

Sustainable Engineering in Service Learning

How to ensure the sustainability of service projects in developing communities.

**Seminar Presentation
Hong Kong Polytechnic University
January 10th, 2019**



VILLANOVA
UNIVERSITY
College of Engineering

Discussion Topic

What are the most important characteristics of a successful and sustainable partnership between university service programs and international organizations.

Write down at least one characteristics for discussion in small groups.

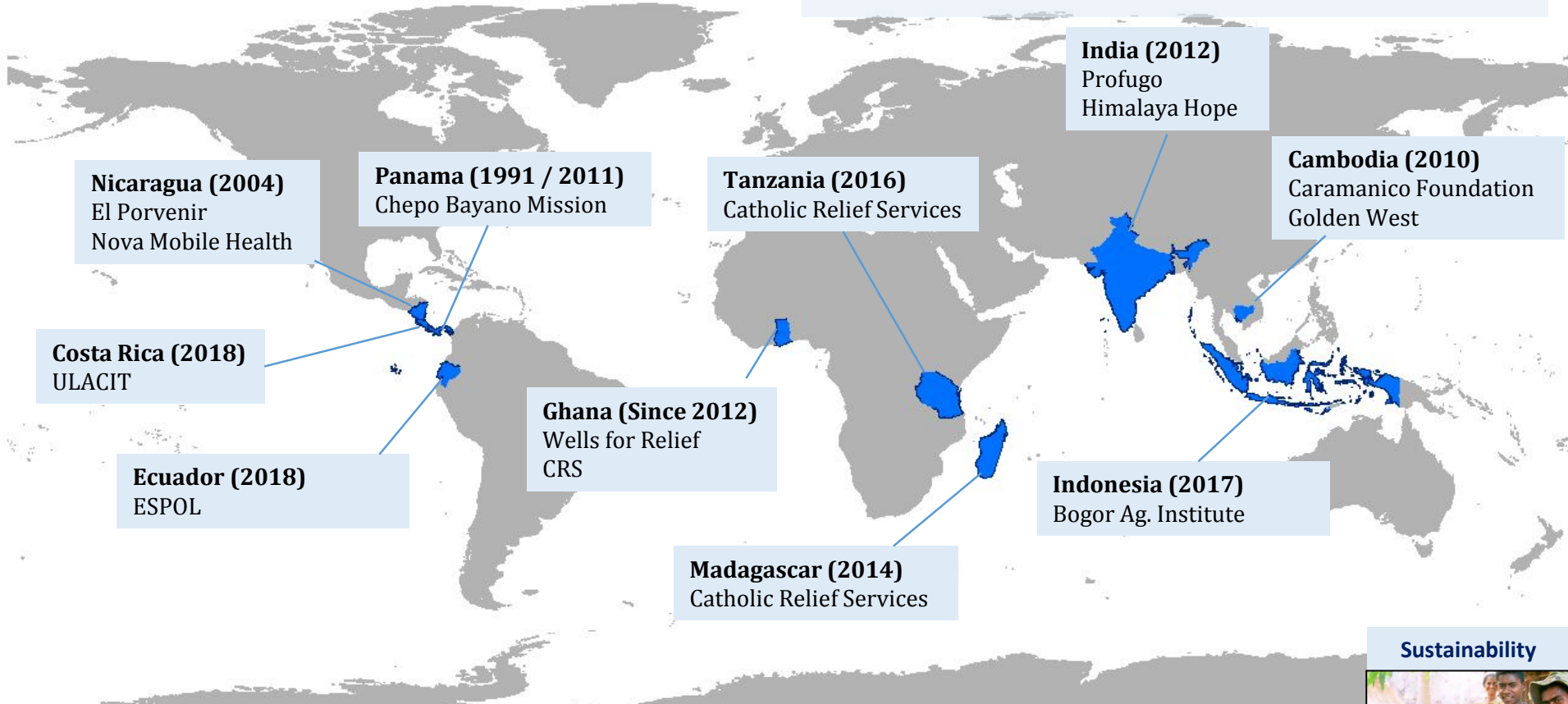


VESL: VILLANOVA ENGINEERING SERVICE LEARNING

"Local Solutions to Local Problems"

VESL projects are rooted in ethical engagement with project partners and communities. Fundamental to this is the belief that empowering local communities is essential to creating sustainable solutions.

