⁴⁴ In that case, inadequate inspections have resulted in some products not being able to meet food health and safety standards required by international markets, thereby reducing important export opportunities. Other examples will be examined in detail in subsequent sections of the report.

There is widespread use of government power and institutions to advance personal financial interests. Indeed, the press reports almost daily incidents of government corruption.⁴⁵ This is in keeping with a tradition of corruption that was part of the political culture of the Somoza regimes and the infamous "*piñata*" that accompanied the departure of the first Sandinista government. Indeed, the GCI places Nicaragua at 130 out of 139 countries in terms of favoritism in decisions made by government officials, and Transparency International lists it in 127th place out of 179 countries on the Corruption Perceptions Index. There is little question that public institutions are not able to function effectively and provide the kinds of services required by producers to be more competitive in the global market place.

What follows is not an assessment of specific institutions impacting agribusiness. That will be done in the subsequent sections of the report. Instead, it is a brief review of the three key factors impeding more effective and efficient institutional performance across government.

⁴³ Haiti was not included in the index.

⁴⁴ Interview with Julio Montealegre, TechoServe, Managua, January 25, 2011.

⁴⁵ See, for example, "Asamblea cita controladores," *La Prensa*, April 17, 2011, in which the lead article cites a multitude of concerns and complaints over public corruption. A review of *La Prensa* editions over the past 3 months shows articles on corruption in virtually every one.

Hierarchical Decision-Making

Weak institutions, such as MAGFOR, are both a cause and effect of a lack of a clear policy vision and long range strategies. That is, while the National Human Development Plan and other plans and policy documents exist, they are either inadequately, partially or not at all implemented.⁴⁶ More specifically, the decisionmaking apparatus was widely reported to be extremely hierarchical and centralized at the highest levels, discouraging officials not only at lower but even higher tiers of government from making decisions without prior approval from superiors. Even ministers have been reported by many business leaders as reluctant to make decision without first consulting with the presidency. This explains in large part the listing of inefficient government bureaucracy as the third most problematic factor in doing business in Nicaragua, according to the GCI.

A prime example is the customs agency that, according to the Director of the Free trade Zone, is still hobbled by an arcane, centralized, and slow decisionmaking process, despite some small advances. In another example, the Director of the Centro Humboldt—a leading environmental organization—complained that in his dealings with the Ministry of the Environment and Natural Resources (MARENA) and MAGFOR, among other governmental institutions, decisions are referred to the President for action, delaying what otherwise would be a more efficient process. By the same token, inside ministries it is the Ministers who make a large portion of operational decisions, delegating little authority to their subalterns. This was reported by many interview respondents who deal with ministries on a relatively frequent basis. The lack of efficient processes is reflected in the World Bank's 2011 Doing Business indicators, where Nicaragua ranks 142nd in the world, a barely perceptible improvement from its 144th position in the 2010 report.

Weak Civil Service and Institutional Politicization

The sclerotic decisionmaking process is compounded by a reported paucity of qualified personnel. This is not surprising when reviewing UNESCO education data that reveal an educational system that is in disrepair. For example, the gross enrolment rate including females and males was only 18% compared to a regional average of 38%.⁴⁷ This situation permits and is exacerbated by widespread politicization of public institutions. One analyst summed up the situation by observing that “[p]arty connections are probably the top requirement for most public employment today,” while another concluded that “[c]ronyism is the norm in appointing civil servants.”⁴⁸

⁴⁶ Government of Nicaragua, “Plan Nacional de Desarrollo Humano, 2008-2012,” April 2008.

⁴⁷ UNESCO Institute for Statistics, www.unesco.org, 2010. The statistics are for 2008 with the exception of the regional average which is for 2002.

⁴⁸ “Global Integrity Report; 2008 Assessment,” February 2010

There is a civil service law, but it is weak, does not address conflicts of interest, and does not require asset disclosure of senior civil servants. Indeed, Global Integrity scores the effectiveness of the civil service law “very weak.” By the same token, there is a national ombudsman office, the Procuraduría de Derechos Humanos, but it is considered to be ineffective and citizens cannot even access its reports.⁴⁹ It is no surprise then that the problem of a debilitated civil service is exacerbated by high levels of patronage.

Arbitrariness (Discrecionalidad)

The WEF GCI ranks Nicaragua 118th out of a total of 139 countries in the diversion of public funds and 116th with respect to transparency in government policy making. It shows even more unfavorable assessments of the GON with respect to favoritism in decision-making (130th), as has already been seen. These two measures reveal the phenomenon of *discrecionalidad*, or the “discretion” that public officials use in making decisions and allocating resources. That is, many decisions are based on an arbitrariness that benefits officials politically or personally. This creates even more policy and institutional uncertainty that contributes to a less than favorable climate for doing agribusiness. It is a form of corruption that further impedes government performance and the creation of trust which is so fundamental to an efficient and effective public sector.

The *discrecionalidad* is compounded and allowed to thrive by an equally dim GCI rating of private firms’ ethical behavior—122nd place. This is reinforced by a somewhat lower but still significant ranking of 108 with respect to making bribes and irregular payments. In addition, Nicaragua ranks 118th in the diversion of public funds to private companies. Both public and private sector corruption is exacerbated by the “absence of effective anti-corruption agencies [and the existence of] arbitrariness and discrimination” in dealing with licensing authorities and tax and customs officials.”⁵⁰ The lack of transparency is also a problem. Transparency International ranked Nicaragua in its 2010 survey at 127 out of 178 countries. Its score was 2.5 out of 10, close to the bottom tier led by Somalia at 1.1.

c. Impacts

Specific impacts of the political, policy, and institutional climate on the agribusiness sector will be addressed in the following sections. In more general terms, it is important to note that the overall climate for conducting agribusiness is relatively stable, although significant constraints affecting the small producer in particular persist. As pointed out, the current government has followed policies, while sometimes outwardly inconsistent, by and large have been supportive of the private sector and open markets, irrespective of the political rhetoric to the contrary.

⁴⁹ *Ibid.*

⁵⁰ “Snapshot of the Nicaragua Country Profile,” Business Anti-Corruption Portal, www.business-anti-corruption-eu, 2011.

By contrast, with some important exceptions, key implementing institutions impacting the agribusiness sector do not function efficiently, in effect operating against the interests of producers and agricultural entrepreneurs. They are burdened by weak management, widespread patronage and politicization, corruption, and inefficiencies that cost agricultural producers and processors greater productivity and competitiveness, resulting in lower incomes and fewer employment opportunities.

There exists in Nicaragua what might be termed a kind of “closet capitalism.” This is somewhat distorted by the presence of large amounts ALBA/Venezuelan capital that have brought some benefits, especially to the ALBANISA group. However, the impact has been to create a dependency on one large source of support that makes the Nicaraguan economy very vulnerable.

d. Conclusions

- While the macroeconomic policy climate is stable, and the overall legal framework reportedly favorable to business, the institutional capacity of the GON is generally inefficient, weak, politicized, and corrupt.
- There are, however, some government agencies that function relatively effectively, including the food safety and certification agency (DGSPA), the Rural Development Institute (IDR), and the grains storage service (ENABAS) in the Ministry of Agriculture and Forestry. Still, even these entities are not immune to the overall politicization of public institutions.
- The GON has expressed the desire to promote more efficient and profitable agribusiness, especially as expressed in the recently introduced PNAIR plan. However, the lack of action to streamline decisionmaking and professionalize and strengthen implementing institutions reveals a fundamental inconsistency between words and deeds.
- This is reflected to a great extent by the surfeit of plans and paucity of results. Specific impacts of the weak institutional environment on constraining agribusiness will be documented in the following chapters with respect to the key impediments to conducting agribusiness in Nicaragua.

2. *Market Access and Competitiveness*

Nicaragua, the largest country in Central America,⁵¹ is well endowed with an abundance of biologically diverse agro-ecological systems, fertile soils, and hydrological resources.⁵² It has the largest arable land base (more than 1.9 million hectares)⁵³ in the region, which provides it with

⁵¹ Banco Central de Nicaragua, “Nicaragua in Figures 2010.”

⁵² FAO Annual Yearbook 2010.

⁵³ Almost 5.2 million hectares, if the land planted with permanent crops and pastures is included.

clear comparative advantages for agricultural production, a favorable geographic location close to the U.S. market, and a low-cost, young, and large working-age population.⁵⁴

The Nicaraguan economy has been traditionally dependent on the agricultural sector, which accounts for 17.5% of GDP (28% if processed foods are included), 62% of merchandise exports, and 31% of employment.⁵⁵ The sector's contribution to the economy is even greater if its linkages with farm-input and distribution industries are taken into account. Nevertheless, Nicaragua is the second poorest country in Latin America and the Caribbean. It has the most de-capitalized rural sector in Central America⁵⁶ and is ranked lowest on several agricultural productivity indicators in the region.⁵⁷

As a small economy, Nicaragua has been pursuing regional and bilateral trade agreements with several countries and regional blocs, including implementing CAFTA-DR with the United States. These agreements are opening new market opportunities for Nicaraguan agricultural producers and, to some extent, some of them have already benefitted from that expanded market access. However, even if Nicaraguan agricultural exports have been modestly growing, they are still the lowest in per capita terms in Central America and continue to be concentrated in only a few commodities with low levels of value added.

Some of the key factors constraining agribusiness growth and reducing its competitiveness in international markets include: deficiencies in innovation and technology transfer; adverse effects caused by climate change, increasing demands for compliance with plant and animal health and food safety—sanitary and phytosanitary (SPS)—standards; low levels of farmer education; lack of training; poor managerial, business and marketing skills; lack of access to finance; and inadequate productive and physical infrastructure. The scope and impacts of these impediments, which reduce the ability of small producers in particular to improve their incomes and therefore greater access to food, are addressed below.

a. Policy Framework

The legal and policy framework governing agribusiness in Nicaragua includes the country's competition law, the PNDH, legislation applicable to sector-related government institutions, and international trade agreements subscribed by Nicaragua.

⁵⁴ "Nicaragua in Figures 2010," *loc. cit.* Out of Nicaragua's 5.8 million inhabitants in 2010, 2.7 million (46%) were under 20 years of age; 3.9 million (68%) were of working-age and 2.8 million (48%) were in the labor force

⁵⁵ "Nicaragua in Figures 2010," *loc. cit.*

⁵⁶ Agosin, Manuel R., Rodrigo Bolaños, and Félix Delgado, *Growing Pains, Binding Constraints to Productive Investment in Latin America*, "Nicaragua: Remembrance of Growth Past," IDB, 2009.

⁵⁷ Ludena, Carlos E. "Agricultural Productivity Growth, Efficiency Change and Technical Progress in Latin America." IDB-WP-186, May 2010

Competition Law

With the support of the business community and as part of the CAFTA-DR complementary agenda, a competition law (Law 601) was approved by Nicaragua in September 2006 and entered into effect in June 2007. This antitrust law curtails monopolistic practices and imposes sanctions for unfair business practices such as price fixing, exclusive dealing, and resale-price maintenance. The law created an independent regulatory body—the National Institute for the Promotion of Competition (PROCOMPETENCIA)—that is responsible for its implementation and enforcement. The Competition Law requires firms to seek authorization from PROCOMPETENCIA if a merger, buyout, or consolidation will result in a 25% or more increase in the firm’s market share. Given the small size of the Nicaraguan economy, markets generally remain concentrated, with just a few operators. However, with the implementation of CAFTA-DR, regional competition has been increasing and a growing number of market players have been entering Nicaragua.

From its onset, PROCOMPETENCIA has been conducting analyses of different markets and industries (including sugar, rice, beef, chicken meat, flour, milk, edible oils, and agrochemicals) to identify their levels of concentration and possible existence of monopolistic or oligopolistic practices. PROCOMPETENCIA investigates complaints from companies that consider themselves to be victims of unfair business practices, but it is also authorized to initiate its own investigations about possible antitrust violations. According to PROCOMPETENCIA’s director,⁵⁸ “the competition law’s main objective is to promote and protect free and fair competition among economic agents in Nicaragua to ensure market efficiency and consumers’ well-being, by fostering a culture of competition by preventing anti-competitive practices.”

In addition to monitoring closely fair and competitive practices in the Nicaraguan private sector, one possible challenge that PROCOMPETENCIA will have to face, sooner or later, is to investigate whether any of the several companies established with ALBA resources are violating Law 621. The director has pointed out that he will not bow to political pressures to carry out such investigations if conditions deem it necessary. In a country where only a few business groups have controlled most industries for a long time, ensuring fair competition for the free entry of newcomers without any opposition or unfair practices by established companies is a major challenge for PROCOMPETENCIA. Moreover, the small allocation of staff and budget (just \$311,000 for staff salaries and operating expenses in 2011), makes its tasks even more daunting.

National Human Development Plan (PNDH)

The medium-term strategy of the current Nicaraguan government was laid out in its National Human Development Plan for 2008–2012. This plan was launched in October 2008 and

⁵⁸ Interview with Luis Humberto Guzmán, Director of PROCOMPETENCIA. (Authors’ translation)

updated in 2009, in light of the adverse impacts caused by the global economic crisis and the soaring oil and food prices that preceded it. The PNDH, which was formulated with the main objective of improving living standards of the Nicaraguan people, defines five priorities for accelerating growth and reducing poverty in Nicaragua:

- Promoting growth through sound macroeconomic policies, increased public and private investment, and improved access to external markets
- Fostering well-being and equity through the expansion of health and education services and targeted social programs
- Improving the governance and transparency of public sector institutions, including the strengthening of audit and control mechanisms
- Promoting environmental sustainability and forestry development
- Reducing inter-regional disparities by promoting the development of the autonomous regions along the Caribbean coast

The PNDH proposes a productive transformation strategy to reactivate the economy by stimulating private investment, productivity and higher-value added to primary production, and greater competitiveness. The objective is for Nicaragua to take better advantage of trade opportunities created by CAFTA-DR, ALBA, and other regional and bilateral trade and cooperation agreements approved or in process of negotiation, within a framework of fair and competitive international trade practices. The PNDH also calls for actions to foster micro-, small-, and medium-sized enterprises (MSMEs) to strengthen enterprise growth, industrial development, employment, and income generation, as well as alleviating poverty. It places considerable emphasis on human development, particularly with regard to the attainment of the MDGs in the areas of hunger reduction, universal education, nutrition and health improvements, gender equality, and environmental sustainability.

The PNDH is based on seven principles:

- Enhanced role of the state in addressing economic, social, and environmental constraints
- A pro-poor social policy
- A pro-poor capitalization policy based on enhanced food production
- Infrastructure development prioritized on the basis of social and productive concerns
- An energy policy anchored in an increasing use of renewable sources
- Private investment protection and greater government coordination with the private sector
- Improved coordination with donor community to ensure program support

With its multiple objectives and priorities across a broad spectrum of social, economic, environmental, and cultural issues, the PNDH is a very ambitious strategic document that highlights increasing state intervention in and oversight of all the sectors, coupled with a high reliance on donor support for its implementation. This has made the PNDH very vulnerable to possible donor shifts in development policies and priorities. It also creates a serious coordination problem for donors, whose own priorities do not necessarily coincide with those set forth in the Plan.

The magnitude of donor support for Nicaraguan development needs and priorities is significant. In 2010 alone, the country received close to \$1.2 billion (18.2% of GDP) in official development assistance. Of that total, \$743.5 million came from bilateral sources and \$451 million from multilateral institutions.⁵⁹ Such support made it possible to fund many of the development projects included in the PNDH, and also finance a large share of the GON budget.

Agricultural Sector Strategy

The PNDH defines the main priorities and action areas for the agribusiness sector. It promotes strengthening food security and food sovereignty, agricultural productivity, agro-industry development to add higher value to primary production, and competitiveness to enhance export growth as the core goal of agricultural policy. The PNDH seeks to empower micro and small producers to be more self-sufficient in food production, and to enhance their organizational and productive capacity for better access to services and markets. It calls for public and private institutions to provide efficient technical and organizational support, business development services, credit, agricultural inputs, productive and physical infrastructure, and access to domestic and export markets for small- and medium-sized producers.

The PNDH focuses its agricultural and forestry strategy on the following areas:

- Attain food sovereignty and promote agricultural export growth
- Promote land tenure regularization, cadastral, and rural property titling
- Foster effective water management practices and irrigation investments
- Foster smallholder *asociatividad* to facilitate their access to technology and finance and accelerate their capitalization
- Foster agro-industry development to add more value to agricultural production through value-chain development
- Integrate the business sector into the agricultural sector's reactivation programs

⁵⁹ Banco Central de Nicaragua, *loc.cit.*.

- Promote the sustainable management of land, water, and forestry resources and actions for effective climate change management.

The PNDH proposes carrying out its strategy through the following programs:

- Productive Rural Development Program (PRORURAL Incluyente)
- National Food Program (PNA)
- National Rural Agro-industry Program (PNAIR)
- National Forestry Program (PFN).

As discussed below, PRORURAL Incluyente has become the backbone of Nicaraguan agribusiness development strategy and coordinates implementation of the other three programs. The agribusiness strategy is quite comprehensive and, although it has a more pro-poor and food-sovereignty focus, it nevertheless seeks to achieve a radical transformation of the whole agribusiness sector relying on continued donor cooperation. While its strong emphasis on conditional cash transfers through different proposed programs might be a useful tool to tackle directly food security and poverty concerns, it could also become a political tool that could be manipulated easily by the current government for partisan purposes.

CAFTA-DR and Other Free Trade Agreements

Another important element in the Nicaraguan agribusiness policy framework relates to the legal and business commitments that the country has acquired through subscription to full or partial free trade and economic cooperation agreements with several countries and regional blocs. These include pacts with Mexico, Canada, the Dominican Republic, Taiwan, Chile, Colombia, Venezuela, Panama, and the European Union and CAFTA-DR with the United States, the Dominican Republic, and four other Central American countries (Costa Rica, El Salvador, Guatemala, and Honduras).⁶⁰ As the United States is the main Nicaraguan trading partner, CAFTA-DR is now of particular relevance for the agribusiness sector.

The CAFTA-DR agreement between the United States and Nicaragua went into effect on April 1, 2006. CAFTA-DR establishes trade obligations on market access, rules of origin, tariff elimination, tariff-rate quotas, safeguards (if imports exceed certain levels for specified products), SPS measures, and export subsidies. It calls for the elimination of import tariffs in 12 years for products going into the United States and 15 years for products going into Nicaragua. Tariff-rate quotas are set for various products, allowing tariff-free imports up to a quota level, after which tariffs are levied. Nicaragua receives quotas for dairy and beef products. CAFTA-DR provides all participant countries tariff-free exports into the U.S. for rice, wheat, feed

⁶⁰ Ministerio de Industria, Fomento y Comercio (MIFIC) de Nicaragua (www.mific.gob.ni), "Sistema de acuerdos comerciales internacionales."

grains, pork, poultry, and vegetables (fresh and prepared).⁶¹ The U.S. has also increased the quotas for sugar exports, which is beneficial to the Nicaraguan sugar industry.

The impact of CAFTA-DR on the Nicaraguan agribusiness sector has been significant. Nicaraguan exports to the United States increased by 71% from 2005 to 2010, whereas, U.S. exports to Nicaragua increased by 57% during the same period.⁶² The agreement has also had a positive effect on investment promotion for Nicaragua, particularly in its Economic Free Trade Zones (EFTZ), which has expanded in recent years and has created a large number of better-paying jobs.⁶³ Moreover, by requiring important reforms of the Central American countries' domestic legal and business environment, CAFTA-DR has had a positive impact on improving Nicaragua's competitiveness, along with greater investment, protection of intellectual property rights, and promotion of transparency and the rule-of-law in business and trade transactions. The agreement has also promoted a closer economic cooperation among the Central American countries, thereby advancing regional integration.

b. Implementing Institutions

Several institutions have a direct impact on improving agricultural productivity, competitiveness, and market access in Nicaragua. Principal among them is a sector-wide program known as PRORURAL Incluyente, MAGFOR and its dependencies, INTA, and MIFIC. While the Nicaraguan General Directorate for Customs Services (DGA) has a major impact on the processing of international flows, most respondents to the interviews did not consider it as a constraint on the export side, although some importers mentioned it as affecting the timely processing of some import arrivals. In fact, a new customs law is being formulated by the Nicaraguan General Assembly to make it more consistent with the Central American Customs Code.⁶⁴

PRORURAL Incluyente (Productive Rural Development Program)

PRORURAL Incluyente was established in 2005 as a mechanism for coordinating and integrating the activities of several Nicaraguan government agencies involved in agricultural and rural development. It was initially called PRORURAL, because its original focus was mainly on productive activities. In 2009, it was renamed PRORURAL Incluyente to reflect better its expanded scope to include all of the productive and non-productive activities involved in promoting more inclusive, equitable, and sustainable development of the rural areas. As it represents a Sector-Wide Approach Program that defines and operationalizes the government's

⁶¹ USDA, Foreign Agricultural Service, "FACT Sheet on the Dominican Republic-Central America-United States Free Trade Agreement," September 2009.

⁶² See: http://nicaragua.usembassy.gov/econ_cafta.html

⁶³ Interview with Javier Chamorro Rubiales, Executive Director of PRONICARAGUA.

⁶⁴ Interview with Fresialy Centeno, Deputy Director General, General Directorate for Customs Services (DGA).

objectives and actions in the agribusiness sector for 2010–2014, it has also become a platform for donor coordination and harmonization of interventions in the sector. It coordinates the implementation of the PNA, PNAIR, and the PFN. In addition, it coordinates the four government agencies that comprise the nucleus of the SPAR: MAGFOR, which is the program’s main executing agency, INTA, DR, and INAFOR.

PRORURAL Includente focuses its implementation on ten strategic areas:

- Capacity development of public and private institutions involved in the sector
- Policies and strategies that apply to relevant stakeholders and lead to the achievement of program objectives
- Access to inputs, equipment, financial services, productive and physical infrastructure, price and market information, and other assets needed to help rural families to participate in value chains, agro-industries, and more markets
- Technological services along the value chain, including research, technical assistance, extension, access to technology markets, grain storage, and inspection and certification
- Services to ensure food health, safety, and quality standards for domestic consumption and exports
- Agricultural and forestry information services
- Support services for sustainable forestry management
- Promotion of *asociatividad* and cooperatives
- Investments in conservation and restoration of forest ecosystems
- Facilitation of producer linkages with value chains and agro-industrial activities, and access to domestic and foreign markets for traditional, organic, and fair trade products

The National Food Program (PNA)

PNA seeks to increase food production to improve food security and consumption of safe and healthy foodstuffs in rural areas. It aims to expand production of basic grains (maize, beans, rice, and sorghum) and livestock products (beef, pork, chicken, milk, and eggs) to enhance dietary and nutritional standards for rural families. The program includes a series of actions to increase production and productivity in the sector through expansion in: certified seed production; technology transfer and technical assistance; phytosanitary surveillance; strengthening of SPS practices to reduce rejections of Nicaraguan exports by foreign markets; basic grains collection to ensure fair prices in domestic markets and increase food reserves for emergency purposes; and the completion in 2011 of the distribution of the so-called *Bono Productivo Alimentario* or *Hambre Cero* (“Zero Hunger”).

Hambre Cero

Hambre Cero, also known as the “Programa Productivo Alimentario” (PPA) and “Bono Productivo Alimentario,”⁶⁵ has been the centerpiece of the Nicaraguan government’s efforts to capitalize and convert extremely poor family farms (1–5 *manzanas*) into sustainable, integrated units and facilitate their equitable integration into the rural local economies. Budgeted at \$30 million, the program was conceived with the goal of eradicating hunger, chronic malnutrition, and extreme poverty among 75,000 rural families during the 2007–2011 period. It provides beneficiary families (mainly female-headed) with a package valued at around \$1,500 per beneficiary, comprising some animals (e.g., a pregnant cow, a pregnant pig, five chickens, and various vegetables and fruit plants), productive assets (seeds, fertilizers, and tools), and technical assistance to help them become food secure and self-sufficient. Although considered a positive initiative for tackling the problem of food insecurity in Nicaragua, and it has received ample support by the donor community, the program has been criticized for its lack of transparency in the beneficiary-selection criteria and for what many consider a political tool for increasing the government’s influence in rural areas, especially during this election year.⁶⁶

The PNA also includes a sub-program called the Agro-Food and Certified Seed Program (PASC),⁶⁷ which seeks to increase certified seed production for its distribution among small farmers at planting time.

The Rural Agro-industry Program (PNAIR)

PNAIR’s main objective is to increase the generation of value added to the primary production of small- and medium-sized producers. It seeks to foster organizational capacity, managerial and entrepreneurial skills, and rural enterprise development among those producers, along with the improvement of rural family incomes through better post-harvest and processing activities and their integration into higher value-added chains projects included in the PRORURAL Incluyente program. The IDB is supporting such an institutional restructuring.

Ministry of Agriculture and Forestry (MAGFOR)

MAGFOR is the main Nicaraguan public sector institution that sets the strategic directions for many public services that affect the productivity, competitiveness, and international trade of the country’s agricultural and livestock products. As such, its effectiveness in performing its

⁶⁵ FIAN Internacional, “El Derecho a la Alimentación y la Lucha para Combatir el Hambre en Nicaragua. Un Año del Programa Hambre Cero,” September 2008.

⁶⁶ “Hambre Cero no tiene seguimiento auditable,” *El Nuevo Diario*, September 29, 2009.

⁶⁷ The PASC is a government-sponsored program implemented under the umbrella of MAGFOR that aims to promote the development of the seed market by strengthening demand and the establishment of distribution networks. Every year, it provides either certified seed or vouchers to purchase them, in the form of credit, to selected groups of small basic grain producers (1-5 *manzanas*), members of cooperatives, and producer associations. It also provides them, free of charge, inputs such as fertilizers and pesticides.

functions has a direct impact on the agribusiness sector in Nicaragua, including in particular small producers attempting to improve their incomes to increase their access to food.

MAGFOR's responsibilities include:

- Formulating and implementing sector-wide agricultural and forestry development policies
- Setting strategic direction for agricultural research and extension
- Formulating and executing strategies and policies related to food security, agricultural productivity, agro-industrial development, and water, land, and watershed management
- Providing inspection, surveillance, and certification services to ensure compliance with national and international standards related to plant and animal health and food safety
- Identifying and prioritizing credit demands in the agricultural sector and working to improve access to rural financial services
- Developing production and market information systems to help decision-making by relevant sector stakeholders
- Coordinating with the institutions that comprise the Sector Público Agropecuario Rural SPAR, and with other cognizant government ministries, key actions related to constraints affecting food security, agricultural production, marketing, and trade
- Formulating policies for the use, distribution, and property rights allocation of state lands
- Coordinating implementation of PRORURAL Incluyente and the PNA.

Despite its significant responsibilities for key areas of the Nicaraguan economy, in recent years MAGFOR has been experiencing an increasingly weakened capacity in many of its traditional core functions. Prior to 2007, most of its resources and staff time were allocated to providing SPS support and technical assistance to producers. But with the recent increased emphasis on conditional cash transfer programs (i.e., “Zero Hunger”), some of its technical and financial resources have been shifted to more project management and rural social development tasks, which has resulted in a loss of technical and production focus. In 2009, the professionals in charge of the directorates of animal and plant health were fired for political reasons⁶⁸ and replaced by military officers who do not have any relevant expertise. Some departures of other technical staff seeking better job opportunities elsewhere have weakened the institution even further. A strong indicator of its declining capacity is the Ministry's heavy reliance on donor assistance for programmatic activities, which tends to fluctuate from one year to the next. Around 60% of MAGFOR's 2010 budget came from donor sources.

⁶⁸ “Desestabilizan MAGFOR en el peor momento” *El Nuevo Diario*, October 14, 2009. (www.elnuevodiario.com.ni/nacionales/59320).

Agricultural Research

Investments in agricultural innovation have been credited as being one of the main drivers of growth in agricultural productivity, as well as a major contributor to a country's ability to produce more food from limited agricultural land.⁶⁹ Nevertheless, this is an area where Nicaragua is showing marked weaknesses.⁷⁰ The technologies generated by the agricultural research institutions do not always contribute to solving the pressing problems faced by the sector. Neither have they induced any significant or sustainable improvements in productivity, product diversification, or higher value added. Moreover, in those few instances where improvements have been generated, they have not been shared or adopted.

This lack of appropriate technical solutions to prevailing agricultural productivity and competitiveness constraints faced by the Nicaraguan agribusiness sector is due to some extent to the way agricultural research is undertaken. This research is fragmented by type of institution and research focus. Moreover, its funding is primarily dependent on development cooperation agencies or assistance from international development banks, whose priorities do not always coincide with GON priorities or needs.⁷¹ The main public sector research institution is INTA.⁷² In addition, there are several other agencies, including the non-profit Foundation for Agricultural and Forestry Technological Development (FUNICA),⁷³ several universities, and international research centers such as FAO, IICA, CIAT, CATIE, WFP, and UNDP. Each institution has its own research agenda and priorities, depending on its own funding sources. There is little collaboration, which reduces the level of dissemination of research findings and diminishes any potential multiplier impacts.⁷⁴

The National Institute for Agricultural Research (INTA)

INTA was established in 1993 with World Bank support. Although it is an autonomous institution, it is affiliated with MAGFOR within the SPAR. INTA has a broad mandate that goes beyond what its capabilities allow it to achieve. It is supposed to cover a wide spectrum of research areas in crops and livestock, from genetic material development and improved seed production to agronomic practices, post-harvest management, and on-farm processing. It is also responsible for generation, validation, and transfer of new technologies. In addition, it is responsible for providing technical assistance to other government programs, including the NFP.

⁶⁹ Heisey, P.W. (2001). "Agricultural Research and Development, Agricultural Productivity, and Food Security." *Agricultural Information Bulletins* 33685. USDA, 2001.

⁷⁰ Gert-Jan Stads, Frank Hartwich, David Rodríguez, and Francisco Enciso, *Agricultural R&D in Central America, Policy, Investment and Institutional Profile*. ASTI Regional Report, November 2008.

⁷¹ ASTI. "The Structure of Agricultural R&D in Nicaragua." 2009.

⁷² See www.inta.gob.ni.

⁷³ See www.funica.org.ni

⁷⁴ , "Análisis de la situación actual de la innovación tecnológica agropecuaria de Nicaragua," FUNICA, 2007.

Due to financial and technical staff limitations, however, only around 10% of its budget and 52 of its staff (from a total of 263) are actually engaged in agricultural research. INTA mostly focuses on the primary production phase of traditional crops (mainly basic grains), leaving research gaps in other areas that could lead to further production diversification and higher value-added processes. INTA's dependency on donor support for funding its work program has resulted in significant fluctuations in its research spending levels from year to year, which affects the sustainability of its research programs and the pursuit of a longer-term innovation strategy. INTA's limitations in providing critically needed improved seeds at planting time and more effective solutions to the technological limitations of the agribusiness sector were often mentioned by interviewees as a key constraint to enhancing productivity.

The Nicaraguan Foundation for Agricultural and Forestry Technological Development (FUNICA)⁷⁵

FUNICA was established in 2000 with support from the International Fund for Agricultural Development's (IFAD). It manages two competitive grant funds—one for research (FAITAN) and another for technical assistance (FAT). FUNICA works in partnership with public and private sector institutions to fund research projects in the agribusiness sector. Although it has had a more market-based approach than INTA in supporting technology generation, FUNICA's research projects have also focused more on the primary production phase and not on alternatives for moving to higher value-added products.

Higher Education Institutions

The main higher education agencies involved in agricultural research in Nicaragua are the National Agrarian University (UNA), the Applied Research and Local Development Institute of the University of Central America (UCA), the National Autonomous University of Nicaragua (UNAN), the University of Commercial Sciences (UCC), and the Polytechnic University of Nicaragua (UPOLI).

Agricultural research programs conducted by universities and other types of higher education institutions in Nicaragua⁷⁶ have focused to some degree on generating new knowledge for adding more value to selected products and processes and on product diversification. However, they have still concentrated more on the primary production phase. Moreover, their lack of involvement in the areas of technology validation at the farm level and in technology transfer has reduced the impact, and also usefulness, of their research for enhancing product competitiveness.⁷⁷

⁷⁵ See Web site. www.funica.org.ni

⁷⁶ ASTI, *loc. cit.*

⁷⁷ FUNICA, *loc. cit.*

Several producers who were interviewed⁷⁸ indicated problems in lacking technologies related to: (i) availability of improved seeds, at affordable prices, of good germination and high-yield potential, resistant to specific pests and diseases and appropriate to the soils and farming conditions in which they are planted; (ii) integrated pest and disease management practices that provide them with low-cost solutions to attendant problems; (iii) better soil management and erosion control practices that reduce risks of landslides, particularly for producers in hillside areas and marginal lands; (iv) effective agronomic practices to help them mitigate and adjust their farming and cattle-raising activities to the adverse effects caused by climate change; (v) agronomic and environment-friendly practices to pursue more organic farming; (vi) low-cost irrigation technologies (e.g., drip irrigation, water harvesting); (vii) better post-harvest handling practices; and (viii) managerial and marketing skills to enhance their technical and business know-how, improve their market access and help them link into higher value chains. In other words, they need more applied and useful research products.

Thus, the critical issue with respect to agricultural research in Nicaragua is its lack of quality and relevance to the challenges and opportunities faced by the agribusiness sector. It is also related to the technical weaknesses of local research institutions and their lack of a cadre of well-qualified scientists and researchers. In addition, it has to do with the absence of a cohesive and consensual national R&D strategy to guide agricultural research, which to a large extent is explained by the lack of program continuity and sustainability. Given the critical role of innovation in driving the technological transformation of the Nicaraguan agribusiness sector, more donor coordination and collaboration is required to ensure complementarity and relevance of efforts. Similarly, it is essential to focus on practical problems and needs in both traditional and non-traditional sectors.

The National Institute for Agricultural Research

Critical factors constraining the achievement of higher productivity and competitiveness in the Nicaraguan agribusiness sector include the low levels of technological adoption and human capital development. A large segment of small- and medium-sized producers lack the technical and managerial skills needed to perform effectively in an increasingly demanding and competitive world agricultural economy.

To some extent, this is due to limited or no access to technical assistance and training support services to provide them with the relevant knowledge and skills for improving technological, farm management, and business practices. In other cases, as was reported in several interviews, it is the result of many traditional producers who do not possess the capacity to learn new technologies for lack of formal education, and who adhere to cultural practices that will not prepare them to be competitive in a modern, globalized economy. In any event, the availability

⁷⁸ Field visits with small food grain, horticultural and livestock producers in Comalapa, Sebaco, and Matagalpa.

and delivery effectiveness of technical assistance services could help alleviate these skill limitations and help them to begin to modernize their production functions.

