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Innovation for Agricultural Training and Education



Exploring a Robust Professional Development and Certification Program for Agricultural and Forestry Teachers at Technical and Vocational Education and Training Centers in Central America



InnovATE Workshop Report

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Exploring a Robust Professional Development and Certification Program for Agricultural and Forestry Teachers at Technical and Vocational Education and Training Centers in Central America

Building castles in the sky? Or, a strategic engagement platform to build upon?

Introduction

From April 26-27, 2017 InnovATE convened a workshop titled “*Oportunidades para un Programa de Certificación para Educadores en Educación y Entrenamiento Técnico-Vocacional Agroforestal (EETVA)*”(Opportunities for a Certification Program for Agroforestry Technical, Vocational Education and Training Educators (ATVET))” at EARTH University in Guácimo, Costa Rica. The workshop was held to explore opportunities for an agricultural and forestry technical and vocational education and training (ATVET) teacher professional development, certification, and networking platform.

This document attempts to summarize the information shared by workshop participants through this event to record the workshop participants’ input regarding the proposed concept. The information shared is informative as the participants serve as part of a cross-section of the ATVET stakeholder network. The sections below summarize participant feedback collected during the pre-event survey, workshop breakout session group activity, and post-event survey. The survey data collection was performed under the approval of Virginia Tech’s Institutional Review Board (#15-1099), the summarized data has been translated to English, removed of personally identifying information, and aggregated to facilitate summary.

As one workshop participant indicated, it is critical to identify resources to enable moving forward with specific actions to implement this strategic initiative otherwise we are simply “building castles in the sky”, our hope is that this information will serve to help inform future efforts toward its appropriate implementation.

Selection of Participants

Workshop invitees were selected based on their association with ATVET initiatives. Specific individuals were identified primarily via in-country contacts gained through previous InnovATE

Assessment Work (i.e., Honduras and Nicaragua), professional contacts, USAID Missions offices and project partners, and country governmental ministries. The workshop hosts and facilitators were from three universities (Virginia Tech, University of Florida, United States and EARTH University, Costa Rica)

Pre-Event Survey

A pre-event survey was sent to confirmed invitees. The online Qualtrics-based survey was sent via email to confirmed invitees and consisted of two parts (**Figure 1**). Part one, focused on the invitees' experiences, perceptions, and opportunities regarding ATVET-focused professional development in their country. Part two, pertained to invitees whom worked at a ATVET, and elicited institutional and demographic information describing the particular center. **Appendix A** includes a translated copy of the survey instrument. The following figures provide a summary of the pre-event survey results from part one. **Figure 2** indicates the sector the respondent represents, **figure 3** summarizes the current prevailing forms of professional development for ATVET teachers, and **figure 4** summarizes the perceived benefits of current professional development efforts. Figures 5 through 9 asked respondents to indicate degree of agreement with a series of statements regarding the ATVET teacher professional development in their county and in terms of quality (**Figure 5**), frequency (**Figure 6**), degree of participation (**Figure 7**), cost (**Figure 8**), and degree of national support (**Figure 9**). Responses were then classified as “negative” or “positive”.