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Capacity Building Innovation Development



Outreach Research



Sustainability



Sustainable Service Learning Best Practices for International Outreach

Program Partners

- Implementation
- External Technical Support
- Research & Training
- Educational Awareness

Academic Programs

- Credit
- Integrated Projects
- Depth and Breadth
- Partnership Approach
- Humility

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ENGINEERING SERVICE
LEARNING



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VESL: What we do...

in Engineering Service Learning



We support **Partner Driven Initiatives in Community Development** by providing technical support on International Development Projects



We support **Faculty Driven Initiatives in Capacity Building and Research** through workshops and graduate research projects on Sustainable Development

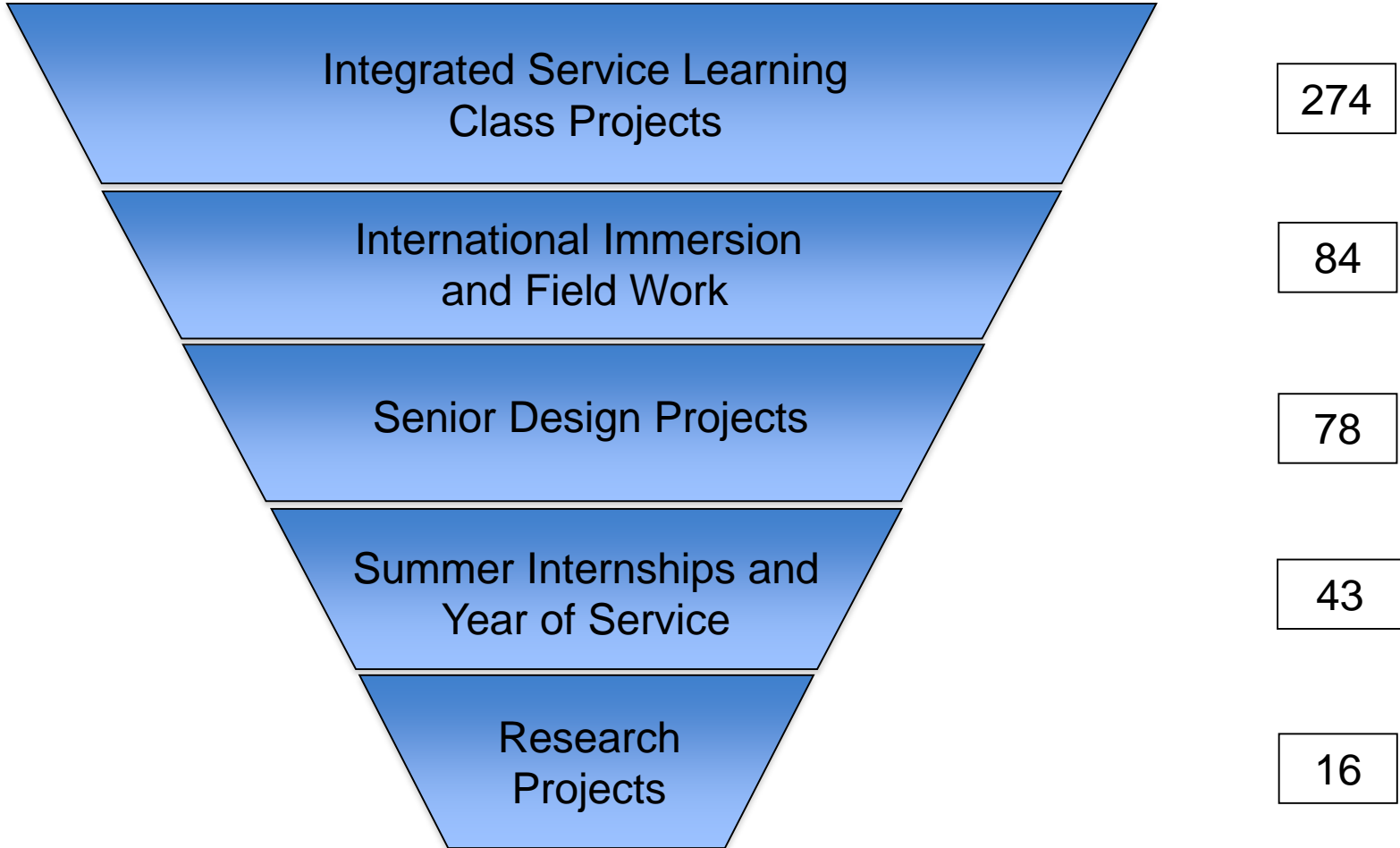
We support **Student Driven Initiatives in Innovation and Creativity** through Humanitarian Engineering Projects addressing development challenges