In addition to agricultural research, INTA has the main responsibility for providing technical assistance services to small producers, but its lack of financial and well-qualified staff resources limits the coverage and quality of the extension services that it is currently providing them.⁷⁹ According to several interviewees, INTA has lost good technical staff to private companies, and some of those remaining lack adequate levels of technical expertise in key areas such as integrated pest management practices, post-harvest handling, effective soil and water resource management, dealing with adverse effects of climate change, rational use of agrochemicals, and more environmentally sustainable technologies and strategies, including reforestation.⁸⁰

With an extension staff of only 190 technicians and facing a demand for a wide range of technical services from more than 200,000 producers dispersed around the country, it is clear that INTA does not have the capacity to live up to the challenge. That was the same conclusion elicited from producers in the interviews conducted during several field visits. Most of them said that they are not receiving any support from INTA. In fact, MAGFOR has estimated that INTA and the Rural Development Institute (IDR) are reaching only around 15% of agricultural producers. Such an estimate might still be on the optimistic side, given the substantially limited technical and staff capabilities of these institutions.

INTA's weaknesses in performing its technical assistance tasks has a significant impact on the sector's prevailing low productivity levels and on the limited technical, business, managerial, and marketing skills prevailing among a large segment of Nicaraguan agricultural producers.

Although a large segment of small producers are not receiving any kind of technical assistance, others are being reached through alternative channels. For instance, several national organizations of producers and cooperatives, including the Nicaraguan Union of Agricultural Producers (UPANIC), the National Union of Farmers and Cattle Raisers (UNAG), the Nicaraguan Association of Rice Producers (ANAR), the Nicaraguan Association of Sorghum Producers (ANPROSOR), the Nicaraguan National Livestock Commission (CONAGAN), the Association of Poultry and Animal Feed Producers (ANAPA), the National Federation of Agricultural and Agro-industry Cooperatives (FENACOOOP), the Enterprise of Agricultural Services Cooperatives (NICARAOCCOP) and the Union of Agricultural Cooperatives (UCA), among others, are known for providing technical assistance and training services to their members and associates with field day events, farm trials, and demonstrations, and even radio programs that disseminate information.

⁷⁹ Interview with representatives of different institutions that comprise UPANIC.

⁸⁰ Interview with Daniel Nunez Rodriguez, President, Nuevo Carnic.

FUNICA is also supporting technical assistance through its competitive grant fund.⁸¹ Producers select the technical assistance professionals they feel are most capable of helping them and co-financer the project costs. In addition, commercial companies that sell agrochemicals and veterinarian products provide technical assistance services to producers that buy their products. Those companies transfer technological packages and managerial know-how to producers. This practice is particularly prevalent in the rice (dry and irrigated) and livestock sectors, and more recently it has also been extended to beans.⁸²

The most advanced producers and big agricultural enterprises have their own technological adaptation initiatives and focus mainly on export crops (livestock, sugar cane, tobacco, peanuts, and coffee). They tend to rely more on the adaptation of imported technologies such as new varieties of seeds and hybrids resistant to plagues and diseases, feed supplements, new irrigation systems, and better agronomic practices, which are spillovers of research conducted somewhere else.

Producer associations participating in value chains also receive technical assistance support from lead or anchor companies to which they are linked. Such is the case for the coffee producers connected with the Latin American Financial Services Group (Lafise) and CISA Exportadora; the milk producers associated with PARMALAT, NILAC, and CENTRALAC, and the banana growers working with NicFoods.

In addition, several donors and philanthropic organizations have been active in filling the gaps in technical assistance left uncovered by public sector institutions. Most of their programs have sought to overcome technological constraints that impede higher-value production, productivity, and competitiveness in the agribusiness sector by targeting their interventions on the underserved groups among micro and small producers. Among those programs are the USAID-funded Enterprise and Employment, ACORDAR, and Technoserve projects, as well as the Millennium Challenge Account-Nicaragua, which completed its operations in May 2011.⁸³

General Directorate for Plant and Animal Health and Protection (DGPSA)

One of the most important public goods provided by governments to support efforts to strengthen competitiveness and implement trade agreements is a well-structured and effectively operating national SPS inspection and certification service. This type of service ensures that national and international standards and regulations associated with SPS are well-known by producers, processors, and exporters and duly complied with up the value chain. In Nicaragua, the critical functions of promoting SPS compliance and adherence to quality requirements are

⁸¹ See www.funica.org.ni.

⁸² Interview with Orontes Lacayo Rivas, General Deputy Manager, RAMAC.

⁸³ Interviews with executives of Enterprise and Employment, CRS/ACORDAR, MCR and Technoserve. Also, see www.nicaraguaempresayempleo.com, www.crs.org/nicaragua, www.technoserve.org, and www.cuentadelmilenio.org.ni.

under the umbrella of MAGFOR's General Directorate of Plant and Animal Health (DGPSA). The Ministry of Health (MINSa) is also involved in the inspection of processing and marketing of food products to ensure their safety for domestic consumption.

With the growing scrutiny of the production and transformation practices in agricultural and food production, from planting time until products reach the end buyer, DGPSA's job is a challenging one. The requirements imposed by hazard analysis and critical control points (HACCP), good agricultural practices (GAP), and more recently traceability represent additional demands that producers and exporters have to deal with, if they are going to be able to sell their products in foreign markets, as well as in some of the higher-quality retail stores and supermarkets that have been established in Nicaraguan urban areas in recent times. DGPSA's job is to ensure that those practices are effectively followed. To that end, DGPSA is charged with conducting safety inspections in the handling, use, and disposal of agrochemicals, seed multiplication and certification processes, agricultural inputs, epidemiological surveillance for pest and disease prevention and mitigation, and issuing SPS certificates for agricultural and food products shipped to foreign markets and for imports arriving into Nicaragua.

Nevertheless, despite the support that it has been receiving from several donors, mainly the IDB, USAID, and USDA, and being allowed to charge some fees for the services it renders, DGPSA lacks sufficient financial resources and well-qualified technical staff to carry out its mission fully and often fails to keep pace with the expanding demands for its services. Several of the producers interviewed for this report complained that the low quality of seeds they were receiving at planting time, the prevalence of pests and diseases in their producing areas, and the presence of toxic residues in foods ready for foreign shipping were associated with DGPSA's failures in carrying out input inspections, conducting epidemiological surveillance, and issuing SPS certifications. The Center for Export Procedures (CETREX)⁸⁴ and several exporters⁸⁵ pointed out that the frequent delays in DGPSA's issuing of export certificates often resulted in delays of export shipments. Thus, although DGPSA might be committed to optimizing its performance, its weakened institutional capacity prevents it from reaching that goal.

DGPSA's allocated budget and revenues derived from its fee collections frequently have been insufficient for covering its operating costs and making necessary investments in more laboratories and equipment to improve its performance. Although investment constraints have been to a large extent alleviated by donor assistance programs, its continuous reliance on such support impacts the continuity and sustainability of its institutional functions.

In order to facilitate compliance with SPS requirements and avoid delays in their marketing and export activities, most large Nicaraguan agribusiness companies pay to have DGPSA inspectors

⁸⁴ Interview with Jorge A Molina, Executive Director, CETREX.

⁸⁵ Interviews with representatives of APEN, UPANIC, APRICO, BENCAFE, and RAMAC.

work full-time at their plants.⁸⁶ So far, this approach is working well, although it may adversely impact medium size companies by reducing the number of personnel available to conduct inspections in those enterprises.

In addition to requiring DGPSA SPS certification for exports, coffee producers need to procure a quality certificate issued by the National Organization of Coffee Quality Certification (ONCC), which is part of the National Coffee Council (CONACAFE).⁸⁷ ONCC/CONACAFE charges \$0.10/quintal as a fee for issuing its certificate, which is a common complaint among exporters, because this fee adds to their exporting costs.⁸⁸

Moreover, quality certifications of fair trade or organic production of coffee are made by international NGOs, such as Rainforest Alliance and Café Practice of Starbucks. As they are expensive, they are usually paid by exporters on behalf of producers.⁸⁹

It is clear that DGPSA is working under very stringent conditions to perform its tasks. Aside from on-going support from USDA, OIRSA, IDB and other donors, it should explore further opportunities to develop public-private partnerships with private sector organizations, especially exporting companies, so they can co-finance selected inspection and certification activities for which DGPSA does not have enough or sustainable resources.

International Trade and Export Promotion

Nicaragua has accelerated its integration into the global economy through a series of international trade agreements, the most important of which is CAFTA-DR. This approach fits well for a small economy like Nicaragua with a limited domestic market. Although Nicaraguan exports have been rising in recent years, they are still the lowest in per capita terms in Central America (\$543 in 2010).⁹⁰ Moreover, their export value added is generally not high, and their diversification is still very limited,⁹¹ largely due to the technological constraints already discussed.

Nicaragua's production sector is composed primarily of micro, small-, and medium-sized producers and enterprises (MSMEs), most of which are involved in agribusiness. In addition to the technological and SPS constraints, as well as weaknesses in *asociatividad* as discussed below, MSME producers are being constrained by their inability to compete and expand their international presence because of: (i) a lack of familiarity with external markets and export processing procedures; (ii) the inability to exploit opportunities made available by trade

⁸⁶ Interviews with executives of Nuevo Carnic, ANAPA, CAPENIC, PARMALAT, CISA, and AGRICORP.

⁸⁷ See www.conacafe.org.ni.

⁸⁸ Interview with Herick Alberto Baca, General Manager, BENCAFE.

⁸⁹ Interview with Luis Osorio Garcia, Technical Secretary, CONACAFE.

⁹⁰ *Ibid.*

⁹¹ "Nicaragua: Inserción Internacional en Beneficio de la Mayoría" By ZigaVodusek, Erick Zeballos, Jaime Granados, and Alberto Barreix, INTAL/ITD Working Paper. IDB 2007.

agreements; (iii) the lack of integration into higher-level value chains; and (iv) the shortage of information and training opportunities.

The best way to make the most effective use of the trade agreements is to strengthen the country's export capacity, at all levels, and enhance product competitiveness by promoting a unified export-oriented front among the public and private sector institutions involved, directly or indirectly, in the implementation of those treaties.

In Nicaragua, there are three institutions and two commissions directly involved in the implementation of activities related to trade and foreign investment promotion. This proliferation of agencies creates some confusion, overlap, and duplication of functions, which has led to inefficiencies and cost-ineffectiveness. This situation could be avoided through selected consolidation of functions and roles.

The six institutions involved in trade and investment promotion are: (i) MIFIC; (ii) ProNicaragua; (iii) the Nicaraguan Export and Investment Center (CEI); (iv) the National Commission for Export Promotion (CNPE); (v) CETREX; and (vi) the Free Trade Zones National Commission (CNZF).

The Ministry of Development, Industry, and Trade (MIFIC)

MIFIC is the lead agency in the external trade and foreign investment sector, with divisions specializing in the negotiation of trade agreements, treaty administration, investments, export promotion, quality and standardization, and promotion of small- and medium-sized enterprises (SMEs).⁹² MIFIC coordinates the country's main support services for foreign trade management and the internationalization of SMEs.

MIFIC's main functions are to:

- Promote foreign market access and an effective insertion into the global economy through the negotiation and management of international trade and investment agreements
- Foster free competition in the domestic markets of goods and services, protect consumer rights, and supervise the national commercial metrology system
- Facilitate domestic and foreign investment and support private sector efforts to take full advantage of international trade opportunities
- Administer the registry of industrial and intellectual property

⁹² Interview with Verónica Rojas, Vice Minister, MIFIC.

- Foster the productivity, efficiency, and competitiveness of inter-sectorial value chains and clusters through technology transfer and managerial capacity building, with emphasis on SMEs.

In general, MIFIC has been doing a good job in performing its functions. It has received ample support from several donors, mainly USAID, the IDB, and the World Bank, in capacity building related to trade negotiations, trade implementation procedures, business and SME development, improving the national export quality system, and strengthening the ability of producers to access markets opened by free trade agreements. However, as Nicaragua continues its current track toward negotiating and implementing more trade and economic cooperation agreements, MIFIC's institutional capacity may well not be able to carry out adequately the subsequent additional responsibilities of monitoring and administering these new treaties. This would require increasing collaborative efforts with the private sector to achieve greater efficiencies, perhaps through public-private partnerships.

ProNicaragua

ProNicaragua was established in 2002 as a non-profit, public-private institution whose mission is to generate economic growth and job creation in Nicaragua by attracting high-quality FDI. It does this by hosting potential investor site visits, providing investment information services, facilitating discussions and services with key government contacts, and offering assistance in finding local partner companies for joint ventures, suppliers, or other types of business alliances.

Investment opportunities are identified for textiles and apparel, tourism, call centers, light manufacturing, agribusiness and forestry, and the energy sector. In the agribusiness and forestry sectors, the focus is on investment opportunities in tree plantations, dairy products and livestock, food processing, biofuels, and forestry. ProNicaragua has been very effective in attracting some agro-industrial and food processing companies to the country's duty-free zones ("*zonas francas*").⁹³

Most agribusiness entrepreneurs interviewed for this study spoke very highly of ProNicaragua and of its successes in attracting foreign investment to the country. In 2009, it was named the 11th best national investment promotion agency worldwide and the 2nd best in Latin America by the World Bank's Foreign Investment Advisory Service (FIAS). During its tenure, FDI in Nicaragua grew from \$204 million in 2002 to \$508 million in 2010.

The Nicaragua Export and Investment Center (CEI)

CEI is a private, non-profit corporation that supports MSMEs, as well as organized or individual producers, in order to improve the Nicaraguan export sector's competitiveness and to position

⁹³ Interview with Javier Chamorro Rubiales, Executive Director, ProNicaragua.

it in international markets.⁹⁴ Its board of directors comprises representatives of the public and private institutions actively involved in international trade, including MIFIC, business chambers, and exporter organizations. It works to support the development of greater competitiveness in order to access new export markets and promotes producer associations to enable them to expand product volumes. CEI also supports export policy development.⁹⁵ It provides producers and business groups with market intelligence and research services, as well as assistance to help businesses develop export strategies and related business plans. Like ProNicaragua, CEI organizes trade missions and facilitates linkages with potential foreign buyers. Since its establishment, CEI has received support from several international donors and is currently receiving support from the Government of Holland, which is financing a project to identify industries and sectors with export potential and to assist SMEs in penetrating global markets.

Not surprisingly, some overlap exists between CEI and ProNicaragua. Initially conceived as a potential single window for all trade transactions, CEI has been losing ground to ProNicaragua, which duplicates many of its services. As one observer put it: “If you take away its donor support, CEI might not be able to survive.”⁹⁶

The National Commission for Export Promotion (CNPE)

CNPE is an institutional mechanism that was established in 1991 to coordinate efforts in export facilitation among relevant public and private sector institutions. It is presided over by the Minister of MIFIC and includes the Ministers of Finance and Public Credit (MHCP), MAGFOR, MARENA, and the President of the Central Bank from the public sector. It also includes representatives from the Private Sector High Council (COSEP), the Nicaraguan Association of Producers and Exporters (APEN), the Nicaraguan Chamber of Fisheries (CAPENIC), the Nicaraguan Association of Industrial Exporters (ANEX), and CEI. CETREX is the Technical Secretariat of CPN.

The Export Processing Center (CETREX)

CETREX is a public institution that was established in 1994 as a one-stop service window for processing export documentation required by all government entities.⁹⁷ It reports to CNPE, which defines its policies and authorizes its work plans, budgets, and fee levels charged for services rendered. It facilitates export transactions and procedures electronically from the exporting firm’s own installations by using a single form and requiring a single fee. This means exporters can submit export authorization requests online 24 hours a day and then collect all

⁹⁴ See www.cei.org.ni.

⁹⁵ Interview with Roberto Brenes, General Manager, CEI.

⁹⁶ Interview with Jorge A Molina, Executive Director, CETREX.

⁹⁷ See www.cei.gob.ni.

required documents in one package from CETREX. One key constraint faced by CETREX in speeding up its operations is the frequent delays by DGPSA in issuing SPS certificates, which are not processed digitally. This can result in delays of up to 48 hours. CETREX also has a very user-friendly trade information system (SITRADE) that registers all the export transaction information (volume, value, prices, and destination markets) at the time of requesting export permits. This results occasionally in statistical discrepancies (sometimes substantial) with the information systems kept by DGPSA, which registers actual export transactions at shipping time. However, CETREX's system provides an accurate and useful database for easily accessing export-related information.

As most of the exporters who were interviewed pointed out, CETREX seems to be performing its functions well. The main institutional constraints it faces are in the area of coordination with other agencies performing related activities, as in the DGPSA example. As one observer pointed out: "There are too many islands and they do not communicate well with each other, as everyone is trying to protect his own turf."⁹⁸

The Free Trade Zones National Commission (CNZF)

CNZF is the governing body in charge of promoting the establishment of FTZs in Nicaragua. It also regulates FTZ operations and determines the incentives (tax and tariff exemption and expedited imports and exports) provided to companies operating in the free trade or export processing zones (*maquila*, light industries, and call centers).⁹⁹ This system allows for the entry of merchandise into the national customs territory in addition to the purchase of local goods or raw materials without being subject to any taxes or duties. The merchandise, however, must be re-exported after being processed, transformed, repaired, or altered. The CNZF comprises the Ministers of Finance and Public Credit (MHCP), Development, Industry, and Trade (MIFIC), and Labor (MITRAB); the President of the Central Bank (BCN); and one representative of the Nicaraguan Chamber of Industries (CADIN), who acts as the Commission's Technical Secretariat.

c. Supporting Institutions

Nicaragua has several private sector institutions that perform critical roles in supporting the agribusiness sector. They consist of business groups and commercial and producer associations. This section will focus on the most important ones in terms of membership and export impact.

⁹⁸ Interview with Ing. Jorge A Molina, Executive Director of CETREX.

⁹⁹ See www.cnzf.gob.ni.

Asociatividad

Before reviewing the key supporting institutions, it is important to highlight the issue of *asociatividad*, which was considered by all those interviewed for the study to be the most important constraint to agribusiness after the lack of access to credit and *institucionalidad*. There are two basic types of organizations that fall under the rubric of *asociatividad*: producer associations and cooperatives. In addition, there are federations of cooperatives, such as the Uniones de Cooperativas as well as INFOCOOP, the GON agency for promoting cooperatives. Although there are many cooperatives—3,410 as of 2010, representing 182,000 members, 34% of whom are women—there is still a need to organize micro and small producers, be it in cooperatives or producer associations.¹⁰⁰

Thus, there is a large number of Nicaraguan producers, mostly micro and small, that are not yet integrated into any association and consequently do not enjoy any of the benefits and advantages of *asociatividad*. UPANIC, the Nicaraguan Union of Agricultural and Livestock Producers, is an exception. It has 14 affiliate associations, including small producers. There are several benefits for micro and small producers to organize, including:

- Enhanced opportunities to be incorporated into chains. Most export companies, for example, find it easier and less costly to deal with associations than individual producers; they therefore seek out organizations of micro and small producers, both associations and cooperatives.
- Associations bring a series of economies of scale to their members, such as acquisition of training, technical assistance, market information and access, crop certifications, input purchases, technology, and credit access.
- Associations also allow their members to negotiate prices more effectively and boost profits, leading, among other benefits, to greater food security.

While the large majority of export companies and other buyers of micro, small, and even medium producers prefer dealing with associations, there is one notable exception: Hortifruti/Walmart. In this case, the company has an arrangement with 150 producers to purchase their crops. It provides technical assistance to ensure compliance with quality standards, and has an arrangement with Banco Lafise whereby their contracts with the producers are used as collateral for loans. But this is the rare exception.

According to several exporters, one drawback cooperatives have is that some have a tendency to produce to the lowest quality common denominator. That is, instead of working with members who have low-quality production to improve their standards, they do little to nothing to improve crops. The result is mixed-quality products that do not always meet international standards and discourage buyers from purchasing the production.

¹⁰⁰ Interview with Sofia Esperanza, Executive Director, INFOCOOP, Managua, April 4, 2011.

The one problem that many associations, but especially cooperatives, are said to have is a lack of adequate management. This is circumvented to a large degree in chains, where anchor companies provide the kinds of assistance required to deal with management as well as production and other issues. This approach has had substantial success in producing quality goods in sufficient volumes to meet international market demand.

It is clear that promoting *asociatividad*, particularly in the context of higher-level value chains, is key to strengthening the productivity, competitiveness, profitability, and profits of micro and small producers.

The Private Sector High Council (COSEP)

COSEP is Nicaragua's leading business group, whose mission is to foster and safeguard the economic, political, and social conditions that ensure free enterprise and respect for private property.¹⁰¹ It was established in 1972 as a non-profit organization and it is composed of 18 business associations, including APEN, UPANIC, the Nicaraguan Association of Blenders and Distributors of Agrochemicals (ANIFODA), the National Association of Poultry and Animal Feed Producers (ANAPA) and the Nicaraguan Association of Coffee Exporters (EXCAN). It provides several services to its associates including special studies, seminars, technical assistance, information exchange, and other activities that address the significant challenges faced by the Nicaraguan private sector. COSEP also collaborates with and coordinates the assistance and support from national and international organizations for the benefit of the Nicaraguan private sector. COSEP holds periodic consultation meetings with relevant GON authorities concerning issues affecting the country's business, economic, and political environment. It also prepares an annual document called COSEP AGENDA, which spells out the critical areas that the private sector proposes that the government address in its annual work plans. COSEP is currently implementing an IDB project oriented to promote entrepreneurial and enterprise development in Nicaragua.

The Association of Producers and Exporters (APEN)

Established in 1991 with assistance from USAID, APEN is Nicaragua's leading export organization.¹⁰² APEN assists small, medium, and large producers to increase exports; represents sector interests; facilitates access to markets; promotes the establishment of productive value chains and export mechanisms; and encourages the formation of clusters to guarantee a sufficient export supply for foreign markets. It provides several fee-based services to its members upon request. These include:

¹⁰¹ Interviews with COSEP officials José Adán Aguerri, President, Freddy Blandón Argeñal, Legal Advisor, and Rafael López Altamirano, Economist.

¹⁰² Interviews with Sonia Somarriba, Trade and Cooperation Manager, APEN.

- logistical support with refrigerated storage
- transport of goods
- laboratory analysis
- commercial and export-related information
- representation at national and international trade fairs
- special training programs for small- and medium-sized enterprises
- assistance with export procedures to access different markets
- information system for bovine traceability.

In addition, APEN sponsors technical commissions that promote the development of products with export potential, including fruits and vegetables, beans, seeds, peanuts, cocoa, livestock, agro-industry, and aquaculture. It also maintains a price information system that reports on market transactions in Nicaragua and foreign markets, as well as a business-matching service between importers procuring specific goods and local suppliers. APEN is the only Nicaraguan institution that has a cold storage system, which is located near Managua's airport.

The Nicaraguan Union of Agricultural and Livestock Producers (UPANIC)

UPANIC was founded in 1979 and comprises 19 commodity and regional producer associations totaling over 30,000 members. It focuses on enhancing farm community capacities to work within the context of globalization through regional and bilateral trade agreements and Central American partners. UPANIC does not directly export, but it seeks to promote producer-level competitiveness and product quality and diversification in local, regional, and international markets.¹⁰³ UPANIC was actively engaged in the CAFTA-DR negotiation process, as well as in other treaty negotiations. Among the services provided by UPANIC are (i) seed processing, drying, and collection sites; (ii) business plan preparation; (iii) mobilization of more effective technology delivery systems; and (iv) monitoring of and advice on legal and regulatory changes.

UPANIC has identified the following areas as key constraints affecting the Nicaraguan agribusiness sector:

- access to finance
- lack of certified seed at planting time
- deficiencies in the provision of technical assistance (i.e., lack of qualified technical staff at INTA) and marketing services

¹⁰³ Interview with several representatives of the main organizations that comprise UPANIC.

- poorly maintained secondary roads
- adverse effects of climate change
- high cost of fertilizers (around 30% of production costs) and other agrochemicals
- lack of education and business skills among a relatively young farmer population (around 30–40 years of age)
- overall deficiencies in the provision of government services.

Associations such as UPANIC are required because, among other critical reasons, “the government does not have the capacity to do what is needed.”¹⁰⁴

Agropecuaria Lafise

Agropecuaria Lafise, representative of several similar institutions, was organized in 2005 as a subsidiary under the Lafise Group (Latin American Financial Services Group), a highly regarded regional investment bank company created in 1985.¹⁰⁵ Agropecuaria Lafise has developed an innovative model¹⁰⁶ that links key production support and marketing services to value chains and that has helped Nicaraguan small and medium producers to respond to growing demands from Central American and U.S. buyers in several product areas. Lafise’s model provides a comprehensive private sector response to the traditional difficulties encountered by small and medium producers related to economies of scale, product price differentiations, poor access to improved technologies, constraints in value-added productive opportunities, and lack of access to finance and marketing and information services.

Through its 48 branch offices in Nicaragua linked to BANCENTRO, funds are provided to cover anticipated production input requirements based on an actual product and farm business plans. Product storage and product transformation services are also available. In addition, Lafise provides technical assistance through local associations and support groups. Promising market-responsive product lines that have been introduced include red beans, cacao, yucca, and cheese. Given the innovative nature and significant impact that Lafise’s model has had in connecting small and medium producers to effectively lead or anchor companies in higher-level value chains, many other exporting companies and donor-supported programs (e.g., CRS-ACORDAR, TechnoServe, and others)¹⁰⁷ have been successfully replicating similar efforts.

¹⁰⁴ Interview with Manuel Alvarez, President, UPANIC, Managua, January 24, 2011.

¹⁰⁵ Interview with Enrique Zamora, General Manager, Agropecuaria Lafise.

¹⁰⁶ “Financiamiento de las Cadenas Agrícolas de Valor,” paper presented by Jorge Zamora, Lafise, Costa Rica, May 2006.

¹⁰⁷ Interviews with Jorge Brenes, General Manager, CRS-ACORDAR, and Julio C. Brenes, Nicaragua Country Director, TechnoServe.

CISA Exportadora

CISA Exportadora is a pioneering Nicaraguan exporting company specializing in buying high-quality coffee directly from local growers.¹⁰⁸ It provides technical assistance, training, and access to finance, if needed, to growers to help them in all the productive phases. Strict quality guidelines ensure high standards that are maintained from the initial selection of the coffee that is processed in its mills until the final product delivered to its clients. CISA Exportadora's special coffee types are washed, sun dried, and hand-picked, allowing them to stay fresh and green for a longer period of time. The company operates seven processing mills in Matagalpa and Las Segovias with a combined capacity of 450,000 bags. It has contract arrangements with more than 70 coffee brokers, mostly in the United States and Europe. Its facilities are modern and all have cupping laboratories to ensure high-quality standards in the coffee it produces for export.

In addition, CISA has become a well-known model of corporate social responsibility in Nicaragua, proving a range of services to the communities where it operates, building schools, health centers, and sports facilities, as well as improving secondary roads.¹⁰⁹ Its coffees have been certified by several organizations such as Utz Kapeh, Rainforest Alliance, Organic Crop Improvement Association, and Specialty Coffee Association of America. In short, CISA Exportadora represents a good model of an anchor company helping Nicaraguan small farmers to become part of a higher-value chain.

*The National Coffee Council (CONACAFE)*¹¹⁰

CONACAFE was established in 2005 as a coordinating organization of the Nicaraguan coffee sector to implement the coffee law that was approved in 2001. In that context, CONACAFE's mission is to promote the production, processing, industrialization, and marketing of coffee and to promote the interests of all the agents participating in the coffee value chain. It is the forum for discussion between public and private sector organizations on issues related to the coffee sector. It represents Nicaragua at the International Coffee Organization (OIC) and other similar international fora. CONACAFE also operates the National Organization of Coffee Quality Certification (ONCC), which issues coffee quality certifications to coffee exporters who are charged \$0.10/quintal as a fee for that service.

¹⁰⁸ Interview with Horacio Rappaccioli, General Manager, CISA Exportadora.

¹⁰⁹ See www.cisaexp.com.

¹¹⁰ Interview with Eng. Luis Osorio García, Technical Secretary of CONACAFE (www.conacafe.org.ni).

d. Impacts

Producers

The operational weaknesses of the public sector institutions charged with providing agricultural research and technical assistance services are affecting the capacity of producers to move away from their current rudimentary technologies into more advanced agricultural and agribusiness practices to increase their yields, reduce their crop losses, and create the conditions for them to access higher value-added activities in the value chains.

Low levels of new technology development are also impacting micro and small producer capacities to reduce production costs by adopting more resource-efficient practices and cost-saving technologies, providing them the opportunity to expand production to take advantage of rising food prices, thereby increasing their net returns to ensure greater food security and improved living standards.

Institutional deficiencies in government are also preventing small producers from receiving adequate assistance to help them diversify their production activities in order to minimize risks and maximize income flows. Likewise, little support is provided to help these same producers improve their organizational, technical, entrepreneurial, and marketing skills to link into higher-level value chains and meet the requirements imposed by a more demanding and competitive world agricultural economy.

Similarly, the public sector's limitations in providing effective SPS support expose producers to losses caused by the occurrence of unexpected pest infestations and crop diseases. In contrast to the public institutions, producers are increasingly benefitting from actions implemented by private sector companies (processors and exporters) that serve as anchor firms linking producers into value chains where they can have access to inputs, technical assistance, finance, and marketing support. This arrangement also gives producers more secure market access and better incomes.

The new market niches created by CAFTA-DR and by other trade agreements subscribed by Nicaragua are having an impact on Nicaraguan producers. Those treaties open new gateways to producers for their products and new incentives to increase their productive potential and, in turn, enhance their quality of life.

Companies/Value Chains

Companies and value chains are also affected by public sector institutional weaknesses. Inasmuch as they depend on producers' timely supply of sufficient and high-quality products for their processing or exporting operations, they are also affected if those producers face technological and sanitary constraints that might result in the lower quality of their products. However, and depending on their size, these companies might be able to overcome those

problems by importing improved seed varieties and technologies that they can transfer to the producers associated with their companies.

Exporting companies and related value chains are affected by the increasing SPS demands of international buyers. This means that more stringent health and safety standards, improved traceability, and stronger quality controls have to be enforced in all the phases along the value chain, including production, post-harvest handling, processing, packaging, and marketing. This will ensure market access and strengthen competitiveness. Although large companies are already addressing these issues by assigning and paying DGPSA's inspectors to perform the requisite inspection functions at their own plants, they still have to deal with DGPSA's delays in issuing SPS certificates required for obtaining export permits.

Companies and value chains also will be affected by any new trade agreements that Nicaragua signs. They will have to master the relevant technical and legal requirements in order to identify market niches that can lead to increased export growth. Supporting closer coordination of private and public sector institutions involved in the negotiation and implementation of these agreements will help Nicaraguan agribusiness take full advantage of new opportunities, and avoid potential disadvantages.

Investors

Given the increasing openness of the Nicaraguan economy and its expansion into the international economy, it is clear that the country is becoming an attractive hub for foreign investors interested in exploring opportunities in Central America. Taking into account its comparative advantages (abundance of fertile soils, water resources, and low-cost labor) for agricultural endeavors that Nicaragua offers and the opportunities that rising food prices are creating, the Nicaraguan agribusiness sector should be very appealing to foreign entrepreneurs. Moreover, Nicaragua is one of the few Central American countries that has no serious problems of security and internal violence, which are more typical of its neighboring countries. Moreover, Nicaragua has a well-operated system of free trade zones that would be of interest to business leaders looking for duty-free production platforms to access other foreign markets. Nicaragua also has a very proactive investment promotion agency that is working to connect potential foreign investors with reliable local partners. The one potential drawback in this otherwise encouraging scenario that might deter foreign investors is the current political environment, where government arbitrariness and corruption can be perceived as a significant country risk.

e. Conclusions

Several conclusions can be drawn from the above analysis of issues related to competitiveness and market access in the Nicaraguan agribusiness sector. They are summarized below.

- The Nicaraguan agribusiness sector is not performing at the level of its production and export potential, but is still doing relatively well, despite some weaknesses in government agency support in the areas of technology development, technical assistance, and SPS services. Well-focused institutional strengthening, including additional human and financial resources, especially in the context of public-private partnerships, might yield higher returns to the sector.
- The prevalence of low productivity levels, traditional technologies, little to no product diversification, and limited higher value-added crops in the sector are mainly due to those deficiencies in the provision and adoption of new technologies.
- The lack of entrepreneurial skills among micro and small producers has reduced productivity and income potential, resulting in widespread poverty and food insecurity in rural areas.
- Lack of opportunities in the agribusiness sector has been driving many micro and small producers to neighboring countries to seek better employment and income opportunities, frequently leaving behind women who are not able to farm the small plots of land that lay fallow. This increases rural poverty and food insecurity.
- Nicaraguan micro and small producers substantially benefit when they join producer associations, cooperatives, or other similar organizations, which allows them to achieve economies of scale in accessing inputs, technologies, finance, and marketing services. They benefit even more when their associations establish linkages with higher-level value chains. Fostering *asociatividad* among those producers is a key factor in connecting micro and small producers to markets and services which, in turn, improve their incomes and standard of living.
- Given the lack of qualified personnel in government agencies, as well as constricted resources, private sector institutions have become a critical instrument in providing services not offered by weak and underfunded public entities agencies to leading production and export growth.
- The acceleration of Nicaragua into the global economy through a series of international trade treaties is creating many new market opportunities for Nicaraguan producers and companies. However, to take full advantage of the benefits provided by the agreements, the impediments to conducting agribusiness identified by this study need to be addressed in a timely fashion.
- The government's national and agribusiness strategic and policy frameworks are quite ambitious in their stated goals and targets, but lack substance with regard to their operationalization. The GON's high reliance on donor funding for implementation of the goals set forth in the various agricultural development plans makes them highly vulnerable to changing donor priorities and the subsequent availability of resources.

Despite the extensive level of funding that the agribusiness sector has been receiving from the official development community, the sector's productivity indicators have not shown a significant improvement due to the lack of continuity of programs and of their sustainability.

3. Credit, Finance, and Investment

Inadequate access to credit, finance and investment is a significant factor impeding the growth of the agribusiness sector in Nicaragua, particularly the expansion of smallholder production of high-value export crops. From the cross-section of interviews with small producers, cooperatives, processing firms, and exporters – reiterated by financial institution officials, agro-industry associations leaders, and government policy makers – there is a consensus that credit and other finance is readily available for profitable medium to large agro-enterprises, but does not reach small producers in adequate amounts. This includes a lack of working capital for seasonal crop cycles to meet costs of labor, seeds, fertilizer, and other inputs, as well as medium-term loans to finance small-scale infrastructure and other fixed capital investments required to increase the productivity of small producer farms – such as renovation of tree crops, irrigation and drainage systems, pumps, on-farm roads, etc.