Figure 1: Excerpt from online survey

Figure 2: Pre-workshop survey responses by type

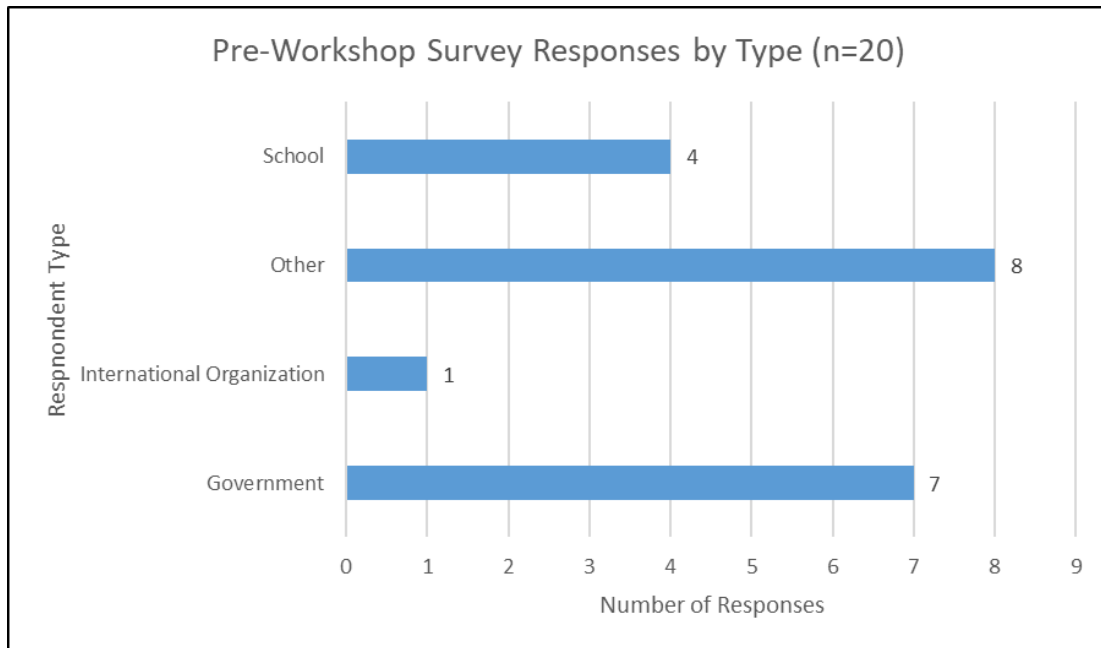


Figure 3: Forms of ATVET Professional Development

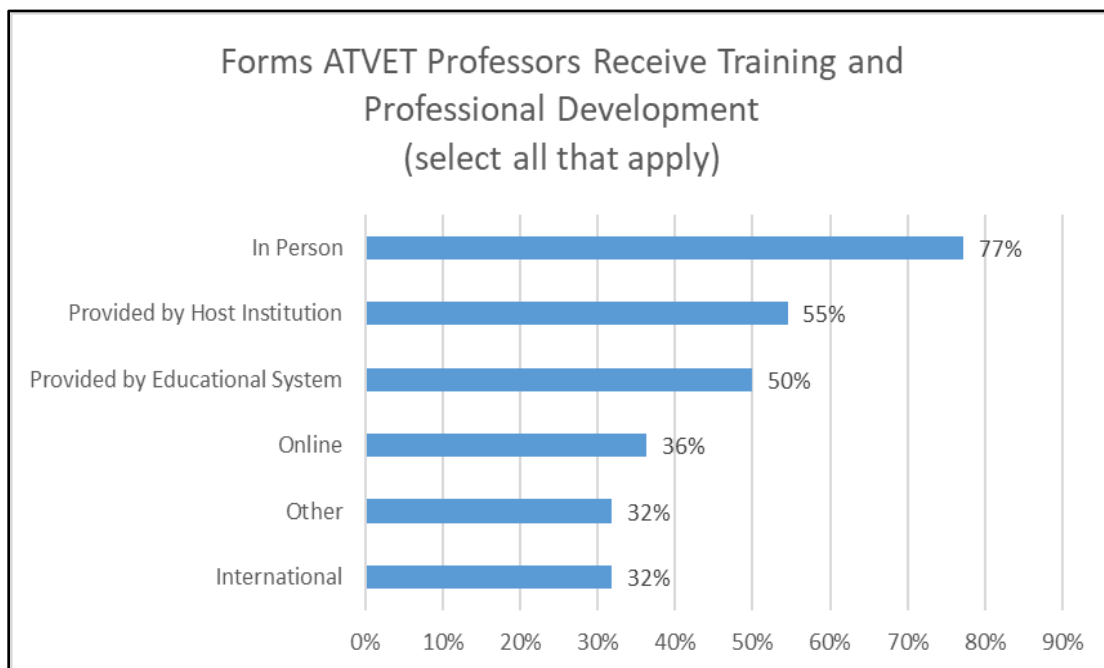


Figure 4: Perceived benefits of ATVET Professional Development

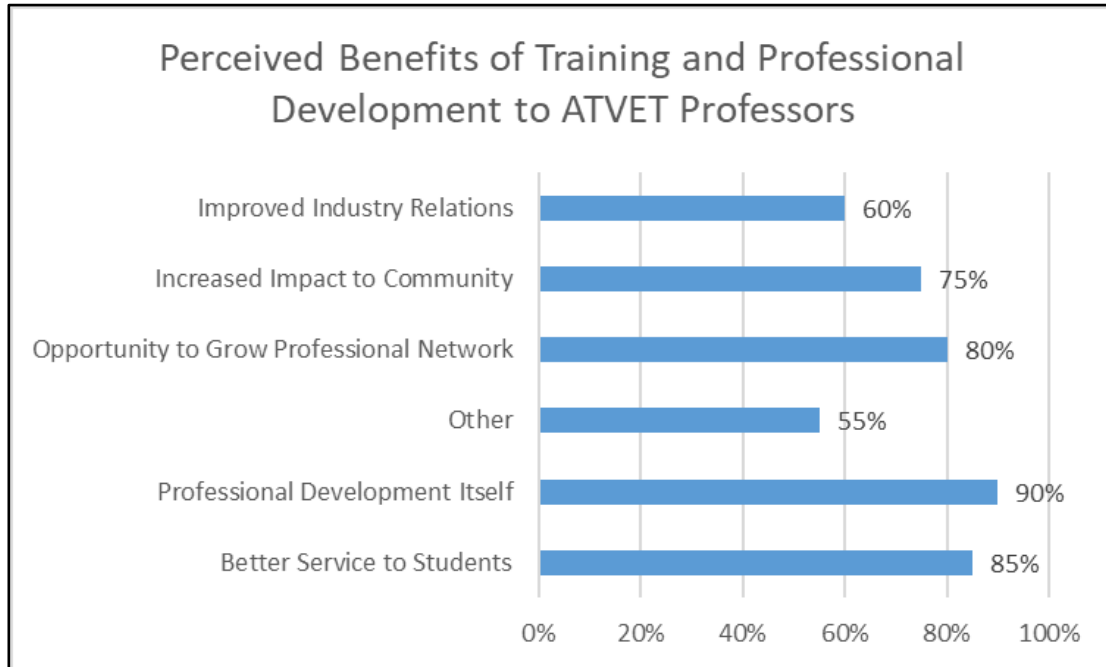


Figure 5: Perceived quality



Figure 6: Frequency of offerings



Figure 7: Degree of participation

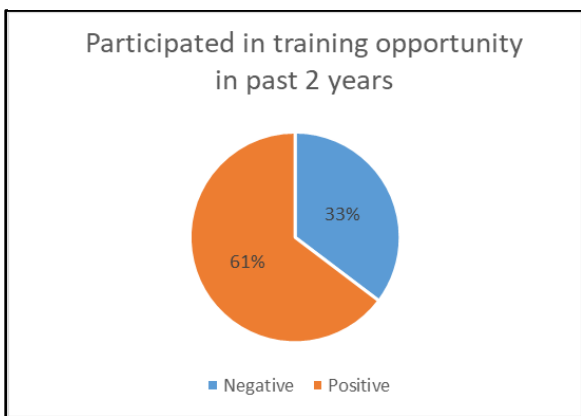


Figure 8: Cost to participate

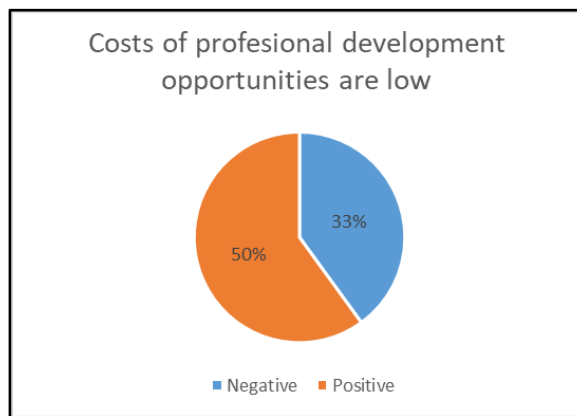
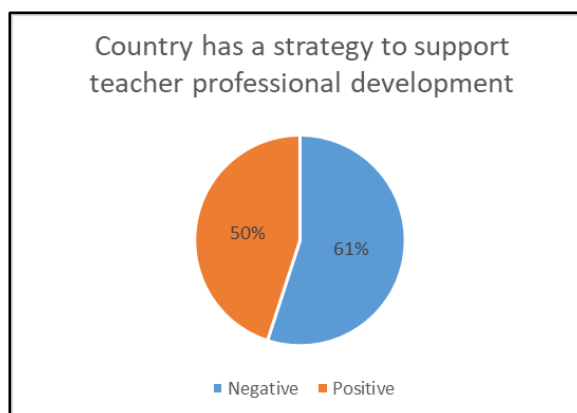


Figure 9: Degree of national support



The results from part two of the pre-event survey, which focused on institutional information pertaining to specific ATVET centers were used to generate a series of infographic maps which are included in **Appendices D - L** and highlight sample use cases for a ATVET Geographic Information System (GIS) in the region for use as one potential platform to help inform and facilitate development of future initiatives. More information on the ATVET GIS concept is also available as an online educational video (**Figure 10**), and posted at:

https://innovate.oired.vt.edu/wp-content/uploads/2015/09/FINAL_USAID_InnovATE_GIS.mp4?_=1.



Figure 10: Link to educational video on ATVET GIS concept and sample applications

Workshop Group Activity

During the workshop registration process, attendees received a name badge which also contained a small color-coded sticker (i.e., green, orange and yellow). Also, within the registration packet were three small stickers of the same color. During the afternoon of the second day of the event, attendees were placed into one of three groups corresponding their role in ATVET-related work (i.e., directors, government, and support) and indicated by the color of the sticker on their name badge. Two separate groups were made for the governmental group, due to the number of participants from this sector.

Appendix B includes a translated copy of the guiding questions for the group activity.

Each group was given the following guiding questions: *“Is there a need for a regional program for the training and continuous certification of educators in EETVA?”* and if “yes” *“what are the challenges and opportunities for this type of program?”* and if “no” *“What other efforts in the region is needed to implement to improve the quality of EETVA programs?”*. Groups were given approximately 45-minutes for group discussion and to record key points of the discussion on paper easel pads. Near the end of the breakout session, individuals were asked to use the three color coded stickers from their registration packet to individually “vote” on the most important points identified on the group’s easel pads by placing their stickers next to the point(s) of greatest import from their perspective. Through this process, each of the three groups developed a detailed response to the posed questions with perceived importance

of each point ranked via the voting process. Following the activity, a representative from each group reported the findings featuring the points receiving the greatest number of votes back to the entire workshop, and the easel pads were preserved for later review. The tables below provide translated summaries of the responses from the four breakout session groups; **Table 1** “Director Group”, **Table 2** “Government Group A”, **Table 3** “Government Group B”, and **Table 4** “Support Group”.

Table 1: Breakout Session Summary: Director Group

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| <p>Is there a need for a regional program for the training and continuous certification of educators in ATVET?</p> | <p>Yes</p> |
| <p>What are the challenges and opportunities for this type of program?</p> | <ul style="list-style-type: none"> • Create network (votes = 10) • Student and teacher exchanges (votes = 4) • Develop job profiles (votes = 2) • Design of program norms and procedures (votes = 2) • Determine financing (votes = 1) • Link certification to requirements of each country (votes = 1) <p>Opportunities:</p> <ul style="list-style-type: none"> • An institutional network for professional training already exists (<i>Red de Institutos de Formación Profesional</i> (RedIFP)) • Technical standards already exist for professional competence (<i>Formador de Formadores</i>) <p>Challenges:</p> <ul style="list-style-type: none"> • That the certification is done in each country (votes = 17) • That the training is done in each country • That there is a regional figure that organizes, moderates and defines the processes for approving training and certification |

Table 2: Breakout Session Summary: Government Group A

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| <p>Is there a need for a regional program for the training and continuous certification of educators in ATVET?</p> | <p>Yes</p> |
| <p>What are the challenges and opportunities for this type of program?</p> | <p>Opportunities:</p> <ul style="list-style-type: none"> • Existence of national and international expertise to promote teacher training (votes = 2) • Institutional will of the forestry and agricultural technical schools to participate • Necessities of food security and food production • The need to promote changes in training capacities <p>Challenges:</p> <ul style="list-style-type: none"> • Regional political will (votes = 4) • Organizational (votes = 1) • Regional planning and executing unit, with respect to: (votes = 3) <ul style="list-style-type: none"> ○ Assessment ○ Strategic partners ○ Beneficiaries ○ Curriculum ○ Certification • Training entity (e.g., institution, institutions) and certifying entity (votes = 2) • Monitoring, accompaniment, evaluation, and follow up |

Table 3: Breakout Session Summary: Government Group B

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| <p>Is there a need for a regional program for the training and continuous certification of educators in ATVET?</p> | <p>Yes</p> |
| <p>What are the challenges and opportunities for this type of program?</p> | <p>Opportunities:</p> <ul style="list-style-type: none"> • Regional recognition • Make it viable via <i>Sistema de la Integración Centroamericana</i> (SICA) (votes = 1) • Modern approach to learning • Design of a general framework for training technical teachers (votes = 1) • Systematic, and permanent, training programs in the different countries (votes = 1) • Linkages among governmental organizations, non-governmental organizations and public institutions <p>Challenges:</p> <ul style="list-style-type: none"> • Who will formulate it (votes = 2) • Create local and regional training and certification instance • Political will of each country for creating, financing and sustaining effort • Forming linkages with other actors in sector (votes = 2) • Consider mechanism for monitoring and evaluation (e.g., social recognition, economic, etc.) • Establish, and/or strengthen, the professional and technical training system |

Table 4: Breakout Session Summary: Support Group

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| Is there a need for a regional program for the training and continuous certification of educators in ATVET? | Yes |
| What are the challenges and opportunities for this type of program? | <p>Challenges:</p> <ul style="list-style-type: none"> • Respond to the necessities of the agroforestry sector • At the level of private business, government, communities, producers, small businesses with business leaders. • In the context of regional food security, adaptation and mitigation due to climate change, and geolocation of regional and global markets <p>Opportunities:</p> <ul style="list-style-type: none"> • Regional linkages of the network • Governing body entity of training and certification |

Post-Event Survey

The post-event survey was distributed in person as a hardcopy within the workshop registration packet. Workshop participants then submitted the anonymous completed surveys during the final 15-minutes of the event. **Appendix C** includes a translated copy of the survey instrument. **Table 5** provides a translated, abridged and aggregated summary of the post-event survey results.

