

# innovATE

Innovation for Agricultural Training and Education



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## Nicaragua: AET Assessment Report

**Submitted to the USAID Mission in Nicaragua by the innovATE Project Team**

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This document was written as part of a series of InnovATE AET assessment reports. An AET assessment report documents a scoping analysis conducted at the request of a USAID mission. These reports identify gaps in the human and institutional capacity of in-country AET systems. Examples of good practices identified and recommendations for next steps are included in these publications.

For more information about the InnovATE project and other publications visit our website at <http://www.oired.vt.edu/innovate> or join the discussion in our Community of Practice at [www.innovate-community.oired.vt.edu](http://www.innovate-community.oired.vt.edu). Contact us at [innovateprogram@vt.edu](mailto:innovateprogram@vt.edu) or call 540-231-6338.

We wish to thank all the stakeholders that we met during the scoping team's visit to Nicaragua - they were most generous with their time and input.

## Executive Summary

In early 2014, USAID/Nicaragua asked a team of specialists from the innovATE project to conduct a scoping assessment, focusing on the current and future demand for vocational training and workforce development for youth. As such, this assessment contributes to the second pillar of the CDCS and provides recommendations for future initiatives in workforce development and life skills training for youth in the region. The target area for this scoping assessment was the Southern Atlantic Autonomous Region (RAAS), which is governed independently and, as home to both indigenous and Afro-Caribbean inhabitants, is heavily mixed culturally and linguistically. Important commercial activities in the region include fisheries, tourism, textiles, cattle, coconut, bamboo, precious lumber and liquor. So at first glance it seems that there is potential for expansion of existing and new agro-enterprises to support increased employment in the sector. Given innovATE's focus on agricultural education and training (AET), the assessment was primarily directed at examining the potential for development of the agriculture and related enterprises in the RAAS.

The objectives of the assessment were: 1) to assess the current and future demand for technical and vocational education and training (TVET) for at-risk youth in the southern part of the Caribbean Coast of Nicaragua; 2) to examine the supply of existing TVET programs with potential links to agribusiness and other businesses supporting rural development; and 3) to provide recommendations for potential programs to address gaps between supply and demand, specifically related to at-risk youth and non-university bound youth.

In addition, key questions for the assessment were:

- What resources and pathways need to be developed in order to create sustainable linkages between the economic sector and the vocational sector for vocational training opportunities?
- How can the private sector become an integral partner in the creation of training and development opportunities for youth on both a local and regional scale?
- What are the expected short- and long-term outcomes for youth who participate in these programs?
- What network of systems and resources can be created to contribute to youth life skill development and job creation in the Caribbean/Central American region?

Preparations for the innovATE scoping assessment included a review of relevant literature. During the assessment visit to Nicaragua methods included interviews and focus groups conducted with

stakeholders representing formal and non-formal education institutions, vocational training centers, NGOs and partner donors, government agencies and private-sector employers.

### *Background*

In Nicaragua, agriculture is not only the main source of livelihood for 80 percent of rural Nicaraguan households, but is also the biggest employer in the country (Republic of Nicaragua, 2013). Nearly 38% or 5 million hectares of Nicaragua are suited for agriculture, with 23% of the total agricultural area located in the Caribbean Coast. However, there are a number of issues facing the agricultural sector. These challenges include issues of low agricultural productivity, low levels of technology adoption, lack of infrastructure that restricts production and market access, unresolved land tenure claims and insufficient access to rural credit. These issues are of particular concern for youth in the RAAS, where more than 60% of the 10-24 year olds live in rural households. (INEC, 2006). However, reports suggest that increases in agricultural productivity, including the development of new value chains, adoption of new technologies and significant increases in production are possible (Republic of Nicaragua, 2013). These in turn imply the potential for job creation in the agricultural sector, with associated increases in demand for education and training to provide a skilled workforce for newly created value chains adapting or transferring technologies and innovation.

Youth Development is a priority focus for many development agencies and for the Nicaraguan government. Youth development is particularly relevant along the Caribbean Coast where more than 60% of the population is defined as youth (ages 10 – 29) and where the statistic that two out of every ten school-aged students are enrolled in secondary school in the first year, drops to one out of every ten in the second year (USAID, 2012). The youth that are not engaged in the formal or informal sector of the economy face the constraints of the socioeconomic reality of the Atlantic Coast where 68.8% of the people are reported to be in poverty (World Bank 2011; USAID 2012). In the face of these economic constraints, many youth turn to illegal means of economic participation and involvement in these illegal activities has increased their exposure to risk. A summary of the innovATE Project's research conducted during the first half of 2014 was included in the innovATE Country Background study (released in April 2014). This back ground study was revised and data added in response to comments by the USAID mission received during the late summer of 2014. The revised background study was posted during November 2014.

## *Recommendations*

Our recommendations are included here and were made during our exit meeting at the end of the coping period, and during two conference calls held with the mission to review the scoping results. The innovATE team visited over 25 stakeholders during the three week scoping period. Results of the assessment indicated that there are major gaps in the relevance and quality of both basic education and vocational and technical training in the RAAS of Nicaragua. There are significant mismatches between the supply of graduates from the secondary, tertiary and vocational systems versus the demands of the labor market. At the vocational level, employers have limited input to the types of training and skills cultivated by training institutes, such as INATEC. Moreover, the poor quality of the instruction and facilities, and outdated curricula, coupled with a lack of relevant internships and experiential learning contribute to the fact that graduates are not adequately prepared to enter the workforce. This indicates a significant opportunity for investment in vocational education and training initiatives to address the issue of youth workforce development in the RAAS.

The innovATE team presents the following recommendations in detail in the report:

### Recommendations for the Higher Education Sector

- Strengthen curriculum in higher education institutions
- Incorporate life and business skills components in curriculum
- Solicit support for current and relevant research
- Provide professional development opportunities for educators
- Develop a food system career advising and placement service for students

### Recommendations for Technical and Vocational Education and Training (TVET) Sector

- Elevate FADCANIC to a benchmark vocational educational program
- Expand vocational education and training to new food system sectors
- Provide professional development within the vocational sector
- Improve the quality and performance of the INATEC system
- Improve coordination and oversight of TVET institutions

### Recommendations for Private and Public Sector Partnership

- Formalize the interactions between public and private sectors
- Develop new models for economic growth through a food system lens

## List of Acronyms

AECID – Spanish Agency for International Cooperation and Development  
(Agencia Española de Cooperación Internacional para el Desarrollo)

AET – Agricultural Education and Training

AMCHAM - American Chamber of Commerce of Nicaragua  
(La Cámara de Comercio Americana de Nicaragua)

BICU - Bluefields Indian and Caribbean University

CAF – Central American Fisheries

CARS – Community Action for Reading and Security

CDCS – Country Development Cooperation Strategy

CEAA – Center for Environmental and Agroforestry Education

CEDEHCA - Center for Human, Civil and Autonomous Rights  
(Centro de Derechos Humanos, Ciudadanos y Autónomos)

COSUDE - Swiss Agency for Development and Cooperation  
(La Agencia Suiza para el Desarrollo y la Cooperación)

CNU - National Council of Universities (Consejo Nacional de Universidades)

EFA - Education for All

EDI - Education Development Index

EU – European Union

FADCANIC - Foundation for the Autonomy and Development of the Atlantic Coast of Nicaragua  
(Fundación para la Autonomía y Desarrollo de la Costa Atlántica de Nicaragua)

FSLN - Sandanista National Liberation Front (Frente Sandinista de Liberación Nacional)

GIZ - German Society for International Cooperation  
(Deutsche Gesellschaft für Internationale Zusammenarbeit)

IDB – International Development Bank

ILO - International Labor Organization

INATEC - National Technological Institute (Instituto Nacional Tecnológico)

INTA - Nicaraguan Institute of Agropecuary Technology

JICA – Japan International Cooperation Agency

KEI - Knowledge Economy Index

MINED - Ministry of Education (Ministerio de Educación)

MITRAB - Ministry of Labor (Ministerio del Trabajo)

NIMAC – Nicaragua Machinery Company

NGO – Non Governmental Organization

PRORURAL- Sector-wide Productive Rural Development Program

RAAN - Northern Atlantic Autonomous Region (Región Autónoma del Atlántico Norte)

RAAS - Southern Atlantic Autonomous Region (Región Autónoma del Atlántico Sur)

SEAR - Regional Autonomous Education Subsystem (Sistema Educativo Autónomo Regional)

SWOC – Strengths, Weaknesses, Opportunities, Challenges

TVET – Technical and Vocational Education and Training

UCA – Central American University (Universidad Centroamericana)

UNA – National Agricultural University (Universidad Nacional Agraria)

UNESCO – United Nations Educational, Scientific and Cultural Organization

UNFPA - United Nations Population Fund

UPONIC - Universidad Popular de Nicaragua

URACCAN - University of the Autonomous Regions of the Caribbean Coast of Nicaragua  
(Universidad de las Regiones Autónomas de la Costa Caribe de Nicaragua)

USAID - United States Agency for International Development

# Table of Contents

1. Introduction.....	1
1.1 Why this scoping mission? .....	1
1.2 Structure of the report .....	2
1.3 Objectives.....	3
2. Status of AET in Nicaragua.....	4
2.1 Overview of the education system in Nicaragua.....	4
2.2 Overview of Atlantic Region .....	6
2.3 At-risk youth .....	7
2.4 Vocational education and training .....	8
2.5 Education relevance and quality .....	9
2.6 Problem Statement and Rationale .....	10
3. Drivers for Change.....	11
3.1 Agriculture .....	11
3.2 Workforce Supply and Demand .....	13
4. Methodology and Analysis .....	14
4.1 Methodology .....	14
4.2 Analysis.....	15
5. Conclusions.....	20
6. Recommendations.....	22
6.1 Recommendations for Higher Education Sector .....	23
6.2 Recommendations for Vocational Training Sector.....	25
6.3 Recommendations for Private and Public Sector Partnership .....	27
References.....	29
Appendix A: Scope of Work.....	31
Appendix B: Contacts Appointments or Meetings .....	36
Appendix C: Stakeholder Interviews .....	40
Appendix D: Scoping Analysis Tools .....	41
Appendix E: SWOC Results .....	44

# 1. Introduction

## *1.1 Why this scoping mission?*

The USAID Country Development Cooperation Strategy (CDCS, 2013) for Nicaragua identifies multiple development opportunities and challenges related to democracy, education and citizen security. Specifically, the CDCS identifies security challenges in the two autonomous regions on the Atlantic coast. These two regions, the Región Autónoma del Atlántico Norte (RAAN) and the Región Autónoma del Atlántico Sur (RAAS) are far-removed from the capital and have limited economic and education resources. According to the CDCS, the RAAS is a targeted geographic region under the basic education and citizen security development objectives. Given the limited reach and access to basic services and conflict between the traditional forms of government and the nation-state, there is increasing lawlessness and illicit drug activity in these coastal regions. This environment, along with the rising proportion of youth ages 10-24 living in at-risk circumstances in the area, makes increasing opportunities to engage youth in productive activities a complex and challenging issue. Under this objective, the CDCS has a 3-pillared strategy to promote: 1) basic reading; 2) workforce and life skills development, including vocational training and job creation; and 3) community development to improve social standards for at-risk youth.

In early 2014, USAID/Nicaragua asked a team of specialists from the innovATE project to conduct a scoping assessment, focusing on the current and future demand for vocational training and workforce development for youth. As such, this assessment contributes to the second pillar of the CDCS and provides recommendations for future initiatives in workforce development and life skills training for youth in the region. The target area for this scoping mission was the RAAS, which is governed independently and, as home to both indigenous and Afro-Caribbean inhabitants, is heavily mixed culturally and linguistically. Important commercial activities in the region include fisheries, tourism, textiles, cattle, coconut, bamboo, precious lumber and liquor. So at first glance it seems that there is potential for expansion of existing and new agro-enterprises to support increased employment in the sector. In addition, the national government development plan includes several large projects in the region, such as the hydroelectric plant in Tumarín (Municipality of La Cruz de Río Grande neighboring the Desembocadura del Río Grande Municipality) and the Interoceanic Canal (with the Municipality of Bluefields situated on one of the potential routes). Both projects also have huge environmental impacts. At some point this could be incorporated into our work. Depending on its location, the planned canal would impact microclimates, hence; impacting agricultural activities as well.



Given innovATE's focus on agricultural education and training (AET), and the potential for development of the agriculture and related enterprises in the RAAS, the assessment was primarily directed at this sector. However, the scoping team also examined the region's value chains broadly to provide an overview of other sectors as they relate to rural development, agriculture, forestry and related sectors.

