



International Centers for Appropriate
Technology and Indigenous Sustainability

iCATIS, NMSU, CEA (Comisión Estatatal de Aguas de Queretaro)

Robert O. Marquez, iCATIS R&D Director

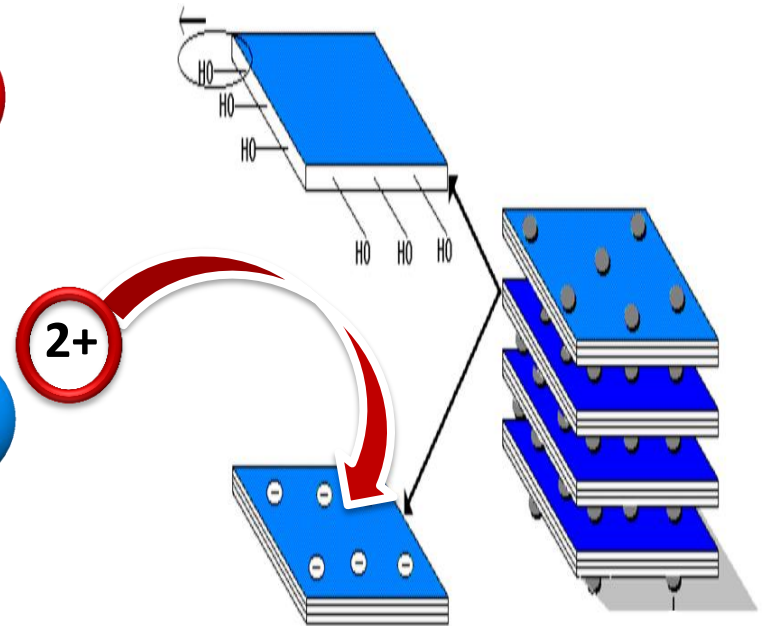
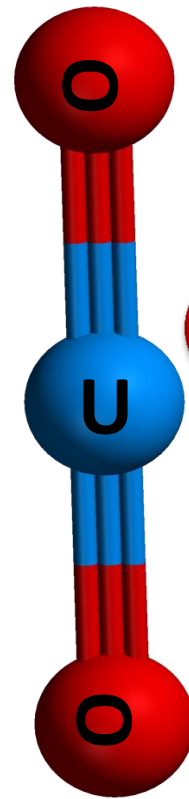
Mark Pitterle, iCATIS Executive Director

Antonio Lara, NMSU Clays Lab

NMSU Clays Lab

- Analytical chemistry laboratory for analysis
- Clay chemistry
- Designing “add on” components to iCATIS water filter systems
- Focus on toxic metal (including uranium) removal from waters with natural clays

Uranium Abatement



iCATIS (501-C3 Non-Profit)- international Centers for Appropriate Technologies and Indigenous Sustainability

- Currently in Mexico, Rwanda, and Haiti
- Potential future work into American Indian reservations, border colonias, and other countries (e.g. Cd. Juarez, Akela, NM, Navajo Nation, Pine Ridge, Mattaponi, Guatemala, Philippines, etc.)