The instrument prompted individual respondents to privately reply to open-ended questions regarding:

- Thoughts on an ATVET teacher certification program
- Thoughts on the development of an ATVET geospatial database for potential use as a tool to help explore project and collaboration opportunities across region
- An ATVET network to exchange ideas, experiences, and best practices
- Needed resources, courses and experiences to better prepare teachers
- Needed resources to improve teacher pedagogy
- Their general critique for the session
- Any additional feedback or comments they wished to share

Table 5: Post-workshop Survey Summary

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| <p>Please share your thoughts regarding a ATVET teacher certification program?</p> | <ul style="list-style-type: none"> • Necessary for the organization and collaborations of common efforts in communities and region • Novel learning experience shared with different nationalities and backgrounds • Considered to strengthen competencies through a structured, directed certificate program • Contributes to ensuring teaching quality, maintaining level of excellence at educational institutions, upgrade teaching skills, and serve to develop agricultural and forestry education in general • It is ideal, can be mechanism to certify teachers at different levels, and through a continuous process • Of great utility, if and when the program is not general, but can be adapted to the characteristics and needs of each community or educational center • Should be a regional program of continual training with teacher certification to improve the education at the agroforestry training centers • Important to implement to improve the quality of teachers and education • At the regional level it is urgent to standardize teacher certification to guarantee the quality of student training across different levels and stages • Ideal for standardization and homologation of processes and methodologies • It is important to follow up with each institution to assess any achievements after this event • This program is important in our country as they do not currently offer trainings within the classroom, which makes the work of the teacher difficult • It is necessary as it permits teachers to receive social and economic recognition and improves the quality of education and life • It is critical to have a teacher certification program to guarantee a quality educational process and that can be validated in the region • It is a necessity, even though is should be of a regional character to reach worldwide standards • Appears to be an urgent necessity in the region, it will help us prepare teachers, and a mechanism for re-certification to maintain the motor for professional development through continual education • It is necessary that a certification program exists at the national elvel and at the regional level, given that in Central America we have similar characteristics • It is indispensable and urgent, there are dispersed capabilities but a system needs to be created, in order to improve quality, reduce costs associated with high quality training in the region • Should conform with the structure any country's teacher certification systems • Excellent initiative • Excellent, a training and certification program is very necessary • Should be born through a multilateral network with educational agroforestry institutes, that forms its own mechanism of teacher certification |
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| | <ul style="list-style-type: none"> • It appears necessary and important, is achievable with the coordination of different entities • It is a necessity in our countries and the necessary conditions for its development should be created |
| <p>Please share your thoughts regarding further development of a ATVET geospatial database for potential use as a tool to help explore project and collaboration opportunities across region?</p> | <ul style="list-style-type: none"> • It appears excellent for decision making and project investment • In total agreement, willing to share the required information • Generate projects to evaluate and validate utility of geographic information system tool at the regional level • The ATVET database would place important information to generate and utilize in project opportunities • In agreement that it be developed, shared, and maintained with real data, and with free access • Necessary for the creation of alliances and facilitation of work; would help reduce redundancies in a common geographic area • An online database with virtual training should be considered before continuous training • Necessary for the interchange of experiences and so that future students have options • The implementation with real data would be interesting • It appears to be a good idea, an opportunity to generate a link among actors with the same interest • Create a source where everyone that participates can have access to the information, advances, and achievements • Would be excellent to have a geospatial database that permits obtaining the financing for future projects developed through institutions • This would significantly help the different countries strengthen technical and professional education • Would be a guiding methodology to explore and develop projects • Able to be a useful tool for the systems • It appears to be a novel tool, enabling a perspective focused on agriculture, the tool can help inform project development for greater productivity and social impact • Excellent, would be a practical and easy medium for the exchange of knowledge and experiences • The tool is very effective in optimizing processes, use of resources, creating synergies, maps of markets (supply-demand), human resources, training opportunities, would be useful across different sectors • A good tool to utilize • It is important to monitor the regional supply of ATVETs • It is useful toward achieving the objective • Would be a useful resource for the exchange of information |
| | <ul style="list-style-type: none"> • Would permit us to know what the universities, private businesses, different communities are doing, and what is training is lacking to raise standards • The participants have already expressed the unanimous decision that an ATVET network would permits the exchange of successful experiences |

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| <p>Please share your thoughts regarding a ATVET network to exchange ideas, experiences, best practices, etc.?</p> | <ul style="list-style-type: none"> • Create spaces online to provide feedback to the process • Strengthen teacher training in Central America • With pleasure we would like to be part of this network, it is a necessary mechanism to share best practices and lessons learned • Digital platform, educative material, attributes of all the member institutions, with monitoring forums • Should be created as a support and exchange network to create projects to improve the education in agroforestry centers • A web application to enable connectivity • The idea is necessary for the socialization of experiences, to guarantee an improvement in the methodology of the work, and perform this at least two times per year • It is a good idea, enabling communication between countries, and the opportunity for peer-to-peer strengthening • A network is urgent for the certification program at the regional, Central American, level • Now with technology for communication it is necessary to have this network and include specific institutions for said exchanges • It is necessary to put this in motion in the different countries, the professionals in technical areas would enable an improvement with technical training and teachers • It is basic for sharing successful experiences • Revisit the network that already exists • For the continual pedagogical and technical progress for each teacher it is necessary to create a network. Nevertheless, we need to develop a strategy that once it is in place, teachers fully utilize and leverage the resource • The network is necessary and important for learning more about each country and related projects • Create a regional network with all key actors from the private sector, government, academia, and civil society • The network could be fundamental to maintaining validation of the technical curriculum content • The network should be inclusive and give opportunities and access to all • Helps with regional integration which strengthens us • It is an excellent format to standardize the regional education systems in agroforestry across different nations • Could be good, but it is always necessary to have the in-person connection, even if only once • It is necessary to create a network with this goal, I hope this meeting is a first step towards its creation |
| | <ul style="list-style-type: none"> • Soft skills, knowledge of climate change, needs of our communities, successful experiences, identification of success factors for a business • The desire to learn and reinforcing the didactic and planning aspects • Develop teachers using Constructivist Theory • From a training program, focus on pedagogy of learning |

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| <p>What resources, courses and experiences are needed to better prepare teachers?</p> | <ul style="list-style-type: none"> • Networks for communication (Internet), training on use of information and communication technology, preparing for change, continual professional development (with or without certification) • Application of knowledge, sharing of success stories to replicate in other locations • They need virtual training programs at the regional level to exchange pedagogical experiences from their work in the agroforestry educational centers • Pedagogical methodologies and experiences within the agricultural industry • Economic resources, courses on applicable innovation methodologies • Computer equipment, exchanges of experiences at other schools • Trainings oriented toward meeting local needs • Training on new methods and techniques teaching and learning, specifically focused on the technical aspects (agroforestry, business) • Courses in the different technical areas, financing to implement training programs, methodology courses, and offer tools to improve their teaching • Pedagogy, evaluation, specialization in different technologies, adult education, psychopedagogy • Conditions to enhance teacher learning from workshops, or field and factory visits in the country • Economic resources to enhance mobility, facilitation of materials, subject of pedagogy, develop entrepreneurial capacities in teachers, use information and communication technologies in teaching process • Soft skills, innovative technologies (virtual education), exchanges, linkages with international systems • Teacher training plan developed from some diagnostic, that includes a budget • Virtual platforms • Laboratory technologies (micropropagation, biotechnology, controlled environments) • High quality trainers for pedagogy, information and communication technology, child and adolescent psychology, group work, evaluation, etc. • It is important to validate the norms in each country • They need a training program with established quality standards, a space to meet and see opportunities |
| <p>What is needed for agriculture and science teachers to improve their pedagogy?</p> | <ul style="list-style-type: none"> • Offer courses on learning by doing, systemizing and evaluating processes • Conduct workshops on teaching techniques and participative learning, on the development of knowledge • Strengthen instruction training methodology • Training in modern pedagogical approaches and in competency-based curriculum design • Work with sociologists that know the relationships between students, teachers, family, and other members of society • Constant monitoring of teaching activities and innovations to adapt to day-to-day needs |

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| | <ul style="list-style-type: none"> • National efforts to allocate resources so that teachers participate in national, international, and virtual training • Basic and certified levels of preparation • Update methodology to become a continual learning process • Offer employment stability; Provide training and updates • Pedagogical trainings based on the teacher needs • Require more training in different areas, and not only classroom based, but also in the field of application (psychomotor skills) • Classroom-based training methodologies; teacher internships with businesses to implement knowledge • Teacher training • Pedagogy courses, and a teacher coaching system for technical and engineering teachers • Commitment from the teacher to improve pedagogical skills; facilitate adequate training (face-to-face, virtual, etc.); provide time and means for teachers to participate in trainings; identify reference centers to know in person and to learn from their successes and best practices • Train using the constructivist approach so that the teaching of learning is successful • Training in innovative methodologies; strengthen educational institutions; increase public funding destined for technical education; integrate with businesses from the private sector • Develop a pedagogical training plan focused on technical training • Approve and validate technical norms; financing; unify forces • Improve and train • More training under the model of learn by doing • Complete diagnostics and training; supervision is important • Training and pedagogical assistance in the field |
| What went well during the session? | <ul style="list-style-type: none"> • Everything was excellent, I loved the punctuality and the richness and diversity of the people presenting • Everything • Exchange of experiences and applied methodologies in the educational centers • The discussion about training and certification • The intentions of always trying to improve education; many related points; necessities that can be covered by other participants • Time was well managed; presentations were short and concise; opportunity for exchange of useful information and contacts • The exchange of experiences has been enriching to improve the processes of change to improve teacher training for teachers at the agroforestry education centers; logistical details were well managed • Everything was very good • The work methodology and the farm tours • The discussion; punctuality; the attention • The sharing of what each participant institution does |

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| | <ul style="list-style-type: none"> • Good experience to know the functionality and problems of each participating institution, and try to establish practices in our institution • The practicality of the workshop • Everything; important to know the training experiences of other institutions; the university's excellent campus • To learn what each country does regarding teacher training • Everything, the work appeared well done • The punctuality; the development of the program and compliance with time schedule; knowledgeable facilitators • The selected participants were a good representation; the host institution (EARTH) excellent!, the agenda, time management, logistical support, the coordination and organization, those that helped synthesize content; content of the presentations; the food! • The program was well designed and the themes were pertinent to the context of the countries • Exchange of experiences • Management of topics and time • A very rich and diverse discussion of a common theme from distinct perspectives • The participation of everyone • Everything was fine; excellent organization |
| What did not go well during the session? | <ul style="list-style-type: none"> • Everything was fine, only the tours could have been earlier due to the sun and heat • Nothing; only that it appears to me that the tours could be done earlier in the morning and we could see the work of the students • Everything was very fine • Very filled which diluted the principal focus on training and certification • Maintain the same focus on competencies with companies; it is necessary for improving the living conditions of humans in society (as EARTH says) • Agenda was too tight; difficult for long workday • Nothing • Nothing, everything was fine • Nothing • Very short time to tell experiences • Farm tours should be in the morning, between 8-9 • Time too short to adequately share presentations from each institution • The short time assigned to the thematic presentations • Short time • Nothing • Everything went well • Nothing • Nothing comes to mind; Except that I wish I had 15 minutes instead of 10 minutes for my presentation; Almost forgot...secure coffee in the morning • Everything went well |

