



# Capacity Building for Agricultural Technical Vocational Educational and Training (ATVET) Programs in Developing Countries: A Case Study in Nicaragua

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# Why TVET is Critical in Developing Countries?

- Skills vital for poverty reduction
- Economic recovery
- Sustainable development
- Shanghai 2012 consensus by UNESCO:
  - Transforming TVET to respond to changing world
  - Policy coherence and governance
  - TVET responsiveness
  - Sustainable development
  - Social equity and inclusion
  - Integrated policy
  - Financing
  - Frameworks for lifelong learning
  - Multiple pathways

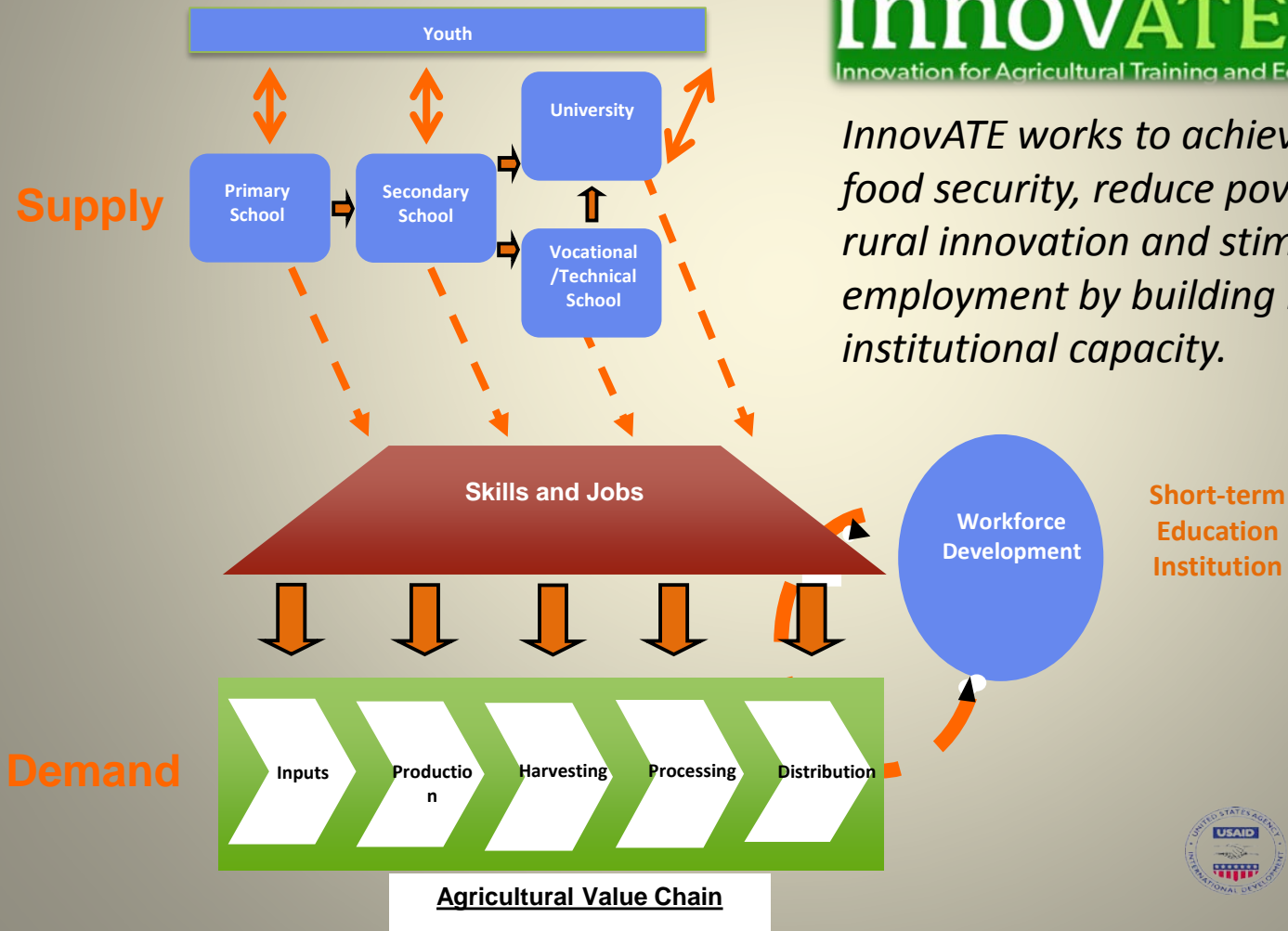


FADCANIC School. Wawashang, Nicaragua. 2014

# USAID-InnovATE

**innovATE**  
Innovation for Agricultural Training and Education

*InnovATE works to achieve sustainable food security, reduce poverty, promote rural innovation and stimulate employment by building human and institutional capacity.*