The Innovation for Agricultural Training and Education (innovATE) is a USAID/Washington-funded project supporting the capacity development of agricultural training and education systems at all levels - from primary school through secondary institutions as well as youth programs, vocational and technical schools, and universities. The innovATE program, implemented by a consortium of U.S. universities led by Virginia Polytechnic and State University and including Pennsylvania State University, Tuskegee University, and the University of Florida, seeks to strengthen the capacity of the range of institutions and programs that train and educate professionals in the agriculture and related sectors.

### *1.2 Structure of the report*

This report is divided into six sections. After the introductory section, the next sections describe objectives and methodology, followed by a review of AET in Nicaragua which addresses the educational situation overall and the specifics of agricultural training and education, from primary to tertiary and including vocational. The relevance and quality of AET, along with notable regional and gender disparities, is also reviewed. This section provides background information on the Atlantic Region, youth unemployment and the formal and non-formal education sectors. In the third section, drivers for change in both the agricultural sector and in relation to workforce development are presented. This section also includes information about the underproduction of a skilled agricultural workforce and the need for vocational education, with specific focus on the RAAS. In this section and the following section, data and interviews with key informants provide strong commentary for change. In the fourth section, which is based primarily on key informant data, the strengths, weaknesses, opportunities and challenges facing the agricultural education landscape in the RAAS are presented. The section examines several sectors, including higher education, vocational education, NGO and donor partners, local government and employers. Finally, conclusions and recommendations based on the assessment are presented in the last sections. These recommendations will form the basis for planning investments in revitalizing existing systems and formulating new programs that will help meet USAID's objective to improve the safety and competitiveness of at-risk children and youth on the southern Caribbean coast (DO 2).

### *1.3 Objectives*

The objectives of the mission were: 1) to assess the current and future demand for technical and vocational education and training (TVET) for at-risk youth in the southern part of the Caribbean Coast of Nicaragua; 2) to examine the supply of existing TVET programs with potential links to agribusiness and other businesses supporting rural development; and 3) to provide recommendations for potential programs to address gaps between supply and demand, specifically related to at-risk youth and non-university bound youth.

Initially, the team conducted a background study on the agricultural education pipeline in Nicaragua (literature review). Simultaneously, discussions were held with personnel from USAID Nicaragua and USAID Washington to outline a scope of work for the assessment (Appendix A). A scoping team consisting of university faculty and specialists from Pennsylvania State University, Virginia Tech, University of Florida, and Tuskegee University visited Nicaragua from March 20 - April 9, 2014. The scoping team took an asset-based approach using focus groups, interviews, site visits and other qualitative means to gathering stakeholder input. In order to develop a comprehensive picture, we engaged a range of stakeholders from higher education, vocational education, the NGO and donor community, and the public and private sectors. The scoping assessment itinerary is presented in Appendix B and the key institutions visited are presented in Appendix C.

Survey questions were devised prior to arrival for the different types of institutions to be visited (Appendix D). Where possible, focus groups were used to get in-depth information from a greater number of people. In addition to specific questions about the institutions, key questions were asked:

- What resources and pathways need to be developed in order to create sustainable linkages between the economic sector and the vocational sector for vocational training opportunities?
- How can the private sector become an integral partner in the creation of training and development opportunities for youth on both a local and regional scale?
- What are the expected short- and long-term outcomes for youth who participate in these programs?
- What network of systems and resources can be created to contribute to youth life skill development and job creation in the Caribbean/Central American region?

## 2. Status of AET in Nicaragua

The economy of Nicaragua is highly dependent on agriculture which makes up approximately 30% of the GDP and absorbs 43% of the workforce (World Bank, 2003). The country also has a disproportionately large amount of youth in comparison to the population; a phenomenon termed a “youth bulge.” This youth population is characterized by high levels of poverty and low levels of productivity (Gurdian and Navarro, 2007).

In terms of education, Nicaragua has the greatest number of out-of-school students and lowest graduation rates in Latin America. The country faces major issues with regard to education quality, inequality between socioeconomic groups, and inferiority to other countries in Latin America (Näslund-Hadley et al., 2012). “In Nicaragua, only 61% of children have reached fourth grade, of whom 74% achieved the expected minimum learning level... in other words, only 46% of the cohort is expected to achieve the minimum learning level (UNESCO, 2012, p. 124).”

In 2007, Gurdian and Navarro reported that the average school level of the population aged 15 and older is only 4.8 years, decreasing to 3.5 years in rural areas, and below 2.4 years among the rural poor. This is particularly alarming as, “within agriculture, more education renders a [Nicaraguan] worker 10 percent less likely to work as a family enterprise worker, the lowest earning category. Outside of agriculture, more education increases the likelihood of being an employer (by 34 percent), being a wage worker (by 34 percent), and being self-employed (by 17 percent) (Guitierrez, Paci, & Ranzani, 2008, p. 96).” Additionally, for each year of secondary schooling it is estimated that a Nicaraguan worker earns 10.3% higher wages. However, 72% of the population does not finish secondary school and are expected to earn below the poverty line (Angel-Urutiola and Laguna, 2008).

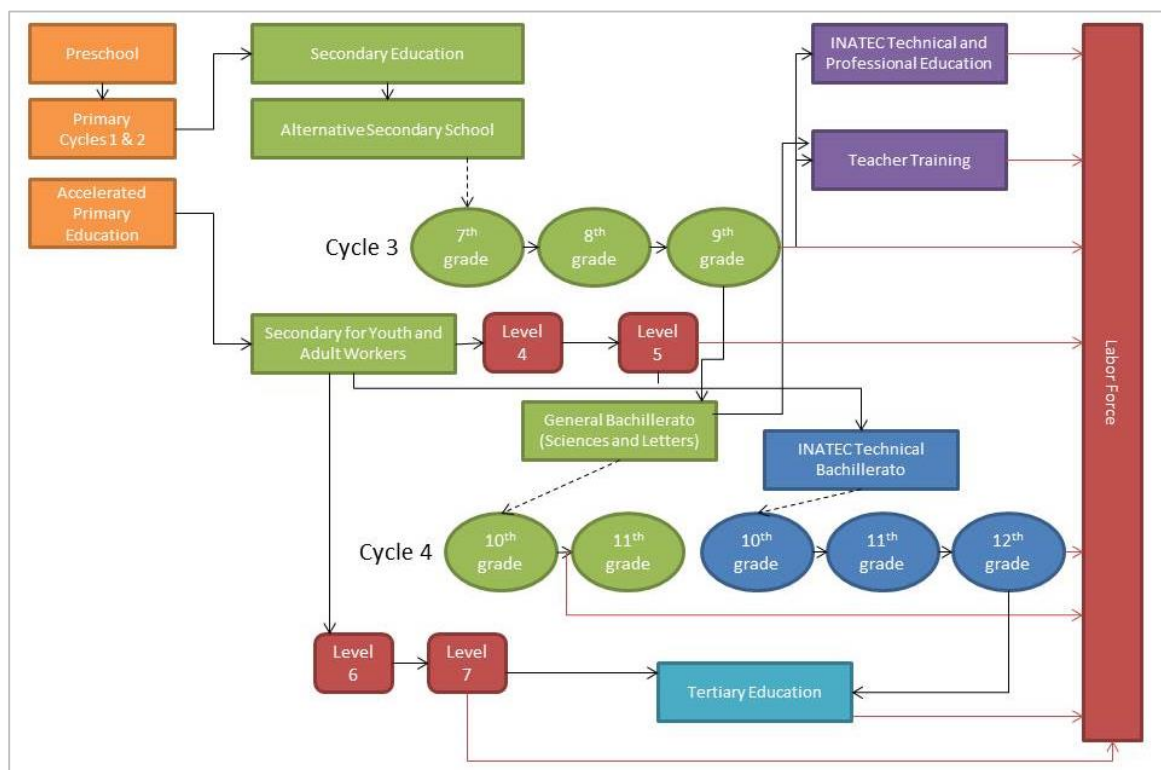
In addition, many secondary school graduates emigrate to work outside of Nicaragua. The diaspora population averages a higher education level than those who remain. Remittances from these Nicaraguans, who make up 10% of the population, is estimated to account for 20% of total GDP. Other impacts include a shrinking of contracted jobs and labor organizations, and a growing informal labor sector. Agriculture, while considered one of the least dynamic sectors in Nicaragua, continues to absorb the workforce making it an important part of the Nicaraguan economy (Vijil et al., 2007).

### *2.1 Overview of the education system in Nicaragua*

The educational system in Nicaragua, including the focus on alternative schooling and adult education, is the direct result of political history, from the dictatorships under the Somoza dynasty, to the decade of

rule under the Sandanista National Liberation Front (Frente Sandinista de Liberación Nacional: FSLN), to present day governance. Currently, the education system in Nicaragua is under the direction of the Ministry of Education (MINED), the National Technical Training Institute (Instituto Nacional Tecnológico: INATEC), which is under the auspices of the Ministry of Labor, and the National Council of Universities (Consejo Nacional de Universidades: CNU). Within these governmental institutions there are five educational subsystems. These are (1) the basic education, secondary, and teacher education subsystem; (2) the Regional Autonomous Education Subsystem (El Subsistema de la Educación Autónoma Regional: SEAR); (3) the extracurricular education subsystem which refers in part to adult education; (4) the technical education and professional training subsystem is the responsibility of INATEC, and (5) the higher education subsystem is under CNU (Näslund-Hadley, et. al., 2012; Olivares, 2011).

**Figure 1. Nicaraguan School System**



*Reproduced from: USAID, 2009, p. 10*

According to the World Education Forum and UNESCO, Nicaragua ranks 101<sup>st</sup> out of 120 countries on the Education for All (EFA) Development Index (EDI). In comparison, Honduras is ranked at 90 and Guatemala ranked at 92. Gross enrollment in secondary school in Nicaragua increased from 52% to 69%

between 1991 and 2010. This includes an increase in male participation from 47% to 66%, and an increase in female participation from 56% to 73% over this time period (UNESCO, 2012).

The poor enrollment, retention, and graduation rates in Nicaragua have significant impacts on literacy, job skills, and participation in the labor force. This is compounded by a mismatch between technical and vocational, secondary, and tertiary level graduates whose skills are not demanded by the labor market. Clearly, improving the education system, including agricultural education, is paramount for poverty alleviation in Nicaragua.

## *2.2 Overview of Atlantic Region*

The Autonomous Regions on the Atlantic Coast of Nicaragua were created in 1987 and elected their first regional governments in 1990. The two regions, RAAS and RAAN, represent roughly 50% of the territory of Nicaragua, but only 14% of the total population, of which 31% is urban and 69% is rural (USAID 2012). The main economic activities of the region are fishing, forestry and small-scale agricultural production, though many of these have seen a decline in recent years. Despite, or perhaps as a result of their political autonomy, these regions continue to lag behind the rest of the country in terms of economic and social investments and suffer from high levels of poverty, unemployment, with poor infrastructure and significant insecurity. However, a review of the RAAS economy concluded that in terms of physical production there is a large potential for increased production (Myers, 2002). According to the 2005 census, Nicaragua has a population of 5.14 million with an AfroNicaraguan population of approximately 9% and an Amerindian population of 5% (INEC, 2006). However, indigenous peoples and ethnic communities with multilingual characteristics constituted the original population of the Autonomous Regions and continue to form a significant component of the population, despite recent immigration of Mestizos from other parts of the country.

A large proportion of the population of the Atlantic Coast is defined as youth (ages 10 – 29) and in 2010, 63% of people in the RAAS and 66% of people in the RAAN were under the age of 24 (USAID, 2012). This contributes to Nicaragua's position as 9<sup>th</sup> of the Top 40 USAID Countries with "Rapidly Growing and Bulging" Populations (USAID, 2012). Thus, the concept of youth bulge is applicable to the current demographic shift in the Atlantic Coast region of Nicaragua. In addition, despite a recent drop in the fertility rate (3.3 children per woman in 2001, to 2.7 per woman in 2007), coupled with a decreasing infant mortality rate, this youth bulge continues to impact the region (UNFPA, 2012).