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| | <ul style="list-style-type: none"> • Little time • More time for the presentations • Very full program for two days with little motivational activities to keep team attentive and involved • Some presentations only focused on what they do • Nothing |
| <p>Thinking back on the activities, what suggestions do you have for improvement?</p> | <ul style="list-style-type: none"> • Excellent, the punctuality and cards • Amplify the time for the presentations and discussions; it was all very tight • Facilitate more time for the analysis and deeper exploration of themes presented • Develop the network of educational entities in Central America, leveraging the existence of the SICA (Central American Integration System) • Bachelors and masters level graduates validated across the Central American region; can be on line or hybrid • Conduct debate tables to generate positive results for all of the organizations • Add a local cultural activity in the free time after the work is complete • Agreements and commitments of the governments • More time to give the presentations • Rotate host country • We form our agroforestry network with the entities participate with • For future workshops, there should be more time because many participants want to share more about their institutions • More workshop work with sufficient time; the competency-based certification themes • More time and give follow-up to this beginning • Tell more field experiences • Nothing • It is necessary that these types of workshops be viewed regionally, to unite forces and produce greater achievements • Allow more time for the group activity • Nothing • A longer agenda for the analysis of the work • More time for presentations • Do more group and motivational work • Everything was fine • The activities were well designed and time was well managed |
| <p>Please share any other comments you wish to share on back of page:</p> | <ul style="list-style-type: none"> • It is fundamental to give this continuity • Thank you for inviting me; I wish I could have include another professor from my school • Nothing • Nothing • Strengthen the theme of languages, particularly English; Internships en similar centers or with better conditions; database with documents that have the information for each center in each country |

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| | <ul style="list-style-type: none"> • Nothing • Develop events for very specific themes in order to generate strategic products to improve teacher training of the agroforestry educational centers; create a virtual means for exchanging experiences, materials, didactic resources to enrich and make these resources accessible to the teacher training communities to improve their curriculum development in the agro-industry training centers; define opportunities for teachers from middle and upper level schools at agroforestry training centers • Thank you and congratulations • Congratulations to EARTH for promoting this activity to know of the experiences at the Central American level, about agro-industry, agribusiness, agricultural and forestry training • Congratulations; only those that do nothing do not commit errors • Thank you for the invitation • It is necessary to carry out the training of teachers in agroforestry (certification); give follow up to this program and implement it as such • That there is continuity to this initiative that will be of much benefit to improve the quality of technical education; workshops should be organized for at least once per year • Thanks to the sponsors and coordinators of this event • Consider that in some of the countries the national technical training system includes agricultural and forestry occupational families • Congratulations on the initiative of this meeting • Thanks for the opportunity to participate • Nothing • Nothing • Nothing • Excellent workshop, the logistics, the underlying objective that motivates us to implement a regional program to portray us as a Central American block that is of critical importance toward achieving the goal • Nothing • The workshop was excellent; well planned and complied with the established times • Thank you for the invitation and all of the support to ensure the participation of each institution |
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Summary

A robust teacher professional development and certification platform for Agricultural and Forestry Teachers at Technical and Vocational Education and Training (ATVET) can serve as an opportunity to more efficiently generate positive impacts, and to strategically (**Figure 11**):

1. Improve Teaching via Learning by Doing

ATVET centers are uniquely poised to provide market-focused practical education and training for skills in demand in the agriculture, forestry and allied sectors. Improvements to the curricula, pedagogy, and program content can serve to enhance these capacity-building machines, while the number of students per cycle compounds the effects of all seat-to-sector efficiency improvements.

2. Leverage ATVET-led Community Engagement

ATVET centers are often recognized within the region as centers for technical information. As such, ATVET centers are, and can become more, involved in development initiatives at the community and regional levels, in terms of: educating cohorts of students to implement work through their careers, faculty led learn-by-doing focused curricula with community engagement for off-campus impact, among other opportunities.

3. Identify and Influence Donor Initiatives

ATVET centers, and their zones of influence, represent an opportunity for donor-sponsored initiatives to leverage the presence of these institutions for a sustained and multiplicative impact upon the themes of mutual interest to the sponsor and ATVET.

Based on participant feedback from the workshop, it appears that there is some level of interest among potential ATVET collaborators for further exploring and developing aspects of these opportunities. Next steps will require identifying resources and strategic collaborations to enable moving forward with specific actions to implement these initiatives, and by doing so convert these “castles in the sky” to an effective and efficient professional development platform for ATVET stakeholders. Our hope is that some of this information captured from this workshop will serve to help inform future efforts.

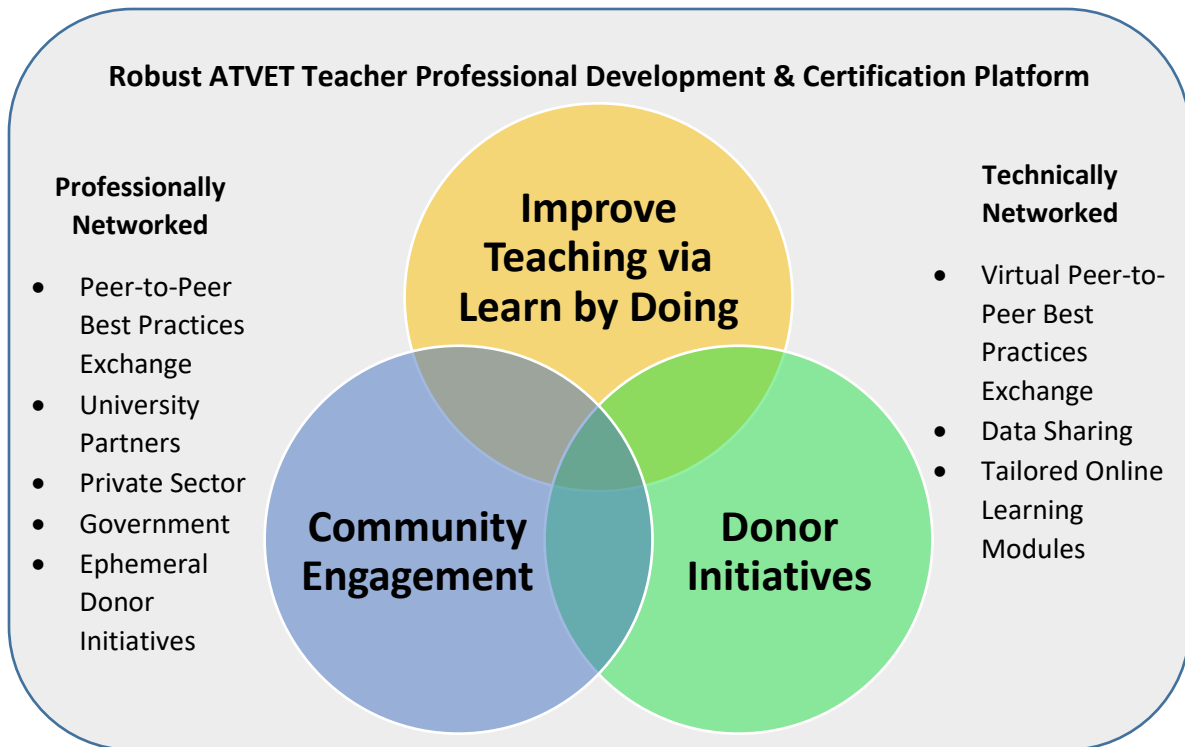


Figure 11: Diagram representing conceptual ATVET teacher professional development, certification, and networking platform

Appendix A: Pre-Workshop Survey Instrument (English Translation)

Pre-workshop Online Survey (English version)

P1.1 Dear participant, first of all, I would like to thank you again for your interest in participating in this international event that Virginia Tech is organizing through the sponsorship of the Agency for the cooperation international of the United States (USAID) with the logistical support of EARTH University in Costa Rica. I would remind you that the aim of the workshop is to obtain your impressions and feedback for a proposal for a certification for teachers of secondary school in the area of education and technical training vocational agricultural and forestry (EETVAF). The certification program for teachers EETVAF would be under the leadership of EARTH University. To enable the objective of the activity to fulfil successfully, it is necessary to help us answer the following questionnaire. Their responses are extremely valuable to help us better prepare for the event. Also remind that they should prepare a short (no more than 15 minutes) presentation that explains the efforts that your organization has been involved, designed, or been promoted in relation to programs professional development, certification, or continuing education for teachers of secondary school in the EETVAF area. Your personal responses are 100% confidential and there is no known risk for taking this survey. Personal information will only be shared in an aggregated format. But, demographic information on schools will be shared at each school level. If you have any questions, please contact me by email quesada@vt.edu or by phone in United States (540) 231-0978. Thank you very much for your answers. Henry Quesada and John Ignosh Virginia Tech

P1.2 only for government institutions. Describe the specific programs that the Government institution has designed or promoted to support the training and professional development of teachers in the EETVAF area.

P1.3 only for educational institutions: describe the programs for training and professional development to teachers in your school have their availability in the EETVAF area.

P1. 4 describe as the training programs and professional training for teachers of EETVAF that are offered in your country are aligned with the curriculum offer which is offered to the students.

P1.5 indicate ways in EETVAF teacher receive training and professional development in their country.

Select all that apply.

- ☐ Training in person (1)
- ☐ Online (2)
- ☐ Internal to the institution of education in particular (3)
- ☐ Internal education system (4)
- ☐ International (5)
- ☐ Another. Please describe (6) _

P1.6 indicate the degree of concordance of the following statements.

| | Disagree (1) | Disagree (2) | Of agreement (3) | Agree (4) | Not applicable/don't know (5) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------------------------------|
| Training and professional development in my country offered to instructors of EETVAF is of very high quality (1) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The activities of training and development professional for teachers of EETVAF is offered frequently. (2) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In the last two years I have participated in at least one activity of training and professional development in the area EETVAF either as participant, instructor, designer, or developer. (3) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Costs and access to training and professional development for teachers of EETVAF in my country are low. (4) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In my country there is a clear part of the Government strategy to support the training and professional development of teachers of EETVAF (5) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

P1.8 describe how in your country would improve opportunities for training and professional development of teachers of EETVAF

P1.7 from the list below, select all teachers of EETVAF benefits by participating in training and professional development activities:

- ☐ Best service to students (1)
- ☐ Opportunity to establish contacts with other teachers (2)
- ☐ Development professional (3)
- ☐ Increased impact to the community which belong (4)
- ☐ Better relations with industry (5)
- ☐ Other: (6) _____

P1.9 If you have any comments or additional comments, please include it here.

