

LOW-TECH, LOW- COST WATER SOLUTIONS

A focused approach to the mineral extraction industries contribution to sustainable development of clean water using artisanal nanotechnology



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA



Brandon Nichols, M.A.Sc, Candidate - NBK Institute of Mining Engineering
University of British Columbia

Robert Pillers – Potters for Peace, Nicaragua

Andre Xavier PhD - NBK Institute of Mining Engineering, University of British
Columbia

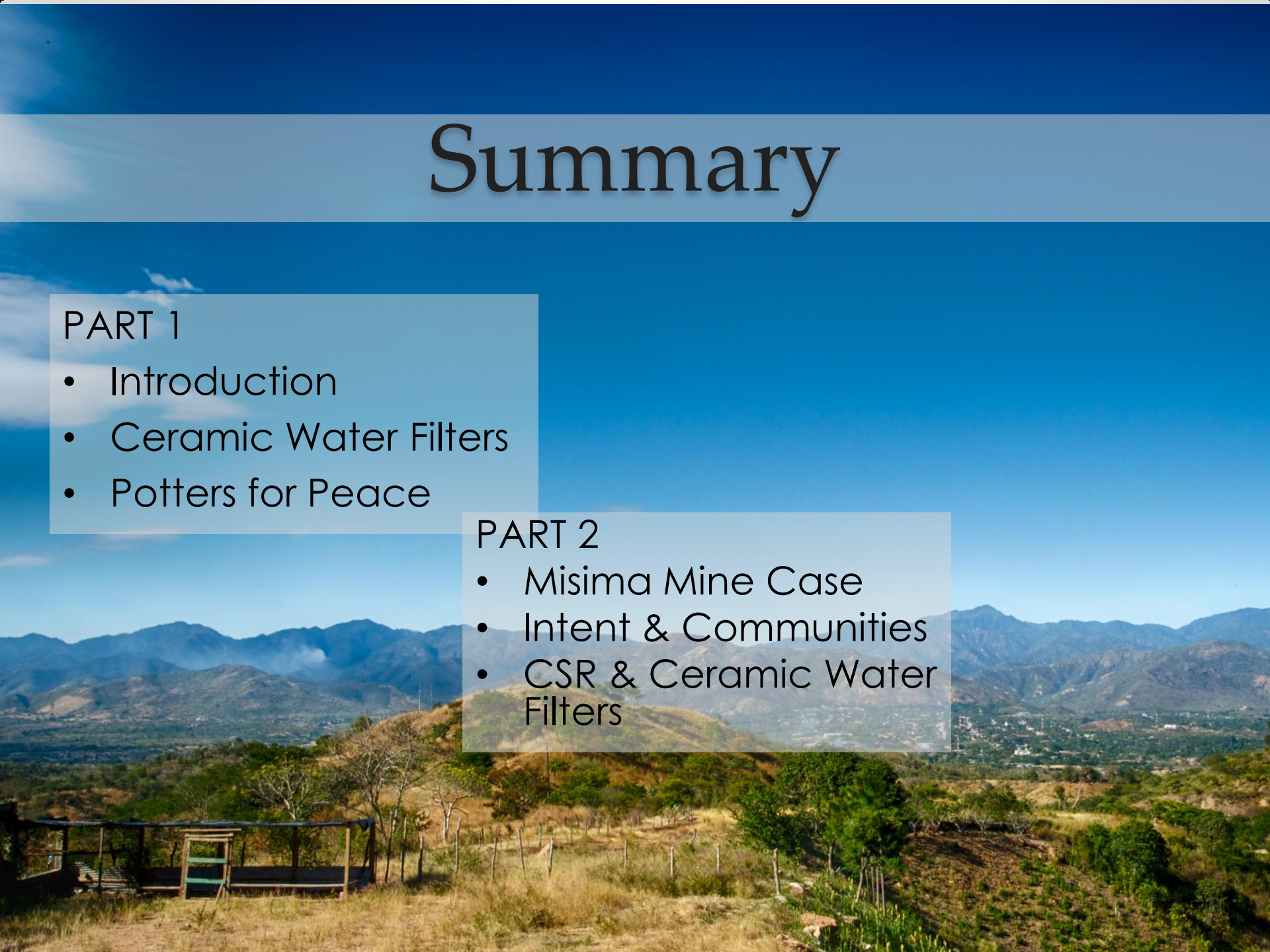
Summary

PART 1

