

# Using COIL to Create Opportunities for Civic Professionalism and Interdisciplinary, Cross-cultural Exchange

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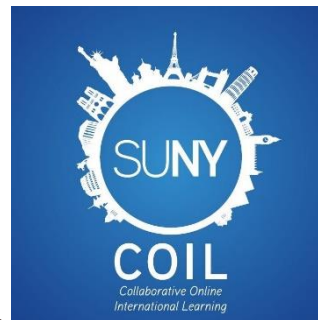


**TECNOLÓGICO  
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**Monroe Community College**

STATE UNIVERSITY OF NEW YORK



## **Think about your students...**

What professional skills do you hope they have when they finish your course, or graduate from your institution?

## **Think about your community...**

What are some unmet needs of people in your community?

Please keep thinking about these questions throughout our presentation...

# **International partnership**

*“Internationalization requires a new innovative approach and to incorporate non-traditional ideas”*

*Dr. Hans de Wit - COIL Conference 2013.*

# Monroe Community College

## Rochester, New York USA



# Instituto Tecnológico de La Laguna Torreón, Coahuila México



An illustration of a green plant with a DNA double helix structure growing from a globe. The globe is shown in a cross-section, revealing a dark green interior and a blue surface. The plant has several green leaves and a prominent DNA double helix structure extending upwards from the top of the globe. The background is white.

# Collaborative Online International Learning (COIL) Partnership

COIL training in 2015 and the partnership continues

**2016:** Experimental Chemistry – Greenhouse Management → research & social project

**2017:** Sustainable Development – Sustainability → research & share solutions

**2018:** Environmental Engineering – Sustainability → research and share solutions

**2019:** Sustainable Development - Sustainability → research and share solutions

# Over the years, we created several different COIL modules (icebreakers and assignments)

From the beginning, we valued **Civic Professionalism** as a component of student collaborations and we promoted these statements:



- ▶ Civic professionalism – Using our knowledge and skills to serve our community
- ▶ Civic engagement - Fostering engagement in social justice projects
- ▶ Service Learning- Learning from serving others in order to develop their skills
- ▶ Community partner – people in our community with whom we cooperate

# COILing our sustainability – themed courses

## **Our challenge:**

To design a COIL project around sustainability that

- meets course learning outcomes
- addresses civic professionalism goals

## **Our solution:**

- Students reflect on their own community
- Form groups about sustainability topics that concern them (made of MCC and ITL students)
- Research the problem, propose a sustainable solution



# COILing our sustainability – themed courses

Topical Icebreaker: *Choose one of your favorite locations and explain why it is important to you.*

Students selected a topic of interest in their community—formed 5 groups per school focusing on the same topic