P1.10 indicated the type of organization in which you work.

- ☐ Work at an institution of learning (e.g., teachers, directors of schools, administrative, etc.) (1)
- ☐ Work for the Government on activities of formulation and implementation of education policy (e.g., ministries, Office of Regional planning, etc). (2)
- ☐ Work for a relief organization international (3)
- ☐ Otra: (4) _____

Condition: work for the Government.. Is Selected. Skip To: End of Block.

P2.1 An aspect of the project has focused on the possibility of using a database (format in GIS or geographic information systems) to improve as certain strategic opportunities in education and agricultural vocational technical training and forestry (EETVAF) in the Central American region. The work of this project team has developed a mapping of schools involved in the agricultural or forestry sectors, available online (http://sim.sbio.vt.edu/?page_id=2315). See summary of map below showing the Central American region. With your support, we would like to add more information about your school to the database through the following questions. According to the style of this system (GIS) geographic information, we need data that corresponds to a specific location. Because of this answer to each question with information specified on educational institutions. In cases in which you could respond by multiple educational institutions, indicate at the end that you have more information about other schools or institutions of education and survey will automatically take you to fill in the information for educational institutions.



P2.2 Please, answer the questions with the information that you may have. They may be specific data or estimates according to your experience and expertise in your position in the educational institution you work. This is necessary to explore the potential value of a database in GIS as a pilot project.

P2.3 name full of the institution of education in EETVAF:

P2.4 indicate the geographical coordinates of the school in EETVAF in latitude and longitude. To copy the coordinates from a Google Map go a: <http://www.latlong.net/> once there, navigate to the view of your school. Then, you can copy and paste the data in the text box ('Lat Long"e.g., (15.623037, -91.629116)).

Q2.5 Please, type the address in the e-mail address of the person or office, with whom we could contact if we need more details about this database.

Name (1)

Mail, electronic (2)

Display This Question:

If you please, write the email address of the person or office, with whom we could contact for more details about this data base; Email electronic Is Not Empty

P2.6 Please, confirm the email address entered.

P2.7 approximately, how many teachers are there in is institution EETVAF?

P2.8 approximately, what percentage are women?

____ % Teachers (female) (1)

P2.9 approximately, how many administrators are there?

P2.10 approximately, what percentage of administrators are women?

_ Administering % (female) (1)

P2.11 approximately, how many students are there?

P2.12 approximately, what percentage of the students are women?

_____ % Students (female) (1)

P2.13 approximately, what percentage of students represent the maximum level of formal education within their families?

_____ % Students (1)

P2.14 indicate in percentage terms the distances where the students come (from home):

_ 0-10 km (1)

_ 10 to 20 km (2)

_ 20-50 km (3)

_ 50 to 100 km (4)

_ distance greater than 100 km (5)

P2.15 indicate the percentage distribution of students by years in the EETVAF school:

_ School year 1 (1)

_ School year 2 (2)

_ School year 3 (3)

_ School year 4 (4)

_ School year 5 (5)

_ Other comments: (6)

P2.16 indicate the average age of the students by year (e.g., Escuela año 3: 17 años de edad en promedio):

Year 1 (1)

Year 2 (2)

Year 3 (3)

Year 4 (4)

Year 5 (5)

Additional comments: (6)

P2.17 types of degrees offered (e.g. diploma name: expert, technical, etc.).

1. name of diploma 1 (1)
2. name of diploma (3)
3. name of diploma (5)
4. name of diploma (7)
- 5 name of diploma (9)
- Other comments (11)

P2.18 majors offered (major name, description of the major, percentage of enrolled students).

P2.19 major name.

1. name of major (1)
2. name of major (2)
3. name of major (3)
4. name of major (4)
- 5 name of major (5)
- Additional comments: (6)

P2.20 majors offered: descriptions of majors

1. short description of "\${q: // QID22/ChoiceTextEntryValue/1}" (1)
2. short description of "\${q: // QID22/ChoiceTextEntryValue/2}" (2)
3. short description of "\${q: // QID22 / ChoiceTextEntryValue / 3}" (3)
4. short description of "\${q: // QID22/ChoiceTextEntryValue/4}" (4)
5. short description of "\${q: // QID22/ChoiceTextEntryValue/5}" (5)
- Additional comments: (6)

P2.21 indicates the percentage of students enrolled in each major:

- _ \${q: // QID22/ChoiceTextEntryValue/1} (1)
- _ \${q: // QID22/ChoiceTextEntryValue/2} (2)
- _ \${q: // QID22/ChoiceTextEntryValue/3} (3)
- _ \${q: // QID22/ChoiceTextEntryValue/4} (4)
- _ \${q: // QID22/ChoiceTextEntryValue/5} (5)
- _ Other: (6).

P2.22 indicate the percentage of female students by major

☐ % female in "\${q: // QID22/ChoiceTextEntryValue/1}" (1)

☐ % female in "\${q: // QID22/ChoiceTextEntryValue/2}" (2)

☐ % female in "\${q: // QID22/ChoiceTextEntryValue/3}" (3)

☐ % female in "\${q: // QID22/ChoiceTextEntryValue/4}" (4)

☐ % female in "\${q: // QID22/ChoiceTextEntryValue/5}" (5)

☐ Other: (6).

P2.23 indicate the graduation rate by gender:

☐ Men (1)

☐ Women (2)

P2.24 approximate percentage of graduates are still studying or working in your area of study:

☐ Men (1)

☐ Women (2)

P2.25 approximate percentage of students who have dropped out but continue working in the same professional area of their initial study field:

☐ Men (1)

☐ Women (2)

P2.26 indicates the percentages of graduates from their place of work in relation to the distance between the school and their workplace

☐ 0-10 km (1)

☐ 10 to 20 km (2)

☐ 20-50 km (3)

☐ 50 to 100 km (4)

☐ distance greater than 100 km (5)

P2.27 indicate in percentage terms the distances from work to school EETVAF of students who drop out.

- ☐ 0-10 km (1)
- ☐ 10 to 20 km (2)
- ☐ 20-50 km (3)
- ☐ 50 to 100 km (4)
- ☐ distance greater than 100 km (5)

P2.28 When does dropout typically occur terms of percentage of completion of the total program? (e.g., if a student leaves school between the first year and the second year of a three-year program, will be 33% completed)

- ☐ Percentage program completed (1)

P2.29 please, share with us your ideas, suggestions and other comments here:

P2.30 has information to share on a different school?

- ☐ If (1)
- ☐ No (2)

Condition: No Is Selected. Skip To: End of Block.

P2.31 if you have information for most schools please send an email to jignosh@vt.edu thank you

P3.1 thanks for your participation and see you soon on the beautiful campus of EARTH University in Costa Rica.

Appendix B: Workshop Group Activity Guiding Questions (English Translation)

Breakout Groups

Is there a need for a regional program for the training and continuous certification of educators in EETVA?

If YES:

- **What are the challenges and opportunities for this type of program?**

If NO:

- **What other efforts in the region is needed to implement to improve the quality of EETVA programs?**

Appendix C: Post-Workshop Survey Instrument (English Translation)

Event Evaluation Form

Oportunidades para un Programa de Certificación para Educadores en Educación y Entrenamiento Técnico-Vocacional Agroforestal (EETVA)

26-28 de abril de 2017, Universidad EARTH, Costa Rica

1. Please share your thoughts regarding a TVET teacher certification program?
2. Please share your thoughts regarding further development of a TVET geospatial database for potential use as a tool to help explore project and collaboration opportunities across region?
3. Please share your thoughts regarding a TVET network to exchange ideas, experiences, best practices, etc.?
4. What resources, courses and experiences are needed to better prepare teachers?
5. What is needed for agriculture and science teachers to improve their pedagogy?
6. What went well during the session?
7. What did not go well during the session?
8. Thinking back on the activities, what suggestions do you have for improvement?
9. Please share any other comments you wish to share on back of page: _____