Participatory Framework

Student Participation
Depth and Breadth

2018
Summary



Su'18 Trips = 15 students, 2 faculty, 1 alumni
Sp'18 Trips = 35 students, 3 faculty, 4 alumni
Fa'17 Trips = 34 students, 4 faculty, 2 alumni

Total Students = 495

Employees - Private Sector Expertise - Funding Entities

Corporate Partners

Alumni Sponsors

Grant Partners

Foundation Partners

Design Projects

Senior Design
Capstone
Class Projects
Independent Study
VESL Seminar

2008

Villanova
Engineering
Service Learning

Research Projects

Sustainability
Water and Sanitation
Services
Technology
Renewable Energy

Nicaragua Partners

Panama Partners

Ghana Partners

Madagascar Partners

Cambodia Partners

India Partners

Communities - Local Stakeholders - Customers - Local Staff

Employees - Private Sector Expertise - Funding Entities

Corporate
Partners

Alumni
Sponsors

Grant
Partners

Foundation
Partners

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VESL Seminar

2011

Villanova
Engineering
Service Learning

Sustainability
Water and Sanitation
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Partners

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2014

Villanova
Engineering
Service Learning

Sustainability
Water and Sanitation
Services
Technology
Renewable Energy

Nicaragua
Partners

Panama
Partners

Ghana
Partners

Madagascar
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Research Projects