### *2.3 At-risk youth*

Youth Development is a priority focus in many development agencies and for the Nicaraguan government due to the large gap in education and the high number of youth in the country. Angel-Urdiñola and Laguna (2008) find that: “Individuals between 12 and 23 years who have a job are 20 to 22 percent less likely to attend secondary or post-secondary education. Being male is associated with a 3 percent lower probability of enrollment after age 12 in urban areas and with an 8 percent higher probability of being enrolled in rural areas (p. 11).” It is also reported that, unlike in primary school, dropout rates are equally as high in poor and non-poor households at the secondary level. Additionally, boys are more likely to dropout than girls, particularly among the poor (Angel-Urdiñola and Laguna, 2008), with the exception of pregnant girls who are 14 times more likely to drop out of school than non-pregnant girls. This results in teenage mothers having 1.8-2.8 fewer years of education than other girls of the same age level (UNESCO, 2012).

Youth development is particularly relevant along the Caribbean Coast where only two out of every ten school-aged students are enrolled in secondary school in the first year, dropping to one out of every ten in the second year (USAID, 2012). This area also has the highest dropout rates in primary school estimated at 17% in RAAS and 17.5% in RAAN. Metzner and Muñoz (2012) attribute this in part to large discrepancies in funding from MINED which provides the RAAN and RAAS school systems with a disproportionately small amount of funding in comparison with their population than other school systems. “The few job opportunities and low levels of schooling, together with the high school drop-out rates, by themselves place the large majority of the youth population of the region in a situation of high vulnerability and risk (USAID, 2012, p. 9). As noted above, the narcotrafficking and gang violence is having a dramatic impact on the youth in Nicaragua, particularly along the Caribbean Coast. A USAID (2012) study in this region including the interviews of 100 people have found that the drug trafficking issues are the major catalyst of problems in the region including drug use, violent crime, the disintegration of family and social structures, and more. Participation in these issues is predominately occurring among young men, though 10% of arrests in the area are of young women including for issues of prostitution linked to the other violence occurring. Young women are often victims of domestic and sexual abuse, which is exacerbated by low levels of education that prevent any bargaining power.

When considering the relationship of the youth bulge to employment, it is reported that the 15-24 age group represents 27% of the workforce and 44% of the unemployed (50% men and 50% women) (MDG-F, 2009). Of this same group, 47% are engaged in traditional economic participation, while two thirds of those employed are engaged in informal sector of the economy. The informal sector (self-

employed persons, micro-enterprises, family workers, domestic service employees) represents 75.2% of the reported economy (MDG-F, 2009). This type of economy provides fewer opportunities to access financial and technical resources, decent salaried work, as well as economic/social mobility. Because of this lack of opportunity, there exists a pronounced phenomenon of emigration. Of the emigrant population, 47.3% are women and 52.7% men, while 84.7% are under the age of 34 (MDG-F 2009). This represents a large intellectual, labor, and economic loss to the country, and remains an impediment to economic development.

Those youth that are not engaged in the formal or informal sector of the economy face the constraints of the socioeconomic reality of the Atlantic Coast where 68.8% of the people are reported to be in poverty (Dávalos and Vakis, 2011; USAID 2012). In the face of these economic constraints, many youth turn to illegal means of economic participation and involvement in these illegal activities has increased their exposure to risk. Central America has come to be known as the drug corridor that connects to North America. 70% of the deaths in Bluefields were youth (18-25 years of age) linked to the drug trade (USAID 2012). Other issues of risk facing the region's youth that spiral out of the drug trade are gangs, drug and alcohol consumption, high-risk sexual behavior, and violence.

#### *2.4 Vocational education and training*

The National Technical Training Institute (Instituto Nacional Tecnológico: INATEC), operating under the Ministry of Labor, is the institution responsible for technical and vocational education for adults over the age of 14. INATEC offers both professional and technical certificates and degrees in 55 centers, and offers educational programs in 350 private centers. There are three sectors that INATEC covers including agriculture and forestry at 13% of enrollment, industry and construction at 19% of enrollments, and trade and services at 68% of enrollments (Vijil et al., 2007). In the RAAS, INATEC has training centers at El Recreo, Nueva Guinea and Bluefields. The primary responsibilities of INATEC include: guiding and implementing policies for vocational and technical training; implementing vocational training programs for ages 14 and older; implementing special training programs for women, the disabled, cooperatives, and small enterprise; organizing, planning, monitoring, and evaluating training activities for semi-skilled, skilled, basic technical, and technical labor; strengthening vocational opportunities based on the local context and labor demands; and providing technical assistance to managers, technical centers, and vocational institutions (UNESCO, 2010). A student participating in INATEC education is prepared to enter the workforce, although he or she may also proceed to the tertiary level of education depending on the certificate or diploma received (UNESCO, 2010).

Enrollment in technical and vocational programs as a percentage of total enrollments in secondary education (lower and upper secondary combined) is reported in 2010 at 16% of total enrollments. Of these enrollments, 49% were female and 51% were male. When looking at upper secondary school alone, typically defined as grades 10-11, enrollment in technical and vocational schools as a percentage of total enrollment increases to 44%, with 49% female and 51% male participation (Vijil, et al., 2007).

**Table 1. Enrollment in Technical Education in Selected Years**

<b>Sector</b>	<b>1991</b>	<b>1995</b>	<b>2002</b>	<b>2003</b>	<b>2005</b>	<b>2006</b>
Agriculture and Forestry	2,449	1,648	2,053	2,083	2,655	2,363
Industry and Construction	3,299	2,122	2,712	2,788	3,331	3,311
Commerce and Services	11,211	8,346	8,346	11,740	12,195	12,043
<b>Total</b>	<b>16,959</b>	<b>12,116</b>	<b>12,116</b>	<b>16,611</b>	<b>18,181</b>	<b>17,717</b>

*Reproduced from: Vijil et al., 2007, p. 22. Source: INATEC, 2006*

Enrollment in INATEC has remained level over the past several years while enrollment in secondary schools has increased (Vijil et al., 2007). Porta and Laguna (2007) report that in 2005, enrollments at INATEC correspond to only 1.6% of the 15-24 year old age group. “This low coverage may be explained by a disregard for the training of technicians on the part of Nicaraguan society and the lack of policies and incentives promoting technical education and vocational training (Porta and Laguna, 2007, p. 8).” Poor enrollment in INATEC is in part due to insufficient funding to expand INATEC programs, a low perception of technical and vocational training, and a poor regulatory structure that does not promote technical and vocational education (Metzner and Muñoz, 2012; Vijil et al., 2007). It is also notable that significantly more students participate in the commerce and services sector of studies which does not reflect the demands of the labor market. This disconnect is evident when considering that many INATEC graduates have difficulties finding jobs, and that the labor sector is highly dependent on agriculture (Metzner and Muñoz, 2012).

### *2.5 Education relevance and quality*

There are major gaps in the relevance and quality of education and vocational training in the RAAS of Nicaragua. There are significant mismatches between the supply of graduates from the secondary, tertiary and vocational systems versus the demands of the labor market. At the vocational level, employers have limited input to the types of training and skills cultivated by training institutes, such as INATEC. In fact, many employers complain that they are forced to make financial contributions to



support vocational training that does not meet the needs of their employees. Moreover, the poor quality of the instruction and facilities, and outdated curricula, coupled with a lack of relevant internships and experiential learning contribute to the fact that graduates are not adequately prepared to enter the workforce. This indicates a significant opportunity for investment in vocational education and training initiatives to address the issue of youth workforce development in the RAAS.

## *2.6 Problem Statement and Rationale*

What is needed is a sustainable strategy to engage under- and unemployed youth in the region, and to find ways to supply trained manpower to current and emerging enterprises in the region. A key strategy is to engage these youth early enough in the education and training pipeline so that they see value and opportunity to remain in the region to work and pursue a career. A fear is that youth that are not thoroughly engaged within the region will be more likely to engage in illicit activity. Currently there are not sufficient amount of training opportunities nor are these training opportunities appropriate to the needs of employers in the agriculture and other sectors, so youth leave. They generally migrate to western Nicaragua to obtain work or training. Some even leave for Costa Rica or “ship out” to find work on cruise ships. The best approach to address these needs must increase the training opportunities provided within the region so that the workforce seeking skills need not leave the region to receive training.

To determine the best strategy for investment that meets this problem the following is needed:

The Innovate team was asked to provide a situational analysis of the current vocational education and training systems in Nicaragua to better assess how donors NGOs, and government agencies can make investments in training and training needs of employers. Secondly, through this analysis, the team identified current employment needs and services, especially in vocational education. Lastly, the team will determine skills gaps as perceived by both potential employers, and training programs or educational institutions.

Additional questions grew from these initial objectives:

- What is the capacity of vocational and technical training programs in general and specifically?
- What is the capacity to meet the needs of the agriculture sector?
- What are the needs for skills of the employers (private sector)? and
- What are the resources lacking for training organizations to meet those needs?

## 3. Drivers for Change

The drivers of change for AET should be the local/regional agricultural market as well as the high youth unemployment rates. While agriculture employs a large share of the population, lack of opportunities in the industry and inadequate training of skills to fill available positions are challenges which prohibit sufficient productivity or growth. These are also key factors that are causing a growing number of at-risk youth to enter jobs in the drug or other illicit trade industry, which pervades the west coast of the country. The team sought to understand how interventions or investment in development programs could mitigate these risk factors, especially in the context of agriculture and related sectors. This section sets the stage for engaging in the RAAS and building a better base for economic development and food production that will attract and retain in the region at risk youth.

### *3.1 Agriculture*

In Nicaragua, agriculture is not only the main source of livelihood for 80 percent of rural Nicaraguan households, but is also the biggest employer in the country (Republic of Nicaragua, 2013). Currently, there are a number of issues facing the agricultural sector, and these are of particular concern for youth in the RAAS, where more than 60% of 10 – 24 year olds live in rural households (INEC, 2006).

#### *3.1.1 Low Agricultural Productivity*

One of the major challenges facing the agricultural sector in Nicaragua relates to low productivity and the unsustainable use of resources. For example, across the country's 13.21 million hectares nearly 5 million are suited for agriculture, with 23% of the total agricultural area located in the Caribbean Coast. Thus, Nicaragua has abundant water and land, much of which is suitable for agricultural production. However, it is estimated that nearly 47 percent of the soil is over utilized, while the remaining 53 percent requires good and appropriate soil and water conservation practices to achieve sustainability. This remaining area presents environmental limitations and fragile ecological systems. Indicators for the Nicaraguan government's sector-wide productive rural development program (PRORURAL) show minimal gains in agricultural productivity to date. Today, Nicaragua's yields in staples such as corn, beans and rice are among the lowest in Central America and productivity continues to be particularly volatile in the Caribbean coastal regions. Initiatives are needed improve productivity in existing value-chains and to explore new crop options, both of which will require the generation of new knowledge through research and extension and the development of a workforce in the RAAS with appropriate skills. Public-private partnerships between the universities and producers would help facilitate such initiatives.

### 3.1.2 Low technology adoption

Another issue of significance is a lack of technical support for producers, especially for those of poor and vulnerable populations. The Socio-Economic Characterization Survey for Agricultural Producers (1995) reveals that only 13 percent of small holder farmers had access to national extension services and only 9 percent sought support. In 2011, only 18 percent of Nicaraguan producers had received any kind of technical assistance, only 5 percent used certified seeds, and less than 45 percent used fertilizers. Vocational education and training of producers and their employees could serve as a key mechanism for the dissemination of information about new technologies. However, the education programs need updated curricula and equipment in order to provide training in current technologies.

### 3.1.3 Lack of infrastructure

Inadequate and poorly maintained infrastructure in rural areas creates barriers to agricultural development. Currently fewer than 50 percent of rural households have access to electricity and only 1.3 percent of agricultural land is irrigated. Additionally, the lack of road connections to the rest of the country, and/or a deep water port, present significant access-to-market barriers for producers in the RAAS. Support for agribusiness training and entrepreneurship programs, which incorporate business skills such as English, marketing and exporting, could help producers in the RAAS overcome some of these infrastructure challenges.

### 3.1.4 Limited land access/tenure

Another challenge in this sector, particularly for the Caribbean Coast, relates to land tenure and titling. Security access to land is a key component to improve agricultural productivity and also impacts access to credit (through land-secured loans). Since 2002, a program to regularize landholdings has seen the registration of over 224,000 parcels of land nationwide. At present, 21 out of 22 indigenous territories have been demarcated. However, in the RAAS, there continue to be unresolved issues related to titles and tenure, particularly for the Afrodescendent communities.

### 3.1.5 Insufficient rural credit

Annual public expenditure on agriculture has averaged 4.5% over the last 5 years and foreign direct investment (FDI) in agriculture and agribusiness in Nicaragua has risen from just over US\$8 million in 2008 to over US\$52 million in 2012. Yet, only 15% of agricultural producers have accessed credit to date and relatively less funding is directed toward the Caribbean Coast. Thus, mechanisms are needed to

facilitate access to funds for small and medium-scale producers, particularly young people who are interested in beginning new farm enterprises or agribusinesses.