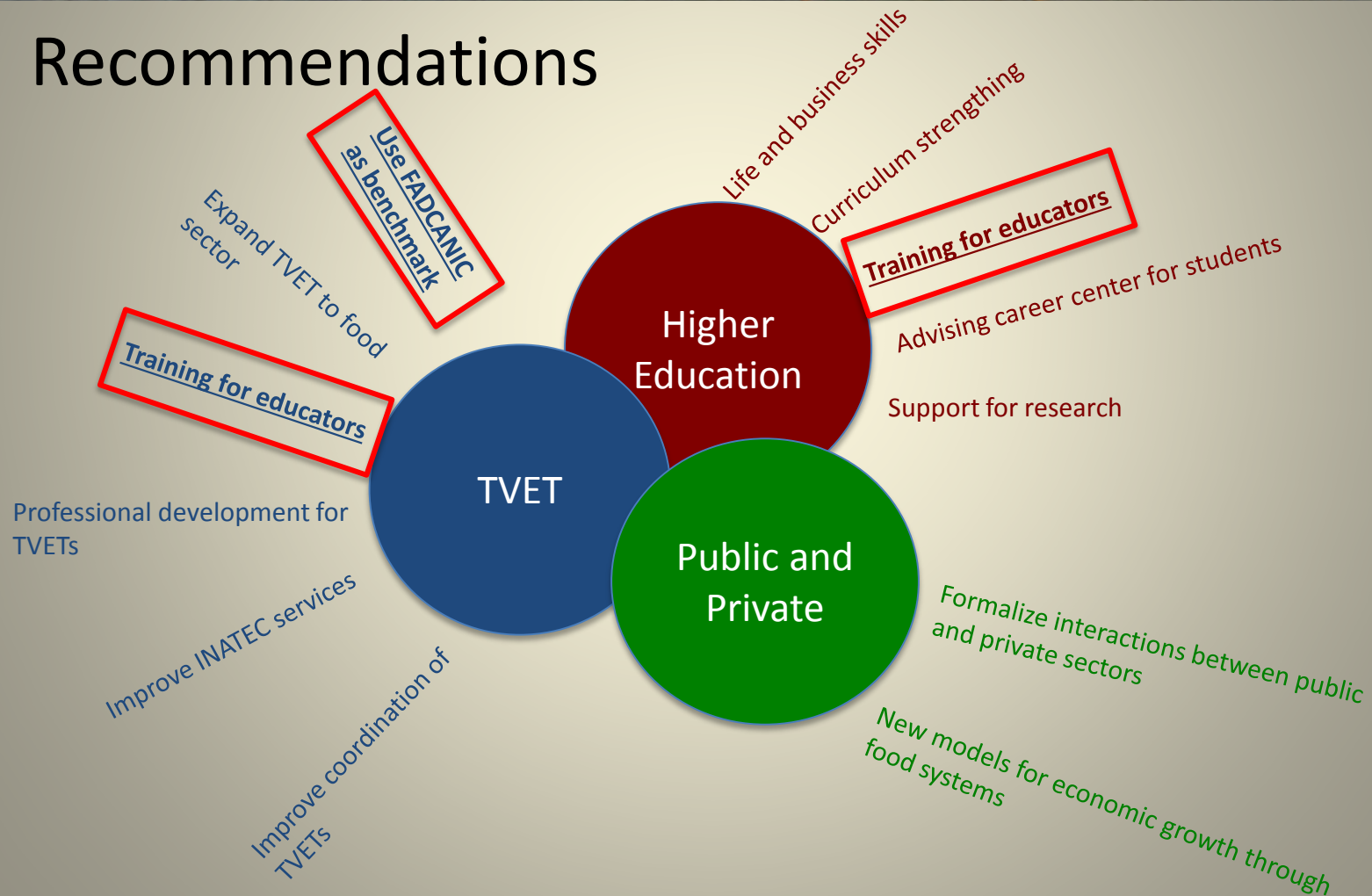
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# InnovATE by Country



# Nicaragua 2014 Scoping Mission

- Recommendations



# Implementation of Key Recommendations

- FADCANIC as Benchmark
  - Interviews with: students, teachers, administrators, and alumni
  - FADCANIC Alumni Survey
- Capacity Development for TVET Teachers
  - Visit EARTH University
    - Work meeting with PEP Director
    - Interviews to Sustainable Communities leaders



# FADCANIC TVET School

- Nicaraguan Atlantic Coast Foundation for Autonomy and Development (FADCANIC)
- Non-government entity. Funding comes mainly from international organizations: NORAD, SAIH and USAID
- School located in Wawashang, Nicaragua



USAID scoping mission in FADCANIC School. Wawashang, Nicaragua. 2014

# FADCANIC TVET School

- SWOT analysis

| Strengths   | Weaknesses   |
|---|--|
| <ul style="list-style-type: none"><li>• Value-added generation</li><li>• Entrepreneurship orientation</li><li>• Land availability</li><li>• Excellent teachers</li><li>• Integration with local communities and Universities (UNA,UCA, BICU, URACAAN)</li></ul> | <ul style="list-style-type: none"><li>• Diversity issues: gender and ethnical</li><li>• Social conflicts: isolation for students</li><li>• Poor marketing of own products</li><li>• Very little support from the Nicaraguan Government</li><li>• Lack of funding</li><li>• Poor integration with industry</li><li>• There is no strategic training for teachers</li><li>• Access to electricity, internet, and water</li></ul> |
| Opportunities   | Threats  |
| <ul style="list-style-type: none"><li>• Unique TVET model in Atlantic Coast</li><li>• Focus on sustainability</li><li>• Growing population and demand for other TVET programs</li><li>• Excellent reputation</li><li>• Extensive alumni network</li></ul>       | <ul style="list-style-type: none"><li>• Funding sources</li><li>• Transportation issues</li><li>• Political landscape</li><li>• No clear succession line of FADCANIC leadership</li></ul>  |