There is an emerging consensus that the most promising long-term solutions to credit access for small producers will be through different models of “value chain finance,” delivered by a mix of private commercial banks, finance companies, savings and loan cooperatives, and microfinance institutions, and supplemented where needed by government credit programs.

a. Policy, Legal, and Regulatory Framework

Government financial sector policy is firmly centered on strict and prudent regulation and supervision of the country's regulated financial institutions, to protect depositors and to avoid preventable bank failures. This responsibility falls to the Central Bank of Nicaragua and, more specifically, to the Superintendency of Banks and Other Financial Institutions (SIBOIF). The most recent International Monetary Fund (IMF) assessments give relatively high marks on the stability of the financial system, with measures for economic growth, inflation, tax collections, the fiscal deficit, international reserves, and management of the *córdoba* exchange rate well within IMF target levels.¹¹¹

While rigorous supervision remains the top priority, Nicaragua has moved forward on a range of policies aimed at broadening access of financial services to low-income individuals and businesses, in urban as well as rural/agricultural areas. These policies are summed up in the terms “*bancaización*” and “*inclusión financiera*” (extension of banking services and financial inclusion), aimed at credit but also increased access to savings, debit and credit cards,

¹¹¹ International Monetary Fund, “Fourth and Fifth Review under the Extended Credit Facility,” IMF Country Report No. 10/376, December 2010.

remittances, and other financial services. Specifically for rural credit, the government's agriculture and rural development policy is subsumed under the *PRORURAL Incluyente* program administered by MAGFOR, including the small producer credit programs managed by the Institute for Rural Development (IDR). Of particular interest is the IDR's new National Rural Agro-Industry Program (PNAIR) which emphasizes the strengthening of productive value chains as a primary means for producer cooperatives to generate added value and increase incomes for individual producers.¹¹² However, the PNAIR strategy thus far has not included any mention of the methods that would be used to achieve the stated objectives.

Another major government policy initiative was the creation in 2007 of the new state-owned development bank, the *Banco del Fomento a la Producción (Produzcamos)*.¹¹³ After an extended start-up period, the bank opened officially in April 2010, capitalized by government funds as well as loans from the Inter-American Development Bank. The principal objective of Banco Produzcamos is to provide medium-term investment credits to MSME clients on a multi-sector basis, with an emphasis on agricultural activities and exportable production. The bank is intended to fill gaps in financing for small producers that are not being met by the private commercial banks or other finance providers. Banco Produzcamos has absorbed the Nicaraguan Finance Investment Company (FNI), a previously existing government investment fund, and it is also managing several other government programs including the *Fondo de Crédito Rural* (Rural Credit Fund) and the *Programa Usura Cero* (Zero Usury Program). These mergers are part of a separate objective to unify all government credit operations under a single entity, rationalizing priorities and reducing fragmentation of efforts.

A third example of government financial inclusion policy is the World Bank-funded "Broad-Based Access to Financial Services Project" (2005-2013).¹¹⁴ Begun under the Bolaños administration, the project's components have been focused on microfinance regulations, credit information systems, second-tier finance operations, and conversions of qualified microfinance institutions (MFIs) into regulated *financieras* (finance companies). The common denominator is the strengthening of credit institutions that reach MSME borrowers. Importantly, this project is also charged with monitoring and data collection on volumes of credit and other financial services (e. g., savings accounts) reaching target populations in rural and urban areas. Such data will be very useful in adjusting government policies and incentives, as well as for private financial intermediaries in expanding their agricultural credit and *bancarización* strategies.

Overall, current policy incorporates a balanced view of the complementary roles of the government and the private sector in credit expansion. There is a clear recognition that mainstream credit via the commercial banks and other private providers is essential, with gaps

¹¹² MAGFOR, "Plan Sectorial PRORURAL Incluyente 2010-2014," July 2009, and full description of the IDR's PNAIR program, MAGFOR Web site.

¹¹³ *Ley Creadora del Banco del Fomento de la Producción (Produzcamos)*, Ley 640, November 2007.

¹¹⁴ World Bank, *Proyecto de Acceso Generalizado a Servicios Financieros* (Broad-Based Access to Financial Services Project), "Implementation Status and Results," December 2010.

to be filled as needed and possible by government funds. Thus far, there do not seem to be any major policy-related issues separating the government and private players—although this situation needs to be monitored. For example, there is no immediate concern on interest rate subsidies or controls. The prospect that Banco Produzcamos may develop cost structures and business models that allow it to price credits somewhat lower than private banks remains to be seen, but there is no expectation that its rates will be subsidized.¹¹⁵ Furthermore, MFIs and other higher-cost providers are allowed to set effective rates that incorporate fees and additional charges on top of the legal “maximum rate” of interest set monthly by the Central Bank.¹¹⁶

Core Financial Sector Laws and Regulations

The core financial system laws governing the BCN, the SIBOIF, and the regulated financial intermediaries are in place. They are regularly updated, well-managed, and largely consistent with Basel principles. They include the:

- Organic Law of the Central Bank of Nicaragua—new charter approved in August 2010 per IMF recommendations, updating the original Law 314 of October 1999;
- Law of the Superintendency of Banks and Other Financial Institutions—Law 316 of October 1999, last amended in March 2006; and
- General Law of Banks, Non-Banking Financial Institutions and Financial Groups—Law 561 of 2005, covering commercial banks, finance companies, insurance companies, brokerage firms, rating agencies and other *regulated* institutions.¹¹⁷

By contrast, there are two significant gaps in core legislation related to *non-regulated* institutions. One is the absence of a comprehensive law and regulatory framework for microfinance institutions. The other concerns weaknesses in the regulation of savings and loan cooperatives—also referred to as “financial cooperatives.” Neither of these groups is subject to SIBOIF regulations, and their strengthened oversight is an urgent priority.

- *Microfinance law:* MFIs play an important role in Nicaragua’s rural finance. For numerous reasons there has been a significant contraction in microcredit availability from peak levels reached in 2007. In order for the sector fully to recuperate—regaining investor confidence and renewed demand—a new *Ley de Instituciones Microfinancieras* (Law on Microfinance Institutions) is now before the National Assembly. The law incorporates rigorous criteria for microcredit operations, transparency of MFI interest rate structures,

¹¹⁵ IMF, *loc. cit.*

¹¹⁶ The maximum rate is the weighted average of the regulated financial sector, per the *Ley Reguladora de Préstamos entre Particulares* (Ley 374, March 2001, as amended).

¹¹⁷ *Ley Orgánica del Banco Central de Nicaragua* (Ley 732, August 2010), o (Ley 316, October 1999), and *Ley General de Bancos, Instituciones Financieras no Bancarias y Grupos Financieros* (Ley 516, November 2005).

fair credit recovery procedures, and other microfinance best practices. It also establishes an autonomous regulatory oversight commission that will audit and report on MFI compliance with the new law, under supervision authority delegated by the SIBOIF. Because MFIs will continue *not* to be deposit-taking institutions, they need not be directly supervised by SIBOIF. Quick approval of the law is needed and is in fact part of the conditionality attached to the IMF Extended Credit Facility.¹¹⁸

- *Financial cooperatives:* The laws governing the savings and loan cooperatives Savings and Credit Cooperatives (CACs) are integrated within the General Cooperatives Law of 1971, as amended over the years and adjusted by executive decrees. Most CACs provide credits to cooperative members using member deposits as their principal source of funds. However, given the increasing incidence of CAC liabilities sourced via debts vs. member deposits (most notably the Alba-Caruna CAC), the IMF is urging the GON “to revamp the regulatory framework for financial cooperatives, ... improve their governance structure, strengthen their overseeing authority, [and] limit the macroeconomic risks derived from the cooperatives’ activities.”¹¹⁹ It is not yet clear how this regulatory strengthening will be pursued. The government entity responsible for all cooperatives, including the financial cooperatives, is INFOCOOP.

Other Key Laws/Regulations Affecting the Financial Markets

Six other laws and regulations directly relevant to the agricultural and rural credit markets are also highlighted below:

- *Law on Reciprocal Guarantee Companies:*¹²⁰ In June 2008, Nicaragua became the second country in Central America (after El Salvador) to pass a law creating the legal framework for MSMEs to form reciprocal guarantee companies (SGRs). The law holds great promise for resolving insufficient MSME credit collateral through cross-guarantees of credits by SGR members.
- *Law on Movable Collateral:* By contrast, Nicaragua has not yet passed a comprehensive secured transactions law (movable collateral). A draft law (*Anteproyecto de Ley de Garantías Mobiliarias*) is before the National Assembly, and its adoption may go a long way toward easing and expanding the use of a broad range of movable collateral to back credits to MSMEs.

¹¹⁸ A succinct summary of the draft Law on Microfinance Institutions is in “Lineamientos para Reforzar el Marco Institucional/Regulatorio de las Instituciones de Microfinanzas,” *Coyuntura Económica—Primer Trimestre 2011*, Fundación Nicaragüense para el Desarrollo Económico y Social (FUNIDES).

¹¹⁹ IMF, *loc. Cit.*

¹²⁰ *Ley del Sistema de Sociedades de Garantías Recíprocas para la Micro, Pequeña y Mediana Empresa (Ley 663, June, 2008).*

- *Laws on Factoring and Accounts Receivable Finance:*¹²¹ These two recent laws, passed simultaneously in December 2010, open the door for access by MSMEs to two alternative finance products that can increase cash flow liquidity, turnover volumes and income. The laws are the product of effective advocacy work by leading private sector associations, including COSEP, CACONIC, and CONIMIPYME (Nicaraguan Council of MSMEs).¹²²
- *Regulatory Norms for Credit Bureaus:*¹²³ Credit record information is now widely available in Nicaragua. This accomplishment was facilitated by regulatory rules on credit bureaus issued by SIBOIF in 2005. In the past five years, three private credit bureaus have started operations, in addition to the SIBOIF's internal "Central de Riesgos" (information unit centralizing credit data supplied by the regulated intermediaries). Access to the combined bureaus is providing a key service to financial and commercial credit providers alike.
- *Law on Fideicomisos:* This law, scheduled for formal adoption in early 2011, creates the legal framework for the full range of *fideicomiso* (trust) funds. It has been long overdue, and covers among other trust operations the channeling of government and external donor funds through private banks. It should help bring clarity and greater transparency to many such funds designed to deliver credit to MSMEs and other targeted borrowers.
- *Ley de Moratoria:*¹²⁴ A final law is highlighted due to its *negative* impact. In February 2010, the National Assembly unanimously passed a debt moratorium law (*Ley de Moratoria*) allowing a pathway for a relatively small group of microcredit borrowers to restructure overdue loans with various MFIs. At the extreme, the law amounted to debt forgiveness, and led to a plummeting of confidence and withdrawal of MFI funding by external investors. As of early 2011, the consensus is that the origins of the problem that led to the law—the *Movimiento No Pago* (discussed below)—had ceased to exist, and the law itself, which had a limited duration of only four months (April-August 2010), is no longer in force. No one now wishes a repeat of such policy interference in debt recovery situations, including pointedly the government that will strive to protect the new state development bank from future no-payment movements.

¹²¹ *Ley de Factoraje* (Ley 740, December 2010); and *Ley de Factura Cambiaria* (Ley 739, December 2010).

¹²² Succinct descriptions of these and other laws are in the *Informe Económico y Legislativo*, 2010 summary, COSEP.

¹²³ *Normas sobre Centrales de Riesgos Privadas*, SIBOIF, 2005.

¹²⁴ *Ley Especial para el establecimiento de Condiciones Básicas y de garantía para la renegociación de adeudos entre las instituciones de microfinanzas y deudores en mora* (Ley 176, February 2010).

b. Implementing Institutions

Core Institutions

The core financial sector implementing institutions are the BCN and the SIBOIF. The two institutions are directly connected and share the same databases. They are viewed as professional, modernized and non-political institutions, effectively managing macroeconomic policy and exercising strict and independent supervision of the banking sector.¹²⁵ Up-to-date conformance with Basel principles is evidenced by new norms on bank capital adequacy issued in January 2011, and by continued progress in SIBOIF on-site supervision by financial group—most Nicaraguan banks are linked with insurance companies and other entities. Bank liquidity is also closely monitored by the BCN, including periodic fluctuations in the reserve ratio to restrain or expand credit availability.

With regard to credit, the BCN is tasked in the national development plan with implementing “sensible regulations that facilitate access to credit for productive sectors,” consistent with prudent risk management.¹²⁶ Interpreted conservatively, the BCN president sums up this role as ensuring “that credits are sound, and that the banks have the capacity to recuperate the amount lent in order to guarantee the stability of the system.”¹²⁷ In practice this has meant relatively strict SIBOIF credit evaluation criteria for agriculture sector loans. The rules are tight and viewed by some as too stringent, especially on small producers. For example, it was reported that credit recipients must live on a farm, demonstrate that the farm is the main source of income, and produce complex financial statements such as cash flow projections and balance sheets. There is reasonable flexibility on collateral guarantees, including acceptance of sales contracts on crops. By contrast, provisioning requirements on late payment of agricultural credits are rigid, not always taking into consideration the full length of crop cycles. One bank cited occasional problems with “discretionary” evaluations by SIBOIF supervisors, placing similar loans in different provisioning categories. Another observer remarked that commercial banks are sometimes required to write off delinquent agricultural loans too soon, before attempting restructurings.

SIBOIF capacities have been greatly strengthened with the support of the World Bank project addressing broadened credit access. The new microfinance law has been prepared, a permanent Microfinance Department has been established within the SIBOIF, and clear rules have been made for the conversion of MFIs to finance companies. The in-house SIBOIF credit information system is also fully functioning.

¹²⁵ Bertelsmann Transformation Index, “2010 Nicaragua Country Report” (March 2011), and confirmed in interviews with leaders of the principal commercial banks.

¹²⁶ Government of Nicaragua, “Updated National Human Development Plan (NHDP), 2009-2011,” September 2009.

¹²⁷ Quote from interview with Atenor Rosales, BCN president in “Banca nicaragüense optimista” article, *El Economista*, March-April 2011.

On the issue raised by the IMF regarding weak CAC regulations, neither the BCN nor SIBOIF are directly responsible for the CACs. It is noted, however, that the BCN will be involved in preparing a periodic “Aid Report” for the IMF covering grants and loans within Nicaragua made by Alba-Caruna using the proceeds of Venezuela-related concessional loans. Many of these operations deal directly with agricultural activities, including loans to financial intermediaries.

Financial Intermediaries

Commercial Banks

There are now six commercial banks in Nicaragua. Table 6 shows that as of December 31, 2010 the combined six banks had a total outstanding credit portfolio of 43.8 billion *córdobas* (\$1.97 billion). Of this total, only 5.2 billion *córdobas* (\$234.2 million) or 11.9% was classified as “*agrícola*,” corresponding to agricultural and tree crop activities. Another 1.0 billion *córdobas* (\$45 million) or 2.3% was classified as “*ganadera*,” corresponding to livestock and dairy production. Combining the two subsectors, the total percentage of commercial bank credit for crop and animal activities was \$279.2 million or 14.2% of total outstanding credit.

The Table 6 data are also broken down by total numbers of loans as well as size of loan amounts. Looking at the “*agrícola*” and “*ganadera*” activities, the combined \$279.2 million portfolio consisted of a total of 8,667 loans. Roughly 7,000 or 80% of the loans were for amounts below \$25,000, which correlates with levels of working capital and small-scale fixed capital credit needs of MSME agribusinesses. At least a third of these loans were under \$5,000, in those cases clearly for micro and small producers. Of the remaining loans, roughly 1,500 loans ranged from \$25,000 to \$400,000 (for medium-size enterprises) and approximately 100 loans were in the \$400,000 to \$3 million-plus range (for large enterprises).

TABLE 6. NICARAGUAN COMMERCIAL BANK CREDIT PORTFOLIOS AS OF DECEMBER 31, 2010 (\$US MILLIONS)

COMMERCIAL BANK	TOTAL CREDIT	“AGRÍCOLA” (%)	“GANADERA” (%)
Banpro (Banco de la Producción)	\$537.7	\$110.9	\$10.0
Bancentro (Lafise)	463.5	67.3	27.8
Banco de America Central (BAC)	534.1	3.0	4.3
Banco de Finanzas (BDF)	231.9	8.4	1.1
Citibank	131.7	2.3	0.1
Banco ProCredit	85.9	3.5	2.6
Total	\$1,984.8	\$195.4	\$45.9

Source: SIBOIF. U.S. dollars conversion: 22.2 *córdobas* = \$1.00

The percentage of commercial bank credit for agriculture activities has remained basically flat, remaining at a constant 13-14% level over the past five years.¹²⁸ This compares to the 17.5% of GDP attributed to agriculture in 2010. The reasons for the lag in credit for agriculture are explained in large degree by the more profitable (and lower risk) investments by the banks in commercial and industrial loans, consumer and housing finance, other service sectors such as tourism, and credit card operations. Equally important, however, are the perceived and real constraints in commercial bank lending to agriculture, particularly to individual small producers. In interviews with senior leaders of four of the six commercial banks (Banpro, Lafise, BDF and ProCredit), the most frequently stated constraints are as follows:

- Small scale of individual producers and high administrative costs per loan
- Weak producer associations or cooperatives as potential credit recipients—lack of “*asociatividad*” and value chain integration with final buyers or exporters, as detailed in the previous chapter
- Inherent risks in agriculture, including climate events and price volatility
- Lack of access to and absorption by small producers of technology and advice essential for increased yields and profits
- Lack of reliable hard collateral (land) guarantees except for large enterprises
- Difficulties in accepting alternative movable collateral—for example, in the case of crop values, unrecoverable collateral due to “*desvío*” practices (farmers diverting sales of harvested crops to non-contracted buyers) or unenforceable “*orden de captura*” (crop possession) decisions by courts
- A consequent need to rely primarily on cash flow assessments and the borrower’s personal “*voluntad de pago*” (willingness to pay)
- Rigid SIBOIF credit evaluation criteria that are difficult for small producers to meet, coupled with bank provisioning and write-off requirements inconsistent with crop cycles or unexpected crop failures
- In this context, the agricultural credit strategies of each of the banks interviewed are more encouraging than might be expected. Elements of the strategy of each bank, including targeted market segments, credit methodologies, financial products, agricultural expertise and other objectives, are briefly summarized below:

Banpro: Banpro’s \$110.9 million in agricultural credits represents 20.6% of its total loan portfolio and accounts for over 47% of the \$234.2 million commercial bank total. Banpro is

¹²⁸ SIBOIF data for 2009 and 2008; the data for 2007 and earlier is from Table 28 in the comprehensive FUNIDES study of the Nicaraguan agriculture sector, “*Alza en el Precio de Alimentos: Retos y Oportunidades*,” March 2008, by Ana Cecilia Tijerino.

focused on high-performing “A and B” agro-enterprise clients in the most profitable crop sectors, three examples being coffee, peanuts and irrigated rice, with whom the bank has stable and long-lasting relationships. The bank’s 2011 strategy seeks to expand its agricultural lending for other crops, “assuming that they are technically and financially viable.”¹²⁹ Banpro uses a value chain analytical approach, and is already engaged in value chain financing of input suppliers, producers, processors and exporters within given chains. An example is the peanut sector, in which Banpro finances the two leading firms as well as direct credit to the SME peanut growers in the two chains. Another example involves red beans, where the Banpro credit recipients are producer cooperatives that in turn disperse individual credits to hundreds of small bean producers.

Banpro has a centralized “*Gerencia de Crédito Agropecuario*” (agricultural credit department) with technical staff that monitor crop cycles. Costs of technical assistance are built into the loans. It also has designed several innovative financial products for SME clients, including fuel credit cards, advances based on anticipated crops, and electronic accounts receivable factoring.

Bancentro: Also known as Banco Lafise, Bancentro’s agricultural and livestock credits add up to \$95.1 million or 20% of its total loan portfolio. Having begun and remained heavily involved in the cattle and dairy sector, Bancentro’s \$27.8 million in livestock credits accounts for over 62% of the \$45 million commercial bank total. The bank also has large agro-enterprise clients in the rice, coffee, sugarcane, and peanut sectors. In SME lending, the bank emphasizes the importance of business linkages (“*alianzas empresariales*”) with large enterprise buyers. For example, in coordination with Parmalat, its major dairy client, Bancentro provides credit directly to small dairy farmers. Another example is collaboration with Walmart/Hortifruti, in which Bancentro advances credit to small and micro vegetable producers against delivery contracts signed with the buyer, and then deducts credit reimbursements from payments deposited by Hortifruti into the producers’ savings accounts at the bank. Bancentro is also a participant in the USAID-funded *Empresas y Empleo (E&E)* project, promoting value chain linkages between SMEs and anchor firms, with Bancentro providing up to 80% of the SME working or investment credit and E&E the linkages with the buyers.¹³⁰ Internally, the bank has a cadre of over 30 agricultural experts who factor technical supervision costs into credit terms. The bank is also a pioneer in agricultural insurance products—led by *Seguros Lafise*, its insurance company affiliate.

Banco de Finanzas (BDF): BDF is a medium-size bank in Nicaragua, with only 4.7% of its \$231.9 million portfolio in agriculture sector credits. The BDF General Manager, however, said that the percentage was closer to 20%, a multiple of the official SIBOIF figure in Table I, and that his bank’s goal was to get to 33%. BDF’s strategy is to increase its market share within the “well-

¹²⁹ Interview with Luis Rivas, Banpro General Manager, in the January, 2001 issue of *Zona Centro*.

¹³⁰ Detailed in comments by Enrique Zamora, Lafise Bancentro board member, in *Comptiendo*, *Empresas y Empleo* Project, December 2010. The E&E project is managed by CARANA Corporation under a contract with USAID/Nicaragua.

articulated” coffee, sugar, and other agro-enterprise chains, in competition with the other banks. Lending to exporters or processors who then disperse credit is viewed as a good model. Direct lending to small producers was reported to be difficult, given higher costs and risks, including problems in using crop values as collateral guarantees—coffee was cited as an example of crops subject to theft or *desvío* sales to non-contracted buyers. The new reciprocal guarantee companies (SGRs) were mentioned as a promising alternative for groups of SMEs to cross-guarantee loans among SGR members. The possibility of Development Credit Authority (DCA) credit guarantees by USAID to support BDF value chain finance was also identified as a means to gain BDF board approval for a new agricultural lending initiative.

Banco ProCredit: ProCredit is a small bank specialized in MSME lending. It converted from a finance company to a fully-fledged bank in 2005. In the past two years the bank has undergone a contraction in overall loan volume, down to \$85.9 million from \$139 million in 2008. Its agriculture/livestock portfolio has declined to \$6.1 million or 7.1% of total credits. By contrast, this figure disguises the importance of ProCredit in overall bank lending. The \$6.1 million corresponds to 2,450 individual loans (close to 30% of the 8,667 total agricultural loans for all six commercial banks). The average loan equates to \$2,500. About two-thirds of loans are microcredits, and one-third for small agro-enterprises. Loans are for both working capital and investment credits.

As a group, a key issue in expanding commercial bank agricultural credit will be the degree of competition among the banks. The banks are competing aggressively for “A and B” large and medium-size clients, but in fact only two banks, Banpro and Bancentro, are large players. Going down-market, including much more direct lending to small producers, will depend on competition pressures, including new activity by BDF and other banks. The increased innovation and use of specialized agricultural finance products, including value chain finance, will be an important factor in the equation.

A positive correlating factor is the increased physical presence of the banks in rural areas. Of the 288 commercial bank branches and service points in the country, 150 are now located outside the Managua capital area. The banks are competing for rural clients, starting with savings accounts and continuing with debit and credit cards, multi-transactional ATMs, cellular products (such as Banpro’s “*banca móvil*” program), and ultimately new credit customers. The rural *banca* strategies include the opening of additional service points and financial education campaigns to explain the advantages and cautions involved in banking services.

Another factor to watch is the portion of commercial bank agricultural lending that is funded by *fideicomisos*, using funds provided by the government or external donors for specified purposes such as medium-term loans for SMEs. On the positive side, the trust funds increase the availability of credit, and they serve as an entry point for banks to gain experience in lending to new sectors. On the negative side, their use may act as a disincentive for the banks to use their

normal sources of funds (deposits, etc.), and the interest rates on trust fund credits may be priced below what would otherwise be the market rate.

Finally, the commercial banks are frequently criticized for maintaining high levels of liquidity vs. investing a greater percentage of assets in productive loans. The reasons for high liquidity include the lack of sufficient bankable projects, the placement of bank resources in high-interest government bonds (crowding out factor) and safe foreign deposits, and a conservative stance in the wake of the international financial crises. There is also considerable artificial liquidity in the system due to sizeable bank deposits associated with Venezuelan aid flows, short-term money that the banks are reluctant to invest in loans. The recent (April 2011) lowering of the BCN reserve ratio from 16.25% to 15%, designed to free up more funds for lending, is unlikely to change the situation.

Finance Companies

At present there are only two regulated finance companies in Nicaragua. The oldest is FINARCA (*Financiera Arrendadora Centroamericana*), a company specialized in leasing finance. It was established in 1997 and is now 100% owned by Scotiabank Canada. As of December 31, 2010, its total portfolio stood at \$12.6 million, of which just \$550,000 or 4.4% was in vehicle and equipment leases for five medium and large agro-enterprises. The second is *Financiera FAMA*, a former non-profit MFI that converted to a finance company in 2006. FAMA is part of the Acción Internacional microfinance network, and its current \$22.9 million portfolio and 25,565 loans are 95% concentrated in micorcredits. Official statistics indicate that less than 1% of the FAMA portfolio is in agricultural credit. However, FAMA has branches in all of Nicaragua's departments, and the increased incomes of its rural non-farm clients have positive economic and food security impacts for families in the rural agricultural regions.

The conversion of qualified MFIs to finance company status is an explicit goal of the Broad-Based Access to Financial Services project, as introduced earlier. The principal rationale for conversion is the legal authority for regulated finance companies to capture deposits from the public, thereby offering a low-cost source of funds for microcredit operations—compared to borrowing funds at higher interest rates (now averaging over 9%) from international social investors and other lenders. The pace of conversions has nonetheless been slow. The SIBOIF has been deliberately cautious, setting minimum capital requirements at a \$2 million level, and not authorizing deposit-taking until finance companies are fully prepared with technological platforms, adequate savings products and methodologies, and required safeguards.

Part of the caution relates to the negative recent experience with the *Banco del Exito* (BANEX). Formed in as a result of progressive conversions from MFI to finance company and finally to bank status, BANEX became heavily overextended in microcredit and was intervened and formally closed in August 2010. While depositor losses were avoided, covered by a reported

\$20 million loss of investor capital, new conversions to banks and by extension to finance companies will be more rigorously examined than before.

Microfinance Institutions

MFIs in Nicaragua are organized as a group within ASOMIF, the Nicaraguan Association of Micro Finance. There are 20 current ASOMIF members. Table 7 summarizes ASOMIF data as of December 31, 2010. It shows a total of \$176.7 million in total microcredit portfolios, financing 260,379 clients or an average of \$680 per credit.

TABLE 7. ASOMIF MICROFINANCE INSTITUTIONS AS OF DECEMBER 31, 2010

MICROFINANCE INSTITUTION	OFFICES	CLIENTS			CREDIT PORTFOLIO (\$000)		
		WOMEN	MEN	TOTAL	WOMEN	MEN	TOTAL
FDL	36	38,400	28,695	7,095	24,584	37,446	62,030
PRODESA	11	9,809	9,769	9,578	5,507	9,584	15,091
ACODEP	26	13,030	11,908	4,938	6,663	6,012	12,675
PRESTANIC	15	4,779	6,080	0,859	3,289	8,645	11,934
FUNDESER	18	13,949	13,221	7,170	4,387	5,853	10,241
AFODENIC	6	2,630	2,622	5,252	3,631	4,565	8,196
FINANCIA CAPITAL	4	5,616	4,421	10,037	2,242	5,752	7,994
CEPRODEL	14	4,924	4,097	9,021	3,860	4,040	7,900
CSM 20 DE ABRIL	7	1,925	3,957	5,882	1,861	5,158	7,019
FUNDENUSE	11	5,112	5,870	10,982	2,417	3,770	6,188
PROMUJER	5	24,887	1,037	25,924	5,768	240	6,008
F León 2000	8	3,824	2,008	5,832	3,284	2,244	5,528
FINCA Nicaragua	11	11,877	3,416	15,293	3,227	1,742	4,969
MICREDITO	6	1,441	1,448	2,889	1,354	1,982	3,336
FUDEMI	8	2,500	1,663	4,163	866	897	1,764
FODEM	7	2,489	180	2,669	1,388	232	1,619
F 4i - 2000	6	4,075	1,084	5,159	818	703	1,520
ASODERI	3	1,102	865	1,967	597	642	1,239
ADIM	3	3,344	355	3,699	697	88	785
PANA PANA	2	1,441	529	1,970	465	246	711
TOTAL	207	157,154	103,225	260,379	76,905	99,843	176,748

Source: ASOMIF Web site statistics, updated semi-annually.

The table also shows the breakdowns by gender, with women accounting for 43.5% of total credits and 60% of total clients. ASOMIF provides precise breakdowns of the data by economic sector. Of the \$176.7 million total portfolio, \$82.5 million or 46.7% is classified as agricultural credit—\$33.7 million for agriculture and \$48.8 million for livestock. Also, of the 260,379 total clients, 79,362 or 30.5% are classified in the same agricultural categories (46,110 agriculture and 33,252 livestock, respectively). Comparing these numbers with the data in Table 6, it can be immediately perceived that the percentage of MFI credit going to agriculture is three to four times higher than the 14.2% of commercial bank credit shown in Table 6. In absolute terms, the \$82.5 million in microcredit also equals almost one third of the commercial bank total of \$279.2 million, and in terms of individual clients (loans) the MFI total dwarfs the 8,667 commercial banks figure. The MFIs are physically present in 207 offices spread across the country, only 39 of which are in Managua. The ASOMIF data also has detailed information on poverty levels of its clients—85,376 or one third of all clients are classified as “severe” or “high” poverty.

FDL is the standout among the MFIs. With 67,000 clients and a \$62,300 portfolio, it is far and away the largest MFI. FDL’s agriculture credits, at \$34,292, are 55% of its portfolio. Basic credit programs provide finance for rural women (“*campesinas de subsistencia*”) and small producers (“*campesinos finqueros*”). FDL has also pioneered a “development package” model in which FDL provides medium-term investment credit for farm improvements coupled with technical assistance provided by Nitlapan, an NGO co-located with FDL at the University of Central America in Managua. The model incorporates a value chain approach, with small producer credit recipients linked to producer cooperative and exporter buyers. FDL is also highly committed to “sustainable productivity” emphasizing on-farm environmental conservation with financing support from the Meso-American Biological Corridor project of the Central American Bank for Economic Integration (CABEI).

As impressive as these figures and programs are, the full story of the MFIs is less encouraging. The size of the microfinance industry in Nicaragua has precipitously contracted over the past two to three years, from a peak estimated at 350,000 clients to the current 260,000 clients, not counting other steep drops in the microcredit portfolios of Banco ProCredit and the closure of BANEX. Analysts of the causes of the decline stress that the well-known *Movimiento No Pago* was *not* the most important factor. The primary reason was an unsustainable rapid growth of credit, spurred by over-indebtedness of micro-borrowers, insufficient use of available credit bureau information, weak controls, and a flood of external funds without proper due diligence.¹³¹ The MFIs are still in recovery mode, with much riding on the passage of the new Law on Microfinance Institutions.

¹³¹ See “Tendencias recientes en la evolución de la oferta domestica de crédito,” PPT presentation on the “Sistema Financiero Nacional en 2009,” SINRIESGOS, June, 2009; and Mario de Franco, “Determinantes de la Cartera Mala en la Industria de Microfinanzas de Nicaragua,” ASOMIF, February, 2011.

Financial Cooperatives

There are two types of financial cooperatives in Nicaragua: (a) savings and loan cooperatives (*Cooperativas de Ahorro y Crédito* or CACs); and (b) multi-service cooperatives (*Cooperativas de Servicios Múltiples* or CSMs). Per an extensive CABEL analysis based on data at the end of 2008, there are approximately 100 financial cooperatives organized into four groups:¹³²

- CENACCOOP (*Central Nicaragüense de Cooperativas de Ahorro y Crédito*), formed in 2001 with 39 CSM and 12 CAC member cooperatives.
- CCACF (*Central de Cooperativas de Ahorro y Crédito Financieras de Nicaragua*), organized in 2001 by 13 CACs formerly supported by WOCCU (World Council of Credit Unions).
- UCOSEMUN (*Unión de Cooperativas de Servicios Múltiples del Norte*), organized in 1998 with eight CSM members.
- CARUNA (*Caja Rural Nacional*), established in 1993, representing 30 CACs across the country.

Most CACs and CSMs have small-scale operations, averaging 1,000 to 3,000 clients and total credit portfolios under \$1 million. Only a few, including the Alba-Caruna group, have operations in the 10,000 clients and \$10 million range. Average credit amounts per client are \$1,000-\$1,500 for all financial cooperatives. In terms of agriculture credits, the CABEL study identifies only 25 or one-fourth of the cooperatives as “rural” (9 CSMs and 16 CACs). Extrapolating from these data, the current portfolio of all financial cooperatives combined is estimated to be in the range of \$150 million, of which one-fourth or \$37.5 million is agriculture credit financing roughly 30,000 small producers.

Alba-Caruna

From 1993 until two years ago, the Caja Rural Nacional (Caruna) operated as a standard CAC under the cooperatives law. It had grown to about 40,000 members, composed of 15,000 direct members and another 25,000 members of affiliated cooperatives. The CABEL analysis indicates that the total credit portfolio of the group was \$9.9 million in 2008 for 8,454 loan recipients. In the meantime, with the advent of Venezuelan aid flows, the group became “Alba-Caruna” and a completely transformed entity. It is “today essentially a state bank,”¹³³ receiving 25% of the annual value of Venezuelan oil imports in concessional loans. In 2011, these Alba-Caruna funds are expected to reach a level of \$400 million. The funds are being distributed in about equal portions as grants to fund government social programs and investments (including

¹³² “*Nicaragua: Inventario de Financieras Rurales*,” CABEL, 2009. The inventory also includes rural MFIs and presents a comprehensive analysis of financial products, credit delivery methodologies, clients, portfolio amounts, geographic locations, sources of funds, and other detailed data on rural finance institutions.

¹³³ “Albanisa – The Blessing of an Octopus,” *El Nuevo Diario*, September 28, 2010.

equity as well as loan capital) in for-profit Nicaraguan companies, the latter including but not limited to the government-owned Albanisa group.

The impacts of Alba-Caruna on the financial sector are already being felt. For example, direct loans to large and medium agro-enterprises are a source of competition for the commercial banks. At purported interest rates of 8%, Alba-Caruna may be able to undercut and/or force down the bank rates. On another front, Alba-Caruna has begun to offer “rescue” loans to cash-strapped MFIs as an alternative to the loss of other external funds. In this case there is great concern that some of the weaker MFIs could become dependent on Alba-Caruna, with attendant moral hazards that could damage the industry as a whole—specifically, the possible perception among credit recipients that Alba funds are “government-provided” and thus subject to debt forgiveness.

The legal status of Alba-Caruna as a financial cooperative is a topic of intense debate. ASOMIF views the Alba loans to MFIs as a clear case of second-tier (*segundo piso*) bank lending, which is not allowed under the General Law on Cooperatives. A larger issue is that Abanisa has been permitted to place funds in Alba-Caruna, also in contradiction of the cooperative law which limits CAC resources solely to those that it receives from its members.¹³⁴ Finally, and most acutely, the enormous size of the new Alba-Caruna is what lies behind the IMF insistence that the regulations on all financial cooperatives be tightened, as well as the commitment by the GON to provide detailed quarterly “Aid Reports” on the sources and uses of all Alba funds. As stated earlier, there is effectively no prudent supervision, which for an institution of this size presents substantial macroeconomic risks.¹³⁵

Banco Produzcamos

The formation of Banco Produzcamos in late 2007 was motivated by a long-standing agenda to establish a new state development bank, replacing BANADES (the *Banco Nacional de Desarrollo*) that had been formally closed in 1998. It was also part of the political platform of the incoming Ortega administration, which considers the new bank to be an antidote to the private commercial banks, offering lower interest rates and less burdensome guarantees for loans. Produzcamos is capitalized with government and external donor funds. It has absorbed FNI (the existing second tier investment fund). A significant source of funds is the Inter-American Development Bank (IDB), including a previous \$30 million IDB loan to FNI and a new \$20 million IDB loan (pending final approval).