These challenges to agriculturally driven development in the RAAS are not insignificant. However, the Nicaraguan Government's PRORURAL program has established a series of development objectives and indicators that suggest increases in agricultural productivity, including the development of new value chains, adoption of new technologies and significant increases in production are possible (Republic of Nicaragua, 2013). These in turn imply the potential for job creation in the agricultural sector, with associated increases in demand for education and training to provide a skilled workforce for newly created value chains adapting or transferring technologies and innovation.

### *3.2 Workforce Supply and Demand*

From a vocational training perspective, workforce development efforts should meet current and future industry needs across all levels from unskilled labor to advanced professional labor. An effective workforce development system should address the appropriate quantity and quality of workers, thus providing an ample labor force to meet industry demand. Correspondingly, industry will have to develop sufficient employment opportunities with appropriate skills for TVET graduates. To be fully functioning, this alignment requires considerable interaction between workforce development institutions and employers in the industry.

Observations of key informants in Nicaragua however, suggest that the supply and demand of agricultural workforce are not synchronized, due to minimal interaction between employers and educators. Employers identified shortages of workers with specific skills, while graduates reported few opportunities for employment using the skills they learned in their degree.

#### *3.2.1 Demand for new capabilities and educational approaches*

Observations from the scoping team indicated great variability in the curricula available at different educational and training institutions. In general, most institutions needed to update their curricula and teaching facilities to accommodate updated programs and to be consistent with industry standards. When comparing pre-collegiate educational institutions (INATEC, BICU, URACAAN and UNA), there were many different perceptions about the quality of education received. When examining the educational approaches used at most educational institutions, the team observed that the programs could benefit from a stronger emphasis on practical skills and less emphasis on theoretical understanding. The team

also noted a deficiency in the formal preparation of instructors related to teaching. Many of the instructors had not been taught how to teach.

### 3.2.2 Skills needed in the agricultural sector

Observations from interviews with educators and faculty indicate that, with just a few exceptions, vocational training and development programs do not appear to be grounded in a firm understanding of career pathways and well-defined skillsets. There appears to be a disconnect between the skills needed by employers and those provided by training institutions. Further, institutions of higher education reported that incoming students often do not have skills that should be developed during secondary school. The team did observe two notable exceptions to this situation, two private sector firms that developed and implemented their own training programs, one focused on seafood and the other on machinery. Both firms used pre-existing frameworks and established their own training systems for employee education.

### 3.2.3 Underproduction of entrepreneurs

Another notable observation by the scoping team was the omission of any training related to entrepreneurship skills. One mechanism to increase employment opportunities for people with valuable vocational training, is the development of small business ventures. However, there did not appear to be any emphasis on entrepreneurship or business management in the training programs witnessed by the team.

## 4. Methodology and Analysis

### 4.1 Methodology

InnovATE's approach included 1) conducting a situational analysis of the current vocational education and training systems in Nicaragua, 2) identifying employment needs and services, especially in vocational education, and 3) determining skill gaps as perceived by both potential employers and training programs or educational institutions. The field visits were completed in two and a half weeks. During the first two days in country, members of the innovATE team met with the USAID Mission and local consultant to finalize the scoping mission plans and revise the assessment tools. During the next 10 days interviews, focus groups, and meetings were conducted with universities, training centers, private donors, NGOs, agriculture sector business and public sector organizations within the RAAS. The remaining time was spent gathering information from key stakeholders in the El Rama-Kukra Hill area and in Managua. During these visits, team members conducted interviews and focus groups at public and privately operated education institutions and vocational training centers, with representatives of

NGOs, donor partners and government agencies, and with private-sector employers. Finally, the team met with the USAID Mission to report on initial findings, discuss the next steps, and gather additional input.

## *4.2 Analysis*

To help generate consensus and develop recommendations, we conducted an analysis to identify strengths, weaknesses, opportunities and challenges (SWOC) of the information collected during our scoping mission. Five tables summarizing these results (Appendix D) cover higher education, vocational education and training, the donor community (NGOs and other international development agencies), the private sector, and the public sector (government). These findings are the results of interviews and focus groups conducted with all of the key informants. While each meeting is documented in our field notes, it is beyond the scope of this document to provide full details transcriptions; instead, summaries are included below highlighting opportunities and illustrative examples from the SWOC analysis and interviews.

### *4.2.1 Higher Education*

The innovATE scoping team visited several university campuses in the RAAS, including the BICU campuses at Bluefields and El Rama, and URACAAN in Bluefields. Interviews were also conducted at UCA and UNA in Managua. BICU and URACAAN are both focus on regional capacity building, serving students from the RAAS and are well respected within the community. Both institutions offer degrees in agriculture and related disciplines, and several of these programs involve projects which benefit local communities. Many students receive full scholarships to attend BICU and URACAAN. However, admission is currently not a competitive process, with the institutions having to accept all students who meet a set of minimal qualifications. Informants also noted factors which influence access to higher education for students from the RAAS and the quality of the educational system overall. BICU only gets 3.5% of the total funding assigned to higher education in Nicaragua and most of the faculty is hired on an hourly basis.

Students from the RAAS are often inadequately prepared for higher education and are not competitive with students from other regions of the country. These students struggle to secure places at the top universities in Nicaragua, and the education they can access at BICU and URACAAN is perceived to be of a lower quality compared to institutions in Managua. Most students at BICU cannot attend regular weekday classes due to their employment obligations, so the University is forced to schedule classes on weekends, a situation that creates pedagogy challenges. In most cases, BICU and URACAAN must offer

remedial courses to bring under-prepared high school graduates up to the level of university students. Additionally, the curriculum and many of the facilities at both BICU and URACAAN are in need of updating.

Following graduation, students encounter a serious lack of employment opportunities, with many leaving to region to work in call centers in Managua or in tourism positions on cruise ships in the Caribbean. According to informants, the country does not have the capacity to absorb new graduates coming from Universities. This situation has created frustration among the universities, the community and the government. It was continually emphasized that most young people have to “ship out” to find employment. Furthermore, students do not receive much career advising, and with limited internship opportunities, they are often ill-prepared for the jobs that do exist. A lack of training in entrepreneurship, business and other related skills, together with limited options for securing loans or credit, means that graduates are rarely empowered to start their own businesses. Innovation and entrepreneurship are in short supply in the RAAS. The development of a career advising and placement service, along with courses on entrepreneurship and business skills, would be key steps toward strengthening the higher education system in the RAAS.

As in many other parts of the world, agriculture is not a particularly popular area of study in Nicaragua, and there is an overall lack of interest and understanding of the potential jobs in this sector. Challenges such as land access, unresolved land tenure negotiations, sector collapse - particularly fisheries, market access and competition for land by large entities, such as Africa Palm, all discourage students from considering agriculture or related disciplines as a career track in the RAAS.

Communication of better information about potential jobs along the agricultural value chain – from farmer or fisherman, input suppliers and agro dealers, through marketing and agribusiness – is needed to encourage students to pursue these opportunities. Education institutions also need to align their programs to prepare students with the appropriate skills for the existing and future job market. Increasing partnerships with the private and public sectors to offer internships and develop appropriate, problem-based curricula would be a good first step. For example, BICU-El Rama has strong ties with institutions such as INTA, INATEC, and IPADE. These associations are important to create educational programs that better reflect community and industry needs.

#### 4.2.2 Vocational education and training

In the RAAS, 63% of the population is under the age of 24 and, as is true globally, there is a high youth unemployment rate. Furthermore, there are extremely high dropout rates from both primary and

secondary education, with only 43% of youth completing primary education in 2010. These high dropout rates, coupled with poor employment prospects, result in a situation of high vulnerability and risk for the youth population on the Caribbean coast of Nicaragua.

Several vocational training programs have emerged which appear to offer opportunities for these disenfranchised young people, encouraging them to remain in the education system through vocational schools run by organizations such as INATEC and FADCANIC, and providing them with practical training and skills for the local job market. Many of these programs are free to students, even providing food, lodging, and uniforms, which enable access for those from lower-income families and minority communities. They also provide practical training that emphasizes locally relevant skills and several have relationships with local universities to support those students who want to pursue education at the tertiary level. In general, these programs appear to benefit from a very dedicated group of teachers and administrators and, in the past, they have successfully secured support from international NGOs, donor agencies, including USAID and foreign universities.

A good example of integrated research and extension activities is the Nicaraguan Institute of Agropecuary Technology (INTA). With nine centers in the country, INTA pursues the development of new knowledge and technology for crop production, cattle management and seed development. New knowledge is disseminated to communities through workshops and extension publications. INTA also provides a venue for university students from UNA, BICU and UPONIC to conduct their graduation projects. In 2013 alone, a total of 1,250 students were hosted at INTA from various universities. INTA has also developed cooperation agreements with private agricultural industries to provide training in crop management and seed development techniques. Even though INTA's mission and vision seems to be aligned with the needs of the population, access to INTA's resources requires the local communities to be organized to request specific training or technology transfer. In many communities the lack of leadership and awareness of INTA's existence are the main factors that prevent local communities from accessing INTA's training or technology transfer services.

There is also a significant concern about the sustainability of vocational education institutions, particularly those run by local NGOs. The high level of dependence on donor funding, or in the case of INATEC, on government funding, creates financial uncertainty for these programs. The financial insecurity is reflected in small budgets for materials and facilities, and by the challenge of retaining well-qualified teachers and administrators. Currently, the vocational institutions visited by the innovATE team do not have the resources to provide career counseling, and in some cases, cannot even fund



transportation for students to participate in internships with local employers. For example, INTA generates 80% of its funding needs from activities such as the processing of rubber. The rest of the funding comes from government, NGO's and private organizations.

Opportunities to strengthen the vocational education and training sector include the development of new programs in emerging sectors such as culinary arts, food technology, value-added agricultural processes, ecotourism, processing and marketing, and ecotourism. These could be offered in both short-term and more comprehensive formats, thereby reaching more students. Engaging with the private sector and donor agencies to identify sectors for additional education and training throughout the RAAS, reaching beyond Bluefields, El Rama and other urban centers to the rural areas is also of critical importance.

#### 4.2.3 Government/Public Sector

It is clear from the interviews that the public sector faces many challenges in the RAAS. The high rates of unemployment, low levels of economic development, poor education system and general lack of investment are pervasive throughout all sectors of the economy. For AET, there has been minimal development of new programs, and existing programs offer outdated training, and lack vision for future agricultural opportunities. There are additional challenges for the Afro-descendent communities, which are still struggling to secure land rights from the Nicaraguan government. Even so, this community has a traditionally had a strong interest in agriculture, as represented by groups such as the Back to the Land and the Freedom Land movements, both Black farmer organizations.

Some strengths within the public sector include efforts to develop services to assist those looking for employment including a jobs database, and workshops on topics such as writing resumes or interviewing. There are also several roundtable initiatives, including one on youth issues that may offer coordination between the variety of groups and agencies working on these issues in the RAAS. In line with this effort, the Ministry of Labor (MITRAB) is conducting an analysis of youth education, which may provide useful background information for future initiatives.

Partnerships with NGOs who are currently working with some of the government institutions, such as INATEC, is one pathway to provide support for agriculture education, training and research in the RAAS. Similarly, participation in the roundtable on youth is an important venue for engaging with the other key players working with the at-risk youth population in the coastal region.

#### 4.2.4 Donor Partners

The innovATE team met with a number of NGOs and foreign donor agencies to gather data for the scoping assessment. These included local NGOs such as CEDECHA and FADCANIC, international NGOs, such as UNDP and Global Community and donor agencies such as EU, JICA, GIZ, AECID, COSUDE and IDB. The team also interviewed representatives of several USAID-funded programs, including CARS and Education for Success.

We found many positive impacts of the work of these donor agencies, both at the K-12 level and with the at-risk youth population. Efforts by these organizations to strengthen basic education, improve curriculum, and address issues of human rights, health and security are all very impressive. In particular, the work of CEDECHA and its affiliated youth groups was inspiring, with their commitment to local communities, and their passion and understanding of the issues facing youth. In general, these groups are well respected by the communities in which they work and have successfully negotiated partnerships with other institutions and organizations, such as universities, police, government ministries and the private sector. Several also have, or are developing, additional training programs and facilities throughout the coastal region.