# Impact of FADCANIC School

- Surveyed 80 FADCANIC school alumni
- Response rate was 86.2%, 69 responses
  - Males, 81.2% and female 18.8%
- Ethnicity

Ethnicity

|          | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------|-----------|---------|---------------|--------------------|
| Valid    |           |         |               |                    |
| Mestizo  | 39        | 56.5    | 56.5          | 56.5               |
| Garifuna | 2         | 2.9     | 2.9           | 59.4               |
| Creol    | 2         | 2.9     | 2.9           | 62.3               |
| Mayagna  | 13        | 18.8    | 18.8          | 81.2               |
| Miskitu  | 11        | 15.9    | 15.9          | 97.1               |
| Rama     | 2         | 2.9     | 2.9           | 100                |
| Total    | 69        | 100     | 100           |                    |

# Impact of FADCANIC School

- Degree completed

|       |              | Degree    |         |               |                    |
|-------|--------------|-----------|---------|---------------|--------------------|
|       |              | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid |              | 1         | 1.4     | 1.4           | 1.4                |
|       | Agroforestry | 39        | 56.5    | 56.5          | 58                 |
|       | Carpentry    | 26        | 37.7    | 37.7          | 95.7               |
|       | Other        | 3         | 4.3     | 4.3           | 100                |
|       | Total        | 69        | 100     | 100           |                    |

- SES

|       |                       | Status    |         |               |                    |
|-------|-----------------------|-----------|---------|---------------|--------------------|
|       |                       | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Employed              | 15        | 21.7    | 21.7          | 21.7               |
|       | Unemployed            | 14        | 20.3    | 20.3          | 42                 |
|       | Employed and studying | 3         | 4.3     | 4.3           | 46.4               |
|       | College student       | 25        | 36.2    | 36.2          | 82.6               |
|       | Entrepreneur          | 6         | 8.7     | 8.7           | 91.3               |
|       | Other                 | 6         | 8.7     | 8.7           | 100                |
|       | Total                 | 69        | 100     | 100           |                    |

# Impact of FADCANIC School

- Determinants of SES

$$SES = b_0 + b_1(\text{Gender}) + b_2(\text{Family}) + b_3(\text{Highest degree in household}) + b_4(\text{Degree}) + b_5(\text{Ethnicity}) + \text{Error}$$

|                     |                   | B       | S.E.      | Wald  | df | Sig.  | Exp(B)      |
|---------------------|-------------------|---------|-----------|-------|----|-------|-------------|
| Step 1 <sup>a</sup> | Gender(1)         | 0.356   | 0.825     | 0.187 | 1  | 0.666 | 1.428       |
|                     | Family(1)         | 0.138   | 0.647     | 0.046 | 1  | 0.831 | 1.148       |
|                     | Highest_Degree(1) | 0.102   | 0.76      | 0.018 | 1  | 0.894 | 1.107       |
|                     | Degree            |         |           | 3.665 | 2  | 0.16  |             |
|                     | Degree(1)         | -22.141 | 21049.991 | 0     | 1  | 0.999 | 0           |
|                     | Degree(2)         | -20.477 | 21049.991 | 0     | 1  | 0.999 | 0           |
|                     | Ethnic            |         |           | 7.77  | 3  | 0.051 |             |
|                     | Ethnic(1)         | 2.712   | 1.397     | 3.766 | 1  | 0.052 | 15.058      |
|                     | Ethnic(2)         | 4.167   | 1.724     | 5.841 | 1  | 0.016 | 64.521      |
|                     | Ethnic(3)         | 1.004   | 1.38      | 0.529 | 1  | 0.467 | 2.729       |
|                     | Constant          | 19.551  | 21049.991 | 0     | 1  | 0.999 | 309697138.2 |

# Impact of FADCANIC School

- Impact of Professional Development on other constructs

Community\_Impact CEAA\_Support Culture\_Diversity=P\_Development + Error

|                     | P_Development | Community_Impact | CEAA_Support | Diversity_Culture |
|---------------------|---------------|------------------|--------------|-------------------|
| P_Development       | 1             | .287*            | .468**       | .327**            |
| Pearson Correlation |               |                  |              |                   |
| Sig. (2-tailed)     |               | 0.018            | 0            | 0.007             |
| N                   | 68            | 68               | 67           | 68                |
| Community_Impact    | .287*         | 1                | 0.094        | .386**            |
| Pearson Correlation |               |                  |              |                   |
| Sig. (2-tailed)     | 0.018         |                  | 0.451        | 0.001             |
| N                   | 68            | 68               | 67           | 68                |
| CEAA_Support        | .468**        | 0.094            | 1            | .359**            |
| Pearson Correlation |               |                  |              |                   |
| Sig. (2-tailed)     | 0             | 0.451            |              | 0.003             |
| N                   | 67            | 67               | 67           | 67                |
| Diversity_Culture   | .327**        | .386**           | .359**       | 1                 |
| Pearson Correlation |               |                  |              |                   |
| Sig. (2-tailed)     | 0.007         | 0.001            | 0.003        |                   |
| N                   | 68            | 68               | 67           | 68                |

\*, Correlation is significant at the 0.05 level (2-tailed).