¹³⁴ Statements by Alfredo Alaniz, Executive Director of ASOMIF in “Alba-Caruna amparada en legislación ambigua,” *La Prensa*, March 3, 2011.

¹³⁵ “FMI quiere ponerle el cascabel a la antigua ‘cooperativa’—Alba-Caruna moverá C\$8,700 millones en 2011 sin supervisión,” article by Adolfo Acevedo, *Confidencial*, March 1, 2011.

Bank operations began in April 2010. As of December 31, 2010, Produzcamos and FNI had a combined outstanding loan portfolio of \$51 million.¹³⁶ An estimated 65% of loans or \$33 million were for agricultural and livestock activities, consistent with the bank's charter that explicitly cites agriculture production and exports as primary objectives. The outstanding loans were mostly medium to long-term credits for about 4,500 SME clients, averaging \$5,000 to \$10,000 for small enterprises and up to \$20,000 for medium-sized enterprises. The typical interest rate is 11%, guaranteed depending on risk assessments by a combination of land (where deed records for properties are in order), movable collateral (e.g., cattle, coffee and rice crops), and personal references. There is also a portfolio of short-term working capital credits for basic grain producers. The bank's methodologies include alliances with producer associations, such as CONACAFE in the coffee sector and FAGANIC (Nicaraguan Federation of Cattlemen's Associations) in the livestock sector, in which the bank coordinates credit-related technical assistance—the bank's TA costs are built into credit prices.

At the end of 2010 about 80% of the combined Produzcamos and FNI portfolio was being delivered indirectly by the private commercial banks through *fideicomiso* agreements. The remaining 20% consisted of direct first-tier credits. This ratio is expected to change to about 50% shares for both second-tier and first-tier lending by the end of 2011. Regarding the close collaboration with the private banks, it is also important to note that total Produzcamos and FNI assets, as of December 31, 2010, were \$134 million. Assets included the \$51 million in loans to SMEs as well as another \$72.4 million in interest-bearing deposits (available liquidity) held by Banpro and Bancentro.

There is some debate about the political orientation of the bank, particularly in an election year. However, the General Manager of the bank states unequivocally that there is no political interference in bank operations. The Produzcamos board of directors includes high-ranking private sector individuals as well as ex-officio government ministers.

Finally, the bank is charged with serving as the "financial agent" for all other government credit programs. These programs are managed separately and include the IDR and other entities within MAGFOR, as well as the *Fondo de Credito Rural* (FCR) and the *Usura Cero* programs. The *Usura Cero's* 4% interest rates are an exception to the rule against subsidies, on the grounds that it is a social welfare initiative. It competes, however, with private MFIs such as FINCA Nicaragua that do similar solidarity group microcredit lending at market rates.

¹³⁶ All figures are from the official balance sheets of Banco Produzcamos and the FNI for the period ending December 31, 2010.

c. Supporting Institutions

Financial Sector Associations

- *ASOBANP (Association of Private Banks of Nicaragua):* ASOBANP represents the six commercial banks. It is the mediating entity vis-à-vis the BCN and SIBOIF on macroeconomic and bank regulation issues, as well as financial sector legislation initiatives. It guides the banks on key policies such as compliance with competition law, reforms of land and collateral registries, and financial education. On agricultural credit, it is positioned to promote innovative use of new products such as value chain finance in coordination with agribusiness associations, and to monitor the interplay between the banks and the government-funded programs.
- *ASOMIF (Nicaraguan Association of Microfinance Institutions):* ASOMIF was established in 1998 and currently represents 20 MFIs. It has exercised extraordinary leadership for the industry, particularly in the wake of the microcredit bubble in the past two years and the No-Payment Movement episode. ASOMIF's key current agenda is to achieve the passage of a suitable Law on Microfinance Institutions that will renew public and investor confidence in the sector. ASOMIF has worked closely with the new Microfinance Department within SIBOIF in finding the best formula for regulation, whether it ends up as direct supervision or indirect by an autonomous regulatory oversight commission as currently proposed.
- *Financial Cooperatives Associations:* CENACCOOP, CCACF (the former WOCCU group), and UCOSEMUN are the three associations of financial cooperatives. Each provides technical assistance and other services to its member cooperatives, which the latter provide in turn to their individual members. For example, the CCACF group focuses on credit, savings, remittances and insurance services for the 45,000 members of its 13 CACs, mostly in urban areas. UCOSEMUN is rural-focused and concentrates on agribusiness technical assistance (marketing, cost controls, value adding) for 9,300 members in its network of 8 CSMs, located in the northern region of the country. CENACCOOP, the largest of the three associations, provides a mix of the same services. All three are aware of the need for improvements in regulations. There is a consensus that the regulatory reforms will be within the General Law on Cooperatives, led by INFOCOOP (*Instituto Nicaragüense de Fomento Cooperativo*), the national cooperative development organization.

Private Sector Chambers and Agribusiness Associations

The private sector chambers that are most actively engaged in financial sector issues are COSEP, CACONIC and CONIMIPYME. All three have been actively involved in drafting financial sector laws, including laws on factoring, *fideicomisos*, secured transactions, and

reciprocal guarantee companies. A fourth organization, FUNIDES (*Fundación Nicaragüense para el Desarrollo Económico y Social*), is the country's leading think tank organization and has produced a substantial portion of the research on Nicaraguan development, including the technical and financial dimensions of agro-enterprise policy.

The agribusiness associations include large, multi-sector organizations such as UNAG, FENACCOOP, and UPANIC. Others are sector-specific associations such as CANILAC (dairy products), CARNIC (meat products), FAGANIC (livestock), ANAR (rice) and CONACAFE (coffee). They are key players in building alliances with commercial banks, the financial cooperatives, Banco Produzcamos, and the microfinance institutions aimed at finding solutions for the different agribusiness finance challenges facing each sector.

Land Tenure and Real Property Registry

Property disputes and insecure land tenure are serious impediments to Nicaraguan agribusiness activity. Without clear land titles, owners have little incentive to invest in land infrastructure improvements, and financial institutions are unable to count on land as real collateral (*garantías hipotecarias*) against working capital or investment loans. This problem affects small producer farms as well as land holdings of all sizes. An estimate by FDL is that over 50% of small producers do not have clear titles. Titles for larger farms are often clouded by “double registry” situations. These date to the “*piñata*” giveaways by the Sandinista government before power was handed over in 1990, when hundreds of rural properties were expropriated and redistributed to agrarian collectives. Because most of the transfers were carried out without due legal process or documentation that would ensure the new owners' legal claim, sorting out the ownership questions has been confusing and contentious. As one observer noted, land issues in Nicaragua are a “Pandora's box” that will take a long time to resolve.¹³⁷

The GON has been working for the past decade to regularize property ownership with support from a land administration project funded by the World Bank, the *Proyecto de Ordenamiento de la Propiedad* or PRODEP. The GON counterpart agencies include among others the Supreme Court, the Office of the Attorney General and the Institute for Urban and Rural Property Reforms (INPRUR). The latter entity is currently managing a pilot project in Chinandega that seeks settlement agreements that legalize land titles based on possessory rights. In addition, the U.S.-funded Millennium Challenge Account (MCA) undertook a highly successful land titling activity in neighboring Leon, legalizing over 4,000 smallholder titles in two municipalities prior to the recent closure of the MCA program.¹³⁸

¹³⁷ Interview with Alejandro Martínez Cuenca, President, FIDEG (*Fundación Internacional para el Desafío Económico Global*), February 24, 2011.

¹³⁸ Interview with Juan Sebastián Chamorro, Executive Director, Millennium Challenge Account, March 2, 2011.

Several weaknesses of the property registration system are highlighted in the World Bank's 2011 "Doing Business" Report for Nicaragua.¹³⁹ These include time it takes to register property—eight procedures and 124 days vs. a 68-day average in Latin America—and the time required by banks to approve a mortgage even where there is clear title, which can be up to three months as estimated by SIBOIF. Also emphasized is the need to convert from manual to digitalized records, and to unite property registry and cadastral information into a single electronic database. While progress on these fronts is occurring—for example, the director of the Property Registry reports that most registrations are being processed at or under the 30-day target set by Nicaraguan law—much remains to be done.¹⁴⁰ Several banks indicated that in general they do not rely on land as a primary collateral guarantee, especially in lending to small agricultural clients.

Collateral (Movable Property) Registry

Nicaragua does not yet have a unified secured transactions law (collateral law covering all forms of movable property). Instead, there are three separate laws on movable goods (*leyes de prenda*) for agricultural, industrial, and commercial property. There are also separate registries where goods placed as collateral against loans are recorded.

Both the IDB and the World Bank have been working with Nicaragua to replace the existing framework with a comprehensive new collateral law (*Ley de Garantías Mobiliarias*) and a unified collateral registry. It is argued that "in countries where security interests over collateral are enforceable against third-parties with a predictable priority system in cases of loan default, credit to the private sector as a percentage of GDP averages 60% compared with ...32%...for countries without these credit protections."¹⁴¹ Indeed, modernized collateral laws are one of two measures used in the "Getting Credit" country rankings in the World Bank Doing Business reports (the other being the strength of credit information systems). Nicaragua is currently ranked 89th of 183 countries on "Getting Credit." By contrast, Guatemala is tied for 6th place due to its having passed a secured transactions law in 2007 and established a centralized collateral registry a year later.

A draft new law for Nicaragua was submitted to the National Assembly in December 2009. It is based on the "Model Inter-American Law on Secured Transactions and incorporates inputs by the interested Nicaraguan parties."¹⁴² However, while business associations such as

¹³⁹ World Bank, "Improving the Ease of Doing Business in Nicaragua: Reform Memorandum," March 2011.

¹⁴⁰ Interview with Miriam Jarquín, Directora Nacional, Registro Público de la Propiedad, April 12, 2011.

¹⁴¹ Investment Climate Advisory Services, "Secured Transactions Systems and Collateral Registries," World Bank Group, January 2010.

¹⁴² Two IDB documents, in addition to the World Bank Doing Business 2011 Reform Memorandum, op. cit., contain a full analysis of the proposed Nicaragua collateral law. They are: (1) "*Revisión y Actualización de Anteproyecto de Ley de Garantías Mobiliarias y Diseño e Implementación de Campaña de Promoción y Divulgación,*"

CACONIC, are solidly in favor of the new law, there has been some resistance by the commercial banks. Observers attribute the opposition to vested interests—courts, notaries and banks—that derive high returns from collateral recovery actions under the existing *prendas* laws, whereas the new law stresses the need for inexpensive out-of-court and “self-help” provisions to enforce security interests. The debate is ongoing and at this stage it is uncertain when or whether the new law will be passed.

Credit Bureaus

Accurate and real-time credit records are essential for the development of Nicaragua’s credit markets. Creditors, both financial institutions and commercial companies (vehicle dealers, farm equipment sellers, agricultural input suppliers, etc.), need reliable data on prior payment records to assess the creditworthiness of clients applying for loans. Lenders need particularly to analyze *over-indebtedness* risks, requiring a full database on borrowers’ consumer, business, housing, and other debts. This applies to both persons and firms, to transactions in all economic sectors, and within agribusiness to large and medium firms as well as small individual producers.

There are four credit bureaus in Nicaragua, including the SIBOIF’s internal system and three private bureaus. The latter are regulated by the SIBOIF norms issued in 2005 (“*Normas sobre Centrales de Riesgos Privados*”), requiring each private bureau to submit audited reports on business results and compliance with regulations.

- *SIBOIF Central de Riesgos*: This is the official credit information unit within the government. It records data on all credits issued by regulated financial institutions including the commercial banks, the finance companies and now Banco Produzcamos.
- *SINRIESGOS, S.A.*: Started by ASOMIF as a private credit bureau for MFIs and formally launched in 2004., its clients now include a mix of banks, finance companies, and *casas comerciales* (commercial creditors) in addition to the MFIs.
- *TransUnion Nicaragua, S.A.*: Affiliated with Transunion in the United States, the Nicaragua company commenced operations in 2006, it now serves approximately 100 clients including five of the six commercial banks, most of the MFIs, *casas comerciales*, and other credit providers such as the ANIFODA group of agricultural input firms.¹⁴³ Counting credit payment records submitted by cellphone operators and the national electricity distributor, TransUnion is the largest of the credit bureaus, with credit records of hundreds of thousands of individuals averaging three credits per person.

IDB, September 2008; and (2) “*Registro de Garantías Mobiliarias como Instrumento para el Desarrollo Económico*,” IDB presentation by Miriam Jarquín, 2008.

¹⁴³ Interview with Arnulfo Somarriba, General Manager, TransUnion Nicaragua, March 9, 2011. ANIFODA is the *Asociación Nicaragüense de Formuladores y Distribuidores de Agroquímicos*.

- *INFORNET, S.A.*: The fourth entity in the system, *INFORNET*, is known for its specialized information on judicial, legal and other personal information on credit applicants, consistent with rules of public disclosure.¹⁴⁴

Overall, the World Bank Doing Business 2011 report gave Nicaragua a high rating (five out of possible six points) on its “depth of credit information index.” Interviews with the commercial banks confirm that all of the banks routinely seek (and pay for) credit reports from each of the bureaus. Yet, there remains much room for improvement. The principal weaknesses and constraints include:

- Lack of positive information: Regulations only require reporting of negative late payment or default data. Providing positive records should not be optional but required, to present a complete picture of a borrower’s credit history.
- Length of time that records are kept: Current regulations require less than two years; the minimum should be two years, and the maximum up to seven years.
- CACs and Alba-Caruna: Some of the CACs participate in credit information sharing, providing data on their credits and seeking other credit records; however, Alba-Caruna provides no information to any entity.
- Lack of formal information-sharing agreements between SIBOIF and each of the commercial banks, as is the case by law in other Latin American countries.

More complete and integrated credit data is the commonly expressed goal. “We are all in the same circle” is the way one leader summed up the case, referring to the information asymmetries and insufficient use of credit records that helped cause the microcredit bubble in 2008 and 2009—negatively affecting credit availability in rural agricultural zones as well as urban areas.¹⁴⁵

Third-Party Credit Guarantees

Reciprocal Guarantee Companies (SGRs)

Reciprocal Guarantee Companies are private companies formed by groups of micro, small, and medium enterprise shareholders (“*socios partícipes*”) for the sole purpose of providing cross-guarantees on credits received by the member shareholders. Typical SGRs in other countries have between 250 and 500 MSME members. The total capital of an SGR includes the shares contributed by the members as well as the shares of outside investor shareholders (“*socios protectores*”) that usually consist of a mix of large enterprises, banks, public institutions, or

¹⁴⁴ A draft law on protection of private information (*Anteproyecto de Ley de Protección de Datos Personales*) has been under consideration by the National Assembly for several years.

¹⁴⁵ Interview with Sergio Gómez, General Manager, SINRIESGOS, March 8, 2011.

multilateral organizations. SGR capital is invested in pre-determined low risk securities (usually government bonds) and held as contingent liability reserves against claims that may be made on the SGR-guaranteed credits. The SGRs tend to guarantee up to 50% of a given credit, and there are strict rules on overexposure of liability risk related to any one credit or any MSME member. This type of third-party guarantee, payable in cash, is proving to be attractive to lenders and helping both to increase MSME credit volumes and reduce interest rates.

In SGR law in Nicaragua was approved in 2008, but its implementation has been delayed pending the formation of an official government SGR regulating entity. This entity is anticipated to be in place and staffed by the end of 2011. Meanwhile, it is reported that the first SGR in Nicaragua is likely to be formed by a group of up to 300 MSME hotels, restaurants and other tourism service providers. The *socios protectores* may include one of the commercial banks and an external donor. There is also a good probability that other SGRs will be formed among MSMEs in the agricultural sector—three likely candidates reported to be groups of fruit and vegetable (*hortalizas*), honey, and livestock companies. In the case of potential agribusiness SGRs, it may be feasible that a larger enterprise or anchor firm become a *socio protector*, building upon the strengthened cohesion (*asociatividad*) of the small producer SGR members. The SRG concept is currently being actively promoted, including a forum is scheduled for mid-2011 organized by CONIMIPYME with assistance by USAID's E&E project.¹⁴⁶

Development Credit Authority (DCA)

Donor-funded credit guarantees programs are another cash-based means to cover bank lending risk. The DCA guarantees offered by USAID cover 50% of loan values, usually covering a portfolio of credits to targeted SME borrowers that are relatively new to the participating bank. In Nicaragua, DCAs have been employed several times. Both Banpro and Bancentro reported very positive prior experience with DCA-guaranteed loans. These two banks and also BDF expressed interest in a future DCA that might explicitly cover agriculture sector lending. The concept of value chain financing, allowing DCA coverage for credits to multiple actors in specific chains and a range of financial products (short-term crop cycle advances, medium-term investment loans, etc.) is particularly attractive. The current E&E project is also looking at the application of new DCAs to chains of SMEs linked to anchor firms, in this case including agricultural as well as manufacturing, tourism and other chains.

Crop Insurance Initiative

All sources in Nicaragua concur in that crop insurance policies ("*seguros agrícolas*") are a missing piece of the agribusiness finance equation. While in theory crop insurance can reduce risk and facilitate increased credit for the sector, in practice there are rigid structural problems that

¹⁴⁶ Much of the information on SGRs was provided by in an interview with Gilberto Alcócer, President of CONIMIPYME, March 9, 2011.

have impeded the development of this market. On the supply side, insurance companies cannot handle the impacts of the widespread natural disasters that have become the rule rather than the exception in Nicaragua and are linked to climate change. On the demand side, prices of premiums, either paid separately or added into terms of loans, are prohibitive for farm operators.

Less than 1% of cultivated land is now covered by crop insurance, mostly for large-scale producers of peanuts and irrigated rice. Even for these crops, experience has been mixed; Agri-Corp, a leading rice producer, reported that it had tried but stopped insuring several years ago.¹⁴⁷ In this context, Nicaragua has participated in the past five years in a pioneering regional project under the auspices of FIDES (Inter American Insurance Company Federation) funded by the World Bank, IDB and CABEI. The project is focused on policies, technological platforms, and pilot projects to develop viable market-priced (non-subsidized) crop insurance products. Two of Nicaragua's five regulated insurance companies, INISER (Nicaraguan Insurance and Reinsurance Institute) and Seguros Lafise, are engaged in pilot insurance policy initiatives for new crops, starting with basic grains (beans, corn and sorghum) and expanding to other export crops.¹⁴⁸ The most promising products are variations of indexed weather-based and area-yield policies. The national meteorological services (INETER—Nicaraguan Institute of Territorial Studies) is also a project participant, and a parallel objective is to help build INETER capacities to provide digitalized rainfall and other weather data at farm-level locations to measure climate events and trigger insurance payments.

This project is scheduled to end in 2011, but efforts will continue to develop the crop insurance market. There is now a permanent Agricultural Insurance Committee (*Comité de Seguro Agropecuario*) established within the Ministry of Agriculture, uniting the government policy and insurance company players. The agricultural credit departments in the commercial banks are already closely monitoring INETER data and the effects of climate change on crop production and yields, factoring the availability of insurance into credit pricing decisions. The combined market development effort merits further external donor support, both on supply-side product development and demand-side education of the costs/benefits of crop insurance.

d. Impacts

Small Producers, Companies/Cooperatives, and Chains

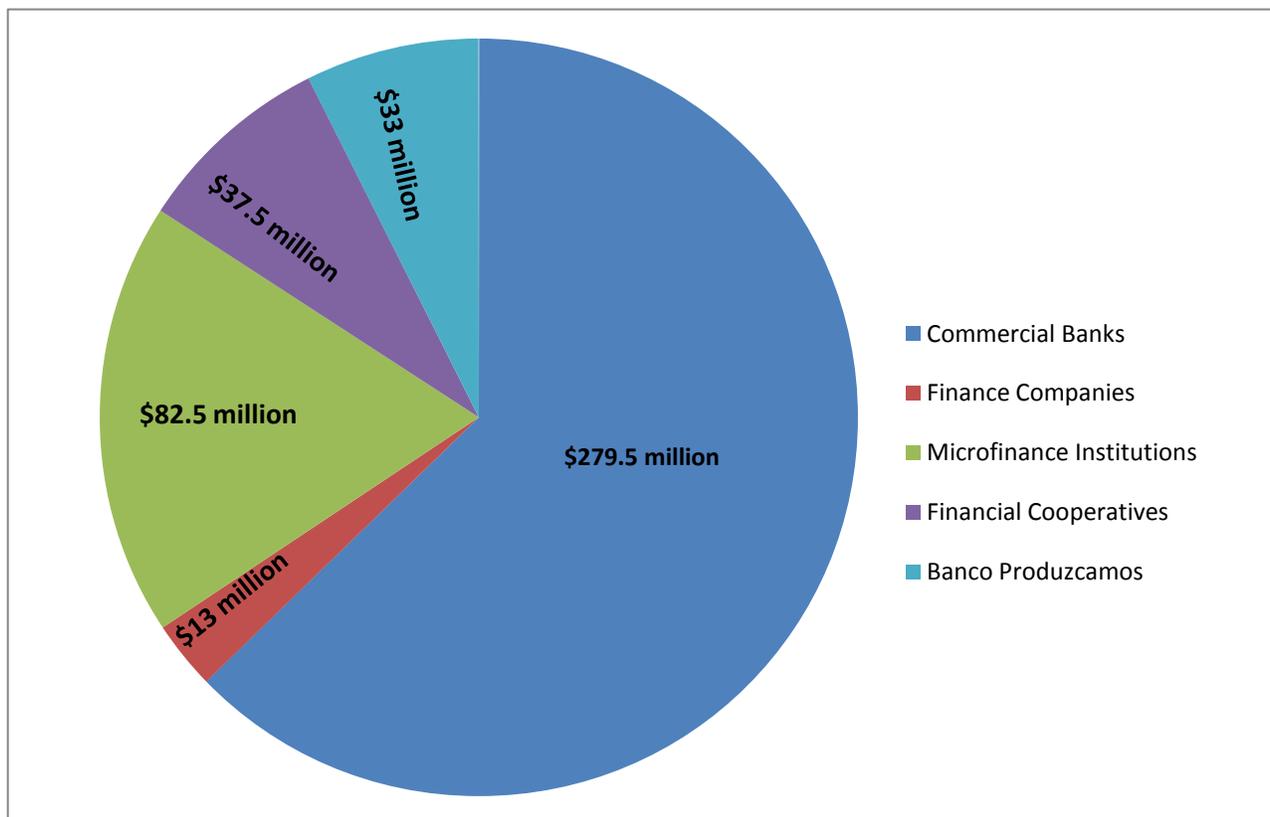
Figure 3 summarizes current agricultural credit volumes in Nicaragua provided by the financial intermediaries. At the end of 2010, an estimated \$445.2 million was being financed, of which \$279.2 or 63% corresponded to the six private commercial banks. The second largest provider

¹⁴⁷ Interview with Roger Zamora, General Manager Nicaragua Operations, Agri-Corp Corporación Agrícola, S.A., March 7, 2011.

¹⁴⁸ A detailed summary of INISER's current climate-indexed policies is in "Resumen Ejecutivo del Programa de Seguro Agrícola por Índice Climático," INISER, March 2011.

was the group of 20 MFIs in the ASOMIF network at \$82.5 million (18.5%), followed by the financial cooperatives (8.5%), Banco Produzcamos (7.5%) and the two regulated *financieras* (3%).

FIGURE 3. ESTIMATED FORMAL AGRICULTURAL CREDIT AS OF DECEMBER 2010



These estimates reflect lower than peak levels of MFI credits for agriculture that may increase as the microfinance industry recovers. It is also anticipated that Banco Produzamos will double its agriculture and livestock credit portfolio in the next two years. Commercial bank credit is expected to expand with post-recession increases in demand for agricultural products.

While finance for medium and large agro-enterprise processors and exporters is functioning well, the field interviews with small farm producers and associations indicate that credit access remains a major issue. In addition to insufficient access to short-term working capital, small producers lack access to medium-term loans for on-farm irrigation and drainage systems, collection centers, tree crop renovation and other small-scale infrastructure investments that are essential for increasing productivity and income.¹⁴⁹

¹⁴⁹ The structured field interviews were undertaken with a cross-section of producers in Matagalpa and Jinotega (coffee and bean producers) and Comalapa (livestock and horticulture producers).

The World Bank Doing Business 2011 report ranks Nicaragua 89th in terms of access to credit out of 183 countries. As indicated, this is a proxy index based on collateral laws and credit information systems. By comparison, the broader World Economic Forum Global Competitiveness Index also ranks Nicaragua 89th but out of 139 countries, in its access to finance category, i.e., a much lower relative score.

For small producers, direct supplier and/or buyer credits are the principal alternatives to formal credit from banks and other intermediaries. These sources typically include credits by input suppliers or advances by buyers, commonly guaranteed by the proceeds of anticipated crop harvests. The interest rates on these credits, however, tend to be higher than direct bank loans or credit lines, particularly where the suppliers/buyers are dispersing funds to small producers that they themselves have borrowed. A second finance alternative is equity capital. Medium and large enterprises normally use reinvested retained earnings as a primary source of expansion capital, but this is an unrealistic option for small producers with little accumulated “own funds” to invest in their farms.

Not all small producers can or should receive credit. Complaints that commercial banks and MFI interest rates are inaccessibly high or that supplier credit terms are too onerous are easy generalizations. This often reflects a culture of waiting for cheaper government credit, a still evident mentality rooted in prior subsidized credit programs—one observer phrased it as “all groups wanting their own mini development bank.”¹⁵⁰ The reality is that increased affordable credit flows to small producers will depend on mitigating constraints to both “effective demand” and “effective supply.”

Effective demand requires bankable projects for which credits can be priced reflecting risks, transaction costs and profit margins. Key constraints in Nicaragua are:

- Scale of producer operations: Financing small producers that are grouped in producer cooperatives or associations is more viable than for individual producers. This is especially the case with infrastructure improvements that overlap more than one farm.
- Collateral: Inability or unwillingness to use land as a collateral guarantee means that movable property (principally anticipated crop values) should be available. But this guarantee can also be compromised by “*desvios*”—“detours”—of crop sales to non-contracted buyers, and there are judicial enforcement issues in recovering collateral.
- Technical and business skills: Demand is also constrained by low levels of expertise among small producers related to both productivity (e.g., use of yield-increasing inputs) and management (credible data on sales, costs, and profit projections summarized in financial statements).

¹⁵⁰ Interview with Luis Noel Alfaro, INCAE Business School, Managua, February 26, 2011.

Effective supply refers to credit and other finance products that respond to market demand, at interest rates and terms that are accepted by credit recipients and profitable for credit providers. Key constraints are:

- Understanding agriculture and the rural economy: Many financial intermediaries lack professional agro-lending expertise and technical staff, supported by accurate data on price trends, productivity variables (including climate factors), and competing lenders.
- Credit products: Innovative credit lines, medium-term investment facilities, leasing, factoring and other products have not been sufficiently developed and tested, geared to crop cycles and specific requirements. In particular, there is a lack of integrated value chain finance including credits for small producers and all other actors in a given chain.
- Additional guarantees: In entering new subsectors, banks lack access to third-party credit guarantees and crop insurance policies that could help buy down risk.

Solutions to financial market development on both the demand and supply sides is a function of improvements in the policy framework, the capacities of the financial intermediaries, and the supporting institutions analyzed in this chapter. There are many positive signs. The few missing laws and regulations are being acted on, particularly on microfinance and financial cooperatives regulations. Ongoing work is also advancing well on the key supporting institutions including land titles, movable collateral, reciprocal guarantee companies and crop insurance. For the implementing institutions, an encouraging finding is the commitment of the commercial banks to strengthen and extend their exposure in agricultural finance. The latter objective is the crucial one for the credit market and will depend importantly on increasing competition among the banks.

Value chain finance (VCF) is viewed as a promising solution. There is ample evidence of different forms of VCF already in place—details and further analysis of the status of VCF in Nicaragua may be found in the Appendix I. The key VCF dimensions are well-articulated value chains, the strength of the small producer associations within the chains, leadership by anchor firms, and effective technical assistance integrated with credit provision.

Lastly, the impact of the disparities in credit distribution to small producers vs. medium and large firms relates to the study's cross-cutting themes—food security, gender and poverty alleviation. With a GINI coefficient of 43.0, Nicaragua has one of most unequal income distributions in the hemisphere and poverty reduction remains a national imperative (of the current as well as previous governments). To the degree that more finance becomes available for small producers, their relative returns in the total value of agricultural production should increase. The resulting higher incomes for rural families will contribute to poverty reduction and food security. The numbers of women receiving loans as primary credit recipients also correlates positively with increased MFI and financial cooperative lending.

Investors

Nicaragua is an agricultural country with abundant investment opportunities, particularly in exports of high-value crop and livestock products carrying increasing value added. Decisions by equity investors to invest in agricultural projects depends in part on confidence in the strength of the agricultural sector value chains, including access to credit and other debt finance by all actors in the chains. This includes importantly the thousands of small producers at the base of the chains, where the current inadequacy of credit availability has been verified.

Equity capital is from two sources, domestic investors and foreign direct investment (FDI). As indicated, most domestic equity investment consists of each firm's own capital, including reinvestment of retained earnings. In Nicaragua there are very thin domestic capital markets that could be an additional source of equity capital. There is virtually no issuance of publically-held stock shares. There is only an incipient market in corporate bonds or quasi-equity—a few reported examples are corporate bonds by large firms such as Agri-Corp and some of the financial firms specializing in factoring and leasing. Over 95% of domestic securities activity is instead concentrated in trades of government bonds including both treasury bills and Nicaragua's indemnity bond payments (BPIs), i.e., the long-term government bonds issued in the 1990s to compensate for earlier property expropriations.¹⁵¹

Regarding third-party domestic private investors, it is said by knowledgeable sources that most Nicaraguan money is going elsewhere, including Costa Rica and Panama. There is also very little organized investment banking or venture capital in Nicaragua. One regional company, the Central America Small Enterprise Investment Fund (CASEIF) managed by the Lafise Group, has only three current investments in Nicaragua.

By contrast, foreign direct investment is quite strong. FDI as a percentage of GDP is 7.9% in Nicaragua, by far the highest in Central America. The absolute figure for 2010 was \$508 million, and the early projection for 2011 was \$600 million.¹⁵² About 60% of FDI is in the energy and telecommunications sectors, followed by the free trade zones, forestry and mining. ProNicaragua, the official investment promotion agency, is currently ranked 11th worldwide in overall performance by the World Bank's Foreign Investment Advisory Service (FIAS).¹⁵³ The legal framework for foreign investors is also viewed very positively and is consistent with the CAFTA-DR agreement with the United States, including protection against expropriation, free transfer of funds, hiring of managerial personnel without regard to nationality, 100% foreign

¹⁵¹ Information on domestic equity markets from interview with Raúl Lacayo, President, Bolsa de Valores de Nicaragua, March 10, 2011.

¹⁵² Official ProNicaragua figures based on government and IMF data. Note: Javier Chamorro, the ProNicaragua Executive Director, recently stated that FDI in 2011 may increase very substantially to a level just above \$1 billion, due to major new energy and petroleum refinery foreign investments by Venezuela (article in *La Prensa*, April 12, 2011).

¹⁵³ FIAS rating issued in June 2009, based on a 2008 "Global Investment Promotion Benchmarking" study of 213 investment promotion intermediaries in 181 countries.

ownership in most sectors, access to local financing, and duty drawbacks on imports of equipment and raw materials for exporters.¹⁵⁴

Nonetheless, the ProNicaragua FDI figures show only a minimal amount of FDI in agriculture (crop plus livestock sectors). Less than \$500,000 or 1% was officially classified in these two categories in 2010. While the statistics understate the full picture—about 20% of FDI (\$97.6 million) in 2010 was in the country’s free zones, of which some percentage was certainly for agro-industrial projects¹⁵⁵—there are clear challenges for ProNicaragua in attracting agricultural investors. The current surge in prices and exports of agricultural commodities is a very positive development, presenting new FDI opportunities that ProNicaragua is aggressively pursuing in concert with CEI, the mixed public-private sector export promotion agency.¹⁵⁶ Promising targets run the gamut from plantation crops (coffee, cacao, peanuts, cassava, sugar, etc.) to horticulture (fruits, vegetables, flower seeds) and dairy and meat products.¹⁵⁷

Even if the constraints for foreign investment are relatively few—Nicaragua is the highest scored country in Central America in the World Bank Doing Business indicators for protecting investor rights—there are specific impediments affecting agriculture. One is the uncertainty surrounding land tenure. Another is a perception of difficulties in enforcing contracts, including arbitration clauses treating disputes (in local courts and/or ADR procedures) between foreign investors and Nicaraguan equity partners. A third concern is political. While the reality may be the implicit pact between the private sector and the government, the anti-capitalist rhetoric of the Ortega administration can be off-putting. There is also some justifiable concern with respect to favoritism for Alba-related investments, in view of recent Albalinisa (Alimentos de Nicaragua) joint ventures with Venezuela in slaughterhouses, dairy processing plants, and corn flour factories. In this regard, investors are awaiting more clarity on the overall Alba operations including regulation of Alba-Caruna.

Finally, because 2011 is an election year, there could be some slippage in votes on key legislation such as the microfinance law. The latter is especially critical for its impact on external investors in the MFIs. The optimistic FDI forecasts for 2011 may also be tempered in general as investors wait out the results and reaction to the November 2011 election.

¹⁵⁴ Excerpted from “Nicaragua Country Brief,” The Financial Standards Foundation, August 27, 2010.

¹⁵⁵ For example, the international FDI Hub organization points to the “foreign business groups in the north of the country that are developing agro-industrial parks “to process and add value (packaging, freezing) to agricultural products,” press release, FDI Hub, Foreign Direct Investment Center, January 10, 2011.

¹⁵⁶ CEI transferred its investment promotion mandate to ProNicaragua in 2004. The two agencies coordinate promotion activities, for example, Nicaragua’s stand at the Fruit Logistics 2011 trade fair in Berlin—ProNicaragua press release, February 23, 2011.