FADCANIC is an impressive education, research, and extension entity established through collaboration between the Norwegian government and USAID. The foundation has two centers. The first one, the Center for Environmental and Agroforestry Education (CEAA) provides vocational training on furniture making and agroforestry to children ages 12 to 21. The second is the Agroforestry Development Center (CAF) focuses on the genetic improvement of agricultural crops such as cacao, bamboo, black pepper, and other specialty cultivars. The centers employ 15 full-time faculty and operate a 450 hectare reserve in the Wawashang National Reserve. The goal of both centers is to provide technical and soft skills to create the next generation of farmers and entrepreneurs.

Another particularly impressive component of the discussions with the NGOs and donor agencies was the strength of collaboration and partnership between them. For example, during a visit to CEDECHA, the team met a representative from the Youth Ministry and another from GIZ who was working on a joint project. These types of collaboration offer an opportunity to leverage existing resources with additional donor funds to achieve greater impacts and outcomes.

Finally, partnering with existing efforts, such as the program to offer training for local youth on a farm near Bluefields, or the adult training programs in environmental sustainability at Kahka Creek, could provide much needed capacity development for training programs. Investment in these efforts, which

are led by local people who command respect within local communities, are one clear way to address the needs of the at-risk youth in the region.

#### 4.2.5 Private Sector

The team had the opportunity to visit several private sector employers and representatives, including Ecoplanet Bamboo, NIMAC, AMCHAM, Ritter Sport, and Central American Fisheries.

A strength of several private sector employers was the ability to develop and deliver their own training programs. NIMAC, a heavy machinery dealer, had an extensive technician training program that included skill development for pre-entry technicians and another series of programs to help employees gain appropriate skills as their careers advance. NIMAC also provided customers with operator training programs. Central American Fisheries exports seafood and is thus concerned with international food safety and sanitation regulations. They developed a series of training workshops for their employees to meet these rigorous requirements.

Current private sector training programs are designed to meet the needs of each individual company. There could be an opportunity for these firms to expand their training programs to provide these services to other employers with similar needs.

## 5. Conclusions

The assessment team acknowledges that a rapid assessment cannot include all important people and issues. We did not discover anything unique or unusual about AET in Nicaragua which has not been discussed or written about before. We simply attempt to place the knowledge that was gathered in the context of the questions we were tasked with answering, but framing these into the context of youth development and employment. It is with these caveats in mind that we present the conclusions, framed around the initial questions:

- What resources and pathways need to be developed in order to create sustainable linkages between the economic sector and the vocational sector for vocational training opportunities?
- How can the private sector become an integral partner in the creation of training and development opportunities for youth on both a local and regional scale?
- What are the expected short- and long-term outcomes for youth who participate in these programs? What network of systems and resources can be created to contribute to youth life skill development and job creation in the Caribbean/Central American region?

Nicaragua is slightly below average with regard to education and innovation compared to other countries in Latin America. This is especially true in the Caribbean coastal area, where average education levels are lower than the rest of the country. The World Bank has developed a set of tools and database that can be used to analyze where a country lies in terms of knowledge and their economy. The Knowledge Economy Index (KEI) uses data such as economic incentives and the institutional regime, education and human resources, the innovation system, and availability and access to the information and communication technology to calculate how well a country is managing its human capital to meet employment and market demands. At the top of the list is Sweden, with a KEI of 9.43; the US KEI is 8.77. In Latin America, the average KEI is 5.31 and Costa Rica has the highest KEI at 5.93, while Nicaragua sits at 2.61 (World Bank, 2012). Nicaragua's overall ranking has, in fact, gone down 13% since 2000, indicating that several things are amiss in the knowledge economy of the country.

This is consistent with the findings of interviews with higher education faculty and graduates, which revealed that following graduation, students encounter a lack of employment opportunities or are ill-prepared for available jobs due to a lack of practical skills and experience. Seeking employment, many migrate to the capital or to tourist areas where low-skill jobs are more abundant. According to informants, the country does not have the capacity to absorb new graduates coming from Universities.

In a recent report by Mourshed, Farrell, and Barton (2013), the journey or highway from education to employment has three intersections: finding a job, enrollment (e.g., being trained for the job market), and building skills. A world-wide survey of students, employers and educators showed that these three groups live in parallel universes. Around the world, education providers indicate that they are doing a good job of preparing new graduates for the workforce, while less than half of youth and employers think this is true.

Students in the RAAS region of Nicaragua receive little to no career counseling or assistance finding employment. Family opinion is very important to students and there is much prestige associated with being a doctor, lawyer or engineer, while agriculture is almost at the bottom (Mourshed et al., 2013). The negative perceptions associated with agriculture are compounded by issues of land access, market access and sector collapse.

The mismatch between employers' expectations of the skillsets needed by graduates and the reality of skills acquired during secondary and higher education causes problems on both sides. While some

employers are making an effort to develop training programs for jobs they need to fill, participation in these programs does not necessarily guarantee employment for all participants. These programs could also be augmented to provide training services to other employers with similar needs, or to match training program participants with other employers.

Learning how to learn, unlearn and re-learn, to paraphrase Alvin Toffler, is completely outside the thinking of both educators and students. In the US and Europe, educators know that the majority of children now in primary school will have jobs when they graduate that do not exist right now. Globally, only half of students think their degrees helped them get a job (Mourshed et al., 2013). Nicaragua is still educating children for 20th century jobs and not to meet the needs of today's employers.

The analysis and conclusions presented above reinforce the priority to engage at-risk youth in meaningful training programs, which lead to viable employment opportunities. There is a clear need to update curricula at existing training institutions using employer training initiatives as a model for industry expectations. Successful workforce development can occur with the inclusion of partnerships between employers and educators in the efforts of both entities.

## 6. Recommendations

Our team visited over 25 stakeholders during the three-week scoping period. The consensus among the team was that there is a gap between the skills needed by the employers and the skills imparted by many training programs. It seems that the smaller training programs (i.e., some private companies that are training small groups of their employees) have more resources (i.e., NIMAC with the assistance of Catapillar) and are very focused and can be flexible to efficiently fill some of these gaps. While larger (often government-run) programs are more tradition bound and seem to focus less on current employer needs. Their graduates often need to be retrained by companies that employ them or due to the lack of appropriate skills, they fail to find employment. Based on these observations, we have several recommendations. These have the potential to form a foundation for program development and investment that will lead to improved training of at-risk youth in the RAAS region.

A key to improving resources in the RAAS region is to develop connections and relationships between poor rural youth, TVET institutions and the private sector. During our debriefing with the mission staff, we discussed a range of recommendations to improve AET capacity and thereby provide economic opportunities for at-risk youth in the region. These opportunities need to be developed and tested in cooperation with private sector stakeholders, and then presented to the youth through outreach

programs and other methods in the region in a manner that is appropriate, and illustrates how completing the training is a pathway to economic growth and stability.

## *6.1 Recommendations for Higher Education Sector*

### **A. Strengthen curriculum in higher education institutions**

Conversations with stakeholders in Bluefields and Managua indicated a need to improve core vocational and technical curriculum in the higher education institutions so that they can equip instructors in vo/tec programs. By strengthening curriculum at these institutions, graduates will be better prepared for the workforce and they will increase their appeal to agricultural employers as viable candidates. In order to achieve this, consultations between higher education institutions and potential employers, within the agriculture sector and beyond, should be facilitated. In addition, we recommend that BICU and URACAAN work closely to create curriculum inclusive of current demands and skills demanded by agricultural employers and provide students with hands-on experience in the industry. Working with the private sector to provide internships and other experiential learning opportunities for students, has the potential to create more relevant curriculum and ultimately a better prepared workforce.

### **B. Incorporate life and business skills into curriculum**

Several of the educational training institutions that the team interviewed noted that core curricula need to equip trainees with soft skills such as business and entrepreneurial skills, life skills, or English classes. As noted by a number of interviewees, developing strong life and business skills components in curriculum will achieve greater outcomes for students and potential employers. Additionally, a core skill component will assist with program structure and help students better connect to the real demands of the workforce. Seeking ways that trainees can gain confidence in and skills for setting up businesses in the region would be an important incentive for them to stay in the region.

### **C. Solicit support for current and relevant research**

During conversations with the Deans from BICU and URACAAN, an emphasis was placed on both strengthening research and increasing research opportunities on agriculture in the region. While there were current research projects taking place with students at BICU and URACAAN, both institutions wanted greater opportunities for their students to work with the agriculture industry, particularly in the Bluefields area. The Dean at UNA noted that greater research opportunities could be created to involve students in Managua to study opportunities in the Bluefields. Research funds are needed that will 1) provide opportunities for students to work in the agricultural sector, NGOs serving the sector, and other related businesses, 2) facilitate a deeper understanding by students in the agriculture and related fields,

and 3) establish connections between what they are learning in class and agricultural field applications (through experiential learning opportunities, internships in the RAAS region, etc.). Working with the mission and other partners we can suggest appropriate sources for funding. In similar situations in other countries there is a branch under the the Ministry of Technology or similar ministry that provides research funds for Universities. In some cases, these funds also are intended to connect universities or educational institutions with the industry through an application or training program.

#### **D. Provide professional development opportunities for educators**

Teachers, professors, and administrators at BICU, URACAAN and UNA commented on the need for short courses and workshops in areas that they currently teach, but also in new areas, such as business skill development and English. Platforms, such as a “train the teachers” program, could be developed in conjunction with the private sector to develop more sustainable public and private relationships. Formal linkages with US institutions can also assist in providing technical support, training, and research and development with institutions. Other formal partnerships that could be established in the RAAS include: 1) development of a formal Fulbright Scholars program to provide support for initiative educators, 2) recruitment of volunteer ESOL teachers to provide English language workshops, and 3) working with Peace Corps, other PVOs, and/or NGOs. In short there is great need to organize an employment pipeline for qualified candidates so they may learn firsthand about skills needed and vibrant career opportunities in the region. This would lead to better prepared and more confident BICU graduates. We would like to emphasize the need for a train-the-trainer program. Among our consortium we have one or more candidates for delivering this type of training program. We have had initial conversations and they seems to be interested in learning more.

#### **E. Development of a food system career advising and placement service for students**

A career advising and employment placement service that focused on presenting potential jobs from across the food system – from farmer or fisherman, input suppliers and agro dealers, through marketing and agribusiness – is needed to encourage students to pursue these opportunities. Education institutions need assistance to provide career advising for their students, which could be accomplished in conjunction with current efforts to develop a jobs database in the region. We need to work with the institutions and training programs develop strategies for how this is going work. Particularly important, is the integration of such an advising program into the major Universities of the RASS.

## *6.2 Recommendations for Vocational Training Sector*

### **A. Elevate FADCANIC to a benchmark vocational educational program**

The expansion of the FADCANIC program into a core or benchmark program, with input from the private sector, could ensure a supply of young people who are trained and educated in appropriate vocational and technical skills. Strengthening FADCANIC could take many forms, including provisioning of more resources for students and teachers, providing additional funding for the entire program and expanding the site and perhaps thinking about creating an additional site for those who are based in Bluefields. However, all of the strengthening should be developed based on current, potential and future needs of the private sector. We do not recommend that resources be given without a clear strategic plan on how the resources will make FADCANIC more adept at producing graduates with relevant skills for the private sector. Ideas for greater involvement with the private sector include having members of the private sector serving on advisory boards to FADCANIC, requiring internship experience for graduation, offering mentoring opportunities for students and involving the private sector in the classroom. Innovate has suggested visiting the site to further document this as a case study. Innovate has included this as a possible activity in early 2015.

### **B. Expansion of vocational education and training to new food system and related sectors**

New efforts to strengthen the vocational education and training sector should span many aspects of the food system. New programs could focus on emerging sectors such as culinary arts, food technology, value-added agricultural processes, ecotourism, processing and marketing, and ecotourism. Several institutions, such as INATEC, are already exploring these options and support for new programs from both the private and public sectors is needed to ensure they provide relevant training and skill development. Connections with other sectors need to be included in this strategy (i.e., forest products). With a growing population and the push for using more renewable materials for housing construction and furniture, the forestry sector might play a big role in providing business opportunities for some of the new alumni of vocational programs in Nicaragua. Additional research is needed to identify priority sectors and facilitate new curriculum development.