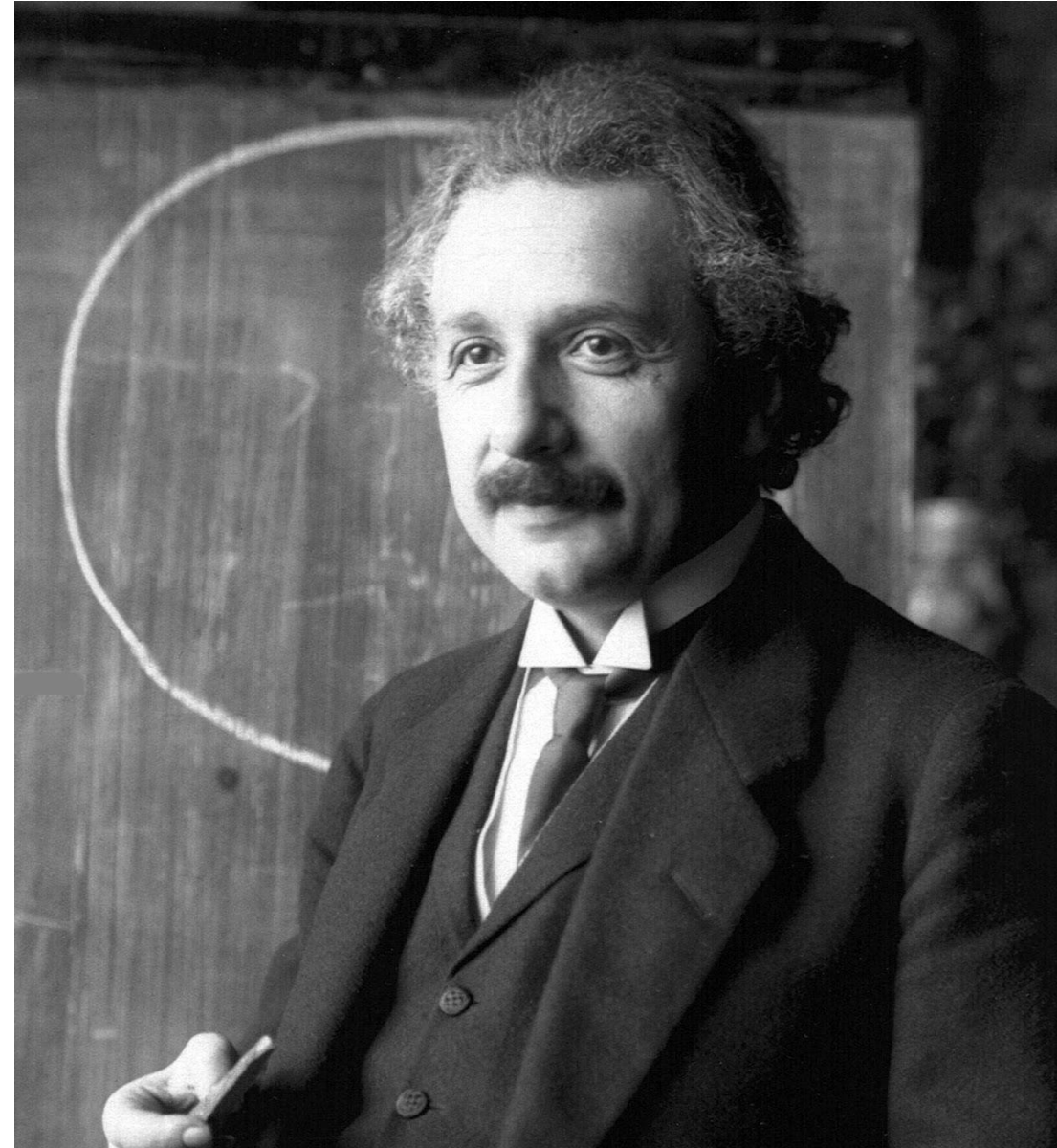
Groups researched their selected topic in their community in order to:

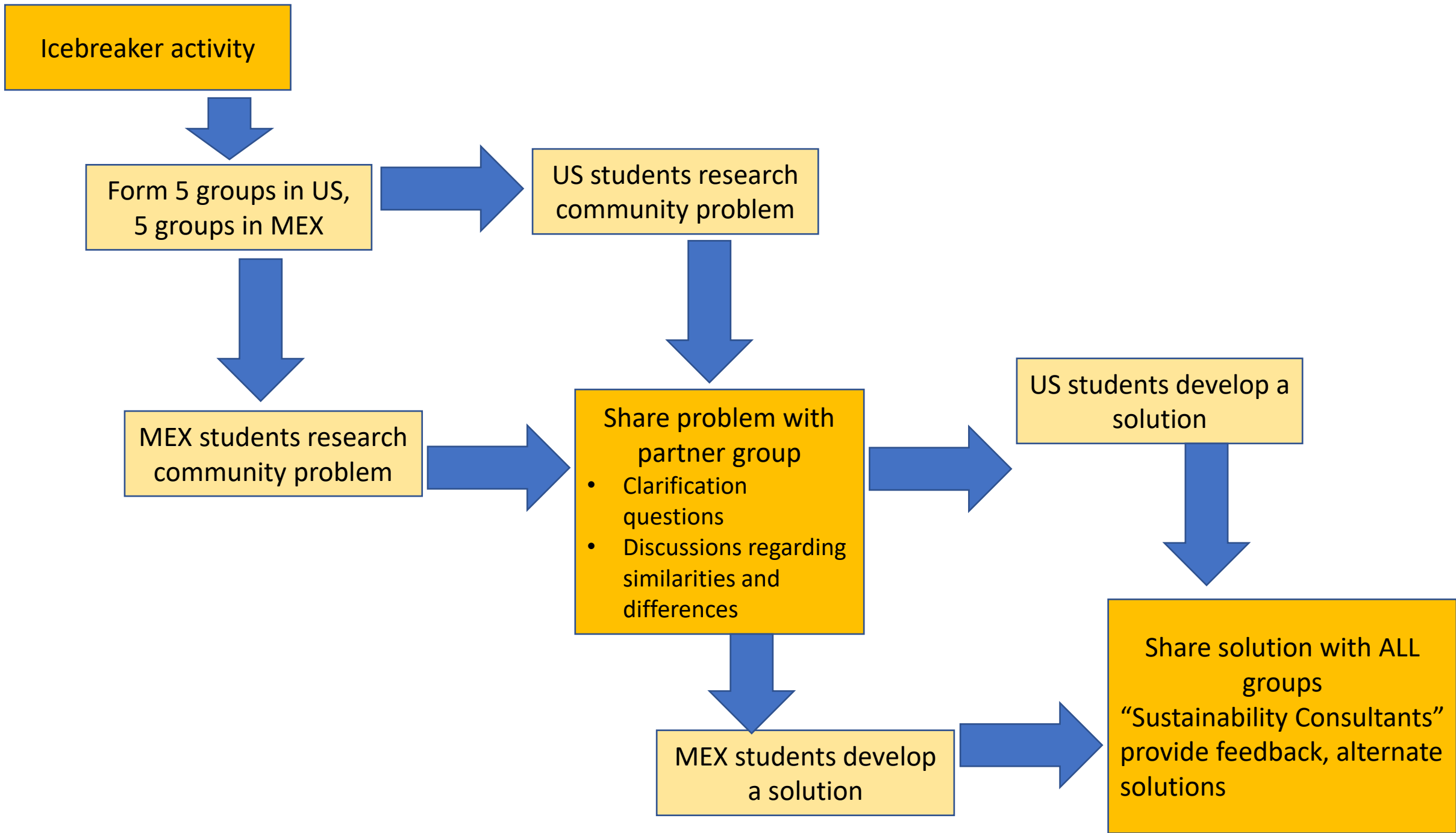
- understand it more fully
- communicate clearly to people who don't live there

We paired groups in US and MX due to similar themes

*“Given one hour to save the world, I would spend 55 minutes defining the problem and 5 minutes finding the solution.”*

Albert Einstein





Icebreaker activity

Form 5 groups in US,  
5 groups in MEX

US students research  
community problem

MEX students research  
community problem

Share problem with  
partner group

- Clarification questions
- Discussions regarding similarities and differences

US students develop a  
solution

MEX students develop  
a solution

Share solution with ALL  
groups  
"Sustainability Consultants"  
provide feedback, alternate  
solutions



Bee conservation (US) and **Tree conservation** (MEX)

**Plastic recycling** (MEX) and **Textile recycling** (US)

Farm-scale biofuel (US) and **Composting organic food waste** (MEX)