¹⁵⁷ Export trends and data were also provided by Jorge Molina, Executive Director of the export clearinghouse CETREX.

e. Conclusions

- Inadequate access to credit, finance and investment is a significant factor impeding the growth of the agribusiness sector in Nicaragua, particularly the expansion of smallholder production of high-value export crops.
- Overall, current policy incorporates a balanced view of the complementary roles of the government and the private sector in credit expansion. There is a clear recognition that mainstream credit via the commercial banks and other private providers is essential, with gaps to be filled as needed and possible by government funds.
- There is an emerging consensus that the most promising long-term solutions to credit access for small producers will be through different models of “value chain finance” and innovative agricultural finance products.
- The agribusiness associations are key players in building alliances with commercial banks, financial cooperatives, Banco Produzcamos, and microfinance institutions aimed at finding solutions for the different agribusiness finance challenges facing each agricultural subsector.
- As a group, a key issue in expanding commercial bank agricultural credit will be the degree of competition among the banks. Healthy competition among the banks is essential for the development and expansion of the credit markets, and this issue will need to be closely watched.
- The size of the microfinance industry in Nicaragua has precipitously contracted over the past two to three years. The MFIs are still in recovery mode, with much riding on the passage of the new Law on Microfinance Institutions.
- Property disputes and insecure land tenure are serious impediments to Nicaraguan agribusiness activity. Without clear land titles, owners have disincentives to invest in land, infrastructure improvements, and financial institutions are unable to count on land as real collateral against working capital or investment loans.
- Implementation of the SGR law, adoption of the microfinance law as well as a new secured transactions law, and the design of practical crop insurance products can go a long way toward expanding credit to MSMEs.

4. Climate Change

While Nicaragua is not a major contributor to the accumulated greenhouse gases that are said to cause climate change (it produces less than 0.01% of total worldwide emissions¹⁵⁸), it does suffer proportionately more of the negative consequences. Over the last several decades

¹⁵⁸ José Antonio Milán Pérez, *Apuntes sobre el Cambio Climático en Nicaragua*, FAO Multi Donor Partnership Programme (FMPP), 2010.

Nicaragua has become increasingly susceptible to various adverse impacts of climate change. The country is experiencing changes “in rainfall, in temperatures, in rivers that dry up, which affects harvests and provokes a loss of production.”¹⁵⁹ The principal threats affecting Nicaragua as a result of climate change include: hurricanes, intense rainfall, flooding, drought, heat waves, and forest fires. Since 1982, Nicaragua has been hit by about ten hurricanes and severe flooding, with estimated damages over \$3 billion (equivalent to approximately 53% of Nicaragua’s GDP in 2006).¹⁶⁰ While climate change has most affected the North, North Central, and Southern Pacific Coastal areas of the country, its Caribbean coast is also at risk of increased flooding due to rising sea levels.

Nicaragua is experiencing an increasing number of Niño and Niña years, which cause abnormal patterns of rainfall as well as extreme heat and drought. The Niña effects have caused increased rains and flooding in Pacific coast countries, although it has generated fewer hurricanes in the Atlantic. The Niño effect, opposite that of the Niña, results in unusually warm temperatures, increased droughts and more hurricanes originating in the Atlantic. Often, Niño years are followed by Niña years and both phenomena are occurring with greater frequency. During the last several decades, there have been at least nine strong Niño years, resulting in severe droughts and the loss of harvests. The lack of water and pasture caused by the Niño effect has also affected cattle maturation and milk production. It has also jeopardized the production of hydroelectric power.

Since 1998, various governments, including the United States, Japan and Australia, have deployed up to 70 buoys throughout the Pacific Ocean, enabling relatively accurate early warning system for predicting Niño and Niña weather years.¹⁶¹ Such early warning systems could be accessed to provide producers with important information that can be used to determine whether to plant drought resistant or rain resistant seed varieties.

The adverse impacts of climate change are proportionately greater in rural areas and especially in agriculture and food production. “The impacts on agriculture, according to climate scenarios, are of three types: the first refers to a relative decline in yields due to the hydrologic deficit. The second refers to the adverse effect of temperature (stress). The third refers to the occurrence of extreme events. This has two important aspects: the areas affected by droughts during the phenomena of El Niño and the areas more affected by the increase in precipitation during events such as hurricanes and tropical storms (almost always under conditions of La Niña).”¹⁶²

¹⁵⁹ CATIE (Centro Agronómico Tropical de Investigación y Enseñanza), “Adoptarnos al Cambio Climático: la Única Salida”, Julio 2010.

¹⁶⁰ José Antonio Milán Pérez, *loc.cit.*

¹⁶¹ “El Niño / La Niña, Natures Vicious Cycle” by Curt Suplee in www.nationalgeographic.com.

¹⁶² José Antonio Milán Pérez, *loc. cit.*

Climate change impacts agriculture in Nicaragua in many ways. Specifically, there has been rainfall in the normally dry period. The rains are much more intense but for shorter periods, resulting in increased flooding and runoff which is causing soil loss and degradation as well as deforestation which deteriorates the condition of soils. In the Niña years, too much rainfall during the planting periods has resulted in the loss of whole crops. This is one of the reasons for the shortage of beans in Nicaragua in 2010.¹⁶³ The increasing number of Niño years has caused extended droughts with little or no rainfall during the normal growing periods.

There has been an estimated 6% to 10% decline in rainfall in the Pacific region of the country.¹⁶⁴ The result has been the loss of entire crops as well as seed development for future planting. These changes have altered growing seasons and introduced plagues and insect infestations that the Nicaraguan producers normally do not face (see box above). The lack of rainfall also damages available pasture lands, resulting in the need to move cattle to alternative pastures for forage. The lack of access to fresh water also causes cattle to produce much less milk (an estimated 3 liters per day versus a normal production of about 18 liters per day)¹⁶⁵ and to mature slower, taking as much as an additional year to reach the appropriate weight for slaughter.

In addition to the effects of climate variations brought on by the increasing occurrence of Niño and Niña years, global warming is also having an impact on the Nicaraguan coffee production. According to data from INETER, the average temperatures in Nicaragua have increased between 0.2 degrees centigrade and 1.6 degrees centigrade over the last several decades.¹⁶⁶ It is anticipated that this warming will cause Nicaragua to lose the capacity to produce quality coffee below 1000 meters by 2050.¹⁶⁷ Current projections are that Nicaragua's production of coffee in 2011 will be about 30% lower than in 2010, primarily due to climate variations.¹⁶⁸

Climate change impacts on agriculture are primarily associated with water management; either too much water when intense rains fall or too little water during normal dry seasons as well as during abnormal droughts. In Nicaragua, an estimated 97% of rainfall runs off mostly through watershed number 69,¹⁶⁹ the largest in the country, starting in Jinotega and running through Lake Managua, Lake Nicaragua, and the San Juan River to the Caribbean. The runoff water is lost and cannot be used productively for irrigation. Runoff results from the lack of capacity to hold water in the land which is largely attributed to deforestation. It has been said that forests are the water warehouses of the land. The loss of trees results in land that cannot hold water, loss of soil nutrients and soil erosion, as well as the drying out of watersheds, all of which

¹⁶³ Interview with Julio Montealegre, Director of TechnoServe, January 25, 2011.

¹⁶⁴ "Estrategia Nacional Ambiental y del Cambio Climático Plan de Acción 2010 – 2015," MARENA, April 6, 2010.

¹⁶⁵ Interview with Gerardo Leon-York, Finance Director of Glacial, Managua, February 23, 2011.

¹⁶⁶ José Antonio Milán Pérez, *loc. cit.*

¹⁶⁷ CATIE, *loc. cit.*

¹⁶⁸ Interview with Luis Osorio, Technical Secretary of CONACAFÉ, Managua, February 24, 2011.

¹⁶⁹ Interview with Alejandro Rodríguez, Director of INETER, Managua, March 7, 2011.

severely impacts agriculture. “Deforestation accelerates soil erosion, decreases the amount of recharge to aquifers by increasing surface runoff, damages barrier reefs and ecosystems, increases turbidity which affects mangroves decreases agricultural production and causes increased maintenance of water infrastructure.”¹⁷⁰

Table 8 below shows that the changes in growing conditions for agriculture, water resources, and soils are all relatively intense, while the alterations in conditions for livestock and of plagues may be more moderate. In contrast, available technology and resources may enable an adequate program of adaptation to mitigate the impacts on conditions for livestock as well as growing conditions for agriculture and control of plagues.

TABLE 8. SUMMARIZES THE MAJOR AGRONOMIC IMPACTS OF CLIMATE CHANGE.¹⁷¹

BIO-PHYSICAL EFFECTS	INTENSITY OF EFFECTS	ADAPTIVE CAPACITY	SOCIO-ECONOMIC IMPACTS
Changes in growing conditions for agriculture	High	Moderate to High	Changes in optimum production systems and cycles, relocation of processing plants, increase in economic risk, and loss of rural income
Changes in optimum conditions for livestock	Moderate	High for intensive production	Changes in optimum production systems and loss of rural income
Changes in precipitation and availability of water resources	High	Moderate	Increases demand for irrigation, reduces crop yields, increased salinization of soils, scarcity of water and loss of rural income
Changes in agricultural plagues	Moderate	Moderate to High	Contamination due to increased use of pesticides, reduction in yield and quality of harvests, increase in economic risk and loss of rural income
Changes in soil fertility and erosion	High	Moderate	Soil contamination, damage to biodiversity, reduction in yields, increased risk of desertification, and loss of rural income.

In 1990, an estimated 55% of Nicaragua’s 120 thousand square kilometers of national territory was covered in forest. Since then, Nicaragua has been losing about 1.4% of its forest cover annually. By 2005, only 51.9 thousand square kilometers (43%) continued to be forested.¹⁷² Deforestation has caused an

Example of growing season alteration

In March 2011, coffee trees in Matagalpa flowered three months early. Premature flowering followed by a prolonged dry/hot period causes the coffee grape to ripen too quickly and to be smaller than usual at harvest, reducing the quality and quantity of the harvest. The longer dry season after flowering also facilitates the outbreak of the Broca fungus—a larva that attacks the coffee grapes.

¹⁷⁰ “Water Resources Management in Nicaragua,” *FAO Aquastat 1988 – 2008*.

¹⁷¹ José Antonio Milán Pérez, *loc.cit.*

¹⁷² José Antonio Milán Pérez, “Cambio Climatico en Nicaragua,” PowerPoint presentation, 2005.

“increase in dry zones in the departments of Nueva Segovia, Madriz, Estelí, León, Chinandega, Managua, Masaya, Carazo, Granada, and Rivas, affecting the production of basic grains for the food security and nutrition of the population.”¹⁷³ The current forest cover is predominantly located in northeastern Jinotega, northern RAAN, and along the Caribbean Coast. It is estimated that this forest cover will shrink significantly by 2050.¹⁷⁴ There are three primary causes of deforestation in Nicaragua:

- Expansion of agricultural areas into previously forested areas, especially for pasture land and areas for planting African Palm
- The Mayan tradition of burning the land in preparation for planting that frequently cause forest fires
- The cutting of forests for firewood (*leña*). At least 42% of Nicaraguans use *leña* for cooking¹⁷⁵

It is estimated that the consumption of *leña* in Nicaragua is equivalent to 1.8 kilograms for each inhabitant per day. An estimated 98% of the *leña* is extracted illegally from natural growth forests in the Pacific region of the country.¹⁷⁶ This is the fundamental reason that the main agricultural areas of the country, which are located in the Pacific region, have been almost completely deforested and are increasingly impacted by a lack of water. Although included in the National Environmental and Climate Change Strategy, it will require a major cultural change to convert cooking habits from *leña* to another source of fuel.¹⁷⁷ In the meantime, the Ministry of Environment and Natural Resources (MARENA) does not have sufficient capacity to control the illegal extraction of *leña*.

Nicaragua will need to introduce water systems management programs in order to adapt to and mitigate the impacts of climate change. These systems should include both drainage and catchment infrastructure to collect water as well as irrigation systems to enable its use in agriculture. State-subsidized irrigation systems were developed in Nicaragua in the 1980s, but they were largely abandoned in the 1990s when the subsidies were eliminated. In 1998, FAO estimated that about 273 thousand hectares in Nicaragua were suitable for irrigation, but only 51 thousand (18%) actually had functioning irrigation systems. These systems were used primarily by large producers of banana, sugarcane, and rice.¹⁷⁸ At the same time, FAO estimated that 350 thousand hectares required proper drainage.

¹⁷³ “Estrategia Nacional Ambiental y del Cambio Climático: Plan de Acción 2010 – 2015,” *loc.cit.*

¹⁷⁴ *Ibid.*

¹⁷⁵ Wilder Pérez, “Mitad de Nicas aún Cocina con Leña,” *La Prensa*, March 2, 2011.

¹⁷⁶ Masiell Largaespada, “Quince Manojos por 700 Tortillas,” *La Prensa*, March 2, 2011.

¹⁷⁷ “Estrategia Nacional Ambiental y del Cambio Climático Plan de Acción 2010 – 2015,” *loc. cit.*,

¹⁷⁸ “Water Resources Management in Nicaragua,” *FAO Aquastat 1988 – 2008*.

Irrigation systems provide water for agriculture by accessing ground water in watersheds or underground water from aquifers. Pump systems are necessary to reach water through aquifers and require electric power, which is not widely available in many of the agricultural areas of the country. Also, much of the water that should filter into the aquifers is lost through runoff, due to the deforestation that has occurred throughout the Pacific region. Run-of-the-river irrigation, a low-technology system that can draw water from streams, has been introduced with some success in north central Nicaragua by the Nicaraguan Foundation for Technological, Agricultural, and Forestry Development (FUNICA).¹⁷⁹ This system is effective because it does not require electric power; however it does depend on streams that have a consistent source of water.

The expanded use of irrigation systems in Nicaragua will only be possible if adequate measures are taken to capture rain water, either through its filtration into underground aquifers or through the development of drainage and catchment infrastructure. Reforestation will also be important for the restoration of water in the watersheds that have dried up in recent years. In a successful water initiative, the Nicaraguan Foundation for Sustainable Development (Fundenic SOS) has established a water farm in the Montelemar region for the sole purpose of capturing and storing water for subsequent use in irrigation. The farm reforested the watershed on which it is located and after two years the previously dry river had been restored and now contains water year-round. It has begun to capture and store water that will be available for irrigation in neighboring farms.¹⁸⁰ The success of this water farm demonstrates that reforestation and conservation of watersheds can quickly have a positive impact on the availability of water resources for agriculture. The International Center for Tropical Agriculture (CIAT) has also been working with several municipalities in Nicaragua as well as other producer associations (mostly rice growers) to develop catchment basins for water harvesting.¹⁸¹

The negative impacts of climate change can be somewhat mitigated if small producers have access to seed varieties that are designed to be resistant to intense rains and drought. While the primary focus of INTA is the production of improved seed varieties, it does have a limited research program for the “validation and adaptation of improved varieties and biotechnological practices for Food and Nutritional Security, under climate change conditions.”¹⁸² In addition, it houses the national agricultural extension service. This should facilitate coordination between INTA’s technical units that produce climate resistant seed varieties and the extension service to channel assistance to small producers in acquiring knowledge in the appropriate use of the seeds for anticipated weather conditions.

¹⁷⁹ Interview with Dr. María Auxiliadora Briones, General Manager, FUNICA, Managua, February 25, 2011.

¹⁸⁰ Interview with Dr. Jaime Incer Barquero, President of Fundenic SOS, Managua, April 14, 2011.

¹⁸¹ “Cosechando el Agua,” CIAT *et. al.*

¹⁸² “Programa de Soberanía y Seguridad Alimentaria y Nutricional (PSSAN-INTA),” www.inta.gob.ni

The decision to plant drought resistant or excessive water resistant varieties needs to be made on the basis of sound medium-term agricultural meteorological forecasts. INETER is the agency responsible for meteorological forecasting, as well as for land use planning and geo-reference mapping. However, the maximum forecast that INETER can provide is three months, not long enough to assist producers with decisions on varieties to be planted. While INETER has had some staff trained in climate change modeling, it does not yet have the capabilities to do long-term forecasting that is necessary for agricultural forecasting.

The U.S. National Aeronautics and Space Administration (NASA) has established the nucleus for a regional forecasting capability in the SERVIR.net program, based in Panama. Operating from a high-tech satellite system, SERVIR monitors climate conditions for all of Central America. The system provides real-time maps so that “decision-makers can see where rain will fall, where flooding will occur, the location of forest fires, hurricanes, tornados—pretty much anything nature can dish out.”¹⁸³ An agency like SERVIR could also make use of information from the buoys that have been placed in the Pacific for use in forecasting Niño and Niña events to provide the region with medium-term agricultural forecasting capabilities. This could become a regional meteorological agency that would support the meteorological agencies of each Central American nation, including Nicaragua.

One effective way to protect producers, and also lenders, from the impact of crop losses caused by severe climate events is the use of crop insurance. However, less than one percent of cultivated land in Nicaragua is covered by crop insurance. The crop insurance that is in use is based on damages caused by excessive rainfall. But payouts are based on reported rainfall in the microclimate zone and not on a physical inspection of damages. INETER provides rainfall volume data to the insurance industry to support these payouts.¹⁸⁴ This insurance program is not widely used because neither producers nor lenders are accustomed to taking out insurance. Crop insurance is further discussed in the Credit, Finance and Investment section of this report.

a. Policy, Legal, and Regulatory Framework

The policy for climate change is embodied in the National Environmental and Climate Change Strategy of April 6, 2010.¹⁸⁵ That strategy is based on the authorities established in the General Law for the Environment and Natural Resources of 1996, as reformed in 2008.¹⁸⁶ The General Law establishes that the Executive Branch is responsible for formulating and implementing a Policy for Adaptation to Climate Change, in accordance with the mechanisms created under the

¹⁸³ “SERVIR: NASA Lends a Helping Hand in Central America,” www.science.nasa.gov

¹⁸⁴ Interview with Alejandro Rodríguez, Director of INETER, March 7, 2011.

¹⁸⁵ “Estrategia Nacional Ambiental y del Cambio Climático Plan de Acción 2010 – 2015,” *Loc. Cit.*

¹⁸⁶ “Ley General del Medio Ambiente y los Recursos Naturales,” approved March 27, 1996; “Ley de Reformas y Adiciones a la Ley No. 217,” approved April 3, 2008.

United Nations Framework Convention for Climate Change. The law specifies that the policy will include mechanisms to assist vulnerable populations to adapt to climate change risks and strengthen the institutions that are responsible for addressing climate change issues.

The National Environmental and Climate Change Strategy contains five seemingly well thought out strategic vectors:

- Environmental education
- Environmental protection of natural resources
- Conservation, recuperation, capture, and harvesting of water
- Mitigation, adaptation, and management of climate change risks
- Sustainable management of land

Conceptually, environmental education is a key to the overall strategy, since mitigation and adaptation actions cannot be successfully carried out unless the vulnerable population has a clear understanding of the risks. Protection of natural resources focuses on programs to incentivize reforestation as well as to prevent further deterioration of natural forests. The single most important action defined in the strategy is the conservation and recuperation of water sources. The strategy recognizes the importance of watersheds in the overall program of mitigation and adaptation to climate change. “Watersheds fulfill the function of recharging the aquifers, while the forests play the important roles of air generators, filters of rain water and regulators of water flows, with both constituting a system that should be managed in an integrated manner under a territorial plan.”¹⁸⁷

To mitigate the risks of climate change, the strategy proposes to reduce Nicaragua’s dependence on fossil fuels with the goal to reach a level of 90% renewable energy by 2017. In recent years, Nicaragua’s dependence on petroleum for energy has moved from 29% in 1990 to 41% in 2005.¹⁸⁸ Part of the adaptation strategy does emphasize a program to implement cooking alternatives that would reduce the demand for *leña* and thus help to conserve the remaining forests. Within the area of sustainable management of the land, the strategy focuses on supporting small and medium producers to adapt best practices on agricultural technologies in order to achieve diversification of production while conserving soils.

While the strategy is well thought out and focuses on the key actions that must be taken to mitigate and adapt to climate change, the execution of these actions will require serious inter-institutional coordination between and among ministries as well as with municipal governments, which also have environmental conservation authorities. As indicated elsewhere in this report, the current government’s highly centralized structure will be a severely limiting factor to inter-

¹⁸⁷ “Estrategia Nacional Ambiental y del Cambio Climático Plan de Acción 2010 – 2015,” *loc. cit.*

¹⁸⁸ José Antonio Milán Pérez, “Cambio Climático en Nicaragua”, PowerPoint presentation, 2005.

institutional coordination required for the execution of this strategy. To its credit, the strategy includes an action plan that defines 35 programs to be undertaken to achieve its objectives. Each program defines its objectives, the anticipated dates for execution, the responsible entities within the GON, and the sources of funding. However, there is no detail on specific actions that would be necessary to implement the programs. Also, much of the funding would come from external donor sources such as UNDP, the Global Environment Facility, the World Bank, and several bilateral donor agencies. Some of this funding may be at risk as several European bilateral agencies have recently withdrawn funding from Nicaragua due to anticipated election irregularities.

However, it is notable that key representatives of civil society have expressed doubts about the National Strategy on Climate Change. A representative of the Centro Humboldt, one of the leading NGOs active in climate change issues, criticized the strategy, stating that it “is more a strategy of the structure of government, not a national strategy” because it was not well coordinated and lacked inputs from public consultations.¹⁸⁹ It was also pointed out that the programs included in the strategy do not define any role or participation of the private sector or of agricultural producers.

To implement the strategy, MARENA has taken an approach that focuses activities on the restoration of key watersheds, primarily in the North – Pacific and Central regions of the country. These activities are supported through five projects that have or have had funding from the Inter-American Development Bank and the Millennium Challenge Account. Of the five watersheds, two drain to the Caribbean (69 – Río San Juan and 55 – Río Grande de Matagalpa) and three to the Pacific (60 – Río Estero Real, 64 – Volcan Cosigüina and Río Tamarindo, and 70 – Río Brito).¹⁹⁰ These watersheds cover the most of the productive agricultural areas of the country. Typical activities being undertaken include the introduction of agro-forestry and silvo-pastoral systems to facilitate reforestation as well as water conservation and the development of catchment basins for water harvesting.¹⁹¹ The activities require close coordination with municipalities, cooperatives and producer associations, NGOs, and several entities of the GON.

Given that a key element of the adaptation to climate change risk is associated with the water resources, the policy framework for water is critical. Historically, Nicaragua has lacked any specific legal framework to govern the competing uses of water. The Constitution of Nicaragua establishes that national government is responsible to regulate the use of natural resources, including water, which is considered to be a public good. However, the Civil Code also

¹⁸⁹ Interview with Victor Campos, Vice Executive Director of the Centro Humboldt, Managua, April 12, 2011.

¹⁹⁰ Interview with Denis Fuentes, Director General of Planning, MARENA, Managua, April 15, 2011.

¹⁹¹ “Estrategía de Adaptación al Cambio Climático de los Sistemas Recursos Hídricos y Agricultura – Cuenca No. 64,” MARENA, 2008. (Authors’ translation)

establishes that water found on private property may be governed by private ownership and that water extracted for irrigation purposes is not regulated.

The Nicaraguan Water Law,¹⁹² enacted in September 2007, “attempts to improve the management of water resources and regulate the allocation of water rights among uses and users.” The law “incorporates the principles of integrated river basin management and sets up a new legal framework for putting the principles of sustainability, equity, and conservation of water resources into practice.”¹⁹³ The law also establishes the National Water Authority (ANA) with authority over the “direction, management, and administration of water resources in the national realm.”¹⁹⁴ The ANA is to be responsible for formulating the national water plan as well as water plans for each watershed, and to approve watershed and aquifer management plans and oversee compliance with these plans.¹⁹⁵ The law specifies “three mechanisms for allocating water resources depending on both use and volume. In this sense, concessions and licenses should be granted by ANA for large water and sanitation systems as well as for hydroelectric and agricultural purposes. For small systems or for agricultural lands smaller than 3 hectares, local governments are responsible for granting the respective authorizations. It is worth mentioning that for agricultural lands between 3 and 20 hectares, neither the water law nor its regulation states which agency is in charge of granting water use permits.”¹⁹⁶ The ANA has only recently been established (June 2010) and consequently the authorities specified in the Water Law are not yet fully functioning.

b. Implementing Institutions

Ministry of the Environment and Natural Resources (MARENA)

MARENA was established as a ministry in 1979 with responsibilities for environmental protection and the study, planning, and management of Nicaragua’s natural resources. Currently, “the Ministry of the Environment and Natural Resources, MARENA, is the institution in charge of the conservation, protection and sustainable use of natural resources and the environment. To achieve its objectives, MARENA formulates, proposes, directs and supervises the compliance with national environmental policies such as the norms for environmental quality and the sustainable use of natural resources.”¹⁹⁷

MARENA administers the system for environmental impact assessments (EIA) and ensures that EIAs are incorporated into national and municipal development plans. MARENA oversees the

¹⁹² “Ley General de Aguas Nacionales,” approved September 4, 2007.

¹⁹³ Both quotes from Paula Novo and Alberto Garrido, “The New Nicaraguan Water Law in Context,” International Food Policy Research Institute (IFPRI), July 2010. (Authors’ translation)

¹⁹⁴ “Ley General de Aguas Nacionales,” *loc. cit.* (Authors’ translation)

¹⁹⁵ *Ibid.* (Authors’ translation)

¹⁹⁶ Paula Novo and Alberto Garrido, *loc. cit.*

¹⁹⁷ “Bienvenido a MARENA,” www.marena.gob.ni. (Authors’ translation)

National System of Protected Areas (SINAP), which includes 72 established protected areas. MARENA supervises these protected areas through its departmental delegations. SINAP is supervised by the Directorate for Biodiversity of MARENA, which is responsible for overseeing compliance with the laws and technical norms governing the conservation and sustainable use of natural resources, including compliance with international treaties on flora and fauna as well as endangered species.

In response to the accelerating deterioration of Nicaragua's natural forests, MARENA has developed several programs focused on reforestation and restoration of watersheds. In addition to the five watershed restoration projects mentioned above, MARENA has developed a National Crusade for Reforestation. Their concept is that reforestation will not only restore the watersheds and aquifers, but also the flora and fauna that flourish within the forest. It is estimated that Nicaragua is losing about 70 thousand hectares to deforestation each year. MARENA has developed the Vivero del Bosque (forest nursery) to produce seedlings and plant material for a variety of tree specimens indigenous to Nicaragua. The Vivero currently produces about 150 thousand seedlings per year, enough to reforest about 34 thousand hectares. MARENA's goal is to increase production to 1 million seedlings per year.

The Division of Policy and Strategy of MARENA is responsible for developing and implementing the Environmental Plan for Nicaragua as well as other policies and strategies. It facilitates environmental coordination with other entities of the GON and also supervises multilateral agreements on environmental issues. It is specifically responsible to coordinate with MAGFOR for policies to promote the sustainable use of soils for agriculture and forestry.

The General Directorate for Climate Change (DGCC) was established in 2009 to serve as the leader and regulator of all processes focused on climate change including "adaptation, mitigation, risk management, oversight of official development assistance, and negotiation of a new worldwide agreement on climate change."¹⁹⁸ Among its other responsibilities, DGCC is to create synergies among all actions and strategies directed at "climate change, combating desertification and drought, conservation and protection of biodiversity."¹⁹⁹ The DGCC represents MARENA and Nicaragua in all matters related to the United Nations Framework Convention for Climate Change. In this regard, in October 2010, it prepared for delivery at the United Nations the "Second Communication on Climate Change." The DGCC has recently overseen the UNDP project for "Integrating Climate Change Risks and Opportunities into National Development Processes and United Nations Country Program for Nicaragua." The project was completed in 2010 after having delivered three workshops on climate change risks and performing climate risk assessments on the National Plan of Human Development.²⁰⁰

¹⁹⁸ "Dirección General de Cambio Climático," www.marena.gob.ni. (Authors' translation)

¹⁹⁹ *Ibid.*

²⁰⁰ "Integrating Climate Change Risks and Opportunities into National Development Processes and United Nations Country Program for Nicaragua," www.adaptationlearning.net.

MARENA's current budget is \$7.4 million, of which \$3.2 million is financed with GON fiscal resources that cover salaries and operational costs for basic services. The remaining \$4.2 million is financing from the World Bank, the IDB, and the EU for the various projects that MARENA is currently implementing. MARENA has, on payroll, a staff of 520, of which 225 are considered to be technical staff. MARENA has an additional complement of 120 technicians who are financed by the donor-funded projects.²⁰¹ MARENA has a delegation office in every department, each with a staff of at least four. While MARENA has a relatively large staff, its primary weakness is the lack of high level experienced managers to supervise the implementation of its responsibilities.

National Water Authority (ANA)

The 2007 Water Law²⁰², calls for the establishment of the National Water Authority, with legal status and financial and administrative autonomy. The ANA is to guarantee the decentralized operation and management of water resources and propose to the National Council for Water Resources (CNRH) the approval of watershed management organizations. The law establishes that ANA will formulate the National Plan for Water Resources and coordinate plans for each watershed. ANA is to approve, grant, and—if necessary—suspend concessions for water use and regulate and control the construction of water resource infrastructure. It will also establish and administer a National Register of Water Rights.

ANA was not established until June of 2010. Under the proposed organization structure, ANA reports to the CNRH and has seven directorates. Its proposed technical directorates include: Water and Sanitation, Water Sciences, Concessions, and Watersheds. Within concessions, the structure specifies irrigation, water/hydraulic works and aquaculture.

ANA is still in its initial phase of operation. Many of its designated functions were and still are managed through several other entities of the GON, limiting its ability to coordinate and carry out its mandate. To date, the responsibility for authorizing the drilling of wells has been transferred from MIFIC to ANA. But other transfers of responsibility are only still under discussion. In particular, ANA will need to establish coordination with other entities active in the water sector, including: the two water and sanitation companies (INAA and ENACAL), as well as MARENA for watershed management; MAGFOR for agricultural water usage; INETER for water resource mapping; and the Ministry of Energy and Mines (MEM) for hydroelectric power generation.

The IFPRI assessment of the Water Law, found that the law will be difficult to implement because it attempts to solve conflicts over water usage, upstream-downstream rights, agriculture-hydroelectric, potable water, etc. While the new Water Law seems to be moving

²⁰¹ Interview with Denis Fuentes, *loc. cit.*

²⁰² "Ley General de Aguas Nacionales," *loc. cit.*

toward more effective water management in Nicaragua, it will take some time for the institutional rivalries and lack of coordination to be resolved.

Once the institutional/jurisdictional disputes are resolved and ANA has the opportunity (and budget) to develop the systems, processes, and registers for which it is responsible, the agency will have a much better chance to attain the goals and objectives of the 2007 Water Law. However, it will take some time for this to occur.

Nicaraguan Institute of Territorial Studies (INETER)

INETER was established in 1981 as the autonomous agency responsible for the study, classification, and inventorying of the physical resources throughout the national territory. In order to carry out its functions, the National Geographic Institute, National Meteorological Service, and Institute of Seismological Studies were transferred into the agency. INETER's mission is to be "a technical and scientific organization relevant to the State, generating and putting at the disposition of the whole society, basic information (cartography, cadastral, meteorology, hydrology, geology, and others) and the studies of the physical environment which contribute to the socio-economic development and the reduction of vulnerabilities to natural disasters and permanently vigilant to dangerous natural phenomena."²⁰³

INETER currently has six technical directorates: Cartography, Cadastral, Meteorology, Water Resources, Geophysics, and Territorial Planning. The Meteorology Directorate operates the national network of meteorological stations (about 70) and issues meteorological forecasts. It has a capability to produce forecast for up to three months but not medium-term agricultural forecasts.²⁰⁴ The Water Resources Directorate is responsible for the mapping and monitoring of all water resources in the country (lakes, rivers, aquifers, ocean, etc.). The function will certainly conflict with the newly established ANA which has similar responsibilities. Other directorates of INETER prepare maps of the country as well as monitor the seismic activity.

INETER has a staff of 400 and a salary budget of about \$2 million.²⁰⁵ Other budgetary data were not available. Given the size of its staff and the number of meteorological stations that it operates, its budget seems to be low. The Institute needs to be strengthened, particularly in the area of agricultural forecasting and in climate change studies and modeling. It would benefit greatly from a Central American regional meteorological agency that could monitor long range climate trends to support more precise medium- to long-term agricultural forecasting. In order to make any agricultural forecasting more useful, INETER should also expand its information dissemination capabilities.

²⁰³ "INETER – Quienes Somos," www.ineter.gob.ni.

²⁰⁴ Interview with Alejandro Rodríguez, Executive Director, INETER, March 7, 2011.

²⁰⁵ Alejandro Rodríguez www.ineter.gob.ni, *loc. cit.*

c. Supporting Institutions

While there are many small NGOs working in the area of climate change, two stand out in particular for the impact that they have on climate change issues: Centro Humboldt and Fundenic SOS.

Centro Humboldt

The Centro Humboldt is a well-known environmental NGO in Nicaragua that is very active in programs for reduction in greenhouse emissions, reforestation, adaptation to climate change, etc. It was established in 1990 with the objective of promoting civil society efforts in territorial development and environmental awareness. The Centro Humboldt has offices in Managua, Estelí, Leon, Siuna, and Bonanza as well as in El Salvador. It receives funding from DANIDA, UNDP, the Government of Netherland, SNV, Oxfam, and international NGOs. However, because the Government of Denmark has recently withdrawn support from Nicaragua, the DANIDA funded activities have been suspended.

The Centro Humboldt has three programmatic divisions: Territorial Development, Risk Reduction, and Sustainable Development. The territorial development program supports local development through an environmental focus on land use planning, taking into consideration citizen input on issues related to gender, watershed management, and risk reduction. The risk reduction program focuses on actions to develop the capacity of local communities to reduce their vulnerability to natural disasters, while protecting and conserving the environment.

Within the area of sustainable development, the Centro Humboldt is actively involved in the reduction of greenhouse emissions and programs for reforestation as well as conservation of natural growth forests. Through the Nicaraguan Alliance for Climate Change, the Centro Humboldt is implementing a training program on “the reduction of emission derived from deforestation and forest degradation.”²⁰⁶ The program is part of a World Bank-funded initiative called the Cooperative Fund for Forest Carbon. The Centro Humboldt has been active in the civil society dialogue on climate change. In its statement on climate change, the Center notes that “impacts and effects [of climate change] are affecting all socio-economic and ecological activities and processes, reducing the productivity of the land and its ecosystems, reducing the availability and quality of water, degrading human health even more, severely threatening food security, dramatically degrading biodiversity and agro-biodiversity, and in the end threatening human survival.

Their discussion points go on to emphasize that the National Strategy on Climate Change can only be successful with the participation of all sectors of society. The Centro Humboldt has recently completed a study on the impact of climate change on agriculture in Nicaragua, but it has yet to be released to the public. The Centro has also recently begun a study on the costs

²⁰⁶ “Analizan Propuesta sobre Reducción, Deforestación y Degradación Forestal,” www.humboldt.org.ni. (Authors’ translation)

that small producers incur due to the lack of rain. Both of these studies will be important inputs to the overall dialogue on agricultural policy and climate change in Nicaragua.²⁰⁷

Fundación Nicaragüense para el Desarrollo Sostenible (Fundenic SOS)

Fundenic SOS²⁰⁸ is an environmental NGO in Nicaragua that focuses on improving the natural capital of Nicaragua through support to local communities. It carries out scientific studies and implements programs to conserve protected areas and improve territorial planning. Much of the work of Fundenic SOS supports the strengthening of municipalities to enable their effective participation in environmental conservation. It has received financing for various projects from the World Bank, the IDB, USAID, COSUDE, DANIDA, GTZ, FINNIDA, and the Canadian Fund for the Environment as well as from many international environmental NGOs.