### **C. Professional development within the vocational sector**

Based on our findings, we also suggest platforms be created to enhance soft skill development within the vocational sector. Many stakeholders commented on the need for students to be trained in a number of soft skills that are not taught in formal settings. We recommend that opportunities be created to train teachers and other facilitators in areas such as English, workforce and entrepreneurial development, business skill development, career counseling, and basic life skills (i.e. communication, customer service). A train the trainer (TOT) model could be used since a number of other organizations within Bluefields offer training and life skill development for youth. Organizations such as CEDHECA have provided workshops for youth and could potentially be a partner organization to provide these trainings in the non-formal education sector.

### **D. Improve the quality and performance of the INATEC system**

In addition to FADCANIC, the scoping identified significant needs and opportunities for improvement with the INATEC system. In particular, greater collaboration with the private sector to identify the skills gaps and training needs is an area for consideration. In addition, the development of a platform or system for career advising and placement, for both internships and jobs would benefit students. There are nearly four hundred training programs in Nicaragua (private, NGO, and government) but no clear cut way to ensure that students will gain the skills needed in the marketplace. An accreditation systems that assures quality education is a good first step.

One of the key aspects that could be developed at INATEC is the developing of products and goods that could be sold by students to the community. FADCANIC has gained a lot of experience in setting up their own food and furniture processing facilities where inished goods are sold to the general public. This helps the students to understand better how a business works and to remediate all type of situations that arise throught the whole supply chain.

Students need experience to see and know the worklace, and develop confidence in putting their skills to work. Curricula in INATEC could include 3 to 6 credit hours as internships or field experiences. A pilot program could be started with a few companies to show sucesss. At some point, industries will learn and will try to recruit interns. Policy can be developed to persuade companies to provide a certain number of scholarships to vocational students.

INATEC has recognized that it cannot organize a suitable accreditation program to ensure uniform quality training across the whole training sector. The in-country donors have recognized this need

and some feel that the government is open to develop an accreditation program that is appropriate and manageable by the. It is possible to begin working with INATEC and this may lead to including other programs Innovate is well positioned to help develop the appropriate systems and coordinate its adoption.

### *6.3 Recommendations for Private and Public Sector Partnership*

#### **A. Formalize the interactions between public and private sectors**

We interviewed several private sector stakeholders who wished to help us develop workable strategies to fill the gap between skills students have at graduation and private sector labor demands. There are others that we did not interview, including Massey Ferguson, Agricorp, and ALMEXSA who might be interested in setting up a public private partnership to improve the workforce skill set. While part of the needed investment can be met by increasing robust public programs, a more sustainable solution would be to effectively fill this gap through private sector involvement. We suggest establishing a formal private sector and industry vocational and technical education partnership to achieve sustained agricultural development training with the potential to increase youth participation in the industry.

Examples of this include:

- Expand current bank loan programs to target young people who are planning to enter the agriculture, tourism and other sectors that have been identified by the public/private partnership as having the potential for economic growth and small business development;
- Create private sector formal and informal training or “internship” programs for higher and secondary educational institutions and their students. Curricula in INATEC could include 3 to 6 credit hours as internships or field experiences. A pilot program could be started with a few companies to show success. At some point, industries will learn the value of supporting internships and will start their own programs. Policy can be developed to persuade companies to provide a certain number of scholarships to vocational students.
- Connect educational institutions with US based private donors and or businesses that could offer technical support, training, and resources.

## **B. Develop new models for economic growth through a food system lens**

Expanding the focus of agriculture and TVET education to include the entire food system could lead to the creation of economic models that could drive future employment opportunities. The food system expand the focus of agricultural and TVET institutions to include tourism, agro-tourism, eco-tourism, fisheries, and horticulture, and also support services, such as marine engineering, marketing, and entrepreneurship. For example, the tourism program at BICU could be expanded to include the agro-tourism sector. BICU could engage the private sector in both agriculture and tourism enterprises to form connections between the industries. Another possible program would be to work with the fishing industry which needs assistance in setting up food safety and other training programs. We visited one company that exports food products to the US and Europe that had to set up its own training as the local university and training programs did not prepare enough qualified workers.

Several companies in the agriculture sector are training their own workers; one example is EcoPlanet, which trains workers to make furniture and other value added products from bamboo. Production along the bamboo value chain is not expected for another 3 years, yet they are building a workforce that will be ready when they first harvest bamboo. This training is important, as more value will be added to the bamboo locally. The alternative is to export the bamboo as a raw material often as a fuel source at the lowest value. Several possible value added products could be incorporated such as training a workforce to build and install homes made from bamboo. This could serve the needs of Nicaragua and the region to develop affordable housing.

Investments in training need to be community-based as local stakeholders play an essential role in establishing, supporting and promoting the programs so that local workers will find them attractive. There is need to incorporate local culture and diversity into training systems thus making curriculum and training available in local languages as well as English is important. Furthermore, employing trainers native to the region, and providing them with the resources and support to engage the local workforce will be important to the success of any workforce development program in the RAAS.

Our findings show great potential for positive impact for youth participating in AET programs. Developing these training programs and resources will help develop the RAAS and engage at-risk youth in entrepreneurial activities. Keeping the youth in their local community encourages them make to valuable contributions and offers meaningful livelihood opportunities to foster viable economic growth and social stability in the Caribbean/Central American region.

## References

Note; these references were used in the drafting of this scoping assessment report and representative of publications reviewed and included as part of our background report. Please see the background report for additional references that may be helpful.

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## Appendix A: Scope of Work

### **Scope of Work Submitted to the USAID Mission in Nicaragua by the Pennsylvania State University on for the *innovATE* Project for a Scoping Mission to Assess Opportunities in Technical and Vocational Education on the Caribbean Coast of Nicaragua**

#### Background

At the request of USAID/Nicaragua, a team of specialists from the *innovATE* project will conduct a scoping mission during the early part of 2014. The *innovATE* scoping visit will focus on assessing the current and future demand for vocational training for youth. We take an asset-based approach using focus groups, interviews, and other means of gathering stakeholder input. In order to develop a comprehensive picture, we will engage small and medium agribusiness employers, ministries of agriculture and education, the USDA local office, local banks, non-formal educational organizations, and NGOs.

The target population for this scoping mission is the South Atlantic Autonomous Region (Región Autónoma del Atlántico Sur; RAAS), one of two autonomous regions of Nicaragua. It is governed independently and, as home to both indigenous and Afro-Caribbean inhabitants is heavily mixed culturally and linguistically. Communities we may visit include: Bluefields, Desembocadura del Río Grande, Laguna de Perlas, Corn Island, Kukra Hill and potentially others. Important commercial activities in the region include fisheries, tourism, textiles, cattle, coconut, bamboo, precious lumber and liquor. The national development plan has mega plans projected for the region, such as the hydroelectric plant in Tumarín (Municipality of La Cruz de Río Grande neighboring the Desembocadura del Río Grande Municipality) and the Interoceanic Canal (with the Municipality of Bluefields as one of the potential routes).

In USAID/Nicaragua's recently approved (2013) Country Development Cooperation Strategy (CDCS), the RAAS is a targeted geographic region under the basic education and citizen security development objective. Given the limited reach and access to basic services and the traditional conflict between the traditional forms of government and the nation-state, there is increasing lawlessness and illicit drug activity. This state of affairs, along with the rising proportion of youth ages 10-24 living in at-risk circumstances in the area, makes governance a complex issue. Under this objective, a 3-pillared strategy has been developed on: 1) basic reading; 2) workforce and life skills development, including vocational training and job creation; and 3) community development to improve social standards for at-risk youth.

The scoping assessment would contribute to the 2<sup>nd</sup> pillar of the strategy. Although Nicaragua is an agrarian nation, the agricultural sector in the RAAS is underdeveloped due in part to the lack of trained manpower. While *innovATE* focuses primarily on education in agriculture and related sectors, the scoping mission will examine the region's value chains broadly and provide an overview of other sectors as they relate to rural development and agriculture. *InnovATE*

partners participated in a conference call with the Mission in December 2013 and are currently conducting a desk-top literature review on TVET in Nicaragua to frame the scoping mission, refine data-collection priorities, and identify data sources, strategic plans, stakeholders, key informants, lead actors, and other background information.

#### Methodology:

The objectives of the mission are: 1) to assess the current and future demand for technical and vocational training (TVET) for at-risk youth in the southern part of the Caribbean Coast of Nicaragua; 2) to examine the supply of existing TVET programs with potential links to agribusiness and other businesses supporting rural development; and 3) to provide recommendations for potential programs to address gaps between supply and demand, specifically related to at-risk youth and non-university bound youth. Results from the scoping assessment would be used to strengthen existing activities and potentially to feed into the design of new mechanisms.

InnovATE's approach includes (1) conducting a situational analysis of the current vocational education and training systems in Nicaragua, (2) identifying employment needs and services, especially in vocational education, and (3) determining skill gaps as perceived by both potential employers and training programs or educational institutions.

We anticipate that this will be a 10-day scoping mission. During the first days in country, the scoping team will meet with the USAID Mission and conduct initial meetings with key stakeholders in Managua, including donors, members of the private sector, government officials, and the education community. Throughout the scoping mission, the scoping team will gather additional information about vocational training and youth activities in Nicaragua to add to the draft country study. Next, the scoping team will travel to the Caribbean Coast where it will conduct interviews and meetings with local stakeholders.

During the last few days in country the team will return to Managua to conduct additional meetings and interviews with stakeholders. These meetings will build on the initial contacts made and help to verify initial findings. Lastly, the team will meet with the USAID Mission to report on initial findings and gather additional input. After returning to the US, the team will draft a report and recommendations resulting in an action plan to form the basis for an associate award that accomplishes the USAID Mission's strategic objectives. InnovATE will revise the report based on Mission feedback and develop a SOW for the next phase of the work.

To develop a comprehensive picture, we will engage with the private sector including small and medium agribusiness employers, government entities such as the ministries of agriculture and education, the National Institute for Vocational Education (INATEC), the Ministry of Tourism, the Council for the Development of the Caribbean Coast, other donors, the local USDA office,

non-formal educational organizations, and relevant NGOs. We will address the vocational education/jobs interface through meetings and interviews with a wide range of stakeholders and, where possible, focus on agriculture and agricultural value chains.

To ensure both data quality and breadth of analysis, a set of rapid assessment tools involving semi-structured interviews and focus groups will be employed. Review techniques and analysis may include the following three components:

1. Characterization of agriculture education and training (AET) within the RAAS region for vocational training and education institutions, with an emphasis on increasing training opportunities for at-risk youth and young adults especially related to building vocational and life skills;
2. Characterization of vocational training and employment structure; and
3. An analysis diagnosing the gaps between supply and demand for social and human capital in the vocational sector.

Review of these three components will take place simultaneously when visiting various stakeholders and key informants, including: youth, community leaders, NGO representatives, governmental officials (when possible), agribusiness employers, farm and community-based organizations, Ministry representatives (when possible), and representatives from the University of the Autonomous Regions of the Nicaraguan Caribbean Coast and Bluefields Indian & Caribbean University (BICU). Once an overview of the TVET landscape has been completed, the following questions will help drive the rest of the scoping team's mission:

- What resources and pathways need to be developed in order to create sustainable linkages between the economic sector and the vocational sector for vocational training opportunities?
- How can the private sector become an integral partner in the creation of training and development opportunities for youth on both a local and regional scale?
- What are the expected short- and long-term outcomes for youth who participate in these programs? What network of systems and resources can be created to contribute to youth life skill development and job creation in the Caribbean/Central American region

The assessment submitted to the Mission may address the following:

*1. Overview of the TVET environment:*

The TVET enabling environment will be characterized through the identification of key TVET system actors (policy makers, private sector stakeholders, educators, administrators, etc.) and mapping out their roles and relationships. The landscape will be captured by focusing on the policy framework, funding mechanisms, and a TVET system map. This overview will provide a clearer understanding of how individual agricultural education and training institutions and programs fit into the larger TVET system. Other related value chains and their respective education and training institutions will also be evaluated.



## *2. Institutional (supply) characterization:*

There is likely to be existing information on TVET in Nicaragua that needs to be gathered and synthesized. In developing the overview of TVET, it will be necessary to collect information on and characterize educational institutions and vocational centers that serve the region. Understanding the role of out-of-school youth programs and second-chance programs in education and employment will also assist in creating a more complete picture of what can be developed and sustained in this area.

We seek to identify new and existing models to create pathways to train youth in a comprehensive manner to include: (a) technical skills; (b) life skills; (c) internships and on-the-job training; and (d) job-seeking skills. A number of innovative models may be used with the end goal to better connect youth with employment opportunities. Successful projects developed for youth in Central America may serve as models and can make connections with national training agencies and assist with internships in local businesses, industries and provincial governmental offices.