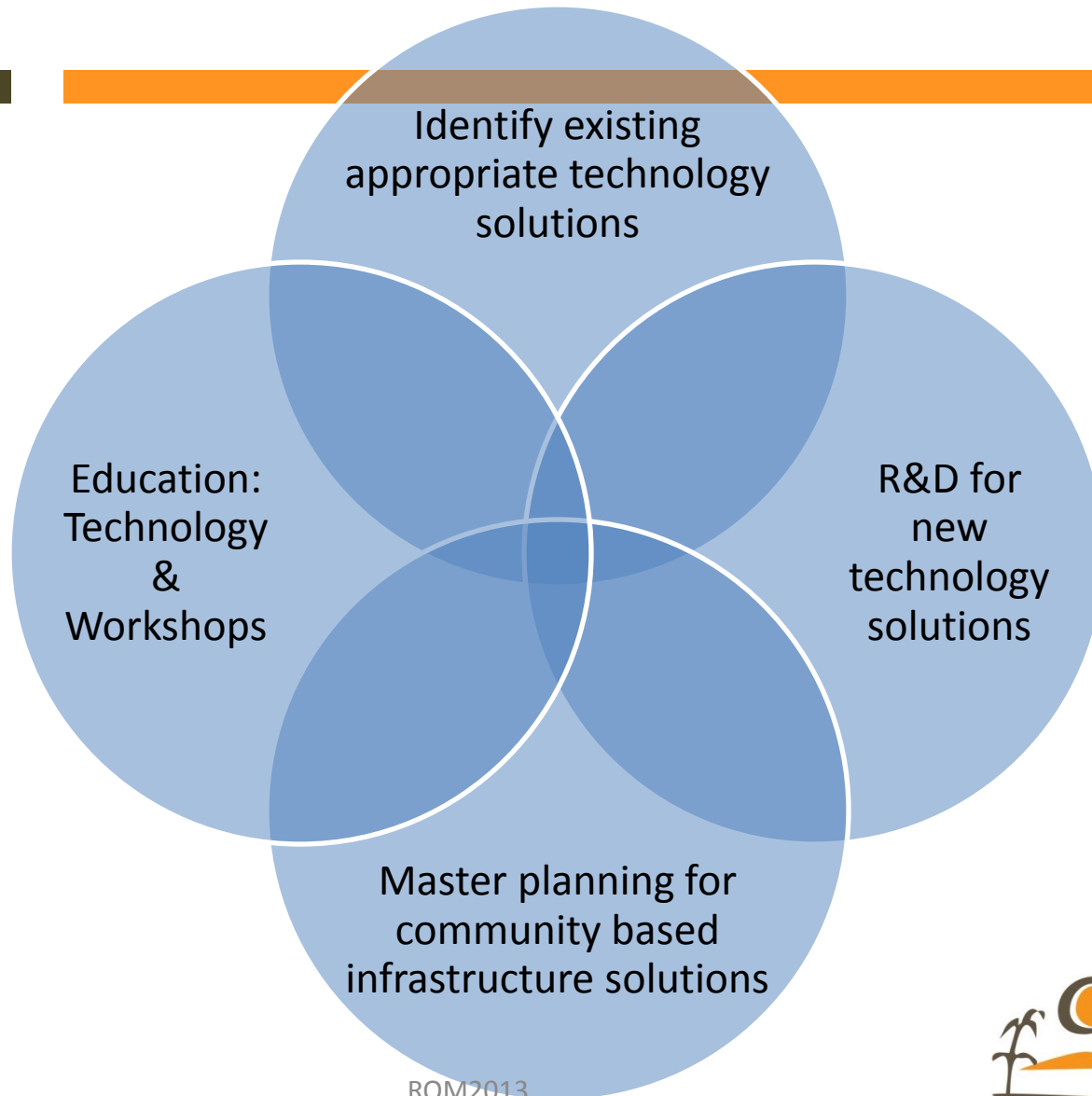


iCATIS- Focus areas

- Water
- Food
- Shelter
- Energy
- Waste management
- Local Businesses



iCATIS- Focus areas



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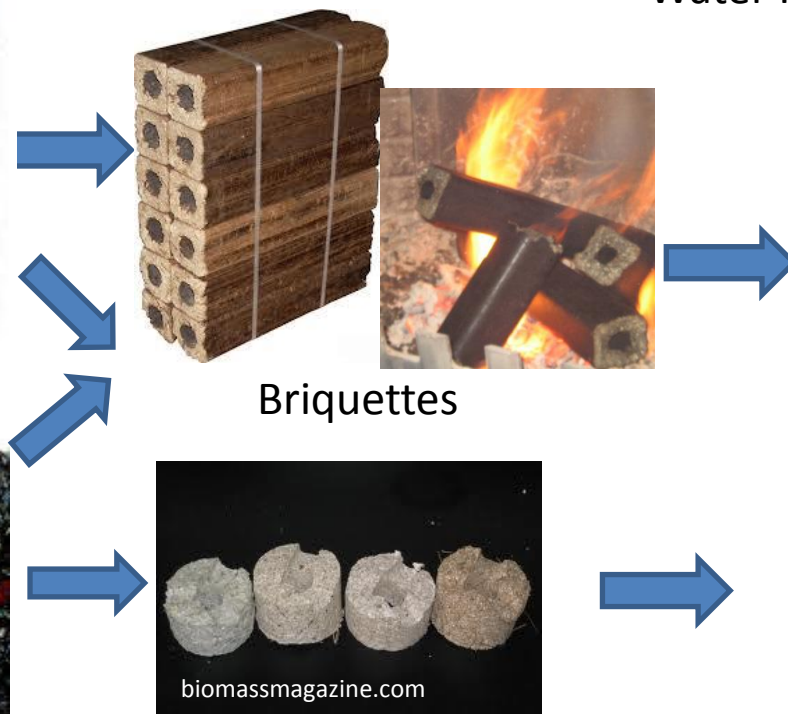


iCATIS Key Values

- Strengthen communities
- Build lasting relationships with ELP (Economically Limited Peoples) communities
- Participatory planning
- Simple designs
- Waste of one becomes value to another
- Assigning value to currently valueless things
- Systems approach



