Programa de Ingeniería Humanitaria entre la Universidad del Valle De Atemajac y la Metropolitan State University of Denver

Humanitarian Engineering Program between the Universidad del Valle de Atemajac and the Metropolitan State University of Denver

Irma Livier De Regil Sánchez. PhD
Head of Research Department at UNIVA System
Professor Researcher

Aaron Brown, PhD
Mechanical Engineering Technology Program Coordinator
Associate Professor

Sharing a personal experience

…what I learned when I was a student:

If you have no contact with reality, you can not know what is needed

All of us try to solve the problems from our perspective, not from the perspective of the other

North American
Center for Collaborative Development

What we need?

What they need?

international collaboration for the inclusion of the marginalized population

- Science and technology
- Social innovation
- Social entrepreneurship
- **SMART COMMUNITIES**

METROPOLITAN
STATE UNIVERSITY
OF DENVER

CONAHEC

UNIVA
La Universidad Católica
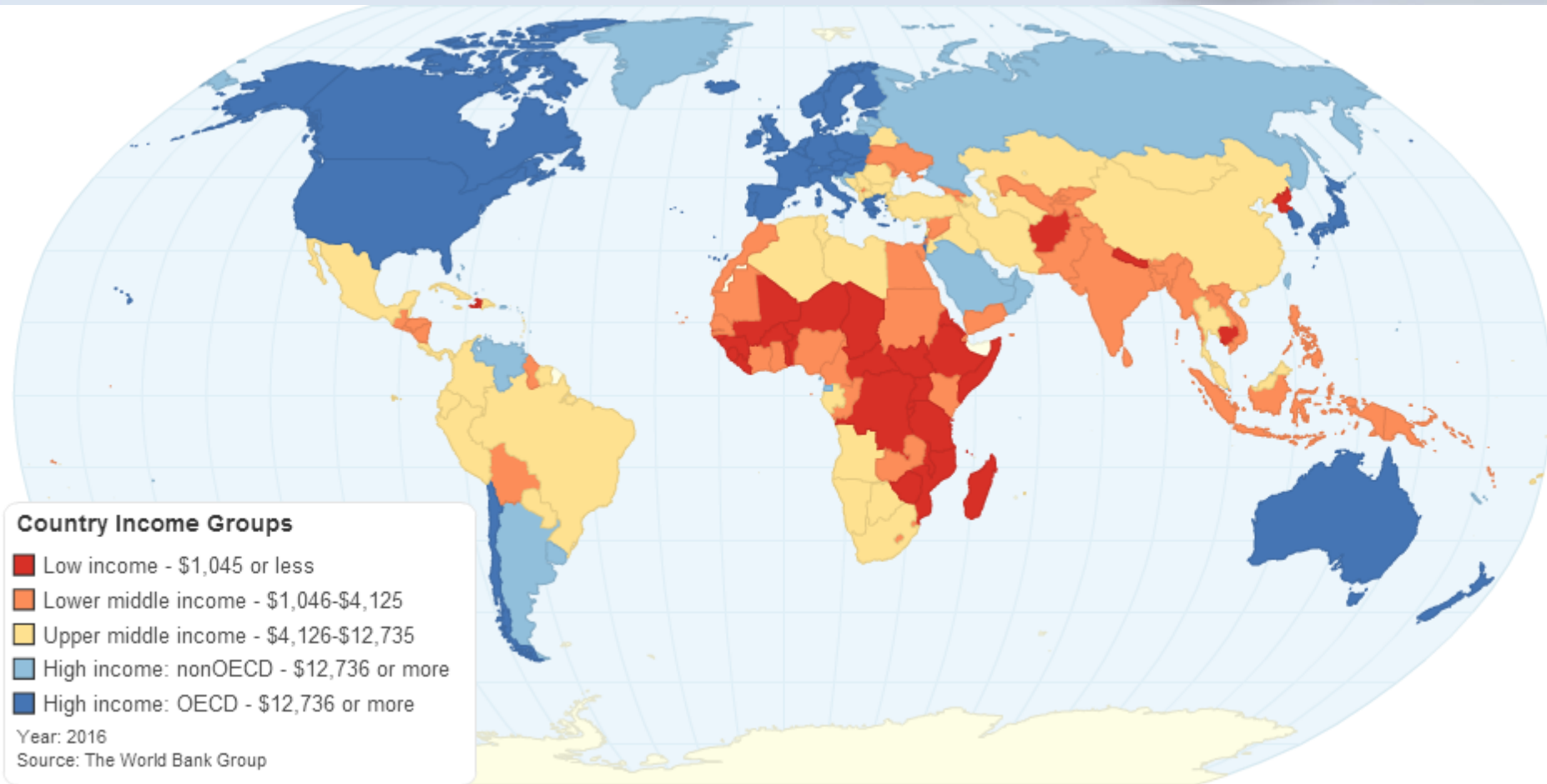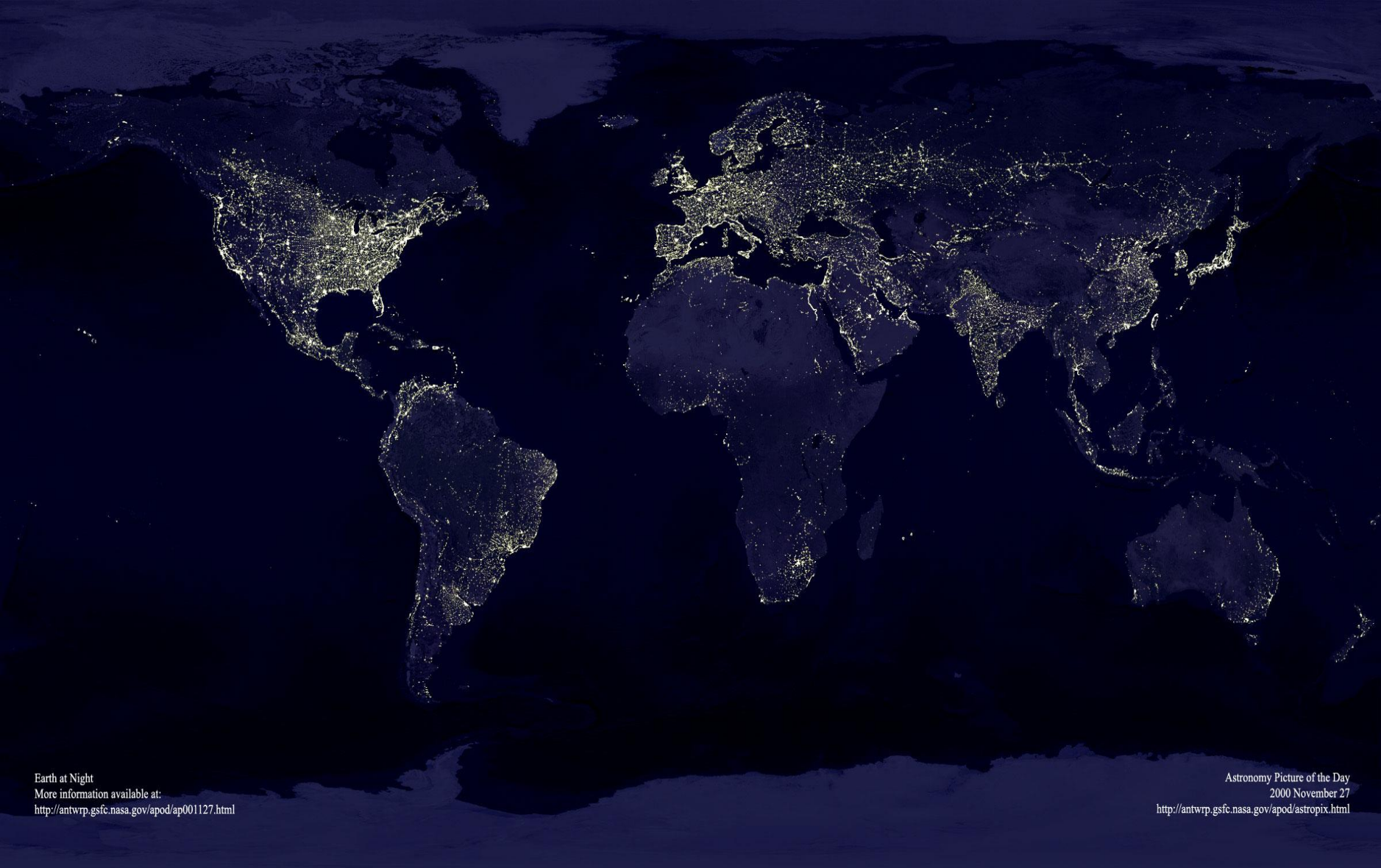
Humanitarian Engineering