- Introduction
- Ceramic Water Filters
- Potters for Peace

PART 2

- Misima Mine Case
- Intent & Communities
- CSR & Ceramic Water Filters



Ceramic Clay Water Filters



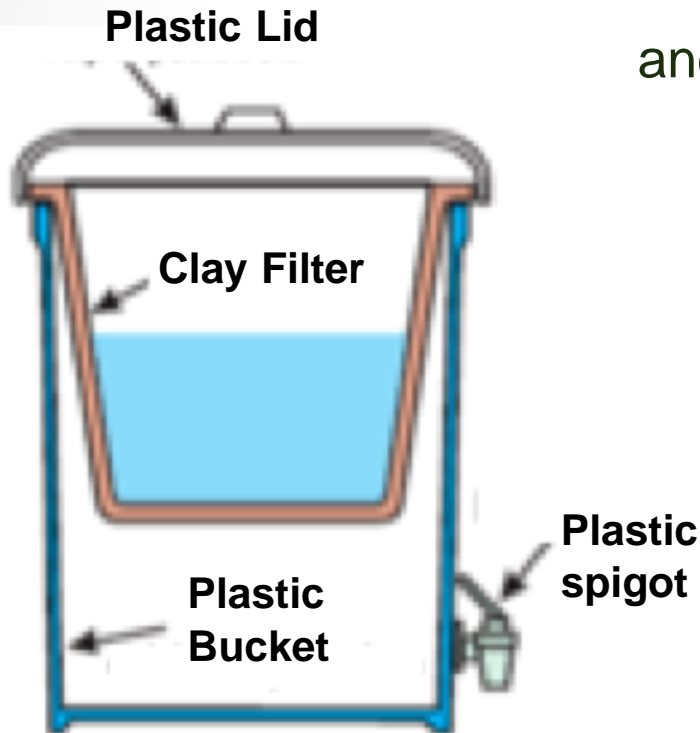
SDIMI Mandate

- Half the people on earth experience water scarcity
- 740 million do not have access to improved water sources
- 2 billion have no sanitation
- 1 billion practice open defecation
- 97% of rural people in developing countries lack piped water



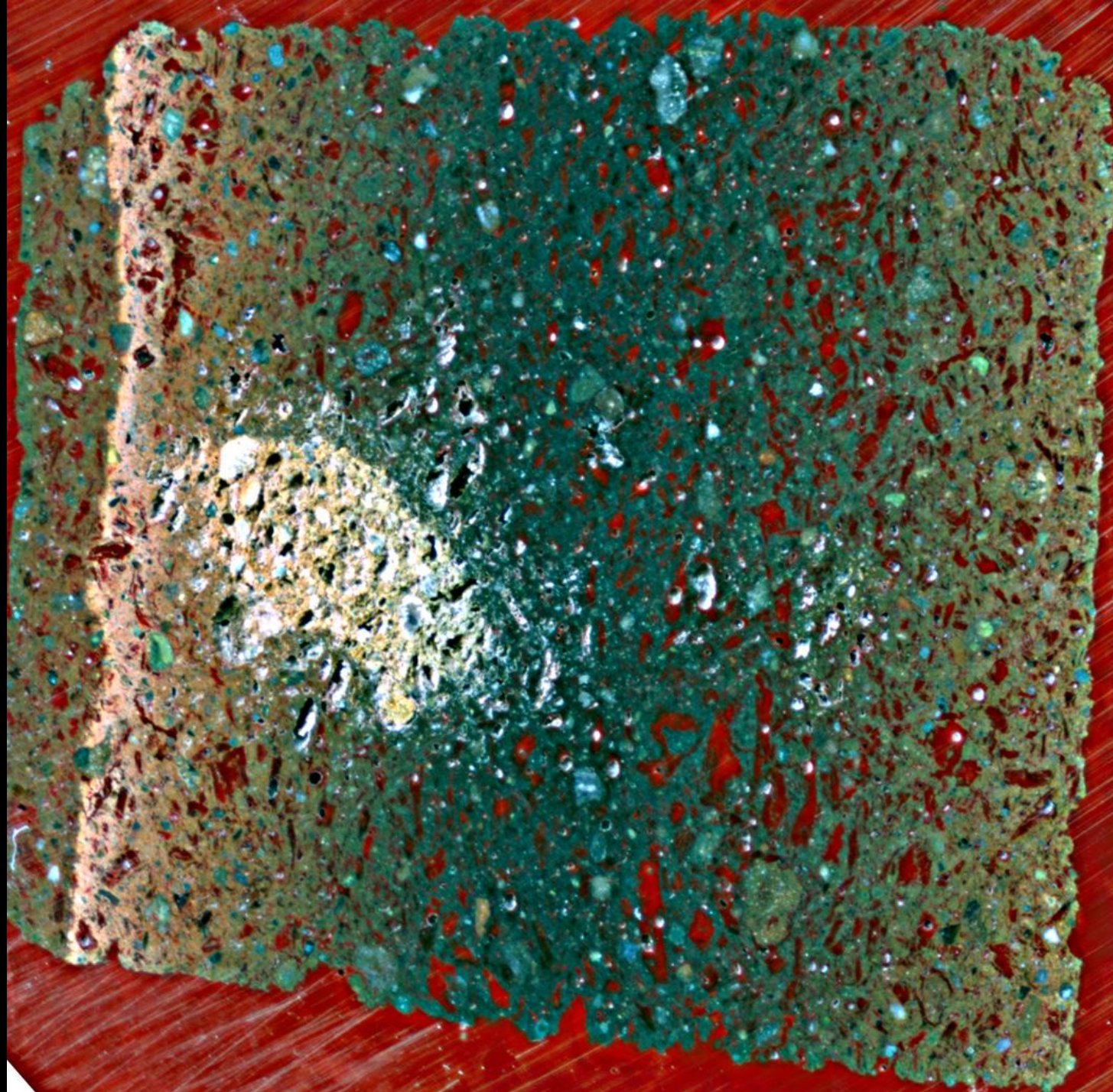
What is the FILTRON?