\*\*, Correlation is significant at the 0.01 level (2-tailed).

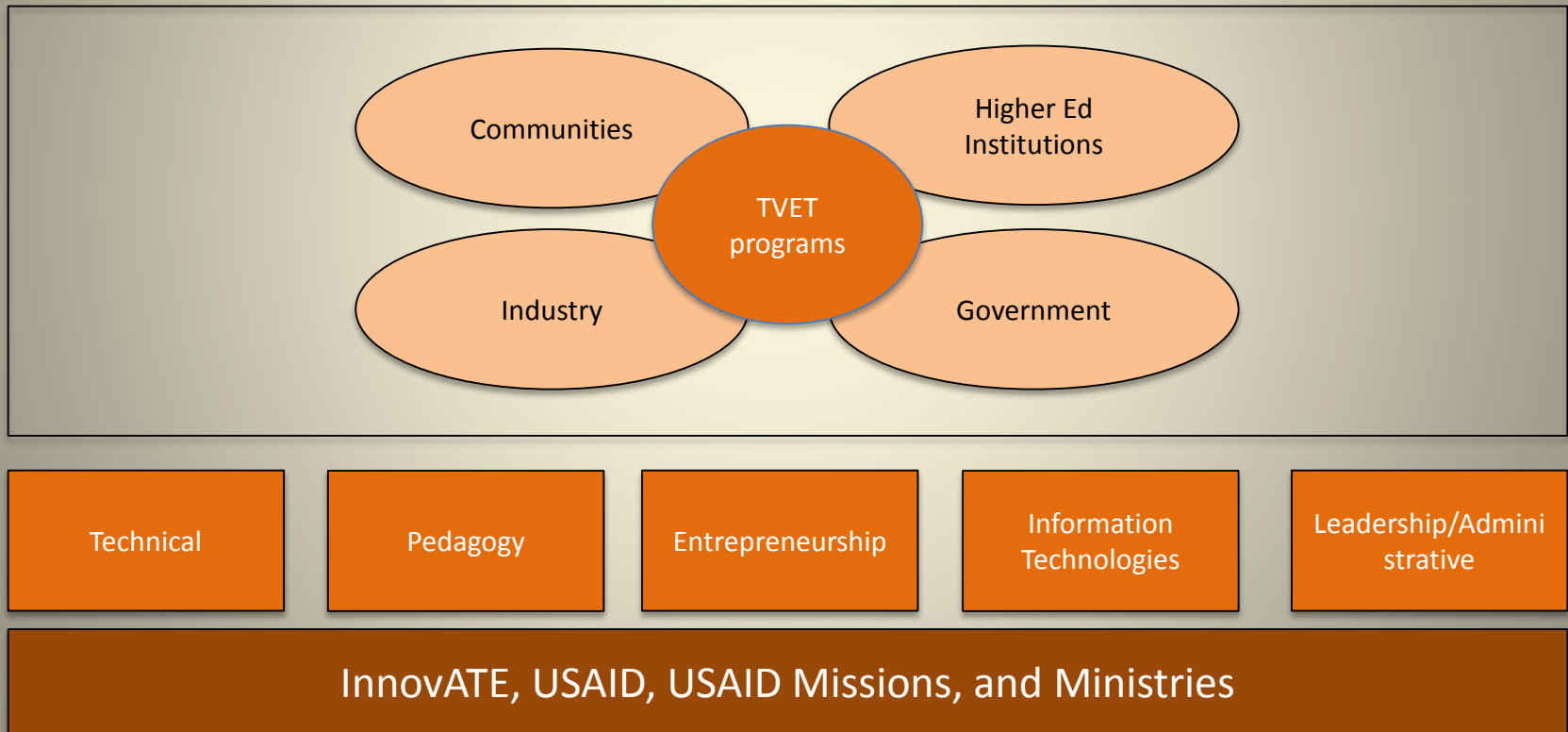
# Impact of FADCANIC School

- Strengths of FADCANIC School

| #  | Strength 1          |       | Strength 2                      |       | Strength 3                                   |       |
|----|---------------------|-------|---------------------------------|-------|--|-------|
|    | Strength            | Count | Strength                        | Count | Strength                                     | Count |
| 1  | Quality education   | 10    | Quality of Teachers             | 15    | Quality of Teachers                          | 12    |
| 2  | On-hands approach   | 7     | Infrastructure                  | 4     | Infrastructure                               | 4     |
| 3  | Quality of Teachers | 6     | On-hands approach               | 4     | Own farm                                     | 4     |
| 4  | Culture diversity   | 4     | Technical degree                | 4     | Ethnic diversity                             | 3     |
| 5  | Own farm            | 4     | Autonomy                        | 3     | Student diversity                            | 3     |
| 6  | Student empowerment | 3     | Ethnic diversity                | 3     | Autonomy                                     | 2     |
| 7  | Agroforestry degree | 2     | Agroforestry degree             | 2     | Complement of basic with technical education | 2     |
| 8  | Autonomy            | 2     | Focused careers on region needs | 2     | Culture diversity                            | 2     |
| 9  | Carpentry shop      | 2     | Free education                  | 2     | Exchange programs                            | 2     |
| 10 | Curriculum          | 2     | Integrated farm                 | 2     | Free education                               | 2     |