iCATIS – Systems Approach



Water Filter systems



Kilns and stoves

Ag waste and
recyclable fiber
waste

iCATIS Example – 4 Haitian Businesses

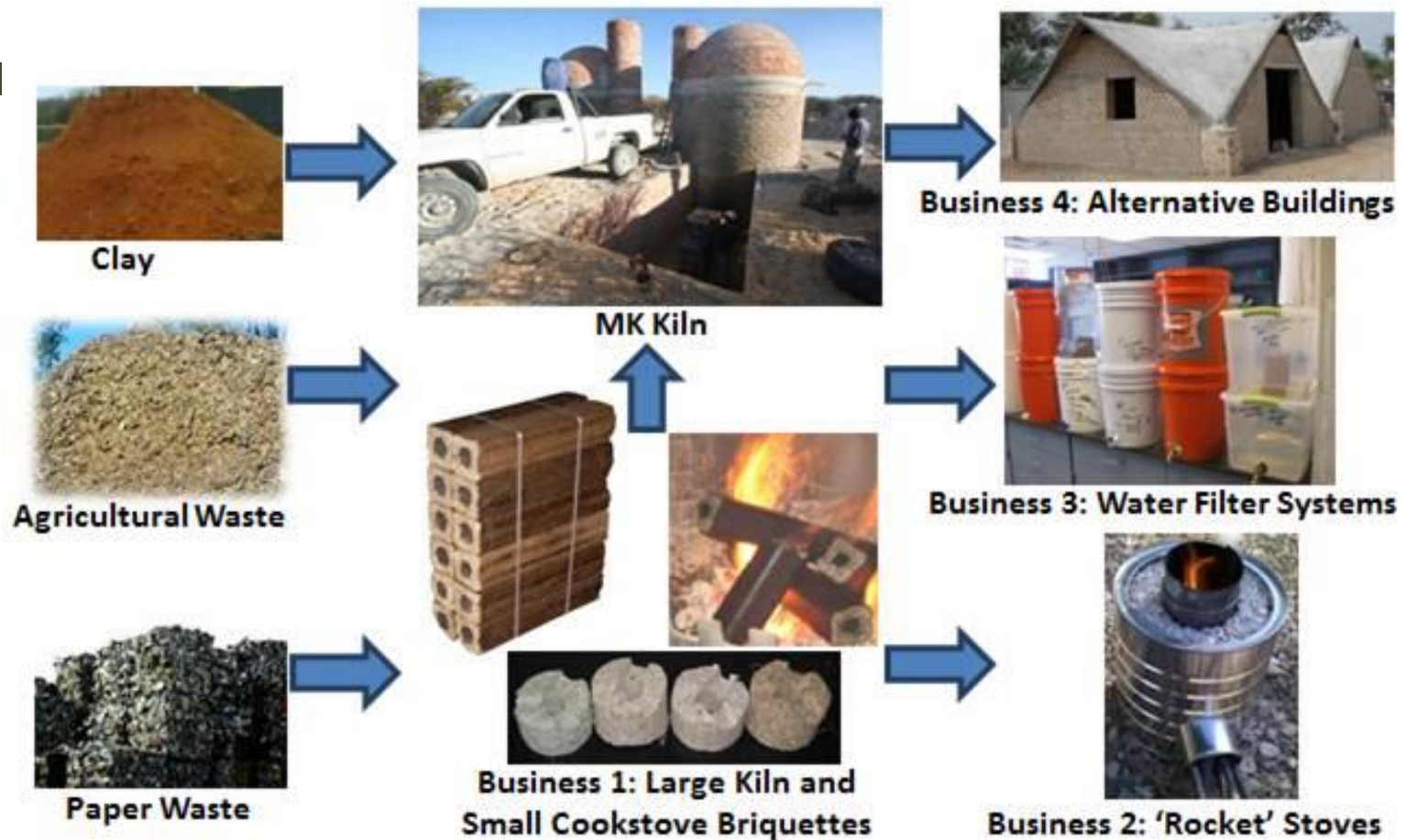


Figure 1: Overview of How All Four Haitian Businesses Fit Together

iCATIS – Technologies

- Rain Water harvesting and Marquez Ceramic Water Filters
- Briquettes from Ag waste
- MK kilns- waste to energy
- Food production with “Healthy soils” (e.g. compost teas)
- Master Planning for Communities
- Waste systems planning
- Waste water system design and water reuse



Potters for Peace-ceramic water filters

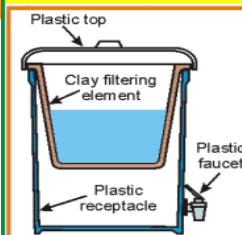
<http://www.potpaz.org/labelEnglish.gif>