It's the entire unit, which includes:
the filter element,
The storage container,
the lid,
and the spigot.



Sifting Sawdust













POTTERS OF PEACE



1998

HURRICANE MITCH
DAMAGED THE
WATER SUPPLY IN
NICARAGUA
AND CREATED
THE NEED
FOR MASSIVE
DISTRIBUTION.



HURRICANE MITCH

1981



DR. FERNANDO MAZARIEGOS

DR. FERNANDO
MAZARIEGOS
OF "ICAITI"

(INSTITUTO CENTROAMERICANO
DE TECNOLOGIA INDUSTRIAL,
GUATEMALA)

INVENTED THE CERAMIC
WATER FILTER
IMPREGNATED WITH
COLLOIDAL SILVER.

1998

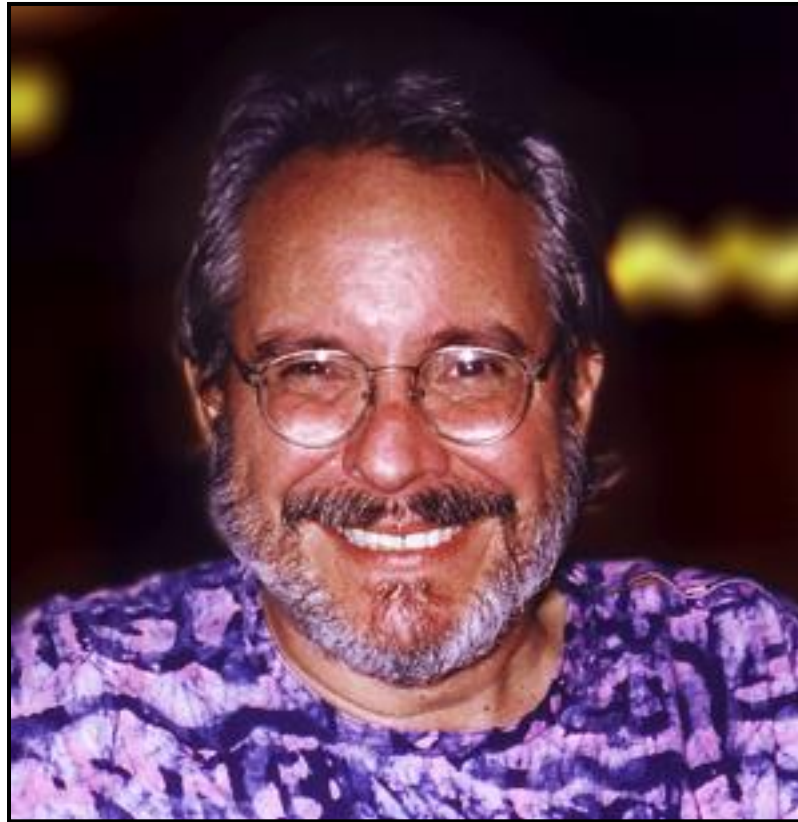


MANNY HERNANDEZ

RON RIVERA AND
MANNY HERNANDEZ
INVENTED THE
PROCESS TO
MANUFACTURE
THE FILTERS
MORE EFFICIENTLY



The Original Crew, 1999



RON RIVERA

1948 - 2008

POTTERS & PEACE

DOES NOT:

Own filter factories

Produce filters

Sell filters

POTTERS 4 PEACE

**Trains local partners
to create a business
to make and promote
a safe HEALTH PRODUCT**

POTTERS FOR PEACE

MODEL

“Social Enterprise”