# Capacity Building for TVET programs

- Partnership with EARTH University



# Capacity Building for TVET programs

- Business model

## Strategy:

- EARTH University has established and credible reputation on agricultural and agroforestry education
- Start with InnovATE countries in Latin America
- Continue with African countries

## Marketing:

- EARTH University alumni network
- Ministries of Education

## Partnership:

- EARTH University, lead
- Virginia Tech
- Consultants
- Ministries of Education
- USAID
- Foundations

## Implementation:

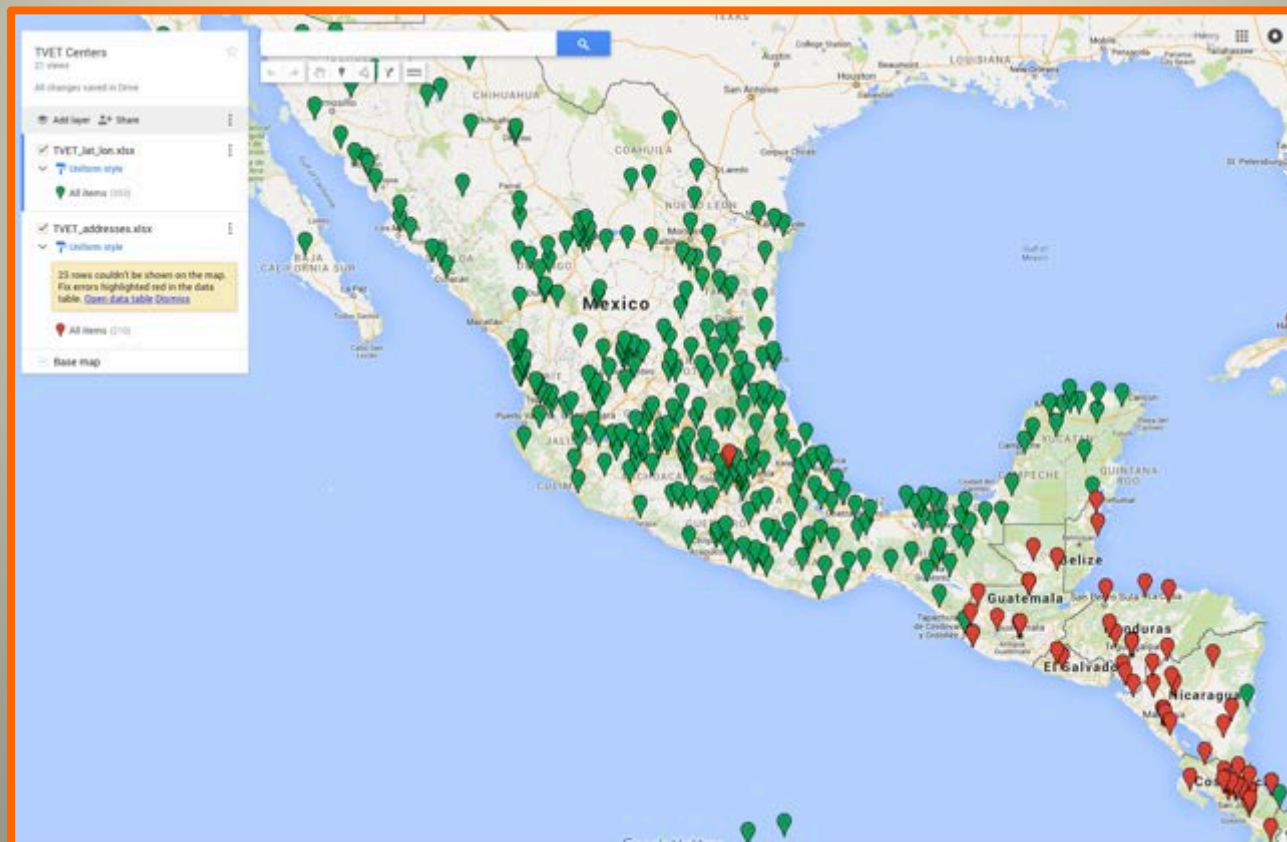
- Five core areas: 10 courses. At least 2 from technical and 1 from pedagogy
- Includes internships in industries
- Managed by PEP at EARTH
- Offer twice a year combining face-to-face and online delivery methods

## Funding:

- Phase 1: Pilot project funded through InnovATE and USAID missions
- Phase 2: Foundations
- Phase 3: Self-sustained as a certification model