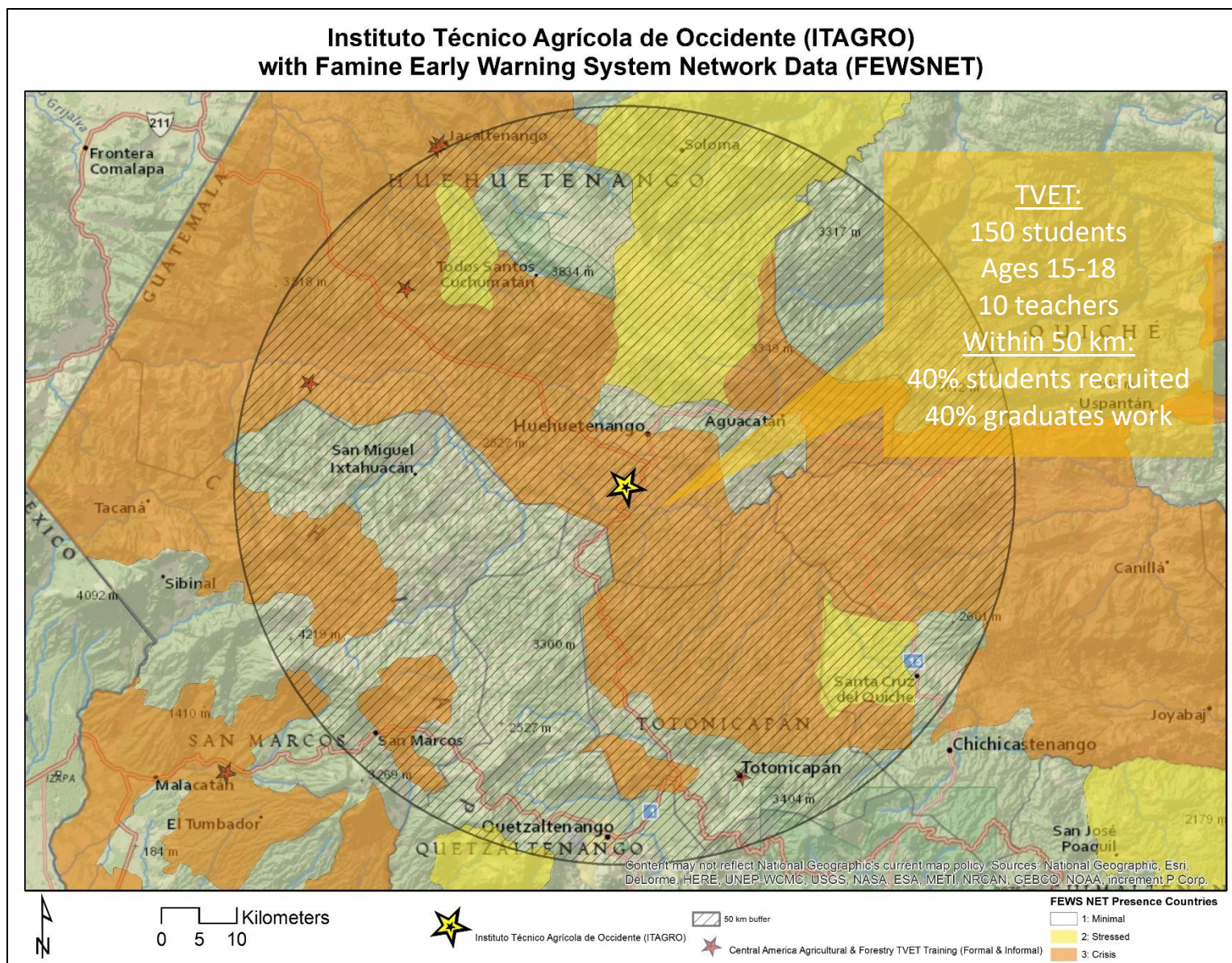
I | i n n o v A T E

Virginia Tech Institutional Review Board Project No. 15-1099 Approved April 17, 2017 to April 16, 2018

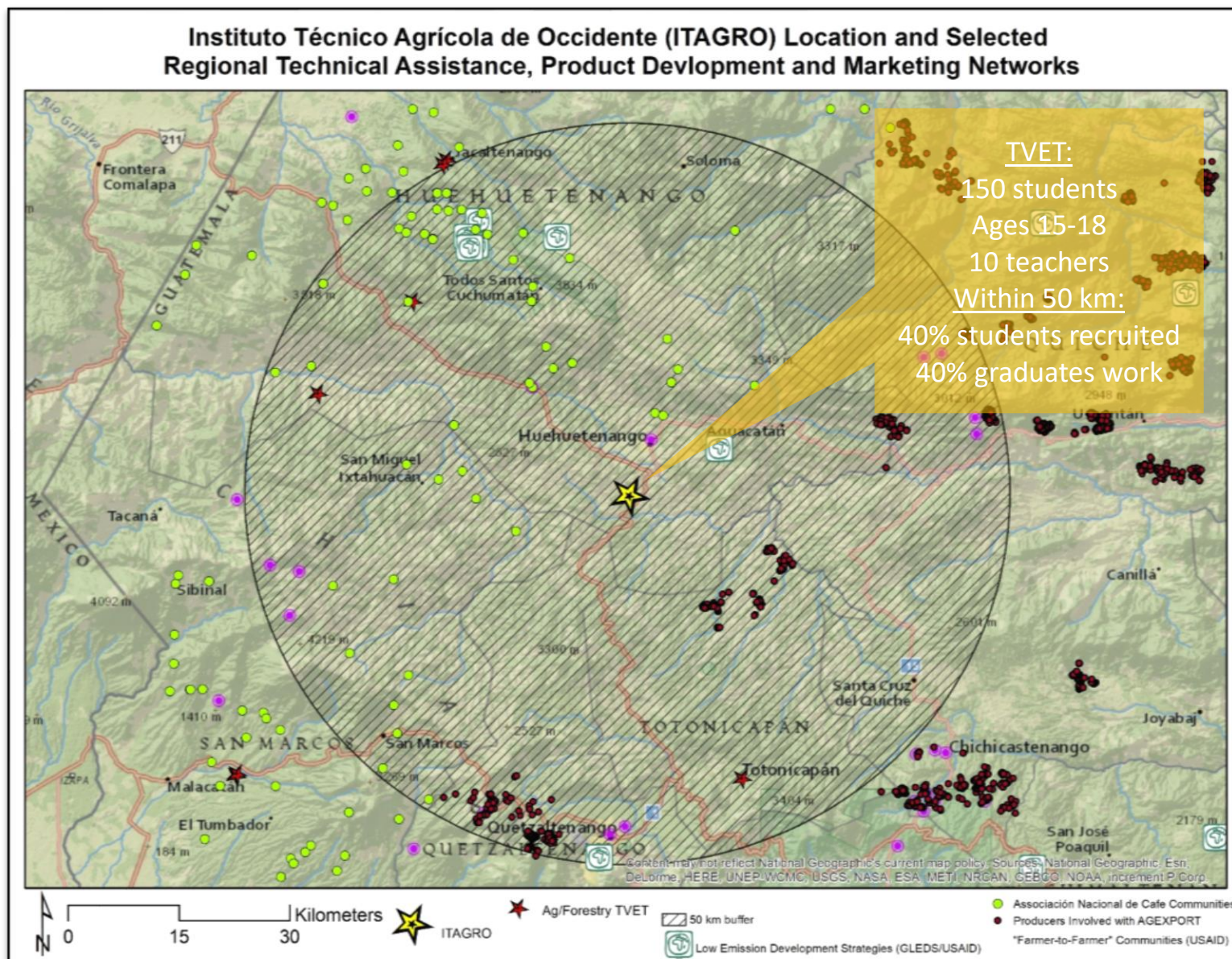
Appendix D: Sample Use Case – Exploring Locations of Agriculture and Forestry ATVETs in Central America



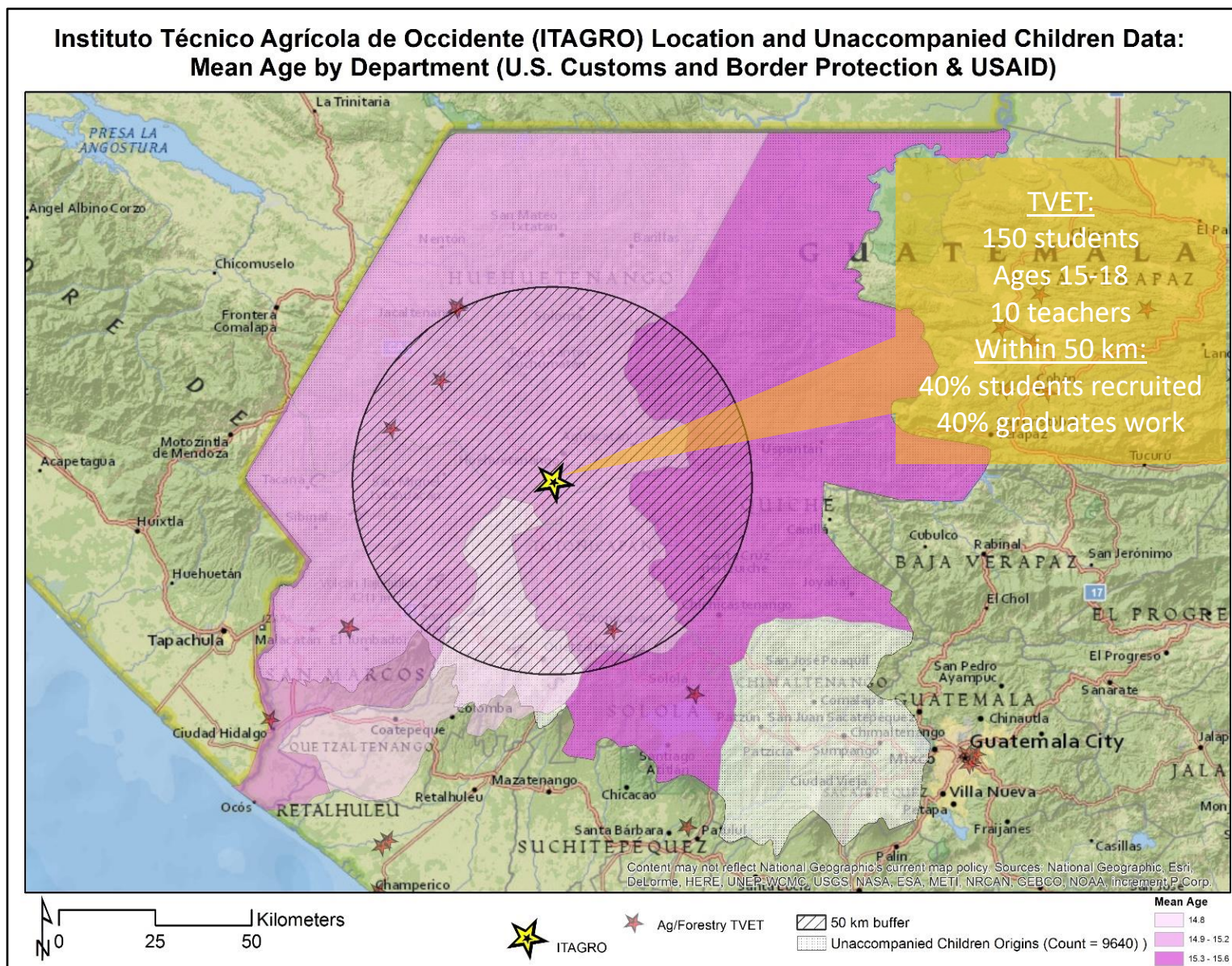
Appendix E: Sample Use Case - Exploring Food Security Challenges in ITAGRO Region