**Educational Outreach**(MEX) and **Education about Clean Coal** (US)

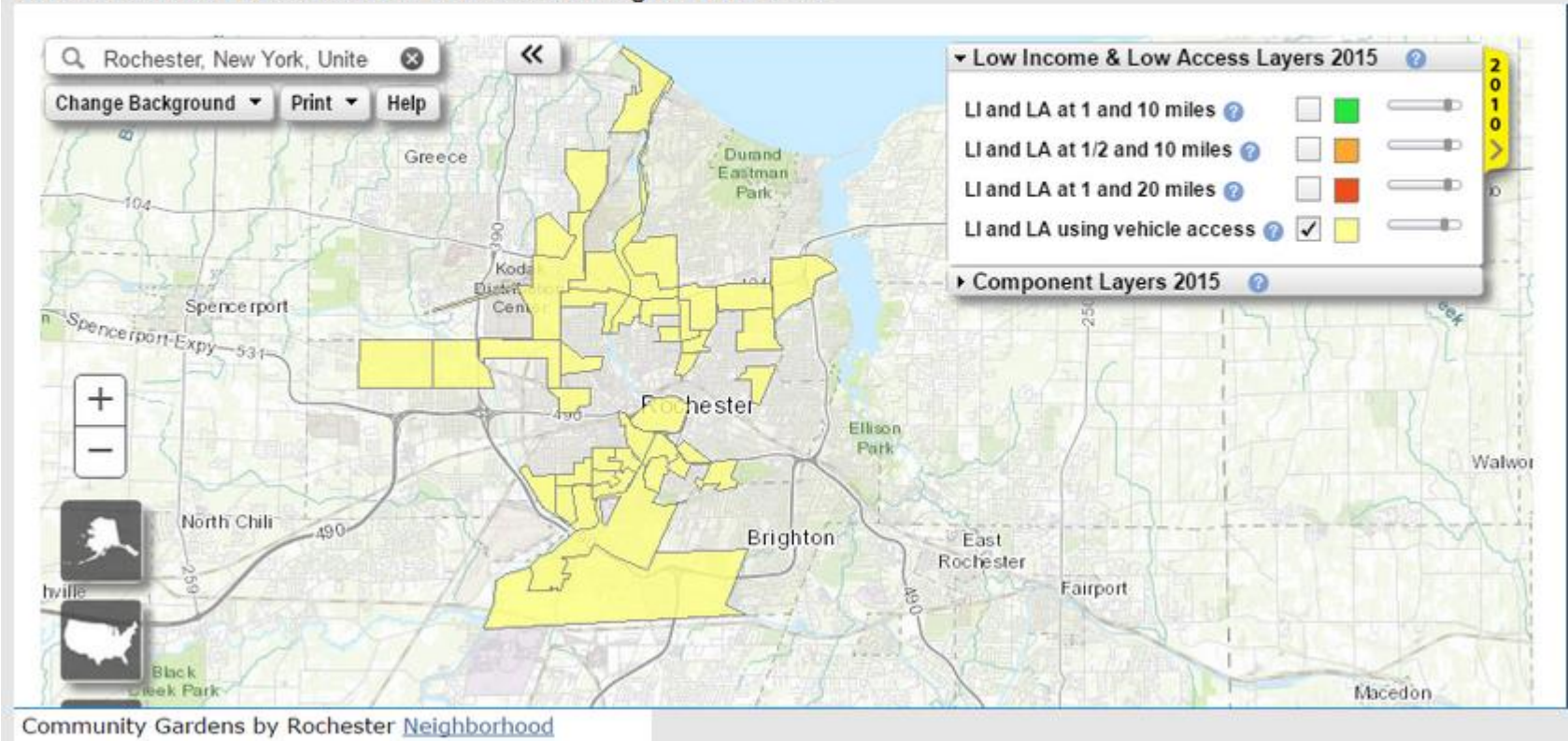


# Food nutrition and Scarcity group

- Food deserts in Rochester.
- Low access to fresh, healthy food

*“I was surprised to know that Rochester has a high rate of obesity”*

Here is a program found on USDA (United States Department of Agriculture) website that shows the access to grocery stores in America when you search you city. The map shows the various areas throughout the Greater Rochester area in which residents have low income, low vehicle access and low access to a grocery store. The maps clearly highlights areas that would be consider food deserts throughout the area.