POTTERS & PEACE

MODEL

“Social Enterprise”

Local Production

POTTERS 4 PEACE

MODEL

“Social Enterprise”

Local Production

Sustained by Sales

POTTERS & PEACE

MODEL

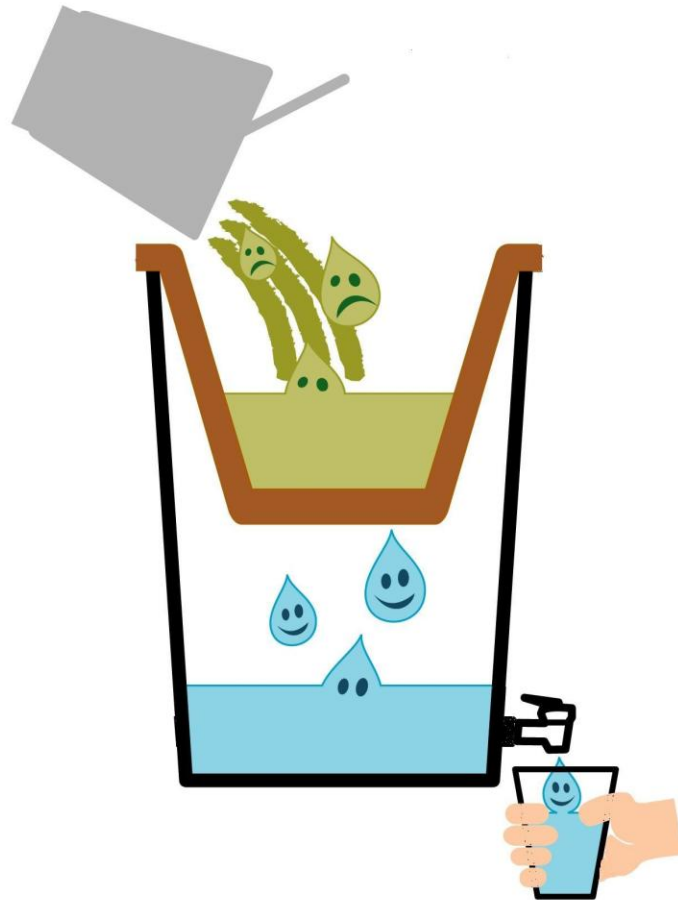
“Social Enterprise”