## *3. Vocational training sector (demand) characterization:*

Characterizing the professional needs of the vocational training sector involves focusing on the full range of potential employers, training centers, vocational sites, and established training curriculum/standards. Learning more about opportunities for employment along value chains will be important.

The key question is to determine what employers need (skills, experience, etc.). From our interviews we will identify types and level of training given by employers, and experience with providing internships and on-the-job training. Canvassing local businesses, industries and governmental offices will help determine the demand for trained manpower.

## *4. Diagnosis of needs for trained human capital:*

Valuable data will be collected through discussions with key informants and other educational and vocational sector stakeholders. Following the demand-driven perspective, we expect the stakeholder discussions to focus on employability, entrepreneurship and internship opportunities, the expansion of the vocational training sector, improved training of instructors and technicians in teaching methodologies, better collaborative systems for the integration of NGOs, industry, and government. This information will be valuable in conducting a gap analysis and determining what activities are appropriate for investment.

### *Outputs:*

The *InnovATE* team will prepare a TVET landscape overview report that:

- estimates the sector's supply and demand for vocational training and education for at-risk youth in the southern part of the Caribbean Coast of Nicaragua;

- examines the supply of existing TVET programs with potential links to agribusiness and other businesses supporting rural development and provides recommendations to help plan activities that are appropriate within the Caribbean Coast region;
- provides an action plan for the design and implementation of activities to address gaps between supply and demand, to be covered under an associate award which we will discuss with USAID/Nicaragua

**Proposed dates of travel:** The proposed timing for the scoping mission is Mid-late March, 2014.

**Team composition:**

InnovATE’s team will include a youth development researcher from Pennsylvania State University, a local consultant, specialists from Virginia Tech and the University of Florida, and a representative of USAID. The team will have at least one fluent Spanish speaker. Members will also have expertise in one or more of the following areas: youth development, vocational and technical education, agricultural value chains, and rural development.

**Proposed team members:**

Nicole Webster	Pennsylvania State University
Nikki Kernaghan	University of Florida
Grady Roberts	University of Florida
Henry Quesada	Virginia Tech
Tom Hammett	Virginia Tech
Raymon Shange	Tuskegee University
Clara Cohen	USAID/Washington
Grecia Morales	In-country consultant
Paul Rivera	USAID/Nicaragua

## Appendix B: Contacts Appointments or Meetings

### Schedule of Appointments

March 20 – April 9, 2014

<u>Thursday March 20</u>	Nicole Webster (PSU) arrives Managua
<u>Friday March 21</u>	Preliminary meetings with individuals at the USAID Mission in Managua Meet with local consultant to discuss progress on meeting schedule; phone calls to reconfirm meetings in the early next week
<u>Saturday March 22</u>	Finalize meeting arrangements and agenda
<u>Sunday March 23</u>	Henry Quesada (VT), Nikki Kernaghan (UF) and Clara Cohen (USAID/W) arrive in Managua
<u>Monday March 24</u>	
Morning	Team meeting to discuss logistics and review plans for Week 1 meetings and logistics
Afternoon	Meetings at USAID Mission with Art Brown, Mission Director, Alicia Slate and Paul Rivera in the program office
Evening	Meeting with local consultant to finalize agenda and meeting schedule
<u>Tuesday March 25</u>	
Morning	Team Departs Managua by vehicle; drive to El Rama
Afternoon	Visit to INTA Research Station, El Recreo and interview with Director Visit to INATEC vocational school, El Recreo and interview with Sub-Director
	Overnight in El Rama
<u>Wednesday March 26</u>	
Morning	
Group 1	Conduct teacher and student focus groups at INATEC vocational school, El Recreo
Group 2	Visit to BICU, El Rama (agroforestry focus) and interview with Director
	Team departs El Rama to drive to Pearl Lagoon and take boat to Wawashang
Afternoon	Visit to FADCANIC School at Wawashang and tour of facilities
Group 1	Interviews with Director and teachers
Group 2	Focus group with students
	Overnight in Wawashang
<u>Thursday March 27</u>	
Morning	Visit to Khaka Creek Reserve and Adult Education Program
Afternoon	Visit to FADCANIC School training farm facilities

	Team departs late afternoon by boat for Bluefields (previously arranged meetings in Kukra Hill were not confirmed); Stay in Bluefields
<u>Friday March 28</u>	
Morning	Team meeting and note compilation; at hotel in Bluefields
Afternoon	
Group 1	Interview with representatives from the Creole Communal Government
Group 2	Focus group with youth leaders from CEDEHCA
	Henry Quesada departs for US; stay at Bluefields
<u>Saturday March 29</u>	Paul Rivera departs for Managua
	Visit to CEDECHA training facility on Hog Cay and planned Agricultural Training Farm; stay at Bluefields
<u>Sunday March 30</u>	Team planning meeting for Week 2 and data compilation from Week 1
Evening	Interview with GIZ-PREVENIR representative; stay at Bluefields
<u>Monday March 31</u>	
Morning	
Group 1	Interview with UNDP representative
Group 2	Interview with Eco Planet President (via skype)
Afternoon	
Group 1	Interview with CARS Chief of Party
Group 2	Visit to BICU and interview with Dean of Faculty of Natural Resources and Environment
	Tom Hammett, Raymon Shange and Grady Roberts arrive Managua; stay at Bluefields
<u>Tuesday, April 1</u>	Clara Cohen departs Bluefields by air for Managua and return to the US
	Tom Hammett, Raymon Shange and Grady Roberts arrive Bluefields
Morning	Team briefing at hotel
Afternoon	
Group 1	Interview with manager of Central American Fisheries Company (CAF)
	Interview with Dean and teacher in Faculty of Economics and Business at BICU
Group 2	Focus group with students at BICU, Bluefields
	Focus group with teachers at BICU, Bluefields
Group 3	Visit to URACAAN
	Interview with FADCANIC representative
	Team stays at Bluefields

<u>Wednesday April 2</u>	
Morning	Nikki Kernaghan departs for Managua by air
Group 1	Interview with Global Communities representative
Afternoon	
Group 1	Visit to Central American Fisheries (CAF) processing plant Interview with youth leader for CEDECHA Agricultural Training Program
Group 2	Interview with MITRAB representative
Group 3	Interview with representatives of COSUDE
	Interview with representatives of IDB; Team stays at Bluefields
<u>Thursday April 3</u>	
Morning	Team departs for Managua by air Nikki Kernaghan departs for US
Afternoon	
Group 1	Interview with JICA representatives
Group 2	Interview with AECID representatives
	Interview with NIMAC training team and management representatives; tour training facilities ; stay in Managua
<u>Friday April 4</u>	
Morning	
Group 1	Tom Hammett and Raymon Shange depart for El Rama by road
Group 2	Visit to UNA Interview with AMCHAM Interview with EU Terre des Hommes
Afternoon	
Group 1	Visit to Eco Planet and interview with President and Vice President of Field Operations; visit plantations and processing training Visit to Ritter Sport new plantation and interview with Farm Manager, and other managers; Hammett and Shange stay in El Rama
Group 2	Interview with FADCANIC President Interview with bamboo plantation owner and buyer of bamboo products from Europe
<u>Saturday April 5</u>	Group 1: Tom Hammett & Raymon Shange continue interviews in El Rama; visit agritourism business; return to Managua by road Team meeting and data compilation Grady Roberts departs to US stay in Managua
<u>Sunday April 6</u>	Presentation and preliminary report preparation

<u>Monday April 7</u>	Out-brief presentation with USAID Nicaragua Mission
<u>Tuesday April 8</u>	Interviews with representatives of Samuel Foundation Interviews with representatives of Victoria Foundation
<u>Wednesday April 9</u>	Nicole Webster, Tom Hammett and Raymon Shange depart for US

## Appendix C: Stakeholder Interviews

### Stakeholder Interviews

The InnovATE scoping team interviewed a wide range of stakeholders during the March – April 2014 scoping visit. These included representatives from organizations involved in higher education, community and vocational education, local government, NGO, donor and private sector partners.

Sector	Organizations
Higher Educational Institutions	Bluefields Indian and Caribbean University (BICU) <ul style="list-style-type: none"> <li>• Agroforestry Program, El Rama</li> <li>• Faculty of Natural Resources and Environment, Bluefields</li> <li>• Faculty of Economics and Business, Bluefields</li> </ul> Universidad de las Regiones Autonomas de las Costa Caribe Nicaraguense (URACAAN) Universidad Centroamericana (UCA) Universidad Nacional Agraria (UNA)
Vocational Education Institutions	Instituto Nacional Tecnológico (INATEC), El Rama FADCANIC Vocational School, Wawashang
Local Government	Creole Communal Government Ministerio del Trabajo (MITRAB) Instituto Nicaraguense de Tecnología Agropecuaria (INTA), El Recreo
NGOs and Donor Partners	Fundacion para la Autonomia y el Desarrollo de la Costa Atlantica de Nicaragua (FADCANIC) El Centro de Derechos Humanos, Ciudadanos y Autonomicos (CEDEHCA) Education for Success Community Action for Reading (CARS) COSUDE IDB JICA AECID EU Terre des Hommes GIZ-PREVENIR UNDP Global Communities Samuel Foundation Victoria Foundation
Private Sector	Eco Planet Ritter Sport NIMAC AMCHAM Central American Fisheries Agro-tourism sites

## Appendix D: Scoping Analysis Tools

### *Scoping Assessment Interview Protocols*

#### **Education Institution Interview Questions:**

##### Key questions:

1. Can you please briefly describe the purpose and structure of the INATEC at your institution?
2. In your opinion, what are the strengths of the INATEC program at your center?
3. In your opinion, what are the weaknesses of the vocational education training program at your institution?
4. Do you have any agricultural programs?
5. What skills are you teaching students?
  - a. Probe: professional skills, communication skills, leadership/teamwork skills, technical, ethics, career
  - b. Probe: what's informing your decision to teach these skills?
6. What are the major obstacles to developing your INATEC program?
  - a. Any agricultural specific obstacles?
7. What kind of career preparation do your students get? Is there a career resources center?
8. Where are your students finding employment?
9. Where do you see the opportunities for growth in your program?
10. What are the funding sources for this institution?

##### Additional questions for deans/directors:

11. Can you please briefly describe the strategy for recruiting new faculty/staff?

Snowball question: who else should we talk to if we want to learn more about vocational training or leadership programs?

##### Follow-up and probing questions:

12. Can you describe the process for recruiting students and evaluating applicants for the agricultural program at your school?
13. Can you please briefly describe the teaching approach of the agricultural education program at your school?
  - a. Probe for evidence of a variety of educational experiences including lectures, discussion, simulations, and distance education.
  - b. Probe for evidence of group/team projects, laboratory and field experiences?
  - c. Probe for approaches that foster critical and analytical thinking
14. Does the program provide internships or field experiences for the students?
15. What is the relationship with the private sector?
16. Can you please describe how professional ethics are incorporated into the curriculum of the agricultural training program?
17. Do you have interactions with agricultural organizations or the commercial agricultural sector?
18. Can you please describe how faculty performance is evaluated and rewarded/incentivized?
19. Do faculty have access to professional development opportunities?



### **Student Focus Group Questions:**

#### Key discussion questions:

1. Could you please briefly describe your experience in the vocational education program at your school/training center?
2. What aspects/components of your school's/training center's education programs do you like most?
3. What aspects/components of your school's/training centers' education program do you like least?
4. What skills are you learning that will be most valuable in your career?
5. Can you describe how you were selected for this program and/or application process for the agricultural program?

Snowball question: who else should we talk to if we want to learn more about AET?

#### Follow-up and probing questions:

6. Do you have opportunities for internships or field experiences in your agricultural education program at your school/training center?
7. What is the source of funding for your education at your school/training center?
8. Do you receive career advising as part of your program? Can you please describe this career advising process?
9. Do you think a career in agriculture (substitute for the industry) is a good career in Nicaragua?
  - a. Probe for their specific career intentions or aspirations
  - b. Probe for: job availability, occupational prestige, possible career opportunities

### **Teacher/Faculty Focus Group Questions:**

#### Key discussion questions:

1. Can you please briefly describe the purpose and structure of the program at your school? Do you have any agricultural programs?
2. In your opinion, what are the strengths of the vocational training program at your school?
3. In your opinion, what are the weaknesses of the vocational training program at your school?
4. What skills are you teaching students?
  - a. Probe: professional skills, communication skills, leadership/teamwork skills, technical, ethics, career
  - b. Probe: what's informing your decision to teach these skills?