Fundenic SOS has provided assistance to various entities of the GON to develop their capacities to fulfill their respective environmental responsibilities. It has also funded training and assistance in the development of environmental oversight functions to the General Controller's Office, as well as to judges and government attorneys. It has worked with municipal governments in Matagalpa, Masaya, Granada, Juigalpa, Río San Juan, Bonanza, and Puerto Cabezas, among others, to develop local environmental strategies. In carrying out these activities, Fundenic SOS has often collaborated closely with technical specialists from MARENA.

Fundenic SOS also oversees an environmental development fund called the Fondo Nicaragüense para la Conservación de la Naturaleza (Fondo Natura). Fondo Natura is undertaking several important environmental restoration projects including:²⁰⁹

- Decontamination of Lake Nicaragua (the largest water body in the country)
- Recovery of water flows in the streams and rivers through reforestation in the watersheds
- Conservation of protected areas their biodiversity through scientific research, environmental education, and development of eco-tourism
- Restoration of natural forests and control of the extraction of *leña* by educating the public as to the importance of forests in the reduction of greenhouse gas emission as well as the impacts of climate change.

Among the important projects that Fondo Natura has recently undertaken is the development of a "water farm" which is intended to restore a watershed in the Montelimar region of the Pacific coast and to conserve water that can subsequently be used for irrigation. As a result of

²⁰⁷ Interview with Victor Campos, *loc. cit.*

²⁰⁸ "Fundenic-SOS," www.fundenic.org.ni.

²⁰⁹ *Ibid.*

the reforestation of the watershed, the nearby river, which had been dry for several years, began to produce water again within two years. With the development of a catchment basin, the farm has been able to conserve water that Fondo Natura is making available to neighboring farms for irrigation. This project demonstrates that reforestation within a watershed can very quickly restore water. This program also demonstrates how good environmental practices can lead to strong benefits for the agricultural sector, improving the availability and quality of water while also reducing vulnerability to the impacts of climate change.²¹⁰

Water Center for the Humid Tropics of Latin America and the Caribbean (CATHALAC)

CATHALAC is an international organization founded in 1992 to promote sustainable development through applied research, education, and technology transfer related to water resources and the environment. As an international organization, it works to promote improvement in water resources throughout Latin America and the Caribbean. Its four areas of focus are: watershed management, climate change, environmental modeling and analysis, and risk management. In its programs, CATHALAC collaborates with numerous international and bilateral agencies, such as the IDB, the Organization of American States (OAS), USAID, and the Inter-American Institute for Cooperation in Agriculture (IICA).

CATHALAC provides services to the region that cover natural resource management, environmental monitoring, information services, and education. Among its education services, CATHALAC, in collaboration with the Fundación Universitaria Iberoamericana, offers master degree programs in watershed management and climate change.

The information services offered by CATHALAC include the operation of SERVIR.net . It also operates the satellite reception from the GEONETCast system of the U.S. National Oceanic and Atmospheric Administration (NOAA). The SERVIR.net system enables satellite observation of the Mesoamerican region focusing on groundwater analysis, volume, and location of precipitation, temperature analysis, and location of forest fires. With the data that are collected, CATHALAC is able to analyze, by micro region, the severity of temperature and precipitation changes. It is also able to analyze the progressive change in vegetation throughout the region. With USAID support, CATHALAC has established a “Climate One Stop.” This tool provides climate data for regional use in Central America. Using the meteorological data that its satellite systems collect, CATHALAC also maintains a climate indices database for use by the agricultural insurance industry.

CATHALAC’s programs provide an excellent base or platform for the development of a regional meteorological capability for Central America. Such an organizational asset would be able to provide key information to meteorological agencies in each country allowing national weather agencies to access a common database to support medium- and long-term

²¹⁰ Interview with Jaime Inser Barquero, President, Fundenic SOS and Fondo Natura, Managua, April 14, 2011.

meteorological forecasting for agriculture, as well as for other relevant forecasting needs, such as hurricane predictions.

d. Impacts

Producers

Producers have been severely affected by climate change due to the variability of the growing seasons as well as to the loss of access to water. Because the rainy seasons are shifting, with rains falling in the dry season and dry heat occurring in the rainy season, the growing cycles have been altered. This has had a direct impact on food availability. Beans, for example, suffered an almost total loss of two growing seasons in 2010. Because there were heavy rains during the normally dry harvest periods, much of the crop could not be harvested and was lost. Conversely, production was also affected by the lack of rain during the growing period. MAGFOR has estimated that 33 thousand manzanas (57 thousand acres) of beans were lost in 2010.²¹¹

These shifts in climate have also impacted coffee, causing plants to flower early (in January instead of June). This has resulted in an increase of the broka fungus that attacks the coffee grapes, damaging production. Moreover, the early flowering also affects the normal growing cycle, as the harvest period begins earlier and is more prolonged. The size and quality of the coffee grapes and beans are also damaged by the changes in climate. It is estimated that the overall coffee production in 2011 will be as much as 30% lower than in 2010, largely due to climate impacts on the growing cycle. Such a reduction in production will diminish the income of small producers in particular, curtailing their ability to acquire nutritious foods. The same is true of small producers of beans whose crops have been either entirely lost or severely reduced. Some of this impact could be mitigated if the producers had access to drainage and irrigation systems.

Climate change and the lack of water also affect the cattle producers, of which 80% are considered to be small.²¹² The absence of rain limits the availability of pasture during the dry season, often forcing small producers to move cattle to alternate pastures. The introduction of pasture seed varieties that produce pasture grass under dry conditions could be very helpful to the cattle producers, as could the introduction of drainage and irrigation, which would improve water management during the dry season. The movement of the cattle and the lack of quality pasture slow the growth of cattle, such that it takes four years to reach the appropriate weight for slaughter rather than three years. The lack of access to fresh water for the cattle to drink also reduces their production of milk, resulting in decreased incomes for the cattle producers

²¹¹ “Exportación de Frijol en Riesgo por Pérdidas en Ciclo de Apante,” *La Prensa*, January 25, 2011.

²¹² Interview with Daniel Nuñez, Vice President, Nuevo Carnic, Managua, March 1, 2011.

combined with higher production costs. As in the case of beans and coffee, this too reduces levels of food security.

Many of these impacts could be mitigated with effective water management systems that capture and store rain water that can be used for irrigation in the normal dry season or in drought conditions. Small producers could also avoid some of these impacts through the use of seed varieties that are either drought resistant or excess water resistant. But this would depend largely on the access to accurate long- and medium-term agricultural meteorological forecasts, which would enable producers to make informed decisions on which seed variety to plant.

Companies / Cooperatives

When climate change causes a reduction in production of crops or damages the crop quality, the companies that market those crops are also negatively impacted. The best example of this has been the 2010 loss of much of the bean production. The annual consumption of red beans, a staple crop in Nicaragua, is estimated to be about 2.5 million quintales (100 pound bags) per year. In the three growing cycles for the year, an estimated 2.8 million quintales were produced, giving rise to the risk that there may not be enough beans for local consumption.²¹³ Consequently, the GON began to restrict the export of beans (due to a supposed excess moisture in the beans – not a condition imposed by the importing countries). The result was that exports of beans declined by 100% in early 2011.²¹⁴ Companies that normally export beans were not able to fulfill export contracts, even though they had on hand beans that could be exported. Consequently, these companies lost their markets, and because they were not permitted to fulfill contractual obligations it will be difficult for them to recover that market share.

Lacking any other market, the only option these companies had was to sell the beans to ENABAS, the government-owned grain storage company, which purchased the beans at reduced prices. Thus, as a result of the GON response to the climate impact on bean production, the exporting companies too have experienced financial losses in 2010. They have lost access to the international market, at least for the time being, as their reliability as suppliers is now in question.²¹⁵ Export companies in other sectors such as coffee and cattle have been similarly impacted by climate change. Moreover, the loss of export markets also affects the GON, as the country will receive less foreign exchange earnings from the decline in exports.

²¹³ “Exportación de Frijol en Riesgo por Pérdidas en Ciclo de Apante,” *loc. cit.*

²¹⁴ “Exportaciones Nulas en 2011,” *La Prensa*, January 25, 2011.

²¹⁵ Interview with Diego Vargas, General Manager, TecnoAgro SA, Managua, January 28, 2011.

Investors

Climate change would not normally be the deciding factor in the availability of investment resources for Nicaragua. Investors will make decisions based on the projected profitability of their potential investments. But in the case of beans, to cite one product, climate change has reduced the volume of production to such a level that exports have been restricted. The loss of export markets, combined with the financial losses that the export companies have incurred, serves as a disincentive for new private investment in the bean sector. By the same token with respect to coffee and cattle, two of the leading exports, climate change has caused a reduction in not just the volume of production but a decline in quality. These two factors have reduced the profitability of investments, thus acting as a disincentive and restricting the availability of investment capital for the sector.

By contrast, climate change could be considered an opportunity for new private sector investment. Certainly the new production processes and infrastructure (for example drainage and irrigation) provide opportunities for investment. There is a perception that the producers and municipalities, especially in the North Central region of the country, are favorably disposed to increase investments in agriculture and agricultural infrastructure.²¹⁶ New investments in drainage and irrigation infrastructure would reduce the vulnerability to climate change impacts and would lead to improved profitability in many agricultural sectors, especially in beans and cattle breeding. In coffee, increasing mean temperatures will require new investments to move coffee production to higher elevations. Such investments would result in new coffee trees, which would have the beneficial impact of significantly increasing yields.

e. Conclusions

Climate change and the GON responses to it have had a significant and pervasive impact on the agribusiness sector. Micro, small, medium, and large producers, as well as agricultural processors and the other members of the value chains up to and including the exporters, have all been affected in one way or another.

It is clear that Nicaragua will be increasingly affected by climate change and that actions to limit greenhouse emission, although helpful, will have very limited if any real effect. The primary focus of the GON should be on mitigation and adaptation. A large part of the adaptation measures will need to focus on water conservation and management, including irrigation.

Climate change and the GON response to climate change have had a significant and pervasive effect on agriculture in Nicaragua. These effects have impacted large and small producers as well as private companies dedicated to the processing and export of agricultural commodities.

²¹⁶ Interview with Felipe Argüello, General Manager, Bolsagro, SA, Managua, April 12, 2011.

- It is clear that Nicaragua will be increasingly be affected by climate change and that action to reduce greenhouse emission, although helpful, will have a limited effect on climate change impacts. As a result, the GON will need to undertake measures focusing on water conservation and management, including irrigation.
- Deforestation is exacerbating the water management issue because it reduces that capacity of the land to hold water in the watersheds and to percolate the water down to underground aquifers. Therefore, any water management system (drainage, catchment storage and irrigation) is jeopardized by the lack of water in watersheds and aquifers.
- The El Niño and La Niña effects have resulted in smaller yields and lower quality coffee, which decreases the volume of coffee exports and the incomes of coffee producers.
- It will become increasingly more difficult for Nicaragua to produce coffee at elevations below 1,000 meters (currently most coffee is produced between 600 and 800 meters) due to the impact of global warming.

5. Infrastructure

Infrastructure has been consistently identified as a key constraint for the agribusiness sector in Nicaragua. For example, a coffee sector website has noted that “Nicaraguan infrastructure is keeping the country from developing.”²¹⁷ The article highlighted deficiencies in the road and transport network as well as in access to energy and potable water. Risk assessment agencies such as the Economist Intelligence Unit have rated Nicaraguan infrastructure as a moderate to high risk.²¹⁸ A survey was conducted of the small producers located in Chontales, Matagalpa, and Jinotega and 65% of the respondents identified infrastructure as a constraint. Further analysis of the responses, as well as the results of the remaining interviews conducted for the report, showed the key infrastructure issues to be: access to adequate roads, access and quality of ports, access to and cost of energy, and access to cold storage facilities.

Road Network

Many studies have shown that investment in road infrastructure is one of the most effective ways to promote agribusiness while reducing rural poverty. A study published by the International Food Policy Research Institute, found that “rural roads constitute a fundamental force for agricultural development.” The study goes on to show that “a unit of expense for rural roads is much more efficient in terms of the reduction of poverty than any other type of

²¹⁷ “Nicaraguan infrastructure is keeping the country from developing,” www.mocha-joes.blogspot.com, January 13, 2011.

²¹⁸ “Nicaragua Risk: Infrastructure Risk,” *Economist Intelligence Unit*, www.tmcnet.com, May 26, 2006.

expenditure oriented to reduce poverty, especially those that are focused directly at the poor population.”²¹⁹

Nicaraguan commerce and industry, including agriculture, are especially dependent on road transport for the movement of goods to local markets, as well as to ports for shipment to international markets. “Some 300,000 trucks travel over the national road system, carrying more than 10 million tons of freight annually, of which more than 25 percent is foreign trade cargo. Road transport is indispensable for the integration of the productive regions to the national economy and the main link between productive sectors and export markets.”²²⁰ The road network is especially important because Nicaragua has no major Caribbean port, so most exports must move by roads to Caribbean ports in Costa Rica and Honduras.

According to the Ministry of Transport and Infrastructure (MTI), the Nicaraguan road network consists of an estimated 19,138km, of which only 2,410km are paved.²²¹ MTI also notes that only 6,386km are open to traffic year round. The remainder transitable only during the summer dry season. The road network is in reasonably good condition in the highly populated western regions of the country, but is practically non-existent in the more sparsely populated eastern regions. The secondary access roads that connect population centers with the productive agricultural areas are mostly included in the category of roads that are transitable only during the summer dry months.

During the 1990s and early 2000s, the primary focus of the MTI was on said to be on the construction and maintenance of the Pan-American Highway that runs 381 km from Costa Rica to Honduras. The remaining roads were not well maintained during this period, leading to rapid deterioration with each rainy season. “Roads crucial for regional production fell into total disrepair and a large proportion of the population found travel increasingly difficult... Even routes to many important cities were vulnerable to collapse during heavy rains.”²²² Currently, the focus of the MTI has shifted back to the development of secondary access roads, in recognition of the importance effective infrastructure plays in the development and competitiveness of Nicaraguan commerce. However, it has been reported that the strategic focus of the secondary access road projects are more often politically motivated and lack a

²¹⁹ S. Fan, C Chan-Kang and A. Mukherjee, “Rural and Urban Dynamics and Poverty: Evidence from China and India,” International Food Policy Research Institute, 2005; quoted in José Miguel Barrios, *Establecimiento de Prioridades de Inversión en Infraestructura Vial para la Promoción del Crecimiento Agrícola en el Altiplano de Guatemala*, Universidad Rafael Landívar, Guatemala, 2008.

²²⁰ “Nicaragua to Improve its Transport System with IDB Loan,” IDB press release, November 2, 2010.

²²¹ “Plan Estratégico 2007 – 2011,” PowerPoint by the Ministry of Transport and Infrastructure.

²²² Karla Jacobs, “Nicaragua: the Progress Made by the FSLN Government in Terms of Infrastructure is Transforming the Country,” www.tortillaconsal.com, June 23, 2010.

correlation with the regions that generate the greatest potential income from agricultural production.²²³

Hurricane Mitch, in 1998, did significant damage to the Nicaraguan road network, destroying an estimated 40% of the roads and 80% of the bridges in the country.²²⁴ Additional damage occurred in 2010 as a result of the intense rains caused by the La Niña affect. Much of the damage caused by intense rains results from deforestation which in turn causes soil degradation. Since 2003, the IDB, World Bank, Danida, and the Millennium Challenge Account (MCA) have funded road rehabilitation and maintenance programs in Nicaragua. The \$159 million IDB program will rehabilitate an estimated 380km of the primary road network and implemented special maintenance upgrades on an additional 580km. The \$69 million World Bank program is focusing on improving maintenance standards as well as rehabilitating secondary and rural roads to “better support economic activities in a given productive zone.”²²⁵ The Danida program has focused on upgrades to local secondary access roads in 26 communities in the eastern regions of the country (RAAS and RAAN) as well as in the North Central Region of Nueva Segovia. The MCA also funded the rehabilitation of 75km of primary roads in Chinandega, in northwestern Nicaragua. Both the Danida and the MCA programs have been completed and no further activities are planned.

The lack of good secondary access roads has had a significant impact on Nicaraguan agricultural production. The bad roads can be impassable during the rainy season and even when passable can cause shipments to be delayed, sometimes damaging time sensitive products. Raw milk, for example, must reach a cold storage/production center quickly because bacteria grow exponentially and the longer the milk is in transit the greater the loss in quality, resulting in a reduction in the income to producers.²²⁶ Cattle are often injured in transit to slaughterhouses because of bad roads. “In macroeconomic terms this is reflected in the fact that up to 20% of beef (one of the country’s main export products) extracted from areas where there is no proper road is lost as a result of the bruising suffered by cattle in trucks en route to the slaughterhouse.”²²⁷ Coffee grapes loose quality the longer that it takes to transport them from the farm to wet processing facility. It is “incredibly difficult to transport coffee from the farms to the *beneficios*. What would be a 30 minute drive on good roads can turn into an hour or an hour and a half in Nicaragua. These problems have slowed the growth of Nicaragua’s exports in coffee, cocoa, and goods.”²²⁸

²²³ Interview with Professor Luis Noel Alfaro of INCAE, February 26, 2011 and Omar Jiménez, General Manager of MECO Construction SA, March 12, 2011.

²²⁴ “Infrastructure (Nicaragua) Infrastructure,” www.articles.janes.com, December 7, 2010.

²²⁵ “Fourth Roads Rehabilitation and Maintenance Project,” www.worldbank.org, May 22, 2006.

²²⁶ Interview with Jorge González, General Manager, Parmalat, March 4, 2011.

²²⁷ Jacobs, *loc.cit.*

²²⁸ “Nicaraguan infrastructure is keeping the country from developing,” *loc.cit.*

While there is no question that the poor quality of the road network, especially the secondary access roads, has been a constraint to the agricultural sector, investments in road improvements have been shown to generate significant socio-economic benefits. The ex-post evaluation of the Danida-financed secondary access road projects has demonstrated the positive impacts on agriculture and on producer incomes. “Quantitative and qualitative evidence supports the conclusion that Danida’s PAST project interventions have resulted in other positive economic impacts including the direct effects of increased access to markets and inputs to production. For example, quantitative and qualitative findings on agricultural production point to increases in employment within agriculture and increases in the value of land for agriculture as well as changes in what is produced and how it is marketed.”²²⁹ The evaluation went on to conclude that the improvements in the rural access roads enabled producers to have more timely and less costly contacts with markets as well as input suppliers. It also reported that producers were able to receive better prices for their products because there was less damage in shipment.

Access and Quality of Ports

Nicaragua has five ports that are certified by the International Code for the Protection of Ships: Corinto, Puerto Sandino, San Juan del Sur, Rama, and Bluff. Corinto, Puerto Sandino, and San Juan del Sur are located on the Pacific coast, while Rama, located on the Escondido River, feeds cargo to Bluff which is on an island off the Caribbean coast near Bluefields. There is an additional Caribbean port at Puerto Cabezas (also called Bilwi).

Nicaragua’s principal port for cargo shipping is Corinto, which is a deep water port with good road connections to the productive areas of Nicaragua. The port handles about 30 ships per month, including cargos of liquids and agricultural commodities. Corinto handled 42,000 containers in 2010. The port is operating at an estimated 38% of its capacity and would require expansion if it achieves a level of 70% of capacity.²³⁰ However, the port is in a state of disrepair with breaches in the sea wall allowing water to enter the port facilities. Corinto has 83 holding tanks for oils and chemicals, but also has a high fire hazard risk because there is only one fire hydrant.²³¹ The port is limited by the fact that it does not have dockside cranes for loading and unloading ships, so ships can only serve Corinto if they have on-board cranes. Because there is no cold storage warehouse, the port has a very limited ability to handle perishable shipments.²³² In an effort to relieve the congestion within Corinto, the National Port Enterprise (EPN) has established a pre-port holding site that receives and holds container shipments, releasing them

²²⁹ “Impact Evaluation of Danida Support to Rural Transport Infrastructure in Nicaragua,” Ministry of Foreign Affairs of Denmark, January 2010.

²³⁰ Interview with Virgilio Silva, President of the Empresa Portuaria Nacional, March 11, 2011.

²³¹ “Peligro Acecha a Corinto,” *La Prensa*, March 5, 2011.

²³² Interview with Ursula Gonzalez, Maersk Shipping Lines, April 14, 2011.

into the port when the specific ship is ready to receive them.²³³ While this innovation has successfully relieved congestion in Corinto, capacity to handle Nicaragua's shipping requirements is still limited.

Established in 1955, Puerto Sandino was a secondary port only capable of receiving small ships and fishing vessels. It is located in the department of Leon and has good road and pipeline connections with Managua. Recently it has been converted into a petroleum port, primarily handling the imports of oil and gas from Venezuela. The port's primary facilities are two off-shore floating docks used for discharge of liquid shipments via undersea pipes to on-shore holding tanks. The oil imported through Puerto Sandino is subsequently shipped by pipeline to Managua for refining. Because of its importance for the importation of petroleum, Puerto Sandino receives a proportionately higher share of Nicaragua's port maintenance funding.²³⁴

San Juan del Sur is a small tourism-oriented port in Rivas department, on Nicaragua's Pacific coast. The port does not handle cargo shipping, but does receive cruise ships during eight months of each year. San Juan del Sur also handles sport fishing as well as private boating.

The Caribbean coast ports are limited in their cargo processing capabilities due to the lack of roads connecting them with the western regions of the country, where most productive activities are located. Rama, the only viable Caribbean port in Nicaragua, is connected to the Pan-American Highway by a 290km paved road from San Benito, just outside of Managua. Rama is about 60km upriver from the Caribbean, so cargo shipped through it must be loaded onto barges for movement down the river to the port of Bluff, where it is off-loaded onto ocean freighters. Rama is also able to receive ocean going ships of up to 2,500 tons in size. Puerto Cabezas is located 450km from Managua in the Autonomous Northern Atlantic Region of the country (RAAN), but is connected to the western regions only by an unpaved, seasonal road or by a newly built airport. Investments are being made to improve the road connections, but the Minister of Transport believes that it will be fifteen years before a good quality highway is completed.²³⁵ Nevertheless, the GON is said to be investing \$22 million in improvements to the port, enabling it to receive ships up to 15,000 tons.

Corinto, the primary cargo port handling exports and imports, is limited not only by its relative deterioration but also because it is a Pacific coast port. It can handle shipments to and from Asia as well as the west coast of the U.S. and Latin America at reasonable shipping costs. However, shipments to and from Europe and the east coast of the United States would have to pass through the Panama Canal, incurring additional costs as well as delays in shipping times. Because of this, the majority of Nicaraguan trade to and from its major trading partners in Europe, the east coast of the U.S. and Venezuela is shipped by land to ports in Costa Rica (Puerto Limón) and in Honduras (Puerto Cortéz). Maersk Shipping Lines has estimated that

²³³ "Peligro Acecha a Corinto," *loc.cit.*

²³⁴ Interview with Sinfioriano Cáceres, President of FENACCOOP RL, March 3, 2011.

²³⁵ Jacobs, *loc.cit.*

about 50% of the container traffic passing through these two ports is coming from or going to Nicaragua.²³⁶ Nicaraguan exporters incur shipping costs of \$1,000 to \$1,800 per container as a result of shipping by truck to these two Caribbean ports, or about \$500 to \$1,000 per container over what it would cost to ship through a port in Nicaragua. It has been estimated that Nicaraguan exporters lose a total of \$5 million per year due the extra shipping expenses that are incurred by going through Costa Rica and Honduras.²³⁷ It has also been reported that in addition to the increased costs to ship through these ports, there is a significant amount of theft on the trucks carrying cargo to Puerto Cortez in Honduras.

To resolve the Caribbean coast port issue, Nicaragua has been planning to develop a new deep water port at Monkey Point,²³⁸ located south of Bluefields in the RAAS, or the Autonomous Southern Atlantic Region. The site at Monkey Point, located in the Cerro Silva Nature Reserve, is totally undeveloped and currently has no road connection with western Nicaragua. To develop the site, it would be necessary first to build an 80km road from Nueva Guinea, where the road would join the existing primary road network. That road would have to pass through tropical rainforest areas, including the Cerro Silva Nature Reserve. While some officials expressed environmental concerns about building the road, the leading environmentalist in Nicaragua, Dr. Jaime Incer, did not believe that it would be a major impediment.²³⁹ The Minister of MTI indicated that with or without international donor financing, MTI would build the necessary road over a five year period.

The ambitious plans for Monkey Point were developed by a Spanish engineering firm in 2000. They contemplate a fully integrated port with capabilities to handle bulk grains, liquids and petroleum products, and containers. The port would have a protected deep water harbor with capacity to handle about six ocean freighters simultaneously. It would have on-shore storage facilities for bulk grains, containers, and liquid and petroleum products. The plan contemplates road and railroad connections as well as a pipeline for petroleum products. The railroad would run from Monkey Point to Corinto through Managua.

A small airport would also be built. A feasibility study proposed construction over three phases at an estimated cost of \$500 million. A Korean company proposed the construction of the port with 6.5% financing over 12 years, but the GON could not accept the financing due to agreements with the International Monetary Fund limiting its ability to accept new debt (part of its Highly Indebted Poor Countries—HIPC debt reduction plan). The Empresa Portuaria Nacional (EPN) is currently planning to carry out the construction of the Monkey Point Port with funds from ALBA, but a new ports law is needed to facilitate the project.²⁴⁰ The President

²³⁶ Ursula Gonzalez, *loc.cit.*

²³⁷ Interview with Minister Pablo Fernandez Martinez, Minister of MTI, April 12, 2011.

²³⁸ "Proyecto Puerto de Aguas Profundas en Monkey Point," PROINTEC Ingenieros SA, 2008.

²³⁹ Jaime Incer, *loc.cit.*

²⁴⁰ Jacobs, *loc.cit.* and Virgilio Silva, *loc.cit.*

of EPN, recognizing the difficulty in financing Monkey Point, has indicated that the GON would be open to a private sector concession that would build and operate the port. Such an arrangement would require a new PPP law.²⁴¹

Energy

The lack of access to and the cost of energy have been identified in the producer surveys as a constraint to agribusiness in Nicaragua. Of the producers that responded to questions on energy, 50% indicated that they did not have access to energy and among those that did have access, 48% indicated that the energy was too expensive. “Just 55% of the population in Nicaragua enjoys access to electric energy, and in rural areas, the figure sinks to even only 25%. In contrast to the other Central American countries, Nicaragua disposes of poor electricity supplies. Yet, this situation need not be so, for indeed hydropower, organic substances, wind energy, and the heat of the earth offer enormous possibilities yet to be tapped.”²⁴² The Ministry of Energy and Mines has set the goal to expand energy access in rural areas from 25% to 55% by 2015.

Nicaragua is largely dependent upon imported fossil fuels for energy and power generation. While the generation capacity is estimated to be about 725MW, Nicaragua’s actual energy consumption is 540MW.²⁴³ The 2007 – 2009 power generation matrix indicated the following sources of power generation²⁴⁴:

- Thermal-electric 67.8%
- Hydroelectric 13.8%
- Geothermal 5.2%
- Biomass (ethanol)..... 7.8%
- Wind power 5.4%

The stated goal of the National Energy Plan is to transform the power generation matrix so that by 2015 power generation from renewable sources will increase from 35% to 86%. While this is a laudable goal, recent experience shows an increasing dependence on fossil fuel-based thermal-electric power generation. A recent UNDP study showed that in 1990, fossil fuel

²⁴¹ Virgilio Silva, *loc.cit.*

²⁴² “Small Hydroelectric Power Plants in Nicaragua,” Swiss Agency for Development and Cooperation, www.sdc.admin.ch .

²⁴³ “Nicaragua Infrastructure,” FDI Hub, www.fdihub.com, and “Quiere Albanisa Distribuir Energía?” *La Prensa*, March 5, 2011.

²⁴⁴ “Nicaragua Infrastructure,” *loc.cit.*

based power generation was approximately 30% of the total power generated and that in 2005 it had increased to 41%.²⁴⁵ The matrix cited above shows it increasing to almost 68% by 2009.

The impact of energy on agribusiness is varied. In 1999, according to statistics developed by Earthtrends, the agriculture sector in Nicaragua consumed less than one percent of all energy consumption (based on metric tons of oil equivalent).²⁴⁶ This compared to 2.5% energy consumption in all of Central America and the Caribbean. A study by the Norwegian Agency for Development Cooperation (NORAD) found that the lack of access to energy in Nicaragua was a crucial limiting factor for private sector activities, especially in agriculture. “Lack of access to pumped water for animal consumption and irrigation limits production, and lack of heated water for cleaning is affecting the hygienic conditions.”²⁴⁷ Energy is important to agriculture because it facilitates the operation of irrigation systems, farm equipment, processing plants, and cold storage facilities, among others.

In the coffee sector, energy is required to operate the depulping machinery at the wet processing facility. If these facilities are located far from the coffee farms in order to have access to electric power, the quality of the coffee produced may be reduced. One coffee export company, CISA Exportadora,²⁴⁸ has been providing solar panels to the coffee producers from which it procures coffee. These panels have enabled the producers to install depulping machinery and undertake wet processing, the first step in coffee processing. Because they are able to undertake wet processing on the farm or local cooperative, the quality of their coffee production is improved. An additional benefit of this solar panel program is the provision of basic lighting for the producers’ homes as well as for local schools.

As mentioned in the Climate Change section of this paper, irrigation is necessary to assist producers to overcome the impacts of climate variability, especially drought. While irrigation may be too expensive to assist small, subsistence farmers, “energy demand is higher in the non-traditional export sector, where irrigation of crops necessitates the use of small gasoline generators or large diesel engines to pump water from wells.”²⁴⁹ Crops that use or would benefit from irrigation include tobacco, rice, sugar, asparagus, onions, okra, and melon---all export crops. But only about 18% of the land that could benefit from irrigation is currently irrigated, due in part to the lack of access to energy. The cattle industry could significantly increase the volume of milk produced per cow, if it had access to energy to pump fresh water for the cows to drink, thereby enhancing food availability among other benefits. Irrigation could also enable cattle producers to improve the pastures during the dry season. Cattle producers

²⁴⁵ UNDP study quoted in José Antonio Milan Pérez, “Apuntes Sobre el Cambio Climático en Nicaragua,” FAO Multi Donor Partnership Programme (FMPP), 2010.

²⁴⁶ “Energy and Resources – Nicaragua,” www.earthtrends.wri.org, 2003.

²⁴⁷ “Study on Private Sector Development in Nicaragua,” NORAD, September 2003.

²⁴⁸ Interview with Duilio Baltodano, President, CISA Agro, January 27, 2011.

²⁴⁹ Randall S. Wood, “The Nicaraguan Energy Sector: Characteristics and Policy Recommendations,” Johns Hopkins University, May 2005.

in Chontales reported that they do not have access to electric power which they need in order to pump water for their cattle.²⁵⁰

Agriculture also uses energy to operate machinery to work the fields. Francisco Vargas of UPANIC indicated that fuel is used to work the fields and to transport agricultural inputs as well as harvests. He estimated that these activities require about 30 gallons of fuel per manzana to bring a crop to harvest. With the recent increases in the cost of petroleum, the energy cost per manzana has increased by 20%.²⁵¹ The impact of this increase will be to raise the costs required to bring a harvest to market. Producers will either have to raise the price charged for their harvest or absorb the extra costs. If the price is increased, competitiveness will be reduced and sales may decline which will reduce small producer food security.

Rice processors are highly dependent on a stable and consistent supply of energy for use in the drying process. Once the rice drying process is begun, any stoppage results in a reduction in the quality of the product. In Nicaragua, the frequent interruptions (*apagones*) in electric service have significantly reduced the quality of rice. The problem is so serious that the rice companies track the interruptions to measure the impact on costs and on loss of income resulting from the sale of lower quality rice.²⁵²

In order to expand access to energy and reduce its cost, it is important for Nicaragua to expand its energy generation capacity as well as its distribution capabilities. The National Energy Plan of 2003 calls for decreasing the dependence on imported fossil fuels by increasing the generation of energy from renewable sources. Two major projects are being developed that will result in increasing the renewable energy portion of the power generation matrix: the Polaris geothermal project and the Tumarín hydroelectric project.

Nicaragua has awarded two concessions to the Canadian firms, Magma Energy Corp. and Polaris Geothermal Inc, for the development of a geothermal energy generation capacity. The sites, Caldera de Apoyo and Volcan Mombacho, are located in the areas of Masaya and Granada. The two firms are investing \$50 million in the development of wells and a generation plant to produce electric power from geothermal heat and steam. It is anticipated that the project will go online in 2012 and produce 72MW of electricity.²⁵³ Polaris has received financing of \$30 million from the IDB, which is seeking “to increase the role that companies play in developing renewable energy.”²⁵⁴

Tumarín is a major hydroelectric project being developed by Brazilian investors, including Electrobras, the Brazilian state-owned energy company. The \$600 million project is expected

²⁵⁰ Group Meeting in Comalapa with 22 producers from the Cooperativa de Ganaderos, February 27, 2011.

²⁵¹ Ervin Sánchez, “Elevados Costos en Agricultura a Causa de Carburantes”, www.elnuevodiario.com.ni, March 16, 2011.

²⁵² Interview with Fernando Mansell, General Manager, Samuel Mansell SA (SMSA), January 24, 2011.

²⁵³ Interview with Alejandro Argüello, Vice President of Polaris Energy Nicaragua SA, January 25, 2011.

²⁵⁴ “Harnessing Geothermal Energy in Nicaragua,” www.caribbeannewsnow.com, March 9, 2011.

to be completed by 2014 and will produce 220MW, which is anticipated to be about 25% of Nicaragua's projected demand for energy. The Tumarín hydroelectric generation plant will be located in Matagalpa on the Grande River and will also include the construction of a 48km road to San Pedro del Norte in the RAAS. When fully operational, it is anticipated that Tumarín will enable Nicaragua to save 10% of the cost of imported fossil fuels.²⁵⁵

Alejandro Argüello, the Vice President of Polaris, estimates that when the Polaris geothermal and the Tumarín hydroelectric plants are both fully operational their combined energy generation will increase Nicaragua's total generation by about 50%, thereby significantly reducing dependence on imported fossil fuels. He anticipates that this should bring the cost of energy down substantially, at the same time expanding supply. In addition to these plants, Albanisa, currently the largest privately owned electric generation company, is also planning to expand into renewable energy generation with three projects (geothermal, wind energy, and waste to energy). These projects are in the feasibility study phase and if completed may add an additional 300MW of electric production.²⁵⁶

This significant expansion of energy generation will also require enlargement of the distribution system. Energy distribution, currently concentrated in the urban areas, is managed by Gas Natural Fenosa. This Spanish energy company provides distribution services in Nicaragua through two companies: Distribuidora del Norte (DisNorte) and Distribuidora del Sur (DisSur). Gas Natural Fenosa signed an agreement with the MEM for a \$380 million rural electrification project to expand energy distribution to 3,600 rural communities. The project has financing from the CABEL and the IDB. The objective of the program is to expand electric coverage in rural areas to 85%.²⁵⁷ However, Gas Natural Fenosa's ability to fulfill this ambitious objective seems to be in doubt according to the Vice Minister of MEM, who indicated that the GON was taking over operation of the company.²⁵⁸ Two members of the Nicaraguan National Assembly, after meeting with representatives of Gas Natural, stated that they "do not see that the company has the capacity to purchase all the energy that will be produced within five years."²⁵⁹ They concluded that perhaps the generation companies should also be allowed to distribute electricity, thus opening the door for Albanisa to enter the electric distribution business.

