#### **Technology Serving Humanity**

## **Knowledge Transfer and Adobe Block**

by

Craig Baltimore, SE, PhD (Cal Poly – San Luis Obispo)

#### Order of Presentation

- What is Knowledge Transfer
- Adobe Solutions
- Summary



#### **Knowledge Transfer**

Long Term Influence

**WITHOUT** 

Continued Outside Influence

**Undeveloped Countries** 

**AND** 

Rural Areas

Sounds Simple

But is it??

#### **Culture**

(not Western)



**OUR RULES DO NOT APPLY** 

NEED **TIME** TO DISCOVER AND LEARN THEIR RULES

#### **BUILD RELATIONSHIP**



#### **Local Resources**

(not Western)



**Unmilled Branches for Shoring** 



Adobe is Baked in Ovens (enough heat ??)

#### **Skill Sets**

(not Western)



**Hand Labor** 



No Heavy Equipment

# BUILD RELATIONSHIPS DETERMINE RESOURCES DETERMINE SKILL SETS

THEN
BEGIN
HELPING

**ADOBE** 



#### Kenya

Rural Orphanage for Child of AIDS Pandemic
(Nymbani)
Marauding Tribes Break in with Sledgehammers

#### **HELP**

Create a Wall System that will take much longer for penetrate.

BUT

Wall to be tested at Cal Poly using resources of Kenya

#### Make Adobe as Made In Kenya

- Use resources of Kenya (dirt, water, cement, sand)
  - Use skill set of Kenya (Freshman)







### Use Wall System that can be Repeated without Continued Outside Influence

Double wall with energy disapatting material (SAND)

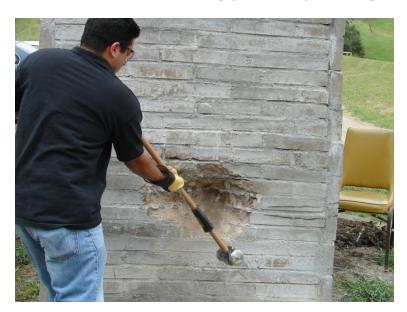




Single Wall: 9 Swings and Back of Wall Explodes Out

### Use Wall System that can be Repeated without Continued Outside Influence

Double wall with energy dissipating material (SAND)



Double Wall: 139 Swings and have to Dig through Wall

#### **Current Effort**

#### **DURABILITY of ADOBE**





## DURABILITY of ADOBE ISSUES

Rains Erode the Adobe

Average Building last 10 years

Curing of Adobe is not of High Enough Heat

Adding Cement is Expensive Western
Solution of
Asphalt
Emulsifiers is
NOT local
resource

## DURABILITY of ADOBE ISSUES

Studying LIME to augment Adobe

#### **Knowledge Transfer**

Can we take our Technology and "REVERSE" Engineer in THEIR TERMS?



#### **Knowledge Transfer**

What is Your Goal?

Short Term Immediate Help?

Long Term Lasting Affects?

Each has its Challenges and Rewards

Thank You