Local Production

Sustained by Sales

Simple, not Easy

POTTERS & PEACE

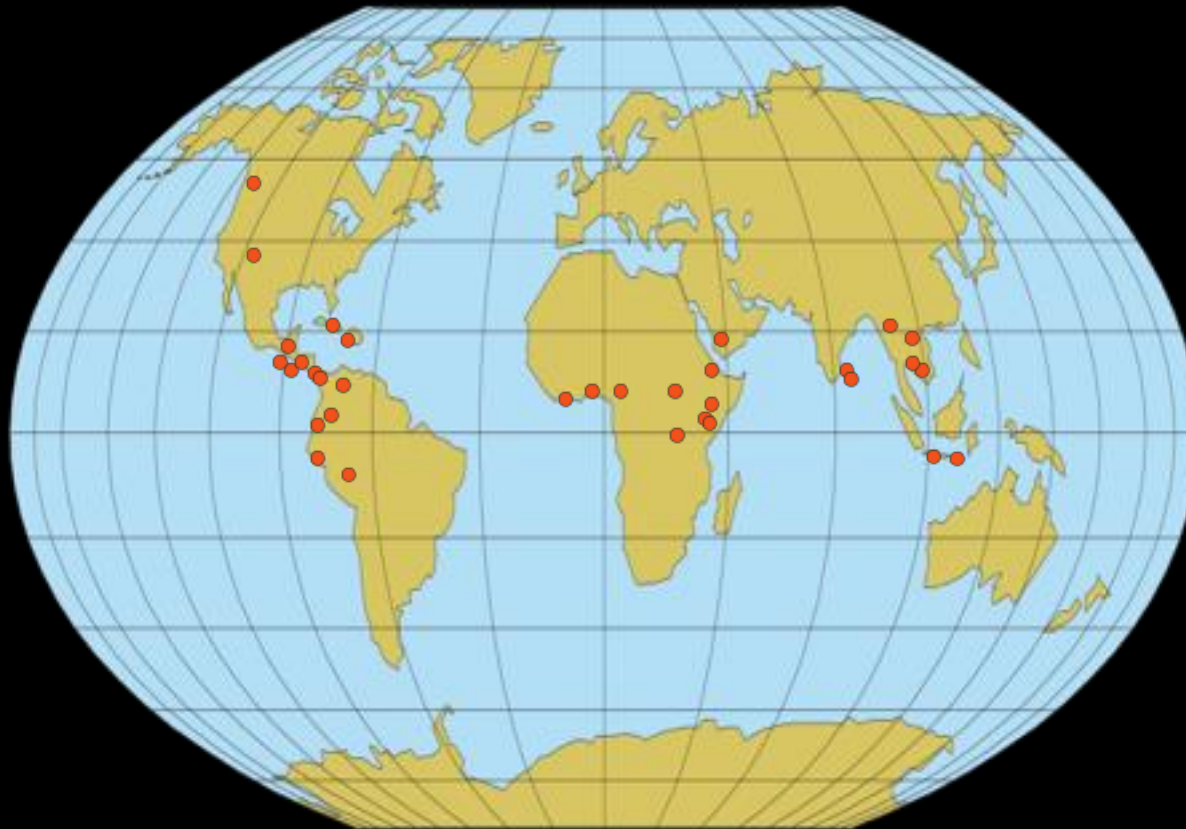


EL FILTRÓN IN THE WORLD

Ron Rivera's "Dream of 100 Factories"

USA
Canada
Colombia (2)
Cuba
D. R.
Ecuador (2)
El Salvador
Guatemala (2)
Honduras
Nicaragua (2)
Peru (2)

Cambodia (3)
Indonesia
Laos
Myanmar (8)
Sri Lanka (2)



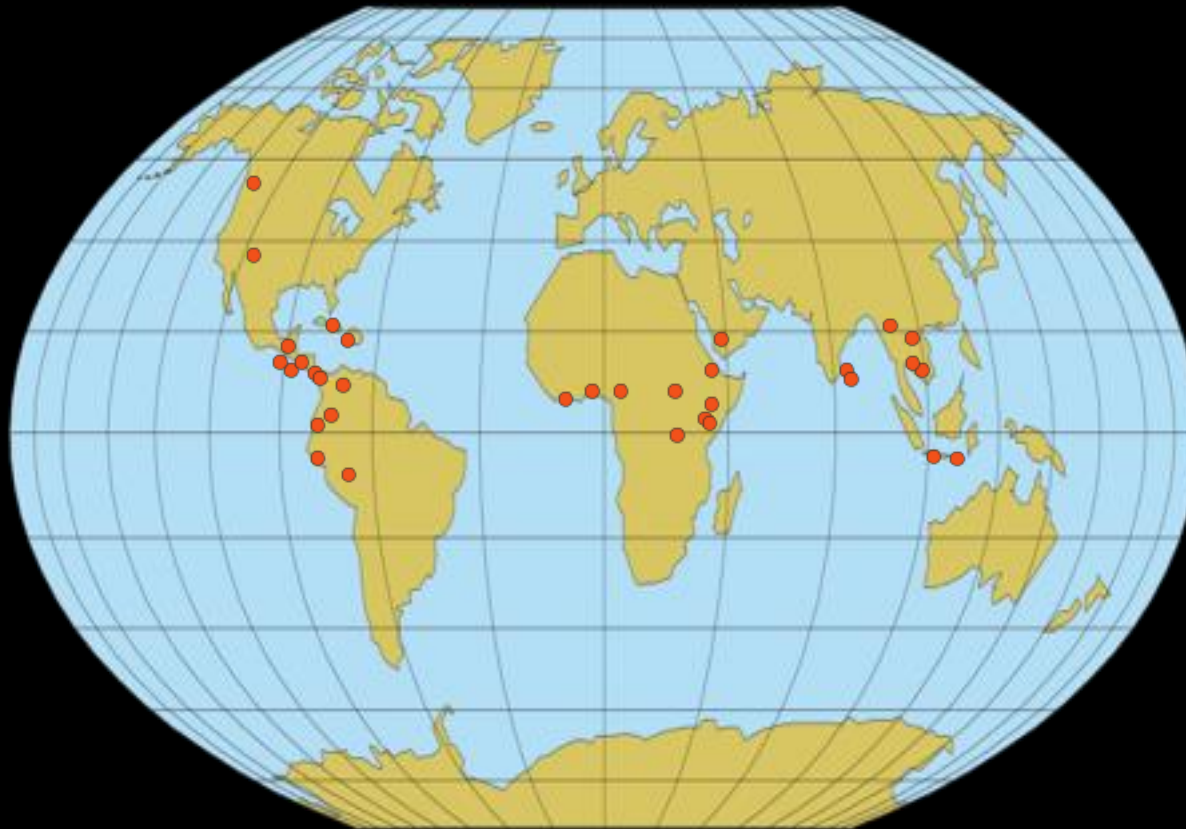
..... Factories in the world

EL FILTRÓN IN THE WORLD

Ron Rivera's "Dream of 100 Factories"