While Nicaragua seems to be well situated to expand greatly its capacity to generate energy from renewable sources, and thus bring down the cost of energy, the ability to distribute that energy in rural areas still seems to be in question.

²⁵⁵ "Hydroelectric Project Tumarín to Begin Construction in Nicaragua," www.prlog.org, February 11, 2010.

²⁵⁶ Roberto Morales, "Emporio de Ortega Tras Mas Pedazos del Pastel Eléctrico," *La Prensa*, March 6, 2011.

²⁵⁷ "US\$380 Millones para Electrificación Rural," www.laprensa.com.ni, September 8, 2010.

²⁵⁸ Interview with Lorena Lanza, Vice Minister of MEM, March 11, 2011.

²⁵⁹ Roberto Morales, "Quiere Albanisa Distribuir Energía?," *La Prensa*, March 5, 2011.

Access to Cold Storage Facilities

One of the important constraints faced by small producers in Nicaragua is the lack of public cold storage facilities. Cold storage is very important because much of the agricultural production is perishable, especially non-traditional export crops as well as milks and cheeses, meats, and seafood. Statistics show that cheese exports have grown by over 70% during the 2000s, and meat and seafood exports have been growing by rates of 12 to 16% over the same period.²⁶⁰ All of these commodities require access to cold storage for food safety.

Currently, there is only one cold storage facility in Nicaragua, operated by APEN and located at the international airport in Managua. The facility is small with “limited capacity and has not been able to fulfill the current demand both for export and import shipments of perishable goods. Consequently, storage at this facility comes at a high financial cost to producers and is hindering growth in perishable goods industries.”²⁶¹ The actual capacity of the APEN cold storage facility is 42,440 square feet of storage in 7 freezer rooms.²⁶² The facility processes export products such as seafood, milks and cheeses, fresh vegetables, and fruits. In addition, it stores some imported products such as vaccines and medicines.

None of the ports in the country have cold storage facilities, so perishable products being exported or imported through the ports must rely on refrigerated containers to maintain temperature controls. The lack of cold storage in the ports also affects the fishing and seafood industry, which must move seafood from ships to processing facilities rapidly to avoid deterioration and development of bacteria.

Because of the limited availability and capacity in the public cold storage facilities, Nicaraguan exports have been subject to increased levels of bacteria and have a higher than normal incidence of shipments returned or rejected by USDA, FDA, and APHIS. However, the lack of cold storage is an even greater risk for perishable commodities that are sold in local markets. Because there are no public cold storage facilities in the agricultural regions of the country, producers are dependent upon moving their harvests quickly to processing facilities that have cold storage before the products deteriorate. While the four slaughterhouses and the various milk and cheese processing companies all have cold storage facilities, producers of other products do not have access to cold storage. Much of the production of fresh fruit and vegetables for both export and local markets is in Matagalpa and Jinotega, which have no public cold storage. Processing facilities have indicated that their payments to producers are based on the quality of the products received. Without access to cold storage, the quality deteriorates and producer incomes declines.²⁶³

²⁶⁰ “IMI Nicaragua: Market Research for Cold Storage in Nicaragua,” U.S. Commercial Service, www.export.gov.

²⁶¹ “IMI Nicaragua: Market Research for Cold Storage in Nicaragua,” *loc.cit.*

²⁶² “Frigoríficos APEN,” www.apen.org.ni

²⁶³ Jorge González, *loc.cit.*

To improve the sanitary condition and quality of perishable products and to support small producers, it is crucial for cold storage facilities to be established in many of the regions that produce fresh fruit and vegetables as well as raw milk and meat. Nicaragua should also establish cold storage facilities at all ports to support the fishing and seafood industry as well as the export of perishable commodities. The Government of Taiwan is donating several refrigeration units to enable the establishment of small cold storage facilities in various departments of the country.²⁶⁴

a. Policy, Regulatory, and Legal Framework

The legal and policy framework for road and port infrastructure is presented in the National Plan for Transport and the Program of Investment in Transportation Infrastructure. The framework for Energy is defined in the National Human Development Plan: 2008 – 2012 as well as in the National Energy Policy and the Rural Electrification Policy.

Roads and Ports Policy

The road network investment program is based on a diagnostic study prepared in 2000 by Wilbur Smith Associates with financing from the IDB. The Plan places priority on actions to relieve the traffic congestion within and around Managua, the development of the western region of the country and regional integration (Pan-American Highway), development of the agricultural areas in the North Central region, and integration and opening of the Región Atlántica Autónoma del Sur (RAAS) and the Región Atlántica Autónoma del Norte (RAAN) as well as the Río San Juan regions.²⁶⁵ Based on these priorities, the emphasis of the MTI in the 2000s was rehabilitation of the Pan-American Highway. Due to budget constraints and limited implementation capacity, significant investments in the productive agricultural regions were not made. However, the current government has made investment in roads for the productive agricultural regions the top priority.²⁶⁶

The current MTI Strategic Plan estimates an annual growth of 4% in transportation volume (cars per day) as well as significant increases in cargo transport, from an estimated 4 million tons in 2006 to about 6 million tons in 2011 (approximately 25% for exports and 75% for imports). The resulting strategic plan calls for the rehabilitation of 7,000km of rural roads, upgrading them to year round access. The plan would “facilitate and promote the development of a reliable transport system for products from the productive rural areas to the local and international markets at low cost, with 16% (500km) of the roads paved (with bricks).”²⁶⁷

²⁶⁴ Interview with Sonia Sombarrilla, Coordinator of International Cooperation, APEN, March 11, 2011.

²⁶⁵ “Plan Nacional de Transporte,” www.mti.gob.ni.

²⁶⁶ Pablo Fernandez Martinez, *loc.cit.*

²⁶⁷ “Plan Estratégico del MTI,” MTI PowerPoint, 2007.

The 2009 Annual Report of the MTI indicated that in 2009 road rehabilitation and paving took place in 80 municipalities, resulting in about 114km of road being paved. By regulation, secondary and rural access roads are a municipal responsibility. However, recognizing the lack of funding available in the municipalities, the MTI is undertaking the rehabilitation of many of these roads, often in collaboration with the municipalities. Some municipal officials, however, have complained that political issues influence the selection of the municipalities which receive the road construction and rehabilitation support.

The overall MTI strategy calls for a multimodal approach to transportation because both water and air transport are important components to the transport system in Nicaragua. The strategy defines the need for “multimodal cargo and passenger transport, to integrate the land, water and air transport networks, as well as to integrate the infrastructure, vehicles, and multimodal operations with a good communications system.”²⁶⁸ The program for ports defers to the EPN Strategy for maintenance and development of ports, while focusing MTI efforts on maintenance of the navigable waterways (about 6,700km) as well as the construction of roads to Puerto Cabezas and eventually to Monkey Point. The Minister of MTI stated that the port at Monkey Point cannot be built if there is no road connection, so that construction of the road will be among the annual priorities for MTI. He estimated the road can be completed within five years.²⁶⁹

The EPN does not have a publicly available strategy.²⁷⁰ However, from a review of the projects that it has financed in recent years, EPN’s focus has been on repairs and modernization of the ports that it manages, mainly Corinto, Puerto Sandino, and Rama. Its long run strategy is to build the multimodal port at Monkey Point, but realization of that is dependent upon the availability of financing. It seems likely that such financing may only be available through a concession arrangement with the private sector or a public-private partnership entity established to build and operate the port.

Energy Policy

The National Human Development Plan²⁷¹ defines the current government’s strategy for the development of the energy sector. Among its priorities are expansion of the transmission network and its connection with the regional Central American Electrical Interconnection System (SIEPAC) network. This would facilitate Nicaragua’s participation in the regional energy market, providing it the ability either to buy or sell energy. This strategy proposes to change the energy matrix, emphasizing projects to generate energy from renewable sources, especially geothermal, hydroelectric, and wind. The National Human Development Plan also establishes

²⁶⁸ “Plan Estratégico de MTI,” *loc.cit.*

²⁶⁹ Pablo Fernandez Martinez, *loc.cit.*

²⁷⁰ Virgilio Silva, *loc.cit.*

²⁷¹ “Plan Nacional de Desarrollo Humano 2008 – 2012,” Government of Nicaragua, April 2008.

the goal of achieving rural electrification covering 60% of the rural population by 2012, up from 25-30%. To achieve this, the GON would depend upon financing from the IDB, the World Bank, and CABEL, as well as from bilateral donor agencies such as GTZ.

The National Energy Policy and the Rural Electrification Policy are both decrees issued before the publication of the National Human Development Plan and the establishment of the MEM. These policies were to be overseen and regulated by the National Energy Commission (CNE), predecessor of the MEM, and the National Energy Institute (INE). The CNE was to promote private sector investments in energy generation and provide incentives for the development of renewable energy sources. The CNE was also tasked with the promotion of rural electrification to improve the rural area coverage from only 30% (in 2005). However, no specific coverage goal was established. When the MEM was established in 2007, it assumed all of the functions and responsibilities of the CNE in addition to many of the responsibilities of the INE, including oversight of national energy policies.

Cold Storage

There is no public policy on cold storage in Nicaragua. The cold storage at the Managua International Airport is provided by APEN, a private non-profit organization dedicated to supporting the needs of exporters. Its services are provided at competitively set fees that are said to be lower than the fees charged by other cold storage facilities at international airports in Central America.²⁷² The APEN policy is to offer these services to Nicaraguan exporters and importers regardless of whether or not these enterprises are members of APEN.

b. Implementing Institutions

The key implementing agencies in infrastructure include the MTI for roads and ports as well as airports, the MEM for energy and the EPN for ports. This section will briefly describe each of these entities. The implementing agency for cold storage is APEN, which will be discussed as a supporting institution because it is a private, non-profit organization.

Ministry of Transport and Infrastructure

The MTI is responsible for the “formulation of policies in relation to transport and construction with the objective to regulate, plan, execute, evaluate and control activities to conserve the transport infrastructure and to offer transportation services in different modalities that satisfies the needs of the population.”²⁷³ The Ministry is responsible for the construction and maintenance of transportation infrastructure for roads, waterways and ports, and airports as

²⁷² “Frigoríficos APEN,” *loc.cit.*

²⁷³ “Ministerio de Transporte e Infraestructura – Misión, www.mti.gob.ni. (Authors’ translation)

well as for public buildings, including public housing. It also is responsible for regulating and supervising inter-city transportation services.

MTI's 2009 annual report indicates that the Ministry's mandate is to serve all Nicaraguans. It recognizes the "importance of infrastructure as the primordial base for development and competitiveness." The report also states that "it is not possible to reduce poverty without the development of infrastructure."²⁷⁴

Its functions are defined in the Law of Organization, Capability and Procedure of the Executive Branch (Law 290).²⁷⁵ The functions include:

- Organize and direct the transportation and transit sector policies and transportation infrastructure as well as the housing and human settlement sectors
- Direct, manage and supervise the conservation and development of transportation infrastructure
- Supervise compliance with security and hygiene regulations pertaining to all transport modalities including ports and terminals
- Formulate and establish public transport tariff policies
- Award licenses and permits for public transportation services, except intra-municipal
- Authorize construction of ports and airports and land-based transport terminals (the EPN also has this responsibility for ports)
- Formulate, propose, and supervise the application of technical standards and regulations for construction.

The technical standards for construction have been set and revised by official regulations. The base National Construction Regulation was published in 1983.²⁷⁶ The regulations (RNC-07), updated in March 2007, establish the design and construction standards to ensure that structures can withstand the forces of nature such as earthquakes and hurricanes. The MTI, in coordination with the MIFIC, is responsible for the supervision of construction through the oversight of preparation and distribution of construction materials as well as on-site review of construction projects. Most bidding for road construction and other transportation infrastructure is subject to the policies and procedures of the international organizations that fund the projects. The Nicaraguan Chamber of Construction did indicate that transparency and

²⁷⁴ "Memoria Institucional 2009." Ministerio de Transporte e Infraestructura, April 2010. (Authors' translation)

²⁷⁵ "Ley de Organización, Competencia y Procedimientos del Poder Ejecutivo," Ley 290, June 3, 1998.

²⁷⁶ "Reglamento Nacional de Construcción," *La Gaceta Diario Oficial*, numbers 180 through 187, August 8 to 17, 1983.

corruption have not been a problem in this process.²⁷⁷ This was corroborated by construction companies that are currently contracted for transportation infrastructure projects.

The organizational structure of MTI includes four technical directorates reporting to the Minister's Office (*Dirección Superior*): Highways, Land Transport, Water Transport, and Construction, and Urban Development Regulations. In addition to these Directorates, there are three technical support units: Environmental Management, Coordination of Disaster Response, and Acquisitions. There are three administrative directorates reporting to the Minister's Office: Planning, Administrative Finance, and Human Resources. The MTI budget²⁷⁸ was C\$2.6 billion (\$120 million), of which \$108 million (90%) was for capital expenditures and \$12 million (10%) for ministry operating expenses. The ministry's source of funding was about 25% from GON fiscal resources and 75% from donations and loans. The budget indicates that GON fiscal resources are sufficient to cover all of the Ministry's operating expenses and also to contribute to the capital expenditures, which are used to finance the construction and rehabilitation of roads, ports, airports, and other public physical infrastructure.

In recent years, the MTI has had some difficulty with international lenders such as the World Bank and the IDB due to its low level of budget execution on various internationally-funded projects. In 2006, MTI budget execution was just 63%, but by 2009 the expenditure rate had been increased to 97%.²⁷⁹ While the number of technical and administrative staff employed by the MTI is not publically available, the 2009 Annual Report indicates that over 1,200 MTI staff received training that year, including 84 that were given support for post graduate studies in construction contracting and highway engineering.

From its budget, it is clear that the primary function of the MTI is the oversight of the construction of public infrastructure, primarily financed with international donations and loans. Its recent budget execution rate of 97% indicates that the Ministry is very effective in execution of the projects it undertakes.

Ministry of Energy and Mines

The MEM's principal function is to oversee the development of strategies for the electric sector as well as the exploration and exploitation of mineral resources including fossil fuels. Its key responsibilities and functions, among others, are defined in the Reform Law²⁸⁰ and include:

- Formulate, propose, coordinate, and execute the Strategic Plan and Public Policies for the energy and geological resources sector

²⁷⁷ Interview with Bruno Vidaurre, General Manager of the Cámara Nicaragüense de la Construcción, April 15, 2011.

²⁷⁸ "Ejecución Presupuestaria al Mes de Octubre 2010," www.mti.gob.ni.

²⁷⁹ "Memoria Institucional 2009," *loc.cit.*

²⁸⁰ "Ley de Reforma y Adición a la Ley No. 290, Ley de Organización, Competencia y Procedimientos del Poder Ejecutivo, Ley No. 612," January 24, 2007.

- Elaborate regulations and technical specifications governing the exploration, exploitation, production, transport, transformation, and distribution of energy resources
- Review, evaluate and periodically update the Strategic Plan and Public Policies for the energy sector
- Approve the technical regulations proposed by the Regulatory Entity for the generation, transmission, and distribution of energy
- Award, modify, extend or cancel concessions for any source of energy, including exploration as well as operating licenses for importation, exportation, refining, transport, storage and sale of fossil fuels
- Award, modify or extend concessions for the generation, transmission and distribution of energy and cancel these concessions on the recommendation of the Regulatory Entity or on its own initiative.

The organizational structure of the MEM includes six technical directorates: Policy and Planning for Energy and Mines, Hydrocarbons, Electricity, Mining, Renewable Energy Resources and Rural Electrification.

The Ministry²⁸¹ is actively working to increase the generation of energy from locally available renewable resources such as geothermal and hydroelectric. In this way its policies are promoting a change in the energy mix to reduce dependence on imported fossil fuels. It is also actively seeking to increase the coverage of electric power, through programs for rural electrification. To accomplish these goals, the MEM is collaborating with private sector investors as well as international financing entities, such as the World Bank and the IDB. By contrast, as previously mentioned, the MEM is considering the take-over of the private sector company responsible for the distribution of electricity.

Given the major investments that will be necessary to achieve the change in the energy mix and the increase in coverage, especially in rural areas, the GON policy will need to focus on the promotion of private sector investments. The current geothermal and hydroelectric projects are a good start, but the MEM must take action to increase the confidence of private investors in order to encourage additional new investments in the sector. As these new projects begin to generate electric power, the high cost of electricity in Nicaragua should begin to decline, thus increasing the competitiveness of its products.

²⁸¹ Lorena Lanza, *loc.cit.*

National Port Enterprise

The EPN, an autonomous agency established in 1980, is responsible for the operation and maintenance of six international ports as well as seven ports on Lake Nicaragua and one on Lake Managua. The primary functions of the EPN include:²⁸²

- Management of the ports under its jurisdiction, including the storage and transfer of cargo
- Control of port operations and services as well as navigation within the ports
- Securing, with approval of its Board of Directors, international or national loans to develop ports under its jurisdiction
- Offering of port services such as unloading, transfer and storage of cargo
- Development and collection of tariffs for services provided
- Guaranteeing port security

The EPN structure includes technical divisions for each of the major ports that it operates as well as one division for the operation of the ports on Lakes Nicaragua and Managua. Its budget is constrained, thus limiting its ability to maintain and upgrade the port facilities that it operates.

Maersk,²⁸³ one of the major users of the Port of Corinto, has indicated that the EPN management is very good, but that they lack the budgetary resources necessary to provide adequate services. For example, Corinto does not have cranes on the piers, so container ships can only be loaded and unloaded if they have ship-board cranes. The piers need some improvements and repairs and the port has no cold storage facility.

The most recent information available on port investments and improvements was from the 2007 – 2008 period, during which it invested \$11.5 million for repairs to port operations, boats (tugs), cargo handling equipment, piers, and offices.²⁸⁴ The limited capabilities of the EPN indicate that improvement of existing ports and the development of new ports will require the attraction of private sector investments.

c. Supporting Institutions

Supporting institutions in the infrastructure sectors include the Nicaraguan Chamber of Construction for roads and transport sector construction and APEN for cold storage. In the energy sector there are no formal supporting institutions per se, but three companies play that role to some degree: Magma Energy / Polaris Geothermal, Centrales Hidroeléctricas de

²⁸² “EPN Marco Legal,” www.epn.com.ni.

²⁸³ Ursula Gonzalez, *loc.cit.*

²⁸⁴ “Empresa Portuaria Nacional Resumen de Inversiones 2007 – 2008,” www.epn.com.ni.

Nicaragua, and Gas Natural Fenosa. There are no supporting institutions that operate in the area of ports and port administration.

Nicaraguan Chamber of Construction

The Nicaraguan Chamber of Construction was established in 1961 to bring together construction companies whose values focused on free competition, honesty, and excellence in client services. The chamber has about 35 members, including construction companies and construction industry suppliers. It advocates for the construction industry in dealing with relevant public policy issues and represents it at local and international trade fairs, exhibitions, and conferences. In addition, the Chamber provides technical training programs for its members and has developed a Code of Ethics for the construction industry.

The road sector is supported by numerous private construction contractors that are hired to expand and rehabilitate roads. Most road rehabilitation projects are financed by the World Bank and the IDB. As a consequence, the bidding is almost always open to international as well as local companies. Bid specifications often establish minimum levels of experience that are significantly greater than would normally be required to complete a project and are beyond the capacity of most local construction companies. For example, if a project is to pave a 10km road, the bidding requirements may ask for demonstrated experience constructing a 30km road.²⁸⁵ Consequently, the participation of local firms is quite limited.

A review of the MTI Annual Report for 2009 confirmed that more than half of the projects for road rehabilitation under contract with the MTI were being completed by international construction companies. The Nicaraguan Chamber of Construction indicated that while many of these contracts may have local subcontractors, the international firms do not share a significant amount of the work or revenues with the local construction firms.²⁸⁶ A Costa Rican construction company that has been contracted for several MTI road projects, as well as for the development of the airport at Puerto Cabezas, indicated that local construction firms typically do not make sufficient effort to gain the necessary experience to win internationally funded competitive bids.²⁸⁷ As a consequence, there is a lack of a well-developed local construction industry to support the MTI in the development of the road network and other transportation infrastructure.

Magma Energy and Polaris Geothermal

Magma Energy and Polaris Geothermal are developing (as a joint venture) two geothermal power generation facilities in the area of Masaya and Granada. These projects are expected to

²⁸⁵ Interview with Roberto Lacayo, General Manager, Construcciones Lacayo Fiallos SA, March 10, 2011.

²⁸⁶ Bruno Vidaurre, *loc.cit.*

²⁸⁷ Interview with Omar Jiménez, General Manager of Constructora MECO SA, March 12, 2011.

be completed in 2011 and will produce about 72MW once they are fully operational. Both companies have invested equal amounts of capital for the development of the geothermal power generation facilities, and Polaris will serve as the operator for each. The project has power purchase agreements with Disnorte and Dissur for the distribution.

Magma Energy, a wholly owned subsidiary of Alterra Power Corporation, is a leading global renewable energy company that owns and operates 198 MW of geothermal energy projects in the U.S. as well as in Canada, Iceland, Italy, Argentina, Chile, and Peru. Polaris Geothermal is a wholly-owned subsidiary of Ram Power Corporation, a global renewable energy company dedicated to the development of geothermal power facilities. The company has geothermal facilities in Canada, the U.S. and Nicaragua.

Centrales Hidroeléctricas de Nicaragua

Another company that could be considered a supporting institution is Centrales Hidroeléctricas de Nicaragua (CHN), with Brazilian investments, is developing Tumarín, a major hydroelectric facility located in Matagalpa Department in Nicaragua. When completed in 2014, it is anticipated that the facility will produce 220 MW of energy (expected to be about 25% of the total energy supply). CHN is one of the leading renewable energy developers in Nicaragua. The company has received investment capital and technical assistance from two Brazilian companies: Eletrobras (a state enterprise) and Queiroz Galvão, a broad-based engineering firm as well as loans from the IDB and the Brazilian National Bank for Socio-Economic Development (BNDES).

The Magma/Polaris Geothermal and the Tumarín Hydroelectric projects, when fully operational, will permit Nicaragua to significantly advance the transformation of the power mix from fossil fuels to renewable sources. The projects will also result in a significant increase in the overall power generation, thus facilitating the supply of energy to regions that do not currently have access to energy. This support, which is important to the overall operation of the energy sector, will continue to be available as long as the GON follows policies favorable to private sector investment.

Gas Natural Fenosa / Disnorte and Dissur

Electric energy is distributed in Nicaragua by two private sector companies—Disnorte and Dissur, both subsidiaries of Gas Natural Fenosa of Spain—that also function to some extent as supporting institutions. Gas Natural Fenosa is the largest integrated gas and electric sector company in Spain and Latin America. It has operations in 25 countries. Gas Natural Fenosa acquired 95% of Disnorte and Dissur in 2000 and has provided electric power distribution services in Nicaragua since then. However, these services have focused primarily on the large urban centers, with limited coverage in the rural areas. In most remote agricultural areas (such as in the North-Central agricultural areas) there is no capability for the distribution of electric

power. As previously mentioned, some export companies have begun to install solar panels on producers' farms. While this provides limited, localized support to the achievement of rural electrification, it does assist the producers in undertaking some value-added processing capabilities.

The MEM has signed an agreement with Gas Natural Fenosa to increase the electric coverage to 85%, making electricity available to 3,600 communities. This rural electrification program is funded by the IDB and CABEL. However, the MEM has expressed doubts about Gas Natural Fenosa's ability to meet the rural electrification targets and thus is considering taking over the responsibility for electric distribution.²⁸⁸ There is a risk that this action may be motivated by the Albanisa's desire to enter the electricity distribution sector, rather than by Gas Natural Fenosa's lack of capabilities. If this were to be the case, the take-over could jeopardize future private sector investments in the energy sector and possibly also in major infrastructure projects.

Association of Producers and Exporters of Nicaragua

The supporting institution for cold storage is APEN which operates the cold storage facility at the Managua International Airport. APEN is a non-profit organization representing 326 members and 4,000 producers.²⁸⁹ Its primary activities are to assist Nicaraguan companies and producers to improve their competitiveness in international markets. It provides assistance with market identification and analysis as well as with trade regulations and requirements and transportation logistics.

APEN has operated the cold storage facility at the Managua International Airport since 1996 and an estimated 50% of APEN's financing is generated by the fees charged for use of the facility. APEN is well situated to operate the cold storage facility and do so on a non-profit basis, thus ensuring cold storage fees that are lower than those charged by cold storage facilities in competing Central American countries. However, because APEN operates on a non-profit basis, it does not generate sufficient revenues from the cold storage to be able to expand the facilities in line with the growth in demand. Moreover, APEN does not have the capacity to develop cold storage facilities in the sea ports or in the productive regions of the country. APEN did confirm that the government of Taiwan will be donating several pieces equipment of small cold storage facilities to be used throughout the country. It is not known how these facilities will be established or what entity will operate them.

d. Impact

Infrastructure deficiencies have significant impacts across the agricultural and agribusiness sectors. At a minimum, these impacts affect the costs for agricultural inputs and transportation,

²⁸⁸ Interview with Lorena Lanza, *loc.cit.*

²⁸⁹ Interview with Juan Manuel Sánchez, Manager of Operations, APEN, January 27, 2011.

the quality of the crops brought to market, and producer incomes. The problems with roads, ports, energy, and cold storage affect producers, companies, and investors in much the same way.

Producers

All infrastructure deficiencies affect producers in terms of their income, quality of life, and food security. Access to roads that are passable year round and that are in adequate condition to prevent damage to crops in transport is critical to the reduction in poverty in rural areas. In addition, the prevalence of poor roads limits the ability of producers to gather together and organize cooperatives and producer associations, which are important for them to be able to access organized technical assistance and to gain better prices for their products as well as for agricultural inputs. Because of poor or frequently impassible roads, producers often cannot get their crops out to the market at peak times. Such delays in transport to the market often cause the loss of a crop or a reduction in quality, resulting in a loss of income. For example, 20% of beef production is lost due to bruising during the transport of cattle over bad roads to slaughterhouses. Poor quality roads also cause delays in the delivery of raw milk to processing plants, resulting in rapid increases in bacteria. They also create increases in the costs to transport agricultural inputs (fertilizers, seeds, agrichemicals, etc.) to small producers in particular. These in turn result in the use of fewer inputs, which may affect the volume and quality of the crop, or an increase in costs that producers must pay for the inputs, thus depressing competitiveness and profit margins.

The quality of ports and the lack of an adequate international port on the Caribbean coast do not directly impact producers. However, to the extent that these issues cause Nicaraguan exporters to pay higher shipping costs to international markets reduces the competitiveness of their products. In turn, this can result in lower export sales. Alternatively, at times exporters seek to maintain their competitiveness in the international market by absorbing the additional shipping costs, offsetting them by offering lower prices to producers.

The lack of electricity in the agricultural regions, as well as the high cost of electricity where it is available, impact the value-added processing of producers' crops. Coffee harvests should be processed through the wet processing facilities as soon as possible after the coffee grapes are picked. However, if a facility does not have access to electricity it is not be able to operate the necessary depulping equipment. That means that producers have to transport the coffee grapes to a processing facility at another location. Such delays in processing caused by lack of access to electricity, as well as the delay in transport due to poor roads, reduce the quality of a producer's coffee, which in turn lowers his income.

The absence of access to electricity also affects producers who require irrigation. Irrigation systems typically require the use of pumps to access aquifers. Without electricity, these pumps cannot function. A possible solution, both for irrigation and value-added processing, is the

installation of solar panels that could provide at least limited access to electricity. While most producers do not have the income levels necessary to finance solar panels, some export companies have installed solar panels for producers with whom they have stable long-term supplier arrangements.

Producers are also hampered by the lack of regional public cold storage facilities. There are no public cold storage facilities in the productive agricultural areas of the country. It should be noted that regional cold storage facilities would also require access to electric power (or power generators). After harvest, there may be delays in shipping crops to markets or to processing facilities, resulting in a deterioration of their quality if cold storage is not available. Perishable crops as well as raw milk are especially susceptible to this type of deterioration. Since most processing facilities consider the quality of the crop or milk in determining the amount to be paid to producers, the lack of cold storage directly reduces the income that producers receive which, in turn, jeopardizes their food security.

Companies / Cooperatives

In many cases, weaknesses in infrastructure have clearly identifiable and measurable impacts on companies and cooperatives in much the same way they do on producers. The poor quality of roads, many of which are not passable in the rainy season, has been particularly detrimental to companies that send trucks into the agricultural areas to pick up crops and livestock for transport to their slaughterhouses and processing plants. It is an additional cost because the firms have to acquire and process more cows to replace the beef lost in transport. The companies may increase prices to cover these higher costs or elect to absorb the higher costs in order to maintain competitiveness and market share. In either case the company's profits are likely to decline.

The lack of a quality international deep water port on the Caribbean coast causes exporting companies to incur significant extra costs to ship products through either Puerto Cortés in Honduras or Puerto Limón in Costa Rica. Based on the export volume that passes through these two ports, Nicaraguan exporting companies incur additional, shipping costs of about \$5 million per year. Agribusiness companies have to incorporate these costs in their pricing structure, reducing the competitiveness of and demand for Nicaraguan products. The lack of a Caribbean port affects imports as well which must also be shipped into the country through these same two ports, resulting in greater costs for most imported goods—which can create inflationary pressures. In addition, exports and imports that pass through Puerto Cortés in Honduras are also subject to a greater incidence of theft, which is not generally a problem for shipments within Nicaragua. For shipments through the Pacific coast ports, the exporting companies are impacted by the congestion and poor conditions in the Port of Corinto, which result in delays and additional shipping costs. These higher shipping costs affect the exporting

companies by increasing the cost of Nicaraguan products in international markets. This again reduces competitiveness and sales in those markets.

Energy deficiencies affect Nicaraguan companies through an unreliable and inconsistent supply of electricity as well as through higher costs than in competing countries in the Central America. The generally high electric costs in Nicaragua result in more costly production processes. Consequently, companies sell their products at higher prices, once again taking a toll on competitiveness, sales, and profits.

The companies are not significantly impacted by the lack of access to public cold storage. Most companies that need cold storage have their own private cold storage facilities. These include the four slaughterhouses and the dairy companies. In fact the dairy companies have cold storages units in various regions to enable the transport of raw milk to cold storage units located within a few hours of the producers' farms. The lack of cold storage facilities in the ports impacts the seafood industry because freshly caught seafood must be off loaded from fishing vessels and quickly transported to processing plants in order to avoid deterioration or contamination of the seafood.

Investors

Investors are impacted by infrastructure constraints more due to the opportunities that are presented than by the costs that are incurred. Clearly, the impact of increased costs caused by road, port or energy constraints reduce the profits that companies earn and thus reduce the overall incentive for investors to invest in infrastructure projects in Nicaragua.

While there are several opportunities for investment in the infrastructure sectors that could have a positive impact on Nicaragua, there is not much opportunity for private sector investment in the road network because there is an agreement with the Central American Secretariat for Economic Integration (SIECA) to not charge tolls on the Pan-American Highway.²⁹⁰ Most internal road would probably not be good candidates for private sector investments, which would require a toll to ensure an adequate return on the investment. The one exception to this may be the construction of a new, high quality road to the proposed deep water port at Monkey Point. Such an investment would only be attractive to the private sector if there were assurances that the Monkey Point Port would be built.

The need for a modern, efficient international port on the Caribbean coast presents an excellent opportunity for a PPP arrangement to build and operate the port. Clearly, the public sector would have to build access roads (that could also be a private sector concession) as well as possible rail and airport facilities to link the port to the productive Western region of the country. The bulk of the port facilities could be built and operated by private investors who would subsequently hold a long-term concession to operate the port. The Monkey Point port

²⁹⁰ Pablo Fernandez Martinez, *loc.cit.*

was conceptually designed in the early 2000s and at that time had an estimated construction cost of about \$500 million. In order to attract such an investment it will be necessary to conduct a new detailed feasibility study and design, with updated cost estimates. Also to attract private investments of that magnitude, it will be necessary for the GON to pass legislation favoring PPPs and protecting the rights of private investors in PPP arrangements.

The energy sector demonstrates the positive impact that infrastructure has on private investors. The geothermal and hydroelectric power generation projects have both attracted private sector investors; from Canada and Brazil. These investments are expected to assist Nicaragua in the transformation of its power mix with a greater reliance on renewable energy. Additional private power generation projects are in varying stages of analysis. The one major risk regarding private investors in the energy sector is the current issue revolving around the Spanish private investor that holds the concession for distribution of electricity. The MEM and the private investor have established ambitious targets for rural electrification, which the MEM believes the investor will not be able to fulfill. Consequently, the MEM has expressed that they are analyzing the possibility of taking over the distribution company. However, at the same time Albanisa has expressed the desire to enter the distribution business. A takeover of the current private investor could create an impression that the action was taken in order to facilitate Albanisa's entry into the electric distribution sector. Such a move would certainly dampen any interest that private investors would have in new energy sector investments. It could even dampen private investors' interest in any type of infrastructure project.

The provision of cold storage in the ports as well as in the agricultural regions could be attractive to private investors. The anticipated donation of equipment from the government of Taiwan would provide a foundation for private investment in cold storage. An investment feasibility study should be conducted, and used as a basis for the attraction of private investments in the provision of cold storage services.

e. Conclusions

- Good quality rural roads are among the best strategies for achieving a reduction in rural poverty, as they are essential for transporting crops and inputs, as well as giving micro and small producers increased and sustainable opportunities to generate income and ensure food security for themselves and their families.
- The lack of an adequate international port on the Caribbean coast has a significant, measurable cost that Nicaraguan exporters and importers incur. These added costs as well as the reduced demand for Nicaraguan products in international markets impact producers through reduced competitiveness, lower incomes, and greater food insecurity.
- Construction of an adequate port facility on the Caribbean coast would be a productive investment that could yield significant returns for producers, small and large. A public-

private partnership could be a feasible and desirable arrangement for the construction and/or management of the facility.

- The lack of access to less costly electric power throughout most of the rural agricultural areas constrains the producers' ability to undertake value-added processing on their crops. Consequently, the producers have to sell their crops at lower values, thus reducing their income.
- Small producers are constrained from having access to irrigation systems due to the lack of electric power to operate the pumps. Without adequate GON response, the cost for processing as well as irrigation will result in declining competitiveness.
- The rural electrification program has very optimistic targets for the extension of electric coverage in rural areas and there is an agreement between MEM and Gas Natural Fenosa to implement the program to achieve the goals. However, there has been some discussion recently about the MEM taking over Gas Natural Fenosa for not having the capacity to achieve the targets while at the same time consideration is being given to opening electric distribution to Albanisa. The consequence of this apparent political action would be to dampen private sector interest in investing in the energy sector and possibly also in other infrastructure sectors.
- The lack of public cold storage facilities in the agricultural regions of Nicaragua as well as in the seaports has affected not only the quality of crops, milk, and seafood but also the food safety of these products, due to increasing levels of bacteria. Without public and/or private investment in cold storage facilities to store perishable goods and ensure food safety, Nicaraguan producers will continue not to be able to maximize sales in both local and external markets, depressing food availability and profits.

