

# Development of Program Implementation, Evaluation, Mapping and Selection Tools for Household Water Treatment and Safe Storage



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**International Symposium on Household Water Treatment**

**Bangkok, Thailand, June 1, 2005**

# Implementation Organization Survey

Household Water Treatment and Safe Storage (HWTS)  
Implementation Program/Product Survey  
Version 7  
February 27, 2005

## 1 General Information

*The following section has the purpose of determining basic background information on the organization. Obtain simple answers to these questions as most will be tackled in more detail in later portions of the survey.*

Date and Time:  
Location:  
Name of interviewer:

1.1  
Interviewee Name/Position:  
Organization:  
Address:  
Telephone(s):  
Fax:  
Email:  
Website:

1.2 Type of organization: (e.g. Non-Governmental Organization (NGO), Business, Government, Agency, Academic Institution, Other?)

1.3 Organization's general history and mission statement?

*For the following questions (1.4 and 1.5) we need only ask briefly about these topics and explain that the topics will be addressed in more detail at a later section of the survey.*

1.4 Organization's specific goals with regards to implementation of one or multiple HWTS systems?

1.5 How does your organization measure progress towards these specific goal(s)? What specific tools, programs, and methodologies do you employ?

1.6 Number of staff members working on HWTS implementation?

- Current Version: 8
- Length: 19 pages
- Target: Organizations Implementing HWTS Programs
- Time Required: 1 to 2 Hours

# The Survey

## Sections

- 1 General Information
  - 2 Implementation Program / Product Description
  - 3 Target Population and Current Water Use Practices
  - 4 Resource Availability
  - 5 Education and Training
  - 6 Funding
  - 7 Operational Monitoring
  - 8 Target: Health Outcomes
  - 9 Target: Water Quality
  - 10 Target: HWTS System Performance
  - 11 Target: Behavior/Use (Consumer Practices and Preferences)
  - 12 Costs
  - 13 Other Types of Approaches and Questions
  - 14 Final Thoughts
  - 15 Publications
- } Pre-Implementation
- } Implementation

# MIT Kenya Team “MAJI”



# Survey Team with Implementers



Robert Baffrey, Jill Baumgartner

# Survey Applied to 11 HWTS Organizations in 5 of Kenya's 8 Provinces



- ★ **Nairobi**
  - PSI (Population Services International)
  - NETWAS (Network for Water and Sanitation)
  - KWAHO (Kenya Water for Health Organization)
  - WVI (World Vision International)
  - Ministry of Health
  - Ministry of Water
- ★ **Mombasa**
  - PSI (Population Services International)
- ★ **Machakos**
  - MEDAIR / Bushproof
- ★ **Nakuru**
  - CDN (Catholic Diocese of Nakuru)
- ★ **Mathuru**
  - ACK (Anglican Church of Kenya)
- ★ **Kisumu (Nyanza)**
  - PSI (Population Services International)
  - SWAK (Society for Women and Aids in Kenya)
  - Womens' Pottery Groups

# HWTS Implementation Organizations Interviewed and Sites Visited in Kenya

Organization	Technology	Location
Population Services International (PSI)		
Nairobi	Waterguard	Nairobi (Headquarters)
Mombasa	Waterguard	Mombasa (Headquarters) / Coast Province
Kisumu	Waterguard	Nyanza Province
Kenya Water for Health Organization (KWAHO)	SODIS	Kibira District, Nairobi, Nairobi Area
MEDAIR / Bushproof	Concrete BioSand Filters	Machakos, Eastern Province
Network for Water and Sanitation (NETWAS)	Ceramic Candle Filter	Nairobi (Headquarters)
World Vision International (WVI)	Safe Water System	Nairobi (Headquarters)
Kenya Ministry of Health	-	Nairobi (Headquarters)
Kenya Ministry of Water	Boiling	Nairobi (Headquarters)
Catholic Diocese of Nakuru (CDN)	Defluoridation Filters	Nakuru, Rift Valley Province
Anglican Church of Kenya (ACK)	SODIS	Eldoret (Headquarters)
CARE-Kenya	Safe Water System / Modified Clay Pots	Kisumu (Headquarters) / Western Province
Society for Women and Aids in Kenya (SWAK)	Waterguard / PuR / Modified Clay Pots	Kisumu (Headquarters) / Western Province

# HWTS Technologies Surveyed

- Household Chlorination (Safe Water System using WaterGuard)
- Safe Storage (Modified Clay Pots)
- SODIS
- Boiling
- Ceramic Filtration (Candles)
- Biosand Filtration (Concrete)
- Coagulation/Disinfection (PuR)
- Defluoridation with Bone Char