USA
Canada
Colombia (2)
Cuba
D. R.
Ecuador (2)
El Salvador
Guatemala (2)
Honduras
Nicaragua (2)
Peru (2)

Cambodia (3)
Indonesia
Laos
Myanmar (8)
Sri Lanka (2)



..... Factories in the world

SOME PARTNERS

INTERNATIONAL RED CROSS AND RED CRESCENT

UNICEF

UNITED NATIONS DEVELOPMENT PROGRAM

USAID

WORLD BANK

US PEACE CORPS

DOCTORS WITHOUT BORDERS

PLAN INTERNATIONAL

OXFAM

ROTARY INTERNATIONAL

AWARDS & RECOGNITION

**Ranked #1 HWTS Option by the
RURAL WATER SUPPLY NETWORK
at the WORLD WATER FORUM (2012)**

**Awarded the highest score for
OVERALL APPROPRIATENESS in
“SMART DISINFECTION SOLUTIONS”
by the NETHERLANDS WATER PARTNERSHIP (2010)**

**WORLD BANK MARKETPLACE PRIZES
Cambodia (2004), Ghana (2005)**

**ENGINEERS WITHOUT BORDERS TECHNOLOGY OF THE YEAR
USA, (2004)**

**UN IDEASS FIRST PRIZE FOR APPROPRIATE TECHNOLOGY
Nicaragua (2003)**

**Participant at the UN MILLENNIUM GOALS DEVELOPMENT CONFERENCE
Johannesburg, South Africa (2000)**

AWARDS & RECOGNITION

**Ranked #1 HWTS Option by the
RURAL WATER SUPPLY NETWORK
at the WORLD WATER FORUM (2012)**

**Awarded the highest score for
OVERALL APPROPRIATENESS in
“SMART DISINFECTION SOLUTIONS”
by the NETHERLANDS WATER PARTNERSHIP (2010)**

**WORLD BANK MARKETPLACE PRIZES
Cambodia (2004), Ghana (2005)**

**ENGINEERS WITHOUT BORDERS TECHNOLOGY OF THE YEAR
USA, (2004)**

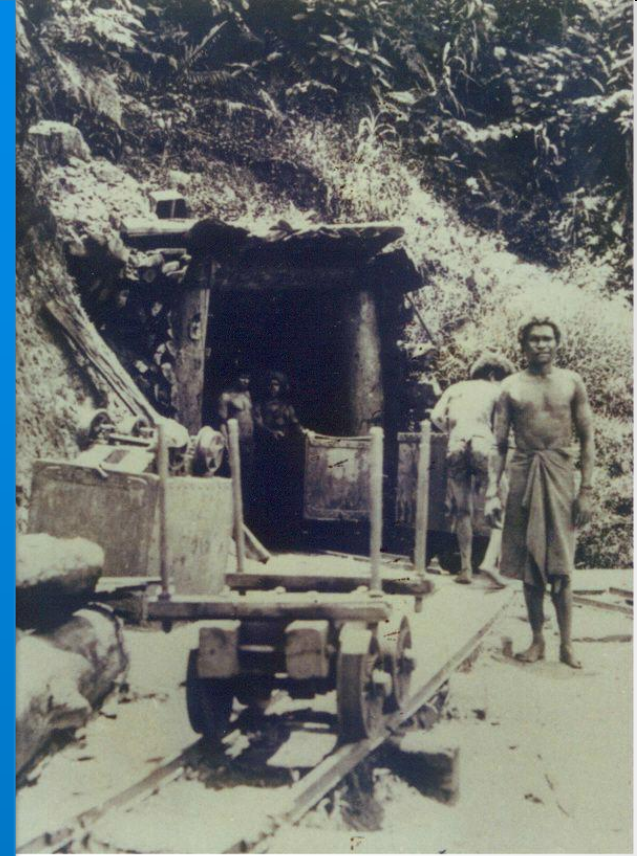
**UN IDEASS FIRST PRIZE FOR APPROPRIATE TECHNOLOGY
Nicaragua (2003)**

**Participant at the UN MILLENNIUM GOALS DEVELOPMENT CONFERENCE
Johannesburg, South Africa (2000)**

Misima Mine

- Placer Dome (PD) – gold deposit
- 1977 – 2012
- Island has no running water or power
- PD created economic and social programs
 - Fishing
 - Farming
 - Closure Planning committee
 - Provided water and power

How did it fail?