V. RECOMMENDATIONS

Given the nature and scope of the issues that have been examined, it will be necessary to offer two sets of recommendations: strategic and operational. Strategic recommendations focus on actions that are longer term and more challenging, particularly those that deal with politics, corruption, and security, as well as mitigation of the impacts of climate change. These are difficult problems that require solutions that will doubtless be subject to intense political debate. Yet they cannot be ignored if real, sustained reform is to be achieved and the enabling environment for agribusiness significantly improved. Formulating and implementing strategies to confront these issues will require close cooperation by the various international donor agencies. Neither USAID nor any donor institution alone will be able to achieve sustainable results in addressing the strategic issues. With that in mind, the recommendations offered with respect to the strategic issues are only those that are currently considered to have a realistic chance of being implemented. While there are more steps that can and eventually should be taken to solve key problems, these are presently beyond the capacity of USAID and other donor organizations to deal with directly.

Operational recommendations are more immediate, manageable, and achievable, at least in the short term. Many opportunities exist for USAID to take effective steps to improve the enabling environment for agribusiness, thereby strengthening and expanding food security. The proposed recommendations are meant to be actionable, sustainable, measurable, and stand a realistic chance of succeeding. They are results-oriented and take into consideration the larger cultural, social, and political environment in which they may be implemented.

It is understood that USAID has limited resources and that recommendations must be prioritized, acknowledging that relatively few will be actionable over the next two to three years.

A. POLITICAL, POLICY, AND INSTITUTIONAL FRAMEWORK

Strategic

Providing technical assistance and training to the GON to address the institutional and policy problems identified in the section on the Political, Policy, and Institutional Framework is largely a moot issue at this point. The fact is that the current political climate makes any USAID interventions of that kind unlikely to be received positively by the GON. In addition, the present political culture poses challenges that would be difficult to overcome at best. Still, streamlining and making bureaucracy more transparent, professionalizing and making the judicial sector more independent, combating corruption, and ensuring a level economic playing field would enhance even more the enabling environment for agribusiness. This is an area which USAID should monitor for possible future technical assistance and training interventions, coordinating particularly with other international donors.

The recommendations on the issues addressed in the other chapters, however, deal with practical initiatives that can strengthen conducting agribusiness, accounting for the current political, policy, and institutional environment. As will be seen, much can be accomplished irrespective of these larger issues.

B. MARKET ACCESS AND COMPETITIVENESS

Operational

Enhance Technology Innovation and Adoption

To enhance productivity and competitiveness, USAID should design and support market-responsive technology generation and information dissemination initiatives that respond to actual problems faced by small producers in gaining access to higher-yield certified seeds; reducing crop losses caused by pest, diseases, and climate change effects; and improving post-harvest handling problems. The initiatives should also include training the small producers in cost-saving environmentally-friendly good practices. USAID should also enhance the capacity of FUNICA and selected universities to implement market-based projects that promote product diversification and higher value-added technologies.

Improve Productive and Marketing Capacity of Small Producers

Taking into account the low levels of productivity and capitalization of small basic grain producers, USAID should promote public-private partnerships to provide them with certified seeds, fertilizers, and proper farm storage facilities to help them boost yields, reduce crop losses, and improve post-harvest handling. Improving small-scale farmer productivity in basic food crops can provide the foundation for helping those producers free up land and labor to invest in higher-value horticultural that have much greater income-earning potential.

Support Compliance with SPS Standards

USDA's support in plant and animal health and safety inspection services should be continued. At the same time, USAID should promote and support development of public-private partnerships between DGPSA and private sector companies, so that the latter can carry out of the field and plant inspections that DGPSA cannot fully perform due to its limited budget and technical and capabilities. USAID should also support programs to enhance the sector's capacity for conducting traceability audits, following some of the experiences gained by other donors, including the IDB in the cattle and beef export sector.

Strengthen Small Producer Capacity to Meet Market Requirements

USAID should expand its efforts, such as in the E&E project, to train and assist small producers identify current and potential products that can meet shifting local, regional, and international market opportunities. Similar efforts should be made to assisting them in establishing linkages with value chains and with exporting companies. Tailored training and technical assistance interventions should continue to be made available and expanded in the areas of production, processing, and marketing.

Foster Asociatividad Among Small Producers

Building on successful experiences of the World Bank, IDB, ACORDAR, MCA, Lafise, CISA Exportadora, TecnoServe, HortiFruti, and BENCAFE, as well as several processing, exporting and supermarket-supplying companies, USAID should support initiatives to promote *asociatividad* among producers with common interests to facilitate their access to markets, services and integration into high-value chains. This is a critical necessity among Nicaraguan small producers that operating as individuals find it difficult and at times impossible to access to finance, technology, inputs, and the productive infrastructure that could enhance their productive capacities and earnings potential. Actions in this area should also include strengthening the capacity of relevant NGOs, cooperatives, and producer associations to provide technical assistance services to small and medium-size producers with focus on enhancing their farm management, marketing, and management skills.

Supporting implementation of trade and investment agreements

Nicaragua needs assistance to take full advantage of the market and investment opportunities stemming from trade and economic cooperation agreements to which it is a signatory. The Mission should continue to assist relevant GON authorities and private sector organizations in complying with key provisions of the CAFTA-DR trade agreement. It could also help Nicaragua strengthen its export promotion and FDI promotion capacities by supporting studies and action plans that identify export growth and diversification opportunities in different product lines and markets; and enhance the capacities of small and medium-size producers and enterprises to access export markets and participate in trade fairs, promotion missions, and investment forums.

Develop and Support Branding Strategies

Nicaragua lags behind other countries in the region, such as Costa Rica and Guatemala, in branding its products. USAID should work with key private sector groups such as UPANIC, ProNicaragua, and CEI to design and implement country and product branding strategies,

underwriting efforts to develop and implement branding and promotional campaigns for product placement in international markets, especially the United States.

Strategic

Advancing an Agenda for Product Diversification and Competitiveness

USAID, in coordination with other donors, should assist key GON authorities (i.e., BCN, MIFIC, MAGFOR, INTA) and private sector organizations (e.g., COSEP, CADIN, AMCHAM, APEN, UPANIC, UNAG, Lafise, and CISA) in coming together to develop and implement a coherent and manageable national strategy for fostering product diversification, agro-industrial development, and competitiveness in the agribusiness sector. This is an area which has been widely discussed in Nicaragua, but little progress has been accomplished so far. With few exceptions, the sector continues to be focused on the production and export of a few products with relatively little value-added.

Support Agricultural-Focused Vocational Education

Low levels of human capital development in the rural areas are a key constraint to the ability of the agribusiness sector to compete more successfully in the world agricultural economy. Many Nicaraguan small and medium-sized farmers lack formal education which handicaps them for adopting more advanced technological practices. Although well-designed technical assistance programs can partially alleviate this problem, more needs to be done to provide those producers and their families with access to the technical and managerial skills they need for succeeding in their agribusiness environment. There are very few vocational centers in Nicaragua, and efforts to increase their number and effectiveness could yield substantial, social and economic returns and should be promoted by USAID in concert with other international donors.

C. CREDIT, FINANCE, AND INVESTMENT

Operational

Value Chain Finance Initiative

Design and support implementation of a comprehensive Value Chain Finance Initiative, led by private sector actors on both the supply side (financial sector) and demand side (agribusiness chains), which will effectively integrate commercial banks and other financial intermediaries into specific value chains. The activity should entail leadership by ASOBANP, ASOMIF, and the financial cooperative associations (supply side) and the national private sector chambers and agribusiness associations (demand side). The emphasis should be on delivering significantly expanded and sustainable volumes of credit to small producers. The new initiative should build

upon the accumulated experience of value chain development and VCF activity in Nicaragua as highlighted in the text and in the Appendix.

Data Base

The Value Chain Finance Initiative should also include support to the BCN and/or SIBOIF in constructing and regularly updating a more detailed database on all agriculture sector credit, finance and investment. The data breakdowns should be by size of firm, by type of financial product, by gender and other factors to be determined, in order to analyze trends and assess progress. Information from the regulated institutions should be aggregated with data supplied by ASOMIF for the non-regulated MFIs and by the financial cooperatives for the non-regulated CACs in order to get a complete picture of MSME agricultural credit volumes.

DCA Guarantee Agreements

Related to the Value Chain Finance Initiative, design and implement new USAID DCA agreements with 3-4 Nicaraguan commercial banks aimed specifically at credit guarantees backing value chain finance. The agreements should build upon lessons learned from past DCAs and commitments by each bank to accelerate their agricultural credit programs. The new DCAs should cover a broad range of working capital, medium-term investment loans and other financial products. Finance companies or financial cooperatives could also be considered.

Legal/Regulatory Regime

To extend the benefits of financial sector reforms for MSMEs, support the approval and implementation of the proposed Law on Microfinance Institutions, a new secured transactions (movable collateral) law, the existing Law on Reciprocal Guarantee Companies, and improved regulations of the financial cooperatives. In each of these reform initiatives, the opportunities for expansion of credit availability for small agricultural producers should be specifically promoted.

Crop insurance

To reduce risk in credit operations, support government and private sector initiatives to design and offer practical crop insurance products to the Nicaraguan agricultural sector. Specifically, promote the existing Agricultural Insurance Committee (*Comité de Seguro Agropecuario*) established within the Ministry of Agriculture. The focus should be on both market-priced insurance and, if necessary and affordable, government-supported subsidies. Both climate-indexed crop insurance and other feasible insurance policies related to price and yield variables should be pursued.

Strategic

Land tenure

Regularization of land titles is an ongoing and time-consuming endeavor that will require continued donor support. Without secure land tenure, owners have disincentives to invest in land infrastructure improvements, and financial institutions are unable to count on land as real collateral against working capital or investment loans. Appropriate reforms of land registration procedures and solutions to “double registry” cases are priorities, as is continued institutional strengthening of the Property Registry. The current World Bank PRODEP project and the recently completed pilot land titling project of the Millennium Challenge Account program are models to replicate and expand.

D. CLIMATE CHANGE

Operational

Water Management Systems

Develop and implement water management systems to provide irrigation to small producers that do not currently have access to water. In order to capture rainwater which is currently lost (about 97%) these systems should provide for drainage that channels rain water into catchment basins for storage. Irrigation channels will need to be developed in order to distribute the water to producers. These programs should also provide assistance to water user associations (cooperatives and producer alliances) in order to develop capabilities for the operation, maintenance and management of the systems.

Watershed Conservation and Reforestation

Develop and implement watershed conservation programs that include forest conservation and reforestation. Such programs are important to restore water to the groundwater sources such as rivers, streams and lakes as well as to underground aquifers. This program should be coordinated with the water management systems programs.

Research on Climate Change and Agriculture

Develop and implement a joint program with MARENA and INTA to conduct research on the impact of climate change on agriculture. Among the objectives of this program should be the development of improved seed varieties resistant to drought conditions and to excessively wet and rainy conditions. This research should also focus on the prevention or mitigation of new or increased plagues and fungi that attack agricultural production due to climate change (such as the broka fungus on coffee).

Agricultural Meteorological Forecasting

Provide technical assistance to INETER to establish the capability to perform climate change modeling as well as long to medium term agricultural meteorological forecasting. The program should also assist INETER to draw upon regional meteorological information available through satellite systems such as SERVIR.net as well as to develop dissemination processes and channels so that producers will be able to maximize the benefit of the agricultural forecasts.

Strategic

Regional Meteorological Forecasting

Develop and implement a regional program for meteorological forecasting covering the Central American region and possibly including the Caribbean. Such a program could be implemented jointly with (or housed in) CATHALAC which is operating the SERVIR.net and the GEONETCast.net systems that already are accessing satellite data to monitor Central American meteorological conditions.

E. INFRASTRUCTURE

Operational

Secondary and access road construction

Develop and implement a program with the Ministry of Transport and Infrastructure (MTI) to assist local governments (municipalities) with the construction and rehabilitation of secondary and access roads. This should be through the MTI in order to ensure the application and compliance with adequate construction standards. While the municipalities have limited capabilities for road maintenance, they lack capabilities for construction and rehabilitation.

Develop additional cold storage facilities

Develop and implement projects to establish cold storage facilities in several regions of Nicaragua as well as in the Port of Corinto. Review the possibilities of creating PPPs for the construction and/or concessional operation of the facilities. This could be done in conjunction with other donors such as the IDB or CABEL.

Support construction of a port at Monkey Point

With USTDA, conduct a thorough feasibility study of the proposed development of a Caribbean/Atlantic port at Monkey Point. While the plans for construction of a port at Monkey Point exist, it is important to conduct a study of the costs, possible financing, and comparative benefits of such a port (as compared with the continued use of ports in Costa Rica and Honduras).

Strategic

Support infrastructure PPP enabling legislation

Support the GON in development of legislation and regulations to govern the use of Public – Private Partnerships (or Alliances) for the financing of investments in major infrastructure projects. Such private sector investments will be needed for the energy sector as well as for cold storage facilities and the development of a possible port on the Caribbean/Atlantic coast.

APPENDIX I: VALUE CHAIN FINANCE IN NICARAGUA

Value chain finance (VCF) is a promising solution for the credit requirements of small agricultural producers. This appendix provides a brief summary of VCF as it is conceptually defined and examples of different forms of VCF that are already in place in Nicaragua. Key reference documents are also cited that will be highly relevant for future value chain finance promotion.

Conceptual Definitions

Value chain finance is divided into two categories: Direct VCF and Indirect VCF.²⁹¹

- *Direct VCF* is financing that occurs *within the value chain* wherein actors in the chain finance each other. The common forms are buyer credits (e.g., loans extended by exporters or processors at the top of chains to small producers) and supplier credits (e.g., loans to small producers by agricultural input providers).
- *Indirect VCF* is credit provided by *external formal lenders*, typically a commercial bank but including other financial intermediaries. In this case, small producers receive credit from the formal lender based on their established contractual relationships and inter-connectedness in the chain (advance sale contracts, technical assistance access, length of transaction history). Indirect VCF credit flows are either to each individual small producer or through “dispersed credit,” the latter involving credit lines by banks to larger enterprises who then on-lend funds to small producers in the chain.

Value chain finance is also intimately connected with *value chain development* (VCD).

Four key dimensions of VCD in Nicaragua, as highlighted in the chapters of this report, are (a) well-articulated chains with clearly understood transactions among all actors, (b) leadership of chain operations by anchor firms (*empresas anclas*),²⁹² (c) strong small producer associations or cooperatives (*asociatividad*),²⁹³ and (d) effective technical assistance integrated with credit provision. Formal lenders are highly attracted to VCF chains that unite these essential features. The presence of a lead anchor firm that has a verified and secure market for a chain’s end

²⁹¹ IDB, “Financing Agricultural Value Chains in Central America” (Technical Notes No. IDB-TN-I46 by Jeremy Coon, Anita Champion and Mark Wenner), June 2010. This study is an essential reference document and includes detailed analyses of both direct and indirect VCF including case studies in Nicaragua and Honduras.

²⁹² The anchor firm concept is at the center of the VCD and VCF models currently being pioneered in Nicaragua by CARANA Corporation under the USAID-funded *Empresas y Empleo* project.

²⁹³ An excellent analysis of constraints and opportunities of producer associations is in Gilberto Alcócer, “*Asociatividad en las MIPYME: Una Estrategia para su Competitividad e Internacionalización*,” August 2009.

products—for export or sale in the domestic economy—is the first *sine qua non*. Closely following is the reliability of the supply channels within the chain. This includes the agricultural input suppliers and especially the small producers. Loyalty within the chain, particularly the adherence by small producers to sales contracts with processors, must be ensured and possibilities of side sales to non-contracted buyers (*desvios*) need to be minimized. Banks also need assurances that high-quality technical assistance is in place to increase yields and productivity, comply with quality standards, reduce costs and enhance profitability. Moreover, the TA needs to be shown to be sustainable, i.e., factored into costs and not dependent on external grants or subsidies.

Value chain development is not a new concept. Commercial banks and other formal lenders have always analyzed the export markets, domestic buyers, and transactions within supply chains in assessing the creditworthiness of borrowers. The “cluster” approach to business and economic competitiveness analysis is also centered on value chains, including competition among chains within countries and collaboration among the same chains in competing with clusters in other countries, e.g., promoting national brands and quality reputation. On the other hand, VCF is a relatively new concept. While buyer and supplier credit (direct VCF) between firms within a chain is a long-established practice, the integration of formal lenders into value chains (indirect VCF) is a newer development. As indicated, the indirect VCF may take the form of dispersion of credit by larger firms, especially when there are several hundred or more small producers. However, such large firms (exporters or processors) often prefer not to act as credit intermediaries, because of debt/equity ratio constraints or such operations are not a core competency of the firm. Similarly, commercial banks may otherwise prefer to lend directly to producers, particularly to medium-size farms, in order to comply with regulatory restrictions on over-exposure to single large clients.

Current Examples of VCF in Nicaragua

A compendium of nine examples from interview notes taken during the study is offered below. Because this was not a study on VCF per se, the information is both limited and subject to clarification, elaboration and correction—to be verified prior to subsequent use or citation. The examples are intended as an illustrative sample of current VCF practices, mostly *indirect* VCF by banks in collaboration with anchor firms.

Hortifruti-Walmart: Under its “Tierra Fértil” program, the Walmart supermarket chain in Nicaragua has perfected a “triangulated” purchase order finance (POF) system for a network of approximately 200 small horticulture producers. In the POF model, Walmart contracts with producers to buy fresh vegetables and fruit at specified quantities and quality (size, shape, color, maturity, etc.). Lafise Bancentro advances working capital credit to the producers. The triangle is completed with Walmart depositing payments for delivered produce in the producers’ bank

accounts, from which the bank deducts the payments due on credits. The model also includes TA organized by Walmart in collaboration with various non-profit organizations.²⁹⁴

COMASA: COMASA (*Comercializadora de Maní, S.A.*) is a leading peanut processor and exporter. Its affiliated peanut producers receive both working capital and investment finance from the commercial banks, guaranteed by sales contracts with COMASA for anticipated crop harvests as well as already warehoused peanut inventories. COMASA is an example of a highly profitable “A” client with secure export markets. Banpro is the lead commercial bank, but other banks are also involved via syndicated loans.

CISA Exportadora: CISA Exportadora specializes in high-quality coffee exports sourced from a large network of Nicaraguan coffee growers. As an anchor firm, it provides technical assistance and training for small producers to assure that strict quality guidelines are met in all phases of production and processing. It also provides access to finance through credit lines arranged with the Nicaraguan commercial banks, as well as social services (schools, health centers, etc.) in the communities where it operates. There is a high degree of loyalty within the CISA Exportadora chains, reaching hundreds of small producers and representing a successful model for value chain development, VCF, and shared benefits of profitable export operations.

Bencafé: Bencafé (*Beneficiadora Norteña de Café, S.A.*) is a smaller coffee processor and export broker in northern Nicaragua. It deals with about ten medium-sized to large individual producers, for whom it arranges credit lines with two international banks. The credits are guaranteed by 75% of the value of each producer's coffee that has been processed and is registered in the BenCafé warehouse. Most loans are short-term and cover costs of the next crop cycle. Bencafé helps broker the export sales contracts between the individual producers and principally European buyers, and the producers repay the banks out of the proceeds of sale.

CONACAFE: A third coffee example is the recently signed agreement between the Consejo Nacional del Café (CONACAFE) and Banco Produzcamos (BP) that will finance a pilot supervised credit program for SME coffee producers.²⁹⁵ BP will provide a mix of working capital and investment credit to an estimated 205 producers, each of whom will be vetted for creditworthiness by CONACAFE, the coffee cooperative to which the producer belongs, and a reference check with the SIBOIF and other credit bureaus. The funds will be used for planting

²⁹⁴ Details on the Hortifruti-Walmart program are in Quirós, Rodolfo (editor) et al, “*Financiamiento de las Cadenas Agrícolas de Valor*,” Costa Rica conference, May 2006. The “Tierra Fértil” program in Nicaragua is also promoted by UNIRSE (Union Nicaragüense para la Responsabilidad Social Empresarial), the country's corporate social responsibility association.

²⁹⁵ “Convenio de Colaboración entre CONACAFE y el Banco Produzcamos para implementar un plan piloto de mejoramiento, diversificación agroforestal y seguridad alimentaria de la caficultura nacional (2011-2014),” January 2011.

new trees (renovation projects), improved on-farm infrastructure, soil and water conservation, and application of best practices to increase productivity. A portion of the credits will be channeled to CONACAFE to cover partial costs of technical assistance. This agreement bears watching as an early initiative by BP involving indirect VCF.

Parmalat: In 2009, the Lafise Group became the sole owners of Parmalat Nicaragua. It is not surprising that Lafise Bancentro is the company's principal bank, providing integrated finance for Parmalat processing operations as well as hundreds of small producers in the Parmalat dairy chain. The latter credits go to both individual farmers and producer cooperatives, facilitated by a Bancentro banking center located inside the Parmalat central office. When milk is delivered, payments to farmers are deposited in the client's bank account at Bancentro after deducting credit reimbursements. In addition to this indirect VCF, Parmalat also has direct VCF programs using its own funds to cover costs of refrigeration tanks used by its milk collection intermediaries.²⁹⁶ A weakness cited involves technical assistance (TA). On one hand, there is a continuity problem with donor-funded TA that is not at least partly charged to farmers—good practices are not followed once the TA grants end. On the other hand, current government policy favors TA for “low quality” milk for domestic consumption vs. “high quality” milk for export. The latter policy would seem to contradict domestic food security nutrition objectives as well as discourage higher value dairy product exports.²⁹⁷

Agri-Corp: Agri-Corp (*Corporación Agrícola, S.A.*) is the largest (55% market share) of approximately ten companies in an increasingly competitive rice processing industry. The Agri-Corp chain has an estimated 13,000 individual small producers, either directly affiliated with the company or organized in independent rice cooperatives. Agri-Corp has historically provided direct VCF credits to small producers in its chain, now largely replaced by commercial bank indirect VCF with several banks competing for the business. Most of the rice production is irrigated rice, and it was noted that a scale of at least 40-50 *manzanas* (70-86 acres) is required for effective investments in irrigation systems. TA for small producers as well as research and development for the industry as a whole is largely funded by a 1.5% charge on rice sales through BAGSA and channeled to the chains by ANAR (the National Rice Association).

RAMAC-Frijol Nica: The Frijol Nica program is led by RAMAC (*Rappaccioli, McGregor, S.A.*) with participation by other agricultural input providers. This is primarily a TA program, focused on increasing productivity, yields and income for small bean producers through use of certified seeds, agrochemicals and other inputs. About 8,000 bean producers have been assisted in the five years that Frijol Nica has operated, in which it has been proven that yields have more than doubled by applying the improved technology package. However, the sustainability of the

²⁹⁶ Parmalat VCF operations are detailed in IDB, “Financing Agricultural Value Chains in Central America,” loc. cit.

²⁹⁷ Interview with Jorge González Oliú, General Manager, Parmalat Centroamérica, S.A., March 4, 2011.

initiative requires access to and use of market-priced credit—in the demonstration phase, the seeds and other inputs have been subsidized for producers at minimal out-of-pocket costs. Most small producers are reluctant to risk borrowing funds, even if the cost-benefit is clearly positive. What appears to be missing in the model are links with lead anchor firm buyers, to whom the bean producer cooperatives would sell at guaranteed attractive prices, and who could consolidate reasonably priced and structured credit lines for participating producers.

FDL-Nitlapan: FDL (*Fondo de Desarrollo Local*) is the largest MFI in Nicaragua. About 55% of its microcredit portfolio is for agro-enterprises in a wide range of agriculture and livestock activities and in all parts of the country. The FDL credits are accompanied in each instance by TA packages delivered by the Instituto Nitlapan, a non-profit organization co-located with FDL at the University of Central America in Managua. The model is value chain-oriented, incorporating the buyers of the FDL credit clients and TA that emphasizes sustained sales of products to the identified buyers. The TA also includes relevant advice on production, legalization of land titles where needed, access to input suppliers, and other requirements. The costs of the TA are built into credit prices.²⁹⁸

Remarks and Conclusions

USAID/Nicaragua has supported many of the initiatives summarized above. It has also worked directly with Lafise Bancentro, Banpro and other Nicaraguan commercial banks that are actively engaged in different models of value chain finance. Not covered here in detail but meriting special commendation are the USAID-supported ACORDAR, TechnoServe,²⁹⁹ and Empresas y Empleo (E&E)³⁰⁰ projects.

Guidelines for designing a future Value Chain Finance Initiative should take into consideration the following six main findings, extracted from the IDB study on VCF and confirmed by this study's analysis.

- (i) VCF reaching small producers is occurring in Nicaragua, and most of it is indirect (provided by formal lenders).
- (ii) The lending methodology is commonly based on a lead firm vouching for and even providing guarantees (e.g., warehoused inventories) for smaller actors in the chain.

²⁹⁸ Interview with Julio Flores, FDL General Manager, March 10, 2011; and IDB, “*Financiamiento de las Cadenas Agrícolas de Valor*,” loc. cit.

²⁹⁹ TechnoServe's most innovative current work on bean chains is directly relevant to VCD and VCF. See TechnoServe, “An Analysis of Sustainable International Market Development for Nicaraguan Dry Bean Growers,” January 2011.

³⁰⁰ The E&E project's multiple agreements and activities with commercial banks (BDF, Lafise, ProCredit), COSEP, CONIMIPYME, CEI and many other organizations, and the adaption in Nicaragua of the CARANA Corporation anchor firm models, are unusually innovative and replicable.

- (iii) If available, access to donor-financed guarantees (DCA agreements with the principal commercial banks) is an additional means for formal lenders to cover VCF credit risk.
- (iv) Formal lenders participating in VCF are not yet lowering interest rates despite reduced risks and reliable third-party guarantees (a desirable outcome that needs to be promoted).
- (v) The legacy of credit market distortions, such as subsidized government loans and debt forgiveness programs, acts as a brake on expansion of formal sector agricultural credit and is to be avoided in the future.
- (vi) High-quality technical assistance is critical for accelerating VCF, but much of the TA is donor-supported; ways need to be found to build the full cost of TA into credits if VCF is to be sustainable.

APPENDIX 2: PERSONS INTERVIEWED

Institution	Name	Title
Agri-Corp Corporación Agrícola, S.A.	Roger Zamora Hinojos	Gerente General Operaciones Nicaragua
Albertus Magnus Instituto Internacional	Dr Francisco J. Mayorga	Rector
Alcaldía Municipal Comalapa-Chontales	Germán Otero Arróliga	Alcalde
ANPROSOR - Asociación Nacional de Productores de Sorgo - Miembro UPANIC	Manuel Alvarez Solorzano	Presidente
ANPROSOR - Asociación Nacional de Productores de Sorgo - Miembro UPANIC	Francisco Vargas Garcia	Director Ejecutivo
APEN - Asociación de Productores y Exportadores de Nicaragua	Juan Manuel Sánchez R	Gerente de Operaciones
APEN - Asociación de Productores y Exportadores de Nicaragua - Miembro de FECAEXCA	Azucena Castillo de Solano	Gerente General
Asamblea Nacional	Carlos Langrand Hernandez	Diputado Bancada Democrática Nicaraguense
Asociación de Trabajadores del Campo	Edgardo García	Director
ASOBANP - Asociación de Bancos Privados de Nicaragua	Mariano Buitrago S.	Director Ejecutivo
ASOMIF - Asociación Nicaragüense de Instituciones de Microfinanzas	Alfredo Alaniz Downing	Director Ejecutivo
BAGSA	Luis Arevalo	
BOLSAGRO	Ing. Felipe Argüello	Gerente General
Bolsa de Valores de Nicaragua	Raúl Lacayo Solórzano	Presidente
BANADES - (former) Banco Nacional de Desarrollo	Silvio Baltodano	(former) Executive Director
Banco Lafise Bancentro	Alejandro Ramírez C.	Vice Gerente General

Institution	Name	Title
Banco Lafise Bancentro	Justo Montenegro	Gerente de Finanzas
Banco ProCredit	Jaime Pérez Leiva	Gerente General
BP - Banco Produzcamos	Lic Manuel S. Alvarez S.	Director
BP - Banco Produzcamos	Lic Joaquín Lobo	Gerente General
BDF - Banco de Finanzas	Juan Carlos Argüello	Gerente General
Banpro	Julio Ramírez Argüello	Vice Gerente General, Crédito e Internacional
CABEI - Central American Bank for Economic Integration	Sonia Irias	Ejecutiva de Cartera
CACONIC - Cámara de Comercio de Nicaragua	Lic. Eduardo Fonseca	Director Ejecutivo
Cámara Nicaragüense de la Construcción	Dr. Bruno Vidaurre Galeano	Gerente General
CANSILAC	José Antonio Rivera	Tesorero de la Junta Directiva
CAPENIC	Armando Segura	Presidente
CARANA Corporation	Danilo Cruz-DePaula	Chief of Party
Central de Cooperativas de Servicios - Múltiples Exportación e Importación del CECOOPSEMEIN R.I.	Sr Juan Matamoros	Presidente
Central de Cooperativas de Servicios - Múltiples Exportación e Importación del CECOOPSEMEIN R.I.	Ing Félix Miranda	Coordinador de Producción
Central de Trabajadores Nicaraguenses	Antonio Jarquín Rodriguez	Secretario General
Centro Humdoldt	Ing Victor M. Campos Cubas	Sub Director Ejecutivo
CEI - Centro de Exportaciones e Inversiones	Roberto Brenes Icabalceta	Gerente General
Central de Cooperativas de Ahorro y Crédito de Nicaragua, R.L.	Juan Manuel Altamirano	Gerente General
Central de Cooperativas de Ahorro y Crédito de Nicaragua, R.L.	Mirna Delgado	Gerente de Servicios Técnicos

Institution	Name	Title
CETREX - Centro de Trámites de las Exportaciones	Jorge A. Molina Lacayo	Director Ejecutivo
Centro Humboldt	Ing. Victor M. Campos Cubas	Sub Director Ejecutivo
Centro Nicaragüense de Derechos Humanos	N. Solórzano	
CIAT - Centro Internacional de Agricultura Tropical	Carlos R. Zelaya Martínez	Investigador
CINASE - Centro de Identificación y de Asesoría Socioeconómica	Dr. Julio López	Vocero Interno
CINASE - Centro de Identificación y de Asesoría Socioeconómica	Dr. Sergio Santamaría	Director
CISA AGRO - Comercial Internacional Agrícola, S.A.	Duilio J, Baltodano Cabrera	Presidente Ejecutivo
CISA AGRO - Comercial Internacional Agrícola, S.A.	Carlos Vargas Montealegre	Gerente General
CISA MERCON	Horacio Rappaccioli	Gerente General
CISA MERCON	Marcia Vidaurre Roque	Gerente de Auditoria y Certificaciones
CNZF -Comisión Nacional de Zona Franca	Lic. Alfredo Coronel	Director Ejecutivo
COMASA	Lic. Joaquín Zaval Kaltoff	
CONACAFE - Consejo Nacional del Café	Ing. Luis Osorio García	Secretario Técnico
CONACAFE - Consejo Nacional del Café	Pablo García Pérez	
CONACAFE - Consejo Nacional del Café	Ing. Juan Ramón Obregón	Secretario Ejecutivo
CONIMIPYME - Consejo Nicaragüense de la Micro, Pequeña y Mediana Empresa	Gilberto Alcócer López, MBA	Presidente
COOP 20 de Abril	Bosco Ortega Alegría	
Coordinadora Civil	Dr. Julio López	Vocero Interno
Coordinadora Civil	Dr. Adolfo Acevedo	Coordinador de la Comisión Económica

Institution	Name	Title
COSEP - Consejo Superior de la Empresa Privada	Rafael López Altamirano	Economista
COSEP - Consejo Superior de la Empresa Privada	Freddy Blandón Argeñal	Asesor Jurídico
COSUDE	Sr. Melvyn Díaz	
CRS - Catholic Relief Services	Jorge M. Brenes Abdalah	Chief of Party - ACORDAR
CRS - Catholic Relief Services	Santos Palma	Gerente de Cadenas de Valor - ACORDAR
Cuenta Reto del Milenio Nicaragua	Juan Sebastián Chamorro	Director General
DGA - Dirección General de Aduanas	Lic. Fresialy Centeno	Sub-Directora General
DGSPA	Manuel Mayorga	Director de Convenios Internacionales
DODPET	Luis Valerio	
ESKIMO, S.A.	José Antonio Rivera Rivera	Asesor Técnico
ENABAS	Nelson Largaespada	
FAO	Emilio Porras	Experto en Comercialización e Infraestructura
FASID - Foundation for Advanced Studies on International Development	Keiko Asato	Deputy Director
FDL - Fondo de Desarrollo Local	Julio Flores Coca	Gerente General
FENACOOOP - Federación Nacional de Cooperativas Agropecuarias y Agroindustriales	Mario Pérez Zamora	
FENACOOOP - Federación Nacional de Cooperativas Agropecuarios y Agroindustriales	Wilhelm Gómez Terán	
FENACOOOP - Federación Nacional de Cooperativas Agropecuarios y Agroindustriales	Sinforiano Cáceres Baca	Presidente, Consejo de Administración
FIDEG - Fundación Internacional para el Desafío Económico Global	Alejandro E. Martínez Cuenca, Ph.D.	Presidente
FIDEG - Fundación Internacional para el Desafío Económico Global	Enrique Alaniz C.	Investigador
FINCA Nicaragua	Klaus Hesse	Director Ejecutivo

Institution	Name	Title
FUNICA	Danilo Saavedra	
FUNDENIC SOS - Fundación Nicaraguense para el Desarrollo Sostenible	Dr. Jaime Incer Barquero	Director
FUNDENIC SOS - Fundación Nicaraguense para el Desarrollo Sostenible	Dr. José Antonio Milan	
FUNIDES	Mario Arana	Director Ejecutivo
FUNIDES	Ana Cecilia Tijerino Verdugos	Subdirectora Ejecutiva
IDB - Inter-American Development Bank	Mirna Lievano de Marques	Representante en Nicaragua
IDB - Inter-American Development Bank	Duval Llaguno R.	Especialista en Recursos Naturales
IDB - Inter-American Development Bank	Armando Chamorro	Especialista en Mercados Financieros
IDB - Inter-American Development Bank	Griselda Soto	FOMIN
IDR	Sonia Martínez	
IDR	Noemí López	
IICA - Instituto Interamericano de Cooperacion para la Agricultura	Armando Ferrufino	Coordinador Ejecutivo Proyecto Red de Innovacion Agricola Red SICTA
IICA - Instituto Interamericano de Cooperacion para la Agricultura	Ana Patricia Urbina H	Especialista en Desarrollo Rural
IICA - Instituto Interamericano de Cooperacion para la Agricultura	Manuel Pérez Cruz	Coordinador del Centro de Capacitación
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