## Answers Received from Implementation Organizations (Pre-implementation Section)

Question	NETWAS	CDN	Bushproof	KWAHO	ACK	PSI	SWAK
Water Supply	Natural Springs Boreholes	Ground-water Wells	Dams River Wells	Piped Water (Vendors)	Protected Wells	Various	Various
Urban/Rural	Rural	Both	Rural	Urban	Rural	Both	Rural
Target Population Size	-	-	54,000	500,000 – 700,000	-	-	-
Baseline Health Study?	Yes	No	No	No	Yes	No	No
Raw Materials?	NA	Yes	Yes	Yes	Yes	NA	Yes
Skilled Labor?	NA	Yes	Yes	NA	NA	NA	Yes
Education and Training?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Funding Source	AQUAPOL	Self-Sustaining	MedAir	SANDEC	-	PSI Washington	EED/CDC/ SWAK
Total Funding to Date?	-	-	-	USD 15000	-	-	-
Cost-Benefit Analysis?	No	No	No	Cursory	No	Cursory	Cursory
Willingness-to-Pay Conducted?	No	No	No	Cursory	No	Cursory	Cursory

Answers Received from Implementation Organizations (Implementation Section)							
Question	NETWAS	CDN	Bushproof	KWAHO	ACK	PSI	SWAK
O&M Frequency?	NA	2 – 4 times/year	Once/year	8 times/month	Varies	No	Varies
Target: Health Outcome utilized?	NA	No	Cursory	Cursory	Yes	Cursory	Cursory
Target: Water Quality utilized?	NA	Yes	Yes	Yes	Yes	Yes	Cursory
Water Quality Standards utilized?	NA	WHO Guidelines	Kenya Bureau of Standards	Kenya Bureau of Standards	-	Kenya Bureau of Standards	-
Target: System Performance utilized?	NA	Cursory	Cursory	No	No	No	Cursory
Target: Rate of Adoption and Sustained Use utilized?	NA	No	Yes	Yes	Yes	Cursory	Cursory
Rate of Adoption	NA	-	100%	89%	-	-	-
Rate of Sust. Use	NA	-	100%	-	-	-	-
Environ. Sustainability considered?	NA	No	No	Cursory	No	No	No
User Input considered?	NA	Cursory	Cursory	Yes	Cursory	No	Yes
Education, Training, & Awareness utilized?	NA	Yes	Yes	Yes	Yes	Yes	Yes
Social Acceptance considered?	NA	Cursory	Yes	Yes	Cursory	No	Yes
Target: Costs utilized?	NA	Yes	Yes	Yes	Yes	Yes	Yes
Marketing Method utilized?	NA	Social Marketing	Social Marketing	Social Marketing	Social Marketing	Commercial	Social Marketing

# Summary - Pre-Implementation

- Targeted Populations: peri-urban and rural
- Water Sources- wide variety: wells, springs, rivers, municipal vended water
- Baseline Health Survey? = 29%
- Pre-implementation and Implementation Education and Training? = 100%
- Was cost-benefit analysis conducted?
  - No (57%) or cursory (43%)
- Was willingness-to-pay conducted?
  - No (57%) or cursory (43%)

# Summary – Implementation, Monitoring and Evaluation Targets?

- Health Outcomes Study conducted?
  - Yes (17%); No (17%) Cursory (67%)
- Water Quality Targets Used?
  - Yes (83%); No (0%); Cursory (17%)
- System Performance Targets Used?
  - Yes (0%); No (50%) Cursory (50%)
- Rate of Adoption (Uptake) Targets Used?
  - Yes (33%); No (66%) Cursory (0%)

# Summary – Implementation, Monitoring and Evaluation Targets?

- Social Acceptance Target?
  - Yes (50%); No (17%); Cursory (33%)
- Costs?
  - Yes (100%)
- Market Method?
  - Social Marketing (83%);
  - Commercial (17)%

# Technology Selection Tool

- A classic engineering technology evaluation tool – a “multi-factor analysis” matrix was developed by Robert Baffrey
- Tommy Ngai will demonstrate it during lunch break to those interested.

# More Information

- Baffrey, Robert. 2005. Development of Program Implementation, Evaluation and Technology Selection Tools for Household Drinking Water Treatment in Developing Countries Master of Engineering Thesis. Massachusetts Institute of Technology, Cambridge Ma.
- <http://web.mit.edu/watsan>
- -> documents -> Kenya

# Implementation Organization Survey

International Network to Promote Household Water Treatment and Safe Storage  
**The Network**

Implementation Working Group Survey

The purpose of this survey is to gain a better understanding of where household water treatment and safe storage (HWTS) initiatives are occurring, what types of technologies or systems are being implemented, and what organizations are active. All questions are optional, but we encourage you to fill out as much as this form as possible, save it under a name corresponding to your organization, and send it back to [elliotm@email.unc.edu](mailto:elliotm@email.unc