The focus of problem solving aimed to improve the well-being of people, especially for marginalized or vulnerable communities

A large gap remains between today's technological advances and the needs of the world's majority
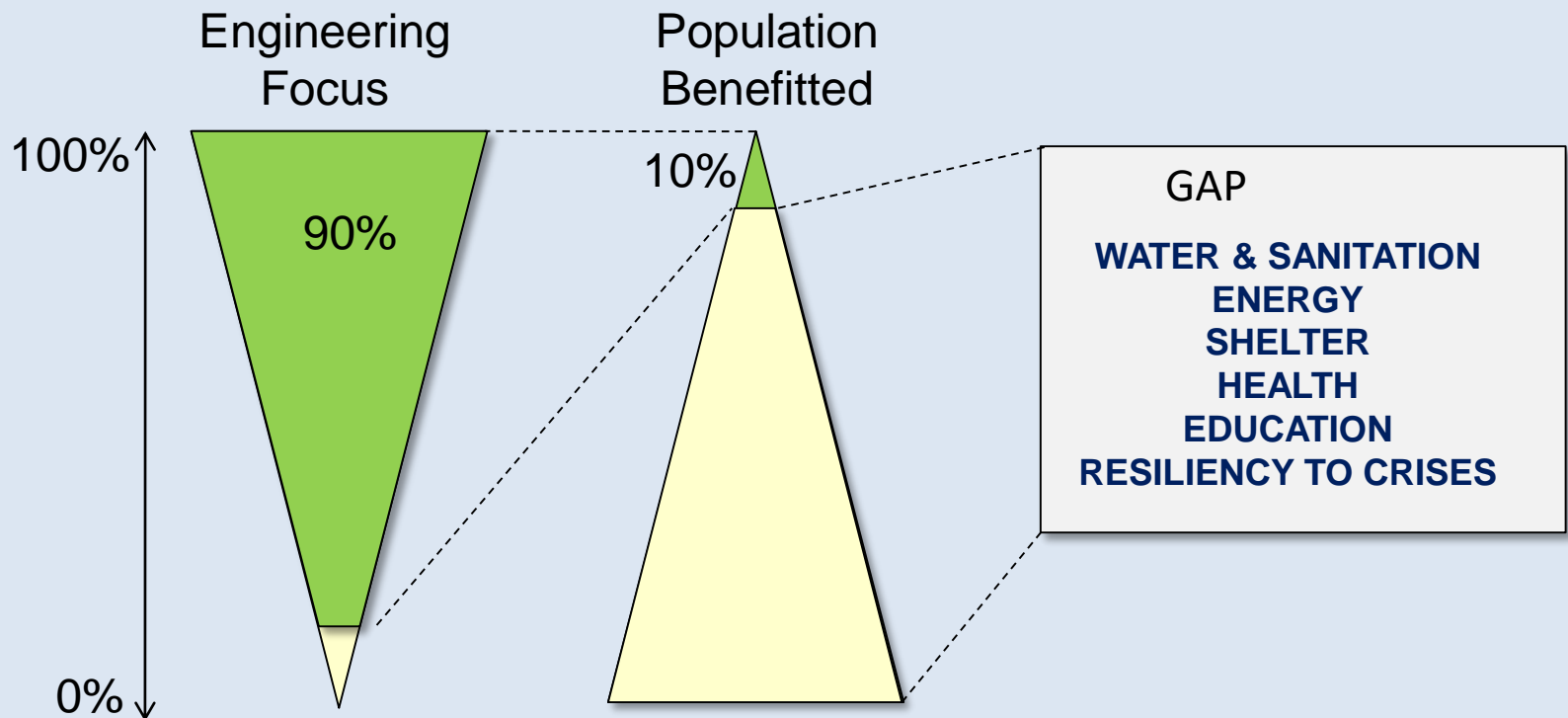
World Bank Income Groups