# Highlighted group: Food nutrition and scarcity

Online discussions on causes of obesity in Rochester vs. Torreon

*“I think the obesity rates here can be attributed to the fact that fresh food is less readily available here than it is where you live. I have also been considering the fact that we have less sun light here may cause people to have seasonal depression which could lead to using eating as a coping tool.”*

*“In our culture I think is the gastronomy, mainly because of the people who choose not to eat vegetables with the rest of the food”*

*“Mexicans and Americans in many ways are much alike, Mexicans and Americans both consume enough soda to put us in the top 10 of soda consumers of the world”*

# Highlighted group: Food nutrition and scarcity

*“I find very interesting the differences between Torreón and Rochester, here fruits and vegetables are very affordable, and we can find it anywhere. Fruits like watermelon, grapes, melon and tomato are the cheapest because they are produced here”*

*“I went on Wal-Mart's website and looked produce up that would be able for in store pick up in Rochester. In U.S Currency ...A head of Lettuce- \$1.28...10lb bag of Potatoes- \$4.94...Small bag of Onions- \$2.94...Bag of Spinach- \$2.56 ...One Orange- \$0.58 ...6oz of Blueberries- \$2.28...One Mango- \$1.28... you can go to McDonald's and buy a cheeseburger and french fries for around \$3.00 here in Rochester”*

*“It is so interesting to me that our problems are so similar even though we live in areas that have two completely different climates”*



“in schools...teach children to grow their own food ....a cooking badge will teach healthy habits and increase awareness of importance of fresh foods “



“snack or soup recipes that use nutritious dehydrated foods”



Our COIL partnership also led to funding of research and study abroad through a 100K Strong in the Americas grant



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**100,000 Strong in the Americas Innovation Fund grant**

**DESIGN OF A PRODUCTION UNIT TO DRY REGIONAL PRODUCTS (VEGETABLES, FRUITS AND AROMATIC PLANTS) USING SOLAR ENERGY IN A SUSTAINABLE RURAL MICROENTERPRISE MODEL, IN COAHUILA, MEXICO.**

100,000 Strong in the Americas Innovation Fund provides support to U.S. universities to build sustainable partnerships with higher education institutions in the rest of the Western Hemisphere.

# *"Using our knowledge to serve people"*



## Community Partners:

- **Fundación Diversa Coahuila**
- and a group of women in Petronilas (isolated village in Coahuila, Mexico with scarce water)