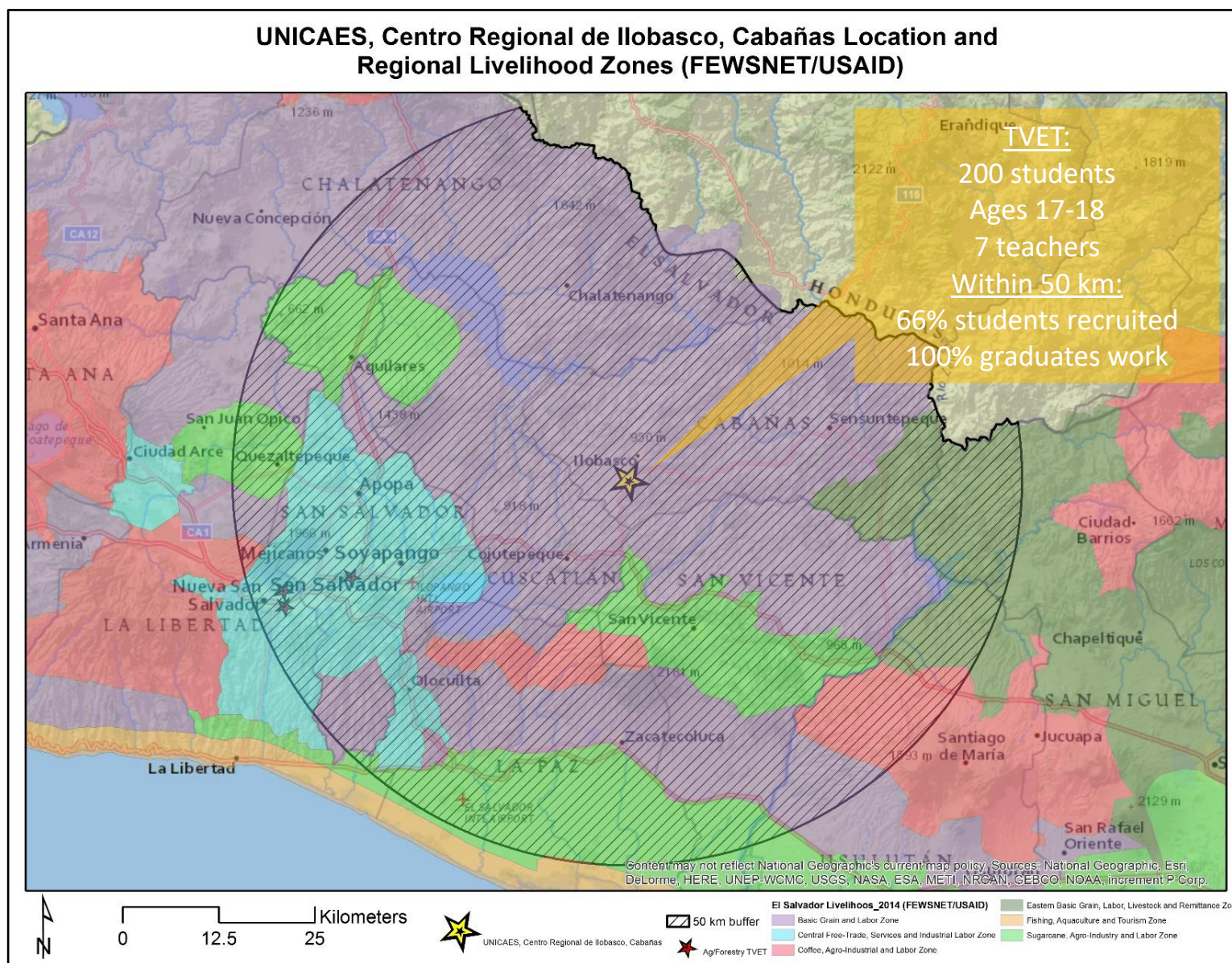
Appendix F: Sample Use Case - Exploring Technical Assistance Capacity Building in ITAGRO Graduate Placement Region



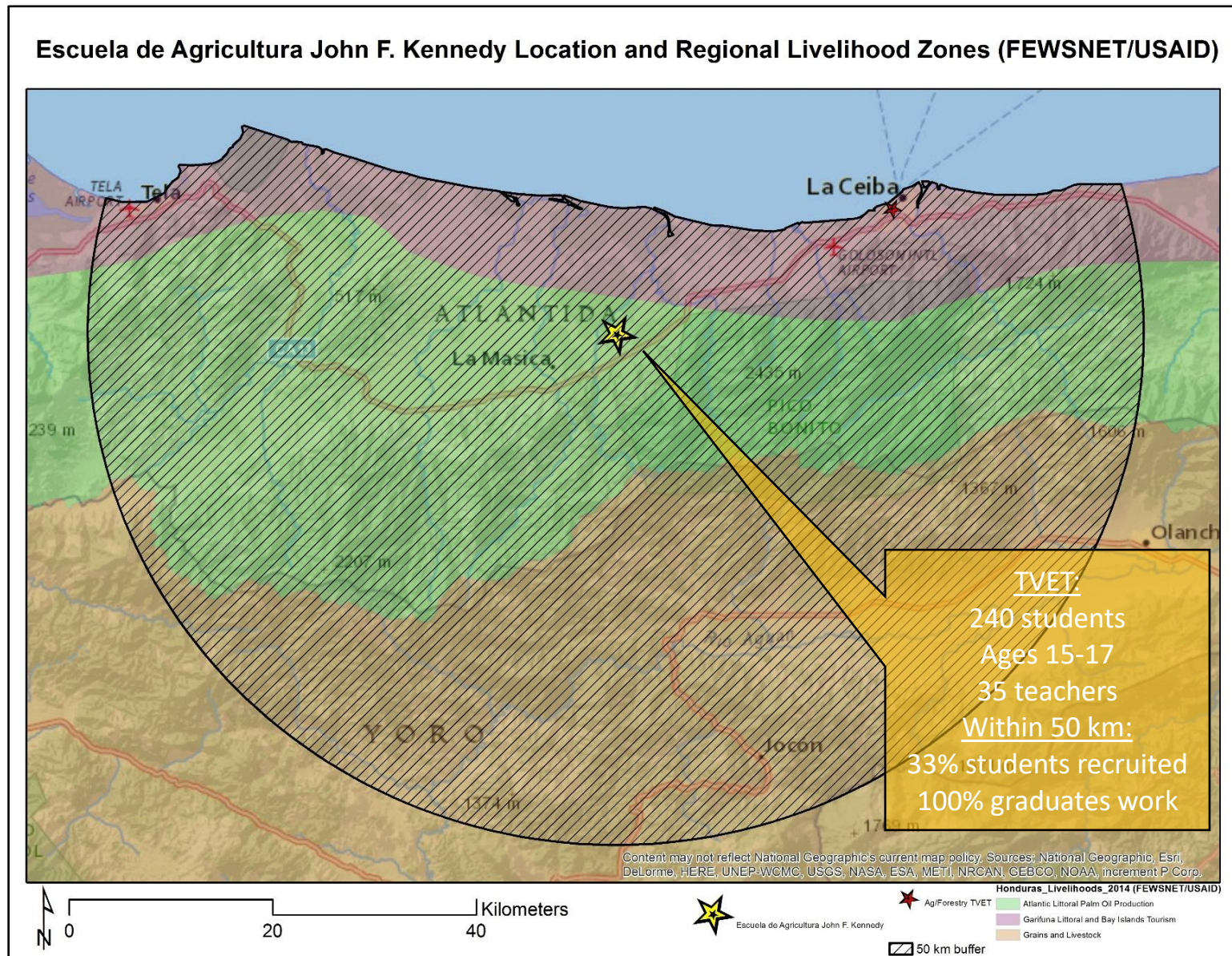
Appendix G: Sample Use Case – Exploring Provenance of Unaccompanied Children at U.S. Border in ITAGRO Recruitment Region



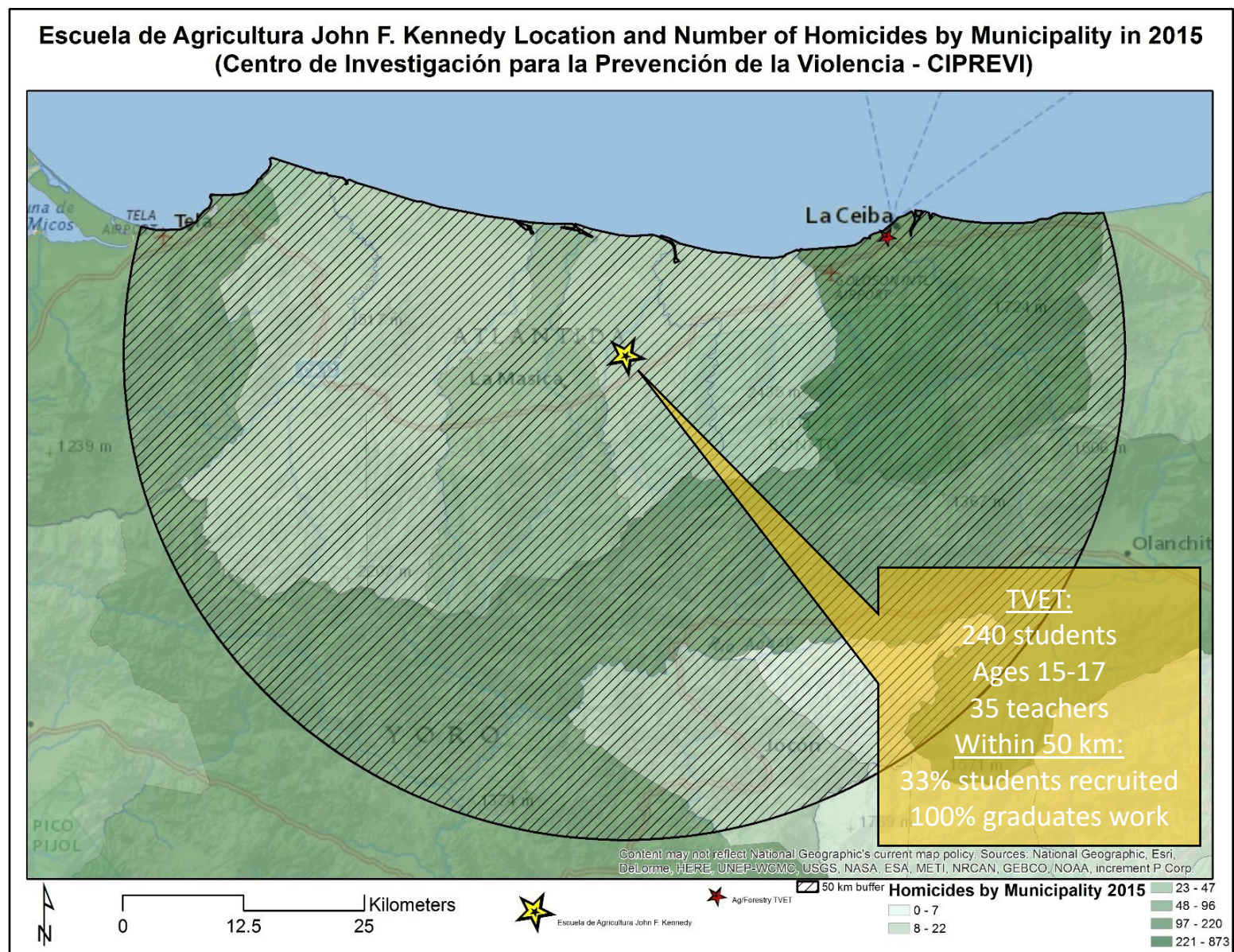
Appendix H: Sample Use Case - Exploring Livelihoods Near the John F. Kennedy's School of Agriculture