Country Income Groups

- ■ Low income - $1,045 or less
- ■ Lower middle income - $1,046-$4,125
- ■ Upper middle income - $4,126-$12,735
- ■ High income: nonOECD - $12,736 or more
- ■ High income: OECD - $12,736 or more

Year: 2016
Source: The World Bank Group

Earth at Night
More information available at:
http://antwrp.gsfc.nasa.gov/apod/ap001127.html

Astronomy Picture of the Day
2000 November 27
http://antwrp.gsfc.nasa.gov/apod/astropix.html

METROPOLITAN
STATE UNIVERSITY
OF DENVER

CONAHEC

UNIVA
La Universidad Católica

Why Humanitarian Technology?

- 1.2 billion lack clean water
- 2.4 billion lack adequate sanitation
- 2.4 billion are at risk with malaria
- 29,000 children die from hunger daily

- 1.2 billion lack adequate housing
- 1.6 billion have no access to electricity
- 4.2 billion are unable to read
- 1.8 billion live in conflict zones, in transition, or in situations of permanent instability
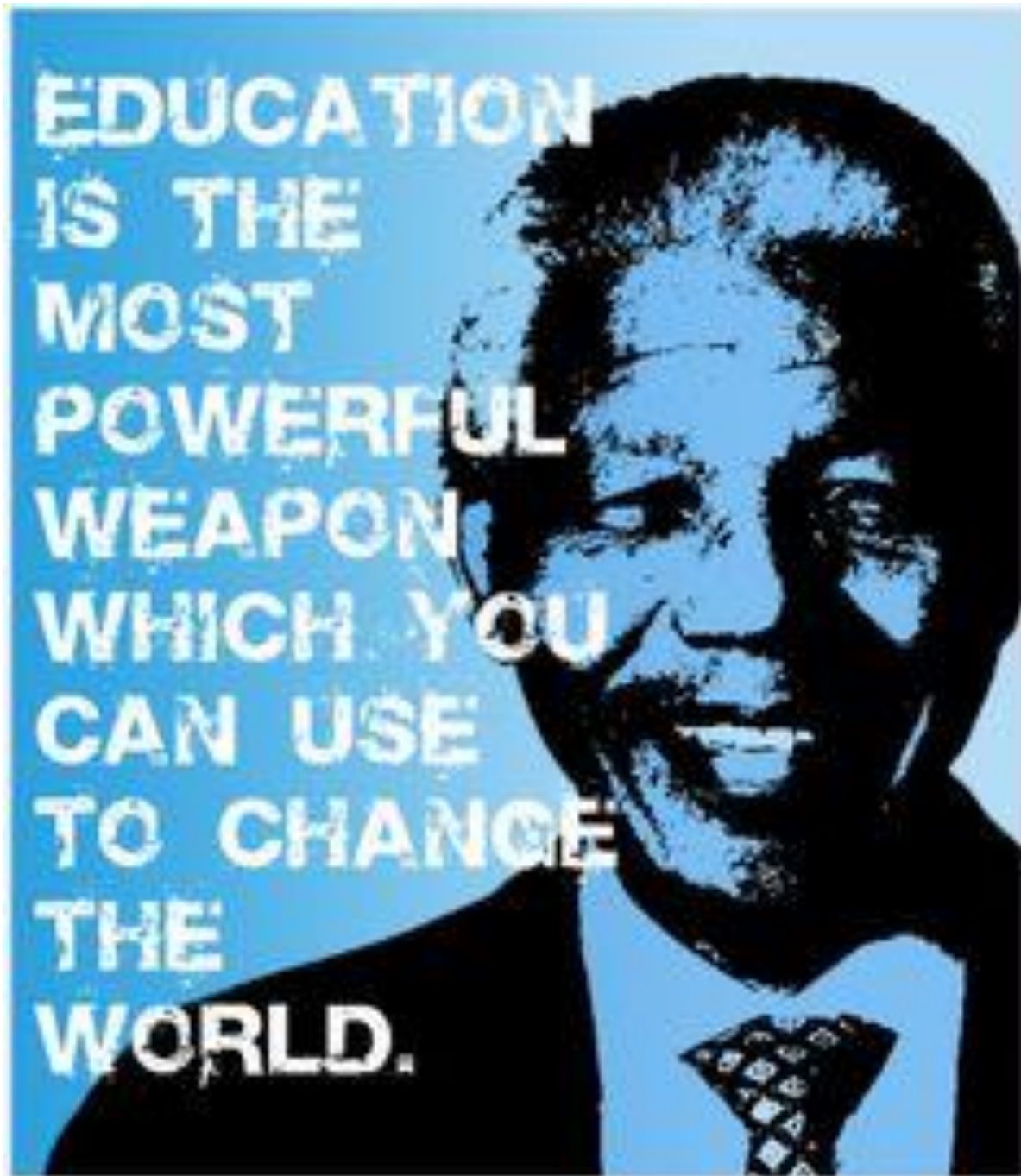
Background of experience