# Capacity Building for TVET programs

- Database of TVET Agroforestry Centers in Latin America

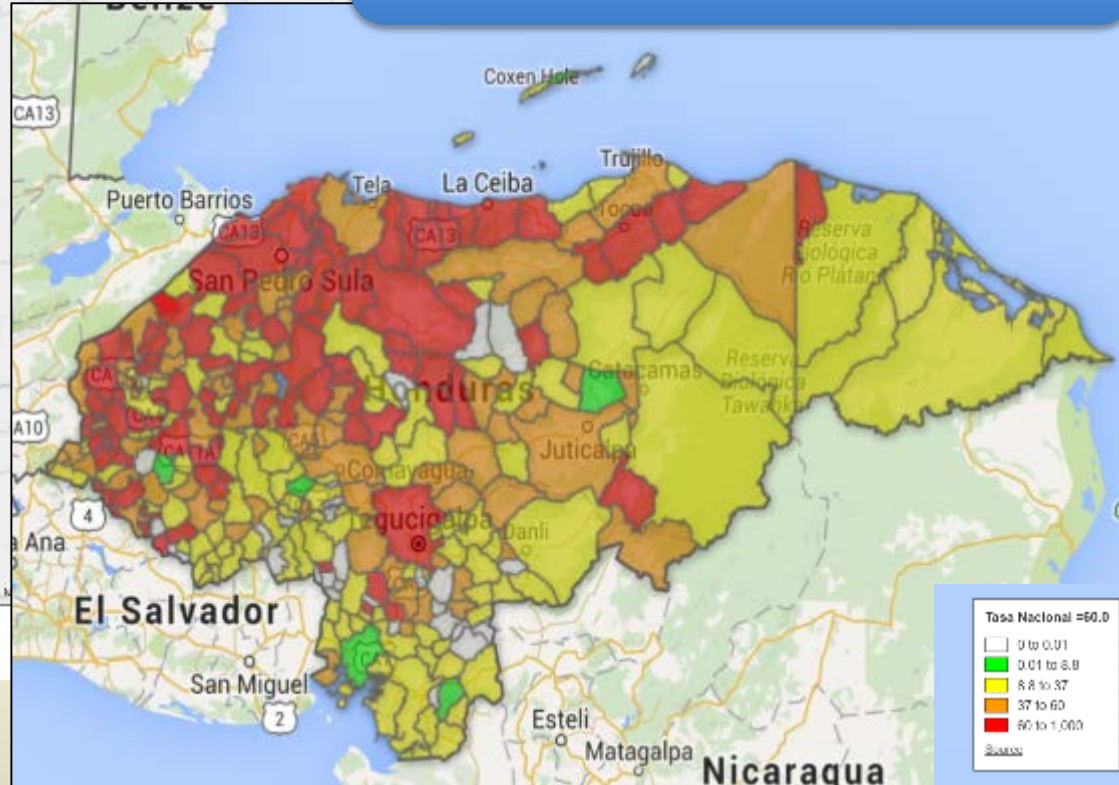
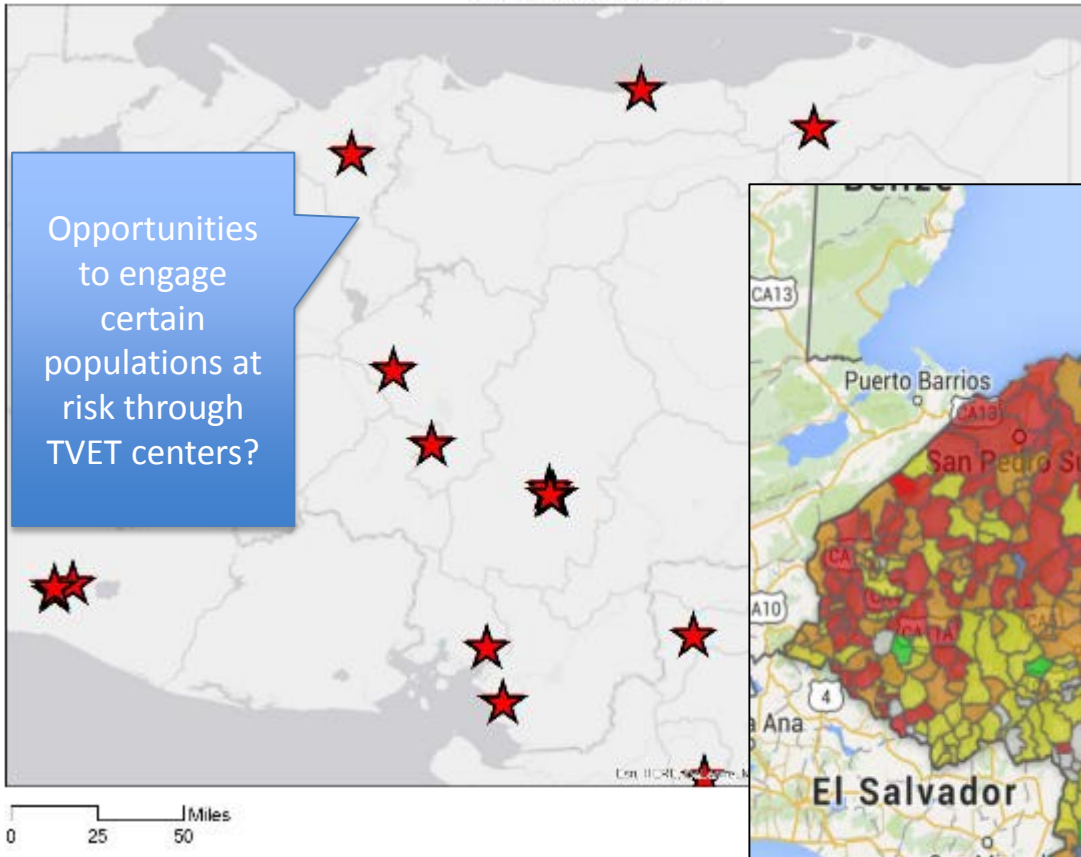