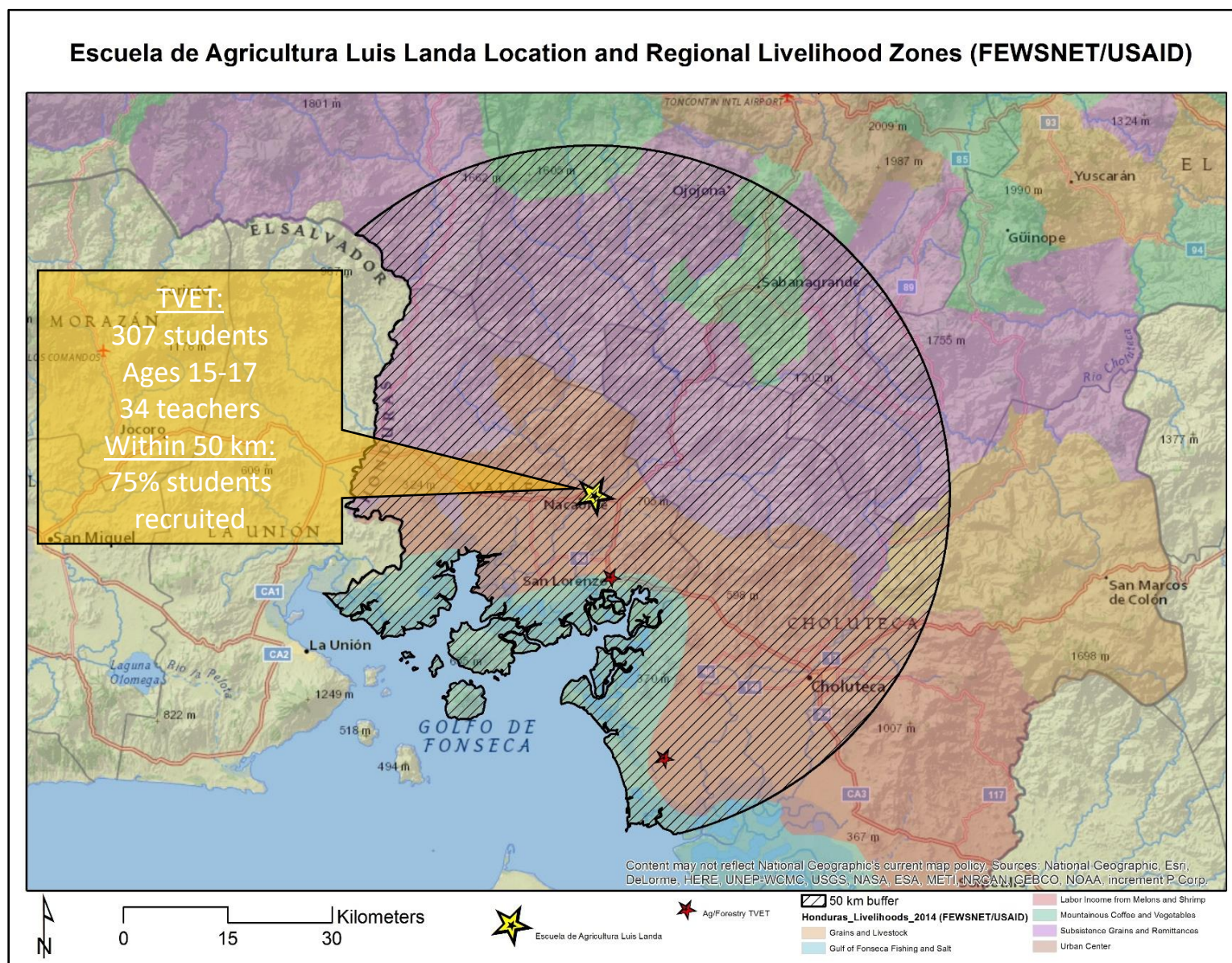
Appendix I: Sample Use Case - Exploring Livelihoods Near the John F. Kennedy's School of Agriculture



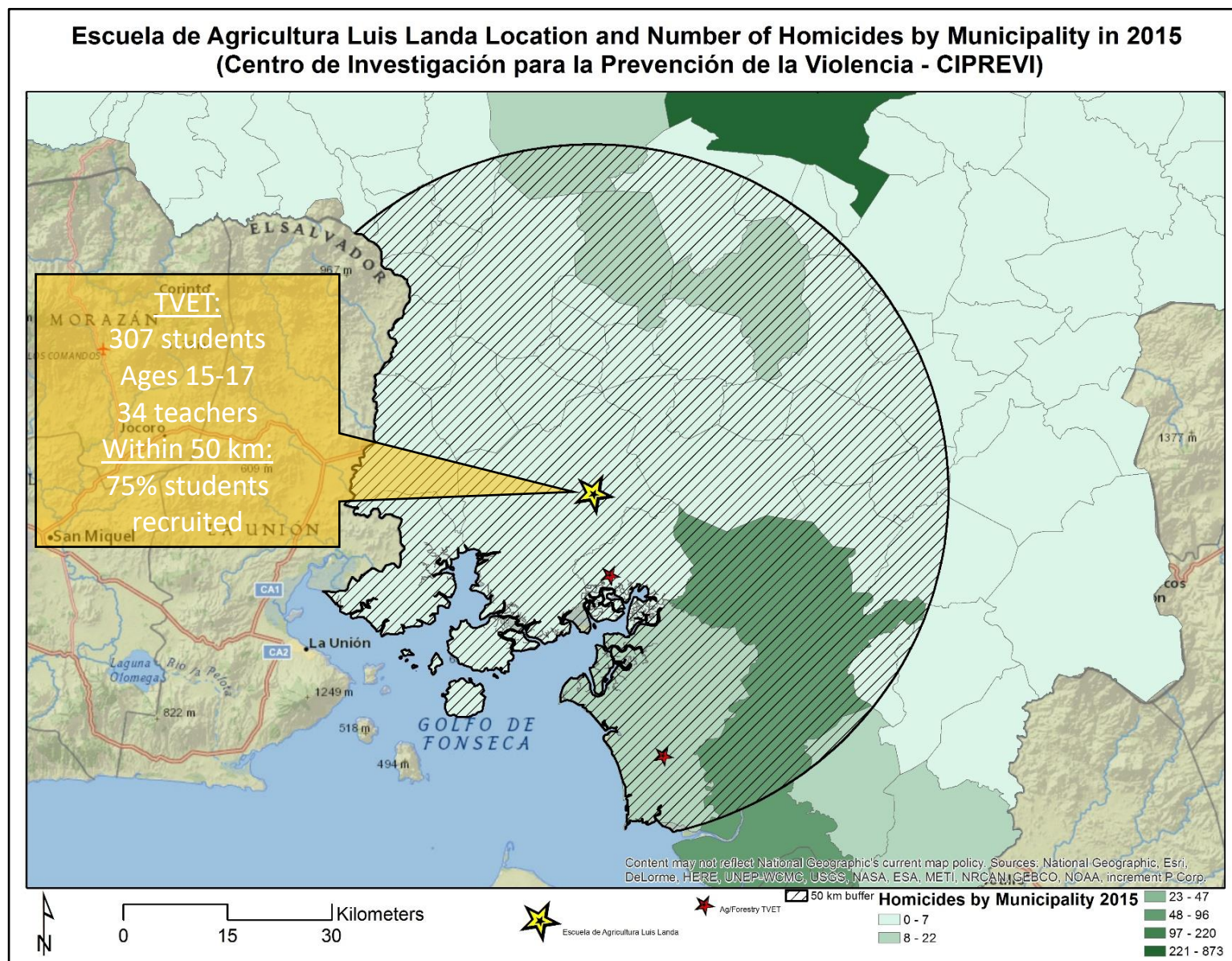
Appendix J: Sample Use Case - Exploring Citizen Security Issues In John F. Kennedy School of Agriculture's Recruitment Zone



Appendix K: Sample Use Case - Exploring Livelihoods Near the Luis Landa School of Agriculture



Appendix L: Sample Use Case - Exploring Citizen Security Issues In Luis Landa School of Agriculture's Student Recruitment Zone



Citations

- ATVET Survey Data
- ArcGIS Online Data Layers: AGEXPRONT (Guatemala/MEP), ANACAFE (Guatemala/MEP), FARMER-TO-FARMER (USAID), Guatemala Low Emission Development Strategies (GLEDS/USAID), and Centro de Investigación para la Prevención de la Violencia (CIPREVI)
- Guatemala, Honduras and El Salvador, Famine Early Warning System Network, USAID <https://www.fews.net/>
- InnovATE Program Overview, Office of International Research, Education, and Development at Virginia Tech <http://www.oired.vt.edu/innovate/>
- USAID Unaccompanied Minors Data: Central_America_RDCS.FeatureServer, Dr. Craig Jolley, Global Development Lab, Center for Digital Development, USAID