#### Follow-up and probing questions:

5. How does your curriculum support the mission/goals of the agricultural program?
6. Are there sufficient resources to support the vocational program?
  - a. Probe: staff, funding, equipment, space
7. Can you please briefly describe the teaching approach of the agricultural education program at your school?
  - a. Probe for evidence of a variety of educational experiences including lectures, discussion, simulations, and distance education.
  - b. Probe for evidence of group/team projects, laboratory and field experiences?

- c. Probe for approaches that foster critical and analytical thinking
- 8. Does the program provide internships or field experiences for the students?
- 9. Can you please describe how professional ethics are incorporated into the curriculum of the agricultural training program?
- 10. Do you have interactions with agricultural organizations or the commercial agricultural sector?
- 11. How does the program support students' career development?
- 12. Do you conduct research?
  - a. Probe for evidence that research supports or enriches the existing curriculum
  - b. Probe for evidence of opportunities for students to participate in research activities
  - c. Probe for evidence that research supports the identified needs of the agricultural sector
- 13. Can you please describe how faculty performance is evaluated and rewarded/incentivized?
- 14. Question about professional development
- 15. Do you have adult training programs?

**Private Sector Interview Questions:**

- 1. What set of skills do you need in your new employees?
  - a. Probe: gender equity issues
- 2. Where do you recruit employees?
  - a. Probe: high-skill, low-skill, permanent vs. seasonal/harvest
- 3. In your opinion, what are the strengths of the vocational training program in Nicaragua?
- 4. In your opinion, what are the weaknesses of the vocational training program in Nicaragua?
- 5. What are the major obstacles for vocational education in Nicaragua?
- 6. How do you provide professional development for current employees?
  - a. Where do you send your employees for training?
- 7. How long does your average employer stay with your company?
- 8. Do you have any relationships with training education training centers?

Snowball question: Who else should we talk to if we want to learn more about AET?

## Appendix E: SWOC Results

Table E1 – Higher Education Institutions

Internal	
Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Universities have trust and credibility in the community</li> <li>• Several institutions have degree programs and/or certificates in agriculture and related disciplines</li> <li>• BICU and URACAAN focus on local capacity strengthening</li> <li>• BICU and URACAAN serve ethnic groups and conduct community outreach</li> <li>• Have existing partnerships with INTA, INATEC, UCA, UNA, some private sector companies and other universities</li> <li>• Working with communities on projects (e.g. mangrove management, crop diversification, fisheries)</li> <li>• Many students receive scholarships to attend BICU and URACAAN</li> <li>• Curriculum is experiential and culturally/ecologically relevant</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of entrepreneurship training for students</li> <li>• Students from RAAS face difficulties with language, finances and family problems</li> <li>• Curriculum and facilities need to be updated to reflect new sectors, techniques etc.</li> <li>• Limited private sector partnerships for internships, student projects etc.</li> <li>• Limited career advising or mentorship</li> </ul>
External	
Opportunities	Challenges
<ul style="list-style-type: none"> <li>• Development of problem-based approaches for curricula in collaboration with private and government sectors</li> <li>• Increase partnerships with private sector on projects and/or short-term training courses (e.g. BICU has started a project with Africa Palm)</li> <li>• Expand partnerships with other universities, including from other countries</li> <li>• Engage expertise to enhance curriculum</li> <li>• Develop career advising, mentorship and placement services</li> <li>• UCA and UNA are interested in agriculture and environmental sciences, ecotourism and other research that could benefit the RAAS and RAAN</li> </ul>	<ul style="list-style-type: none"> <li>• Universities are dependent on government funding and don't receive enough money for materials and facilities</li> <li>• Lack of employment opportunities for students who graduate from university programs in the RAAS</li> <li>• Students coming to universities in the RAAS are not adequately prepared at the primary and secondary levels</li> <li>• Difficult for recent graduates to access loans, business start-up financing or other resources</li> </ul>

Table E2 – Vocational Education Institutions

Internal	
Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Education and materials are all free</li> <li>• Emphasis on practical training in locally relevant agriculture and skills</li> <li>• Many students from local farming families or low-income households</li> <li>• Students from diverse backgrounds and ethnic groups study together, which can help break down ethnic tensions</li> <li>• Many programs have more male than female students</li> <li>• Some have relationships with NGOs, private sector and other public institutions (e.g. BICU, URACCAN, INTA, NIMAC) for student funding, internships etc.</li> <li>• Also relationships with US and other foreign universities</li> <li>• Opportunity for graduates to go to university</li> <li>• Some have good facilities e.g. computers, laboratories, field sites etc.</li> <li>• Some specifically serve students from the coastal region</li> <li>• Some well qualified teachers</li> <li>• Engagement with students families and local communities</li> </ul>	<ul style="list-style-type: none"> <li>• Insufficient physical infrastructure</li> <li>• Small budget for materials and facilities</li> <li>• Limited career advising services for students</li> <li>• Students on agriculture programs do not always have access to English courses</li> <li>• Limited professional development for teaching faculty</li> <li>• Limited facilities in RAAS (e.g Samuel Foundation and Victoria Foundation limited to western Nicaragua)</li> <li>• Lack of entrepreneurial focus</li> </ul>
External	
Opportunities	Challenges
<ul style="list-style-type: none"> <li>• Development of new curricula (e.g. culinary arts, food technology, ecotourism, value-added agricultural processes, marketing, traditional crafts etc.)</li> <li>• Expand enrollment to offer more student opportunities</li> <li>• Expand short term training options, perhaps in conjunction with private sector and/or NGOs</li> <li>• Develop additional agreements for students to transfer to university</li> <li>• Expand opportunities for students from RAAS to attend vocational training institutions in other regions of Nicaragua</li> <li>• Establish and/or increase activities in value-added processing to generate income for training facilities</li> <li>• Form student entrepreneurial groups to help them start their own businesses</li> </ul>	<ul style="list-style-type: none"> <li>• Highly dependent on government and/or NGO funding – not sustainable</li> <li>• INATEC funding mechanism is not transparent and private sector contributors are not satisfied with access to relevant training opportunities for staff</li> <li>• Lack of career opportunities for students in their home communities</li> <li>• Communication between vocational institutions and with other educational institutions is poor</li> <li>• Remote nature of facilities can make it difficult to attract and retain teachers and staff</li> <li>• Difficult for recent graduates to access loans, business start-up financing or other resources</li> <li>• Land tenure and management issues in the RAAS can limit graduates access to land or ability to establish viable business in local community</li> </ul>

Table E3 – Private Sector

Internal	
Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Developing new crops and fisheries (e.g. bamboo, tilapia)</li> <li>• Create significant direct and indirect employment opportunities</li> <li>• Work with local universities and training institutions to provide internships, hire employees and conduct R &amp; D</li> <li>• Many hold international certifications, including health and safety</li> <li>• Offer professional development training (some have developed their own courses and training facilities)</li> <li>• some pay for school/university for employees</li> <li>• Some claim ecological commitment to sustainability and anti-corruption and social commitment and responsibility</li> <li>• Ecoplanet has commitment to empowerment of women through education (employees &gt;65% are women)</li> <li>• Strong relationships between some private sector companies (e.g. Ritter Sport and Ecoplanet)</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of community/local support for some of the new agricultural sectors (e.g. Africa Palm, tilapia)</li> <li>• Environmental challenges</li> <li>• Few existing relationships with USAID</li> <li>• Relationships with local universities are not very functional</li> <li>• Have to look outside Nicaragua for training expertise</li> </ul>
External	
Opportunities	Challenges
<ul style="list-style-type: none"> <li>• Exploration of new agricultural and fishery models</li> <li>• Several companies indicated intentions to expand and hire more employees</li> <li>• Expand partnerships with RAAS universities for internships, educational or training programs and pipeline for employment</li> <li>• Need strategic engagement with local communities</li> <li>• Some companies (e.g. NIMAC) could offer training as fee-for-service to other companies</li> <li>• Development of an agribusiness consortium</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of government support for development of new agricultural sectors</li> <li>• Difficult to secure investment capital</li> <li>• Difficult to establish and maintain relationships with existing agro training programs</li> <li>• Lack of appropriately trained workers</li> </ul>

Table E4– Government

Internal	
Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• MITRAB database for unemployed people</li> <li>• Coordinating computer program for people with disabilities</li> <li>• Offer workshops on how to write a resume, interviewing, using employment database – coordinate with schools and universities</li> <li>• Offer workshop with INATEC for participants of local market/fair</li> <li>• Conducting analysis of youth education</li> <li>• Network of INTA facilities for agricultural research throughout the country</li> </ul>	<ul style="list-style-type: none"> <li>• MINTRAB database has limited geographic scope in RAAS (currently only focused on Bluefields as needs differ in each community)</li> <li>• Limited resources for R &amp; D support</li> <li>• High personnel turnover – “brain drain”</li> <li>• Policies that limit autonomy</li> </ul>
External	
Opportunities	Challenges
<ul style="list-style-type: none"> <li>• Programs with NGOs (e.g. Mastrich technical training on agriculture)</li> <li>• Develop agreements with local, regional and multinational companies to provide training, technologies, workforce etc.</li> <li>• Seek value-added to local production</li> <li>• Develop infrastructure to support research and development</li> <li>• Have a project to diagnose problems with youth education in Bluefields</li> </ul>	<ul style="list-style-type: none"> <li>• General lack of agricultural investment and economic development in the coastal region</li> <li>• Chamber of Commerce in Bluefields has few members</li> <li>• High levels of migration to other regions</li> <li>• High student drop out from education and low employment levels</li> <li>• Fewer foreign donor partners working in region</li> </ul>

Table E5 – NGOs and Donor Partners

Internal	
Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Many focus on basic (pre-K and elementary education), e.g. CARS, AMCHAM etc.</li> <li>• Others work with secondary schools (AECID) or youth (CEDEHCA)</li> <li>• Many focused on curriculum development e.g. AMCHAM, AECID</li> <li>• Other areas of focus are security (e.g. AECID, GIZ-Prevenir), waste (UNDP) health and human rights (CEDEHCA) and civil society and democracy (Global Communities, CEDEHCA)</li> <li>• Can work directly with Nicaraguan state entities (MINED, INATEC, K-12 schools, Regional Governments)</li> </ul>	<ul style="list-style-type: none"> <li>• Some chose not to partner with USAID due to restrictions on funding, bureaucracy etc.</li> <li>• Often don’t work in areas of highest need due to security concerns</li> <li>• Many limited to areas of higher population density (Bluefields, Kukra Hills etc.) and don’t reach rural communities</li> <li>• Lack of resources to address the extent of the needs</li> <li>• Donor agencies may have prescribed programs that include little consultation with local communities regarding their needs</li> <li>• Lack funding to develop and maintain appropriate training facilities</li> </ul>

<ul style="list-style-type: none"> <li>• Some have strong connections with private sector e.g. AMCHAM</li> <li>• Good reputation and relationships with communities, police etc.- especially locally run NGOs (e.g. CEDECHA, FADCANIC)</li> <li>• Also many are connected with local and foreign universities</li> <li>• Offer training in many areas: entrepreneurship, human rights, reading, agriculture etc. but don't coordinate with each other very well</li> <li>• Some have own training facilities</li> <li>• Passionate and committed leadership, especially local representatives</li> <li>• Several using M&amp;E to guide project decision making (CARS, Prevenir)</li> </ul>	
External	
Opportunities	Challenges
<ul style="list-style-type: none"> <li>• Develop programs in conjunction with regional organizations e.g. SICA, Education for All (EFA), IFAD, Prevenir</li> <li>• Participate in new roundtable for youth in RAAS/Bluefields and roundtable on employment</li> <li>• Provide loans for youth to develop business and employment opportunities</li> <li>• Strengthen existing activities through regional workshops and staff development training</li> <li>• Development of a best practices model and resources guide or manual for future programs</li> <li>• Develop an information system to coordinate training and resources</li> </ul>	<ul style="list-style-type: none"> <li>• Geographic remoteness/isolation of coastal region</li> <li>• Nicaragua does not have a strategic plan for education</li> <li>• Political system creates barriers to youth development – no youth voice in the government and not always good cooperation between various government entities – can take a long time to get project approval</li> <li>• Several NGO representatives reported that it was difficult to work with INATEC</li> <li>• Difficult to identify reliable local counterparts</li> <li>• Background information (employment statistics, demographics etc.) are unreliable or unavailable</li> <li>• Unemployment, crime, drugs etc.</li> <li>• Some challenges to build community support, communicate project goals to local people, alignment with traditional cultural values etc.</li> </ul>