Sustainability
Technology
Renewable Energy
Water and Sanitation
Services

2018

Villanova
Engineering

International
University Partners

Nicaragua

Panama

Ghana

Madagascar

Cambodia

India

Ecuador

Costa Rica

Tanzania

Indonesia

Communities - Local Stakeholders - Customers - Local Staff

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Design Projects

Senior Design
Capstone
VESL Seminar
Class Projects
Independent Study

Research Projects

Sustainability
Water and Sanitation
Services
Technology
Renewable Energy

2020
Villanova Engineering
International University Partners

Nicaragua Partners

Panama Partners

Ghana Partners

Madagascar Partners

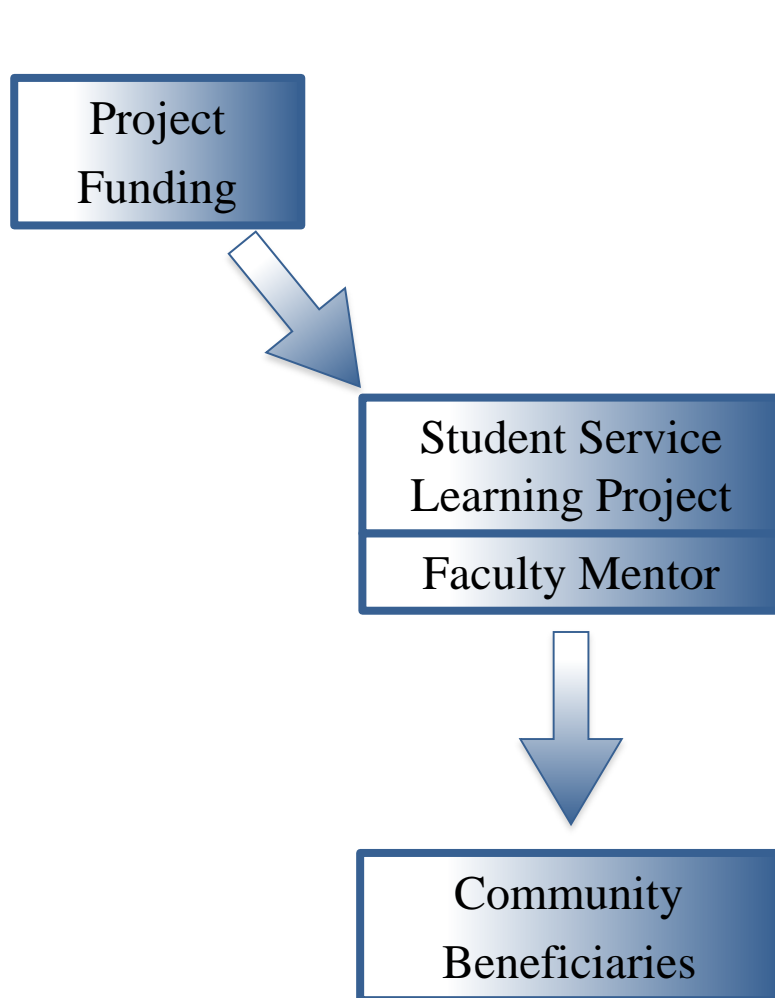
Cambodia Partners

India Partners

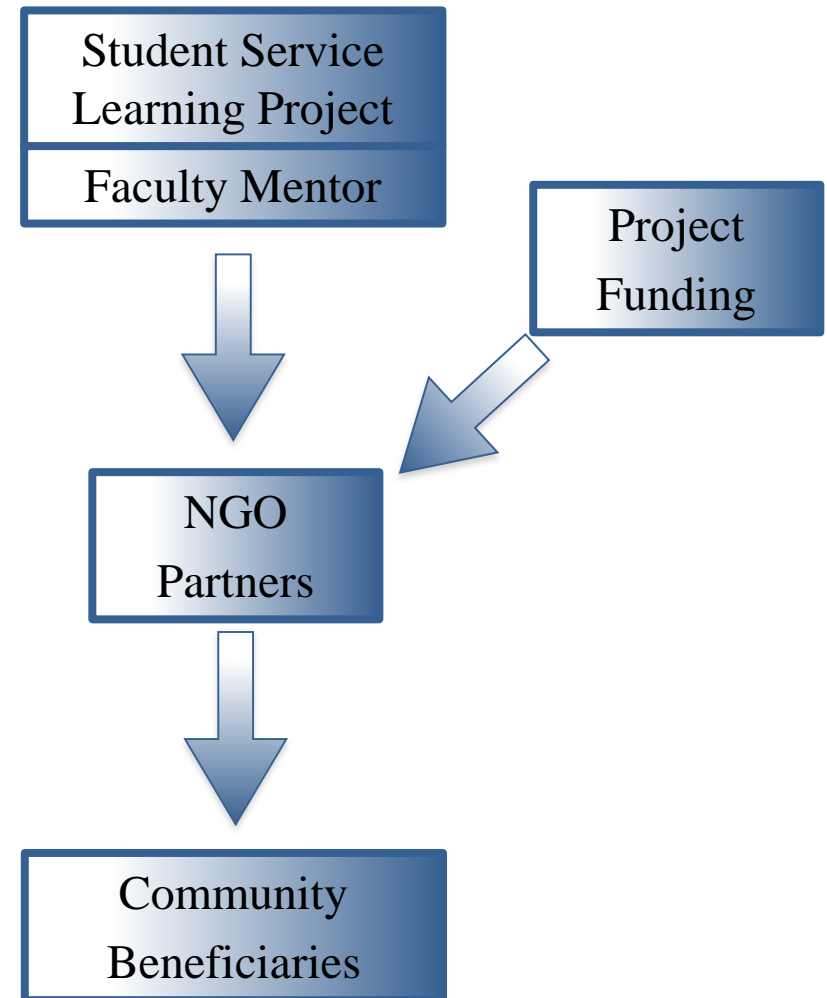
Communities - Local Stakeholders - Customers - Local Staff

Sustainability Challenges in International Service Learning Programs

Typical Service Learning Model



Villanova Engineering Model



Participatory Research - Methodology

Participatory Research - is an approach that builds on local knowledge and enhances effectiveness when conducting research in low-income developing communities (World Bank, 1994).

- **Sustainability Discussion Groups using Delphi Method**
- **Performance Monitoring using Continuous and Objective Methods**
- **Customer Satisfaction and Water Management Surveys**





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Additional Information

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