NAFSA
Association of International Educators

MSUD came to GDL in Sept. 2016 to discuss collaborative program. In this meeting we shared our previous research and intervention projects"

100,000 STRONG IN THE AMERICAS

UNIVA-MSUD proposal was submitted

MSUD came to GDL in March 2017 and visited Atemajac de Brizuela

Visited experimental farm and developed a program itinerary

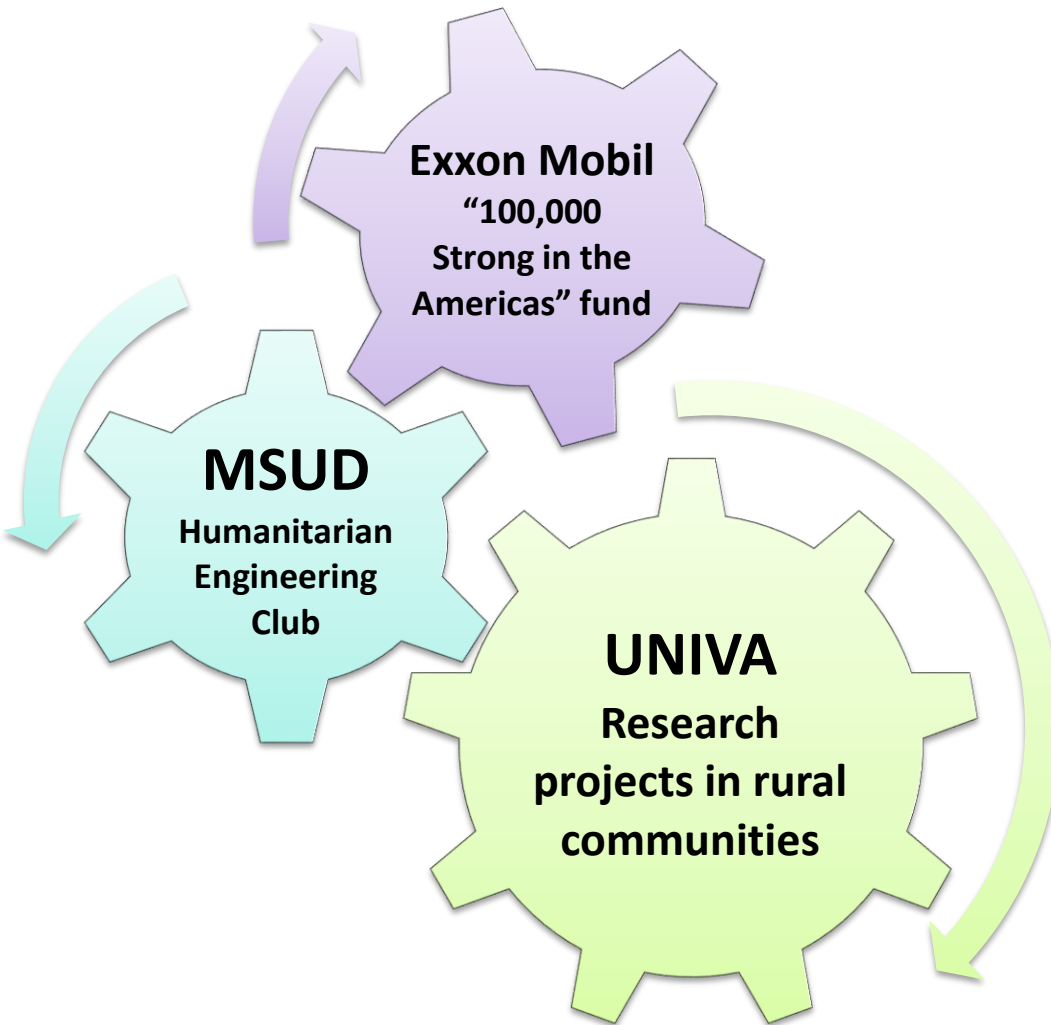FELICITACIONES A LOS GANADORES DEL CONCURSO DEL FONDO DE INNOVACIÓN