## Two major goals:

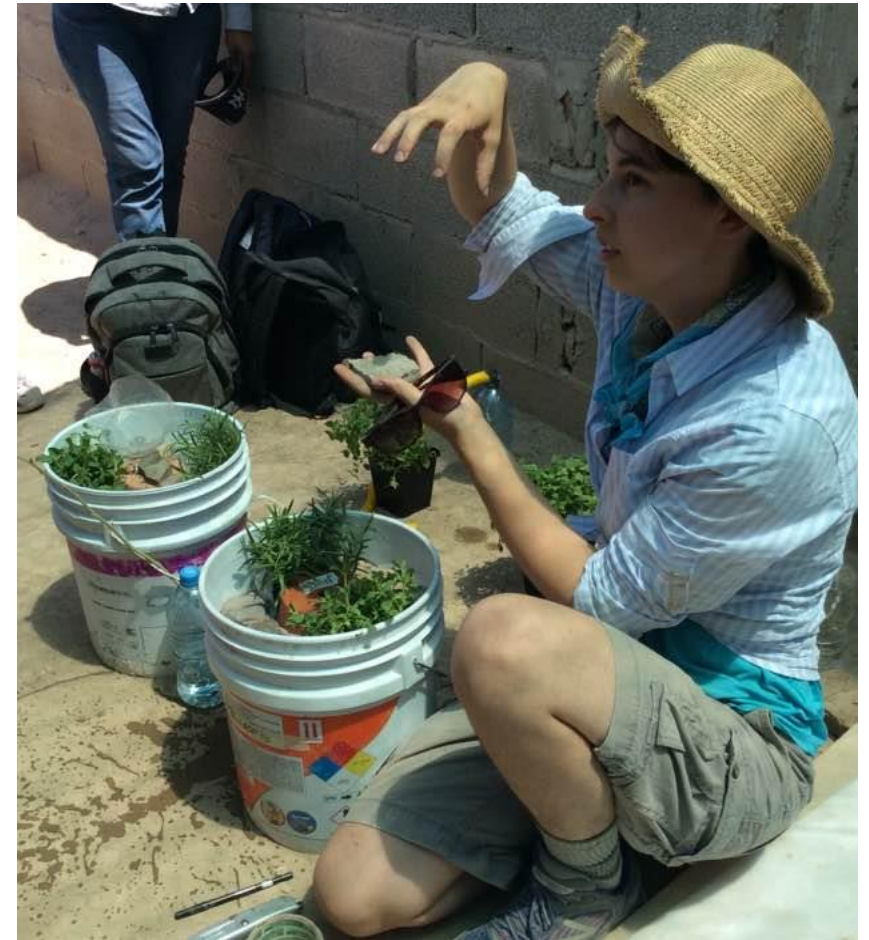
- Develop simple techniques to grow plants with little water
- Improve the solar dehydrator design and process based on needs of users

**We provided students with a real problem to solve !**



**to design a production unit to dry vegetables, fruits, and aromatic plants using solar energy**

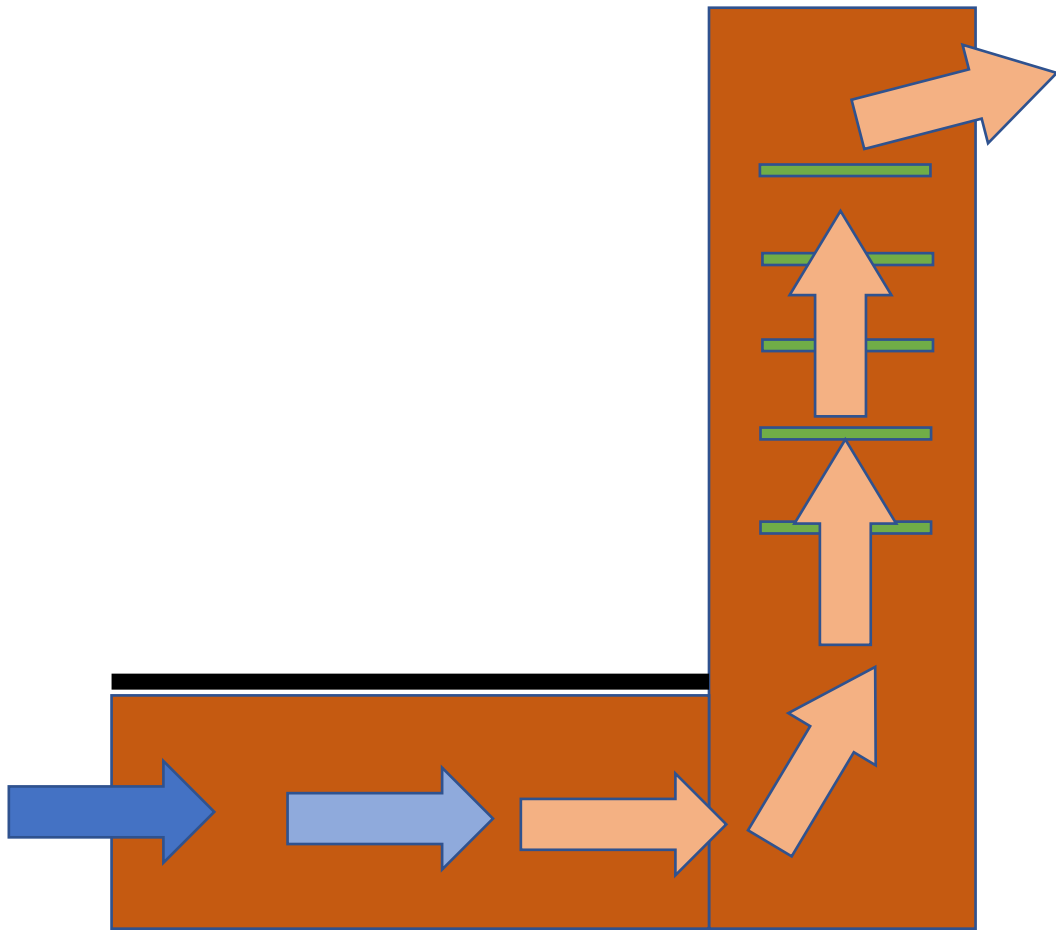
**MCC students developed 3 prototypes to efficiently water plants, which were tested by the women in Petronilas who would use them**