**Agricultural & Forestry Technical Vocational Education and Training  
Presence in Honduras**

**TASAS DE HOMICIDIOS POR 100,000  
HABITANTES SEGÚN MUNICIPIOS  
ENERO - DICIEMBRE AÑO 2015**

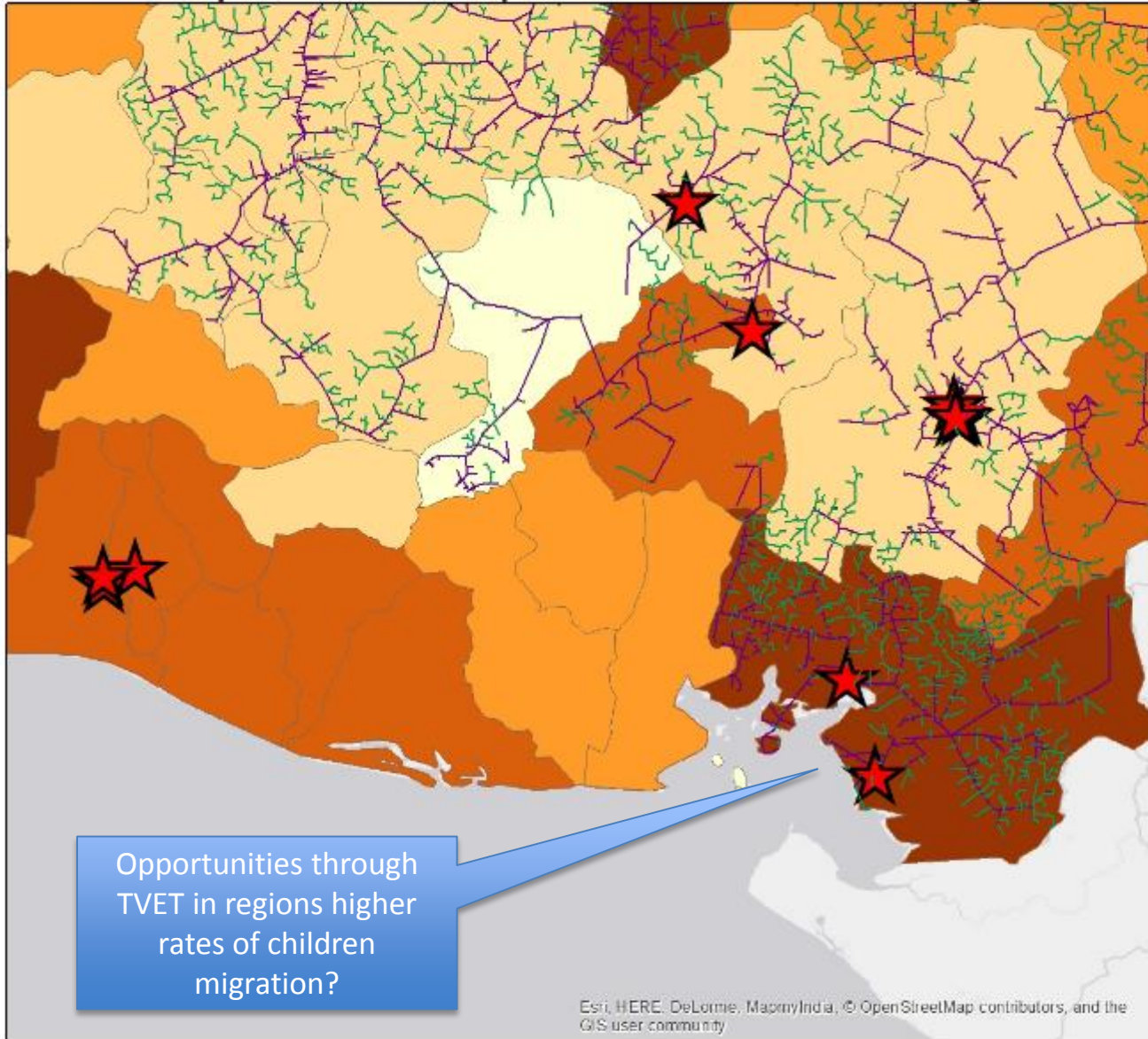
Opportunities  
to engage  
certain  
populations at  
risk through  
TVET centers?