EQUIPOS GANADORES EN AMERICA

METROPOLITAN STATE UNIVERSITY OF DENVER · UNIVA · Northampton Community College · Centro Textil y de Gestión Industrial Medellín, Colombia · NORTHERN ARIZONA UNIVERSITY

PUCRS · unesp · UNIVERSIDADE ESTADUAL PAULISTA "JÚLIO DE MESQUITA FILHO" · THE UNIVERSITY OF RHODE ISLAND · UNIVERSITY of WYOMING

RICE · UNIVERSITY OF WISCONSIN PLATTEVILLE · Centro Nacional Colombo-Alemán · UADY

100,000 STRONG IN THE AMERICAS

Gracias al gran apoyo de **ExxonMobil**

We were awarded funding

Selection of 10 American students and 10 Mexican students (2 internationalists and 8 engineers)
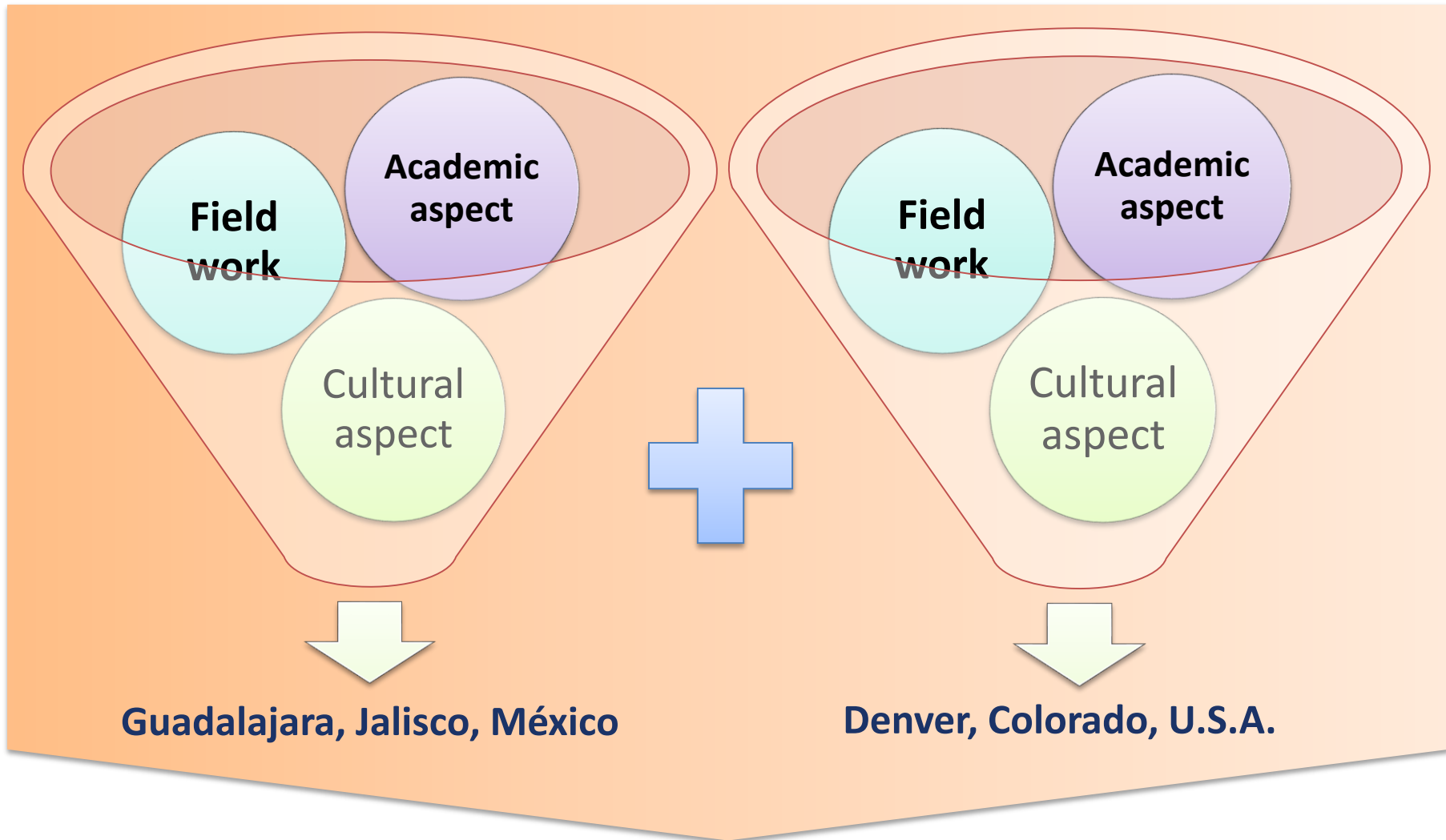
METROPOLITAN STATE UNIVERSITY OF DENVER