- Colloidal silver for disinfection
- Approved by WHO (World Health Organization) and the UN
- Adapted by US military for Iraq (see online internet production manual)
- Minor problems to be considered



<http://www.pottersforpeace.org/>

HOW TO USE YOUR FILTER



1) Before using the new filter,

- Fill the filter receptacle halfway with water and,
- Add 10 drops of chlorine bleach or 16 drops of iodine to this water.
- Let it sit for 30 minutes.
- Use this water to rinse the receptacle, clay filter, lid and faucet and your hands. If chlorine or iodine is not available fill the receptacle halfway with boiling water and when it cools pour this water over the lid, faucet and filter. Discard all the water.

Only chlorinated, boiling, or water treated with iodine will kill bacteria in the receptacle.



2) Place the clay filter in the plastic receptacle immediately, only touching the top lip.



3) Fill the filter several times and discard the filtered water. This will remove the taste of the clay.



4) If your river or well water is cloudy, use a piece of fine cloth over the filter element to prefilter the water each time. Tie a string around the cloth so that it does not fall into the filter.



5) Your filter will flow faster when it is full, so fill it often.

Prefiltering will help your filter to flow faster.

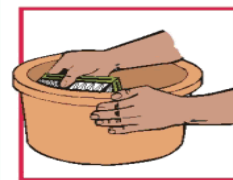
HOW TO CLEAN YOUR FILTER AND RECEPTACLE



1) FILTER CLEANING

You do not need to clean your filter more than once a month unless it starts to filter too slowly.

When this happens, carefully remove the filter. Leave the receptacle at least half full of filtered water. Place the filter on a cloth that has been washed in chlorinated or boiled water.



2) Using water from the receptacle, fill the filter halfway and scrub it vigorously with a brush to unclog the pores. Discard the dirty water. You will have some small particles of clay come off if you are scrubbing hard enough.



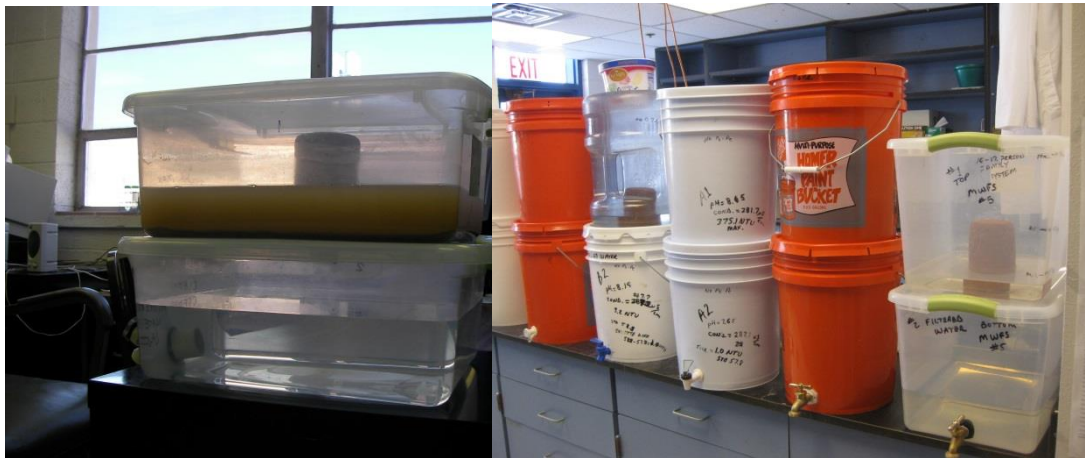
3) CLEANING THE RECEPTACLE

Clean the receptacle monthly. Follow the directions above beginning with "1-A" for cleaning your receptacle.

The clay filter will usually last a year before it becomes too clogged to provide enough water. At this time it should be replaced. If cleaning still restores the flow, it does not need to be replaced. To replace your filter contact

Marquez Ceramic Candle Filter

- Easy to manufacture
- Easy to Ship
- Easy maintenance
- Design flexibility (e.g. add-ons, containers, configuration, etc.)



What is possible?

- Universities, iCATIS, CEA
 - Immediate drinking water for ELP communities (POU water systems)
 - R&D for ELP communities (social entrepreneurship projects, courses, training, workshops, and larger water systems)
 - Exchange experience for students and faculty (e.g. EWB, International Programs, Native Bridges Program, etc.)
 - Community planning, development, and assessment (with Ag., engineering, business, and public health schools)



Acknowledgements

- CEA- Comisión Estatal de Aguas from Queretaro, Mexico
- NMSU
- iCATIS
- Haiti-CIJ, UN Minustah



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