## ITL students focused on

- improving the solar dryer
- optimize the drying process
- develop new products for a market





**The solar dehydrators work using basic convection and the heat of the sun.**

**But this old model had some problems:**

- capacity**
- portability**
- repairability**
- ergonomics**
- food safety**

# Comparison of "old" and "new" dryers

| Characteristics       | Original solar dryer | New solar dryer   |
|-----------------------|----------------------|-------------------|
| Effective drying area | 1.5 m <sup>2</sup>   | 16 m <sup>2</sup> |
| Capacity (apple)      | ~2 kg                | ~20 kg            |
| Weight of dryer       | 22 kg                | 16 kg             |
| Dryer storage         | 2.5 m <sup>3</sup>   | 1 m <sup>3</sup>  |
| Time for drying       | 10h – 20h            | 5h – 6h           |



Old



New



# Partnership in civic professionalism for sustainability and women empowerment





# Looking to continue solar drying production unit work with COIL next semester!

- Testing irrigation methods and prototypes at MCC, at ITL, and in Petronilas
  - \*\*computer with internet recently added to Petronilas community to communicate with students and teachers.
- Include business and sociology COIL collaborators

Contact us if interested in joining our efforts in spring 2021!

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# ***Evolving partnership, thanks to ...***



**COIL Center and Santander for helping us to establish our partnership and guiding us through the collaborative process,**

**Our educational administrations and staffs at SUNY-MCC and TecNM-ITL for their support,**

**Partners of the Americas and TELEVISA for the funding opportunity through the 100,000 Strong in the Americas Grant,**

**Planners and participants in this WEBINAR for allowing us to share and learn from one another's experiences and expertise.**



Sustainability COIL-MEXUS Project

*Farewell friends and Professor Maria Luisa López in Torreón Coahuila, Mexico,*

*“I just wanted to take the time to tell you all how much I appreciated getting to know more about you, your city, country and some of the sustainability issues you are experiencing. The only thing I regret is the relatively short time we spent together.*

***I think the concept and objectives of this course are excellent. Getting to interact with people thousands of miles away was enlightening. Catching just a glimpse of your life was thought provoking and eye opening. I wanted to learn more, so I researched Torreón and Mexico on the internet.***

*It was interesting to learn that many of you are chemical engineering majors and that silver mining and processing occurs in your city through Met-Mex Peñoles. This struck a chord with me, as I worked at Kodak in the film business with many chemical engineers and we were the largest user of silver in the world for many years.*

*On behalf of my classmates at MCC, I would like to express our gratitude to Professors Laura Penman and Maria Luisa López for giving us this opportunity to participate in an exchange of cultures.*

*And to the Instituto Tecnológico de la Laguna in Torreon, adiós a ustedes mis amigos (farewell my friends).*

*Peace,*

*Mike*

**15/12/2017**