A low-angle photograph looking up at a bright blue sky filled with scattered white clouds. The bottom of the image is framed by the dark green, silhouetted branches and leaves of tall trees. A semi-transparent grey horizontal bar spans the middle of the image, containing the word "Intent" in a black, serif font.

Intent

Culturally Appropriate Technology

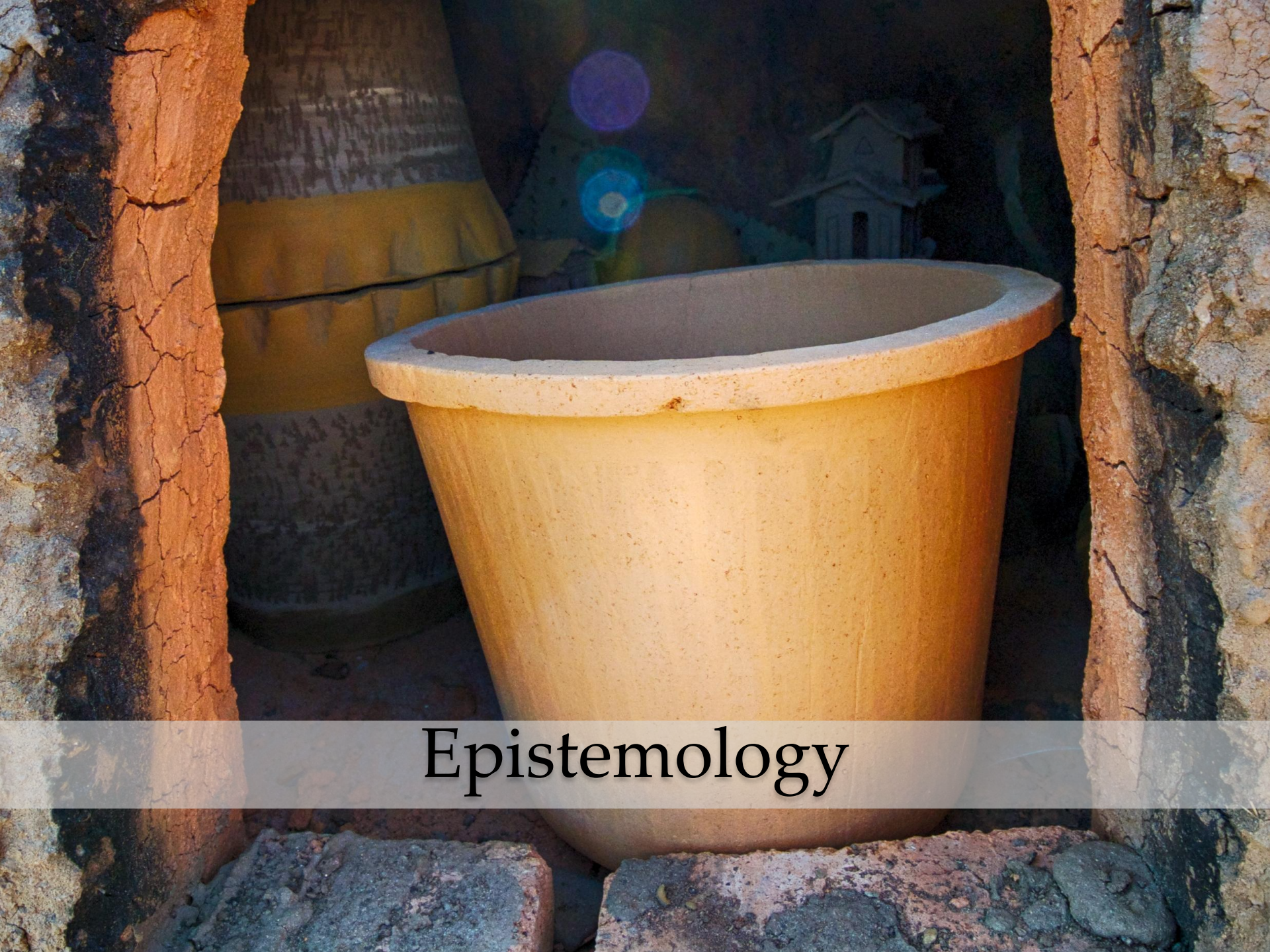




CSR PORN

A low-angle photograph looking up at a bright blue sky filled with soft, white, scattered clouds. In the foreground, the dark green, silhouetted branches and needles of tall trees reach towards the sky. The sun is visible as a bright, glowing orb partially obscured by the tree canopy on the right side, creating a lens flare effect. A semi-transparent grey horizontal band is centered across the image, containing the text 'CSR Paradox' in a black serif font.