CONAHEC

UNIVA La Universidad Católica

Humanitarian Engineering Program Univa-MSUD

GDL from May 20th to June 1st, 2017

Exxon Mobil "100,000 Strong in the Americas" fund

MSUD Humanitarian Engineering Club

UNIVA Research projects in rural communities

DENVER from June 11th to June 24th, 2017

Humanitarian Engineering Program

UNIVA Projects

Integral development of Atemajac de Brizuela, Jalisco, village living extreme poverty.

Participatory action research (PAR)

Use of products obtained from a biodigester: storage of biogas

Academic aspect

LECTURES

- Sustainable development practices in small business
- Humanitarian engineering and its application
- Appropriate technology
- Poverty in Mexico
- Poor young people and their religiosity
- Balance between life and the environment
- History, policies and strategies of international development
- What is aid and to whom to offer it?
- Agroecology system

WORKSHOPS

- Sustainable community development
- Design thinking

North American
Center for Collaborative Development

CONAHEC

UNIVA
La Universidad Católica

Field work

ACTIVITIES

- 2 visits to the Experimental Farm for Sustainable Development, in Puente Grande
- Visit to poor community in "Lomas de la Primavera"
- Installation of Water Catchment System for vegetable garden in primary school
- Chimney for stove area to reduce indoor air pollution
- Roof installation for the bathroom
- Hand wash station installation

Cultural aspect

ACTIVITIES
- Tour through the historic downtown of Guadalajara
- Tour to downtown of Tlaquepaque
- Cultural visit to the magical town of Tequila
- Tour around the archaeological zone of Guachimontones
- Visit to the Sierra del Tigre and "Las Piedrotas" in Tapalpa

Academic aspect

LECTURES

- Community Service at MSUD
- Water treatment in Colorado
- Industrial design of systems to capture rainwater
- Strategic keys and systemic approach applied in sustainable community development
- Methodology for measuring the effectiveness of community actions
- Challenges of energy and the "BBC" methodology (Behavior Change Communication)
- The role of anthropology and sociology in technological development
- Integrated approach for community interventions
- development of software for psychological and psychiatric diagnoses

METROPOLITAN STATE UNIVERSITY OF DENVER

CONAHEC

Field work

ACTIVITIES
- Denver Botanic Gardens
- Engineering LAB
- "Tivoli" Brewery

Cultural aspect

ACTIVITIES

- Capitol of the State of Colorado
- Boulder, Chautauqua Park
- Estes Park and the Rocky Mountain National Park
- Glenwood springs, hot springs area
- Maroon Bells

MSU of Denver conclusions

- **The program built relationships** between students and faculty at UNIVA and MSU Denver
- Promoted **better understanding between cultures** and increased mobility for students and faculty.
- Created opportunity for further collaboration and promotes a true international partnership

UNIVA conclusions

- **Citizens of the world**
- We are responsible for what happens in "the common house"
- Be promoters and offer of best technological, economic, environmental and social practices
- Taking advantage of creativity and intelligence with a **humanitarian sense.**

We are ready for a new experience...

Thank you!