**UNAH**  
FACULTAD  
CIENCIAS SOCIALES  
**IUDPAS**

Source: El Instituto Universitario en Democracia Paz y Seguridad (IUDPAS)  
[http://app.iudpas.unah.edu.hn/participacionciudadana/Denuncias/mapa\\_oficial](http://app.iudpas.unah.edu.hn/participacionciudadana/Denuncias/mapa_oficial)

# Agricultural & Forestry Technical Vocational Education and Training Presence Compared to Unaccompanied Alien Children Traveling with Siblings from Southern Honduras



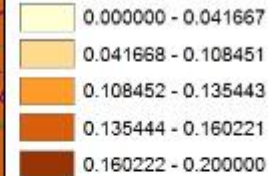
## Legend



Latin America ATVET centers May25-16

## Traveling with siblings

### fraction



USAID Summary Statistics from 2015 "Unaccompanied Alien Children"

Opportunities through TVET in regions higher rates of children migration?

Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community



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0 20 40 Miles

Source: ArcGIS Online, Cjolley.usaid\_USAID

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# Sample applications of a GIS-enabled TVET database:

## Agricultural & Forestry Technical Vocational Education and Training in Northern-Central America



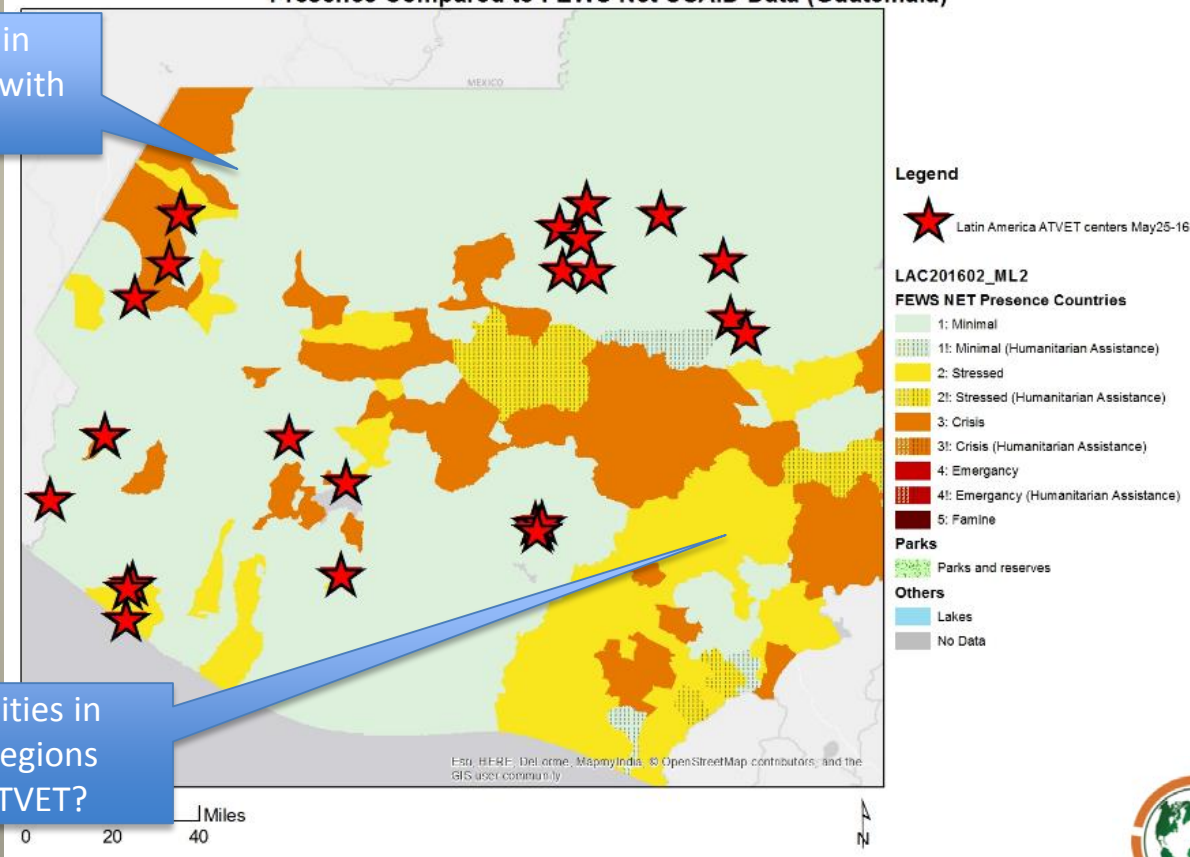
- Additional TVET database attributes needed
- Accessing/curating existing data sources describing ag/forest production supply chains, among others
- A few simple examples only...

# Capacity Building for TVET programs

Agricultural & Forestry Technical Vocational Education and Training Presence Compared to FEWS Net USAID Data (Guatemala)

Opportunities in "CRISIS" regions with TVET?

Opportunities in "CRISIS" regions without TVET?



Source: <https://www.fews.net/shapefiles>



# Conclusions

- In the US, focus of High school education is on Advanced degrees, not on TVET
- TVET programs in agriculture and agroforestry education are a critical economic driver in developing countries
- FADCANIC TVET School is model that can be used as a benchmark in other developing countries
- Partnerships among Higher Education Institutions is critical to support capacity development for TVET programs

# Questions?