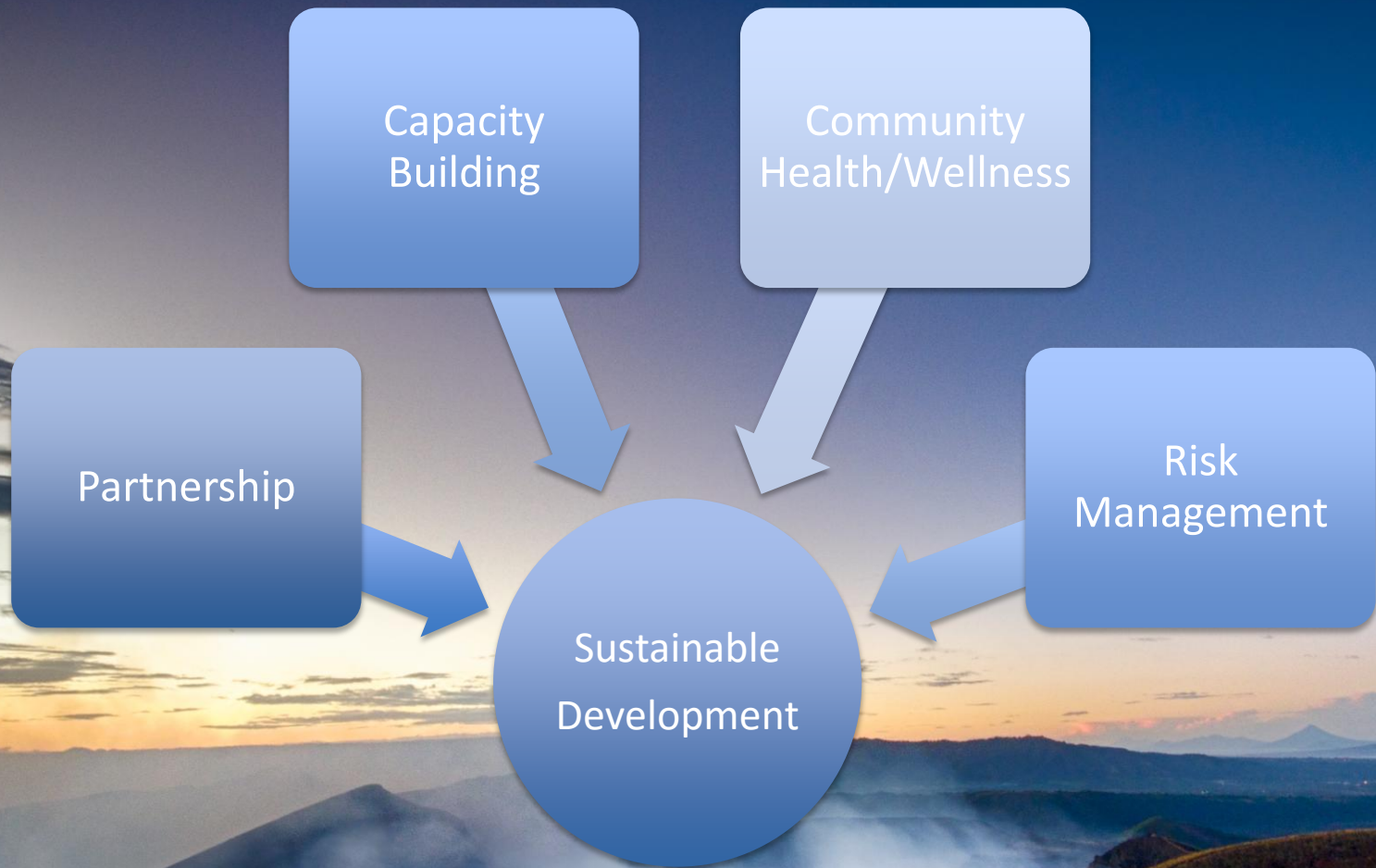
CSR Paradox



Epistemology



Community Buy-In



A wide-angle landscape photograph taken from a high vantage point, likely a mountain peak. The foreground shows rocky terrain with patches of snow and dense evergreen forests. In the middle ground, a vast valley stretches out, featuring a large body of water (likely a bay or lake) and a sprawling cityscape with numerous buildings and roads. The background consists of distant, hazy mountain ranges. The sky is a deep blue, filled with large, white, fluffy cumulus clouds. A semi-transparent dark blue banner is overlaid across the lower portion of the image, containing the text "Truth, Trust & Shared Values" in a white serif font.

Truth, Trust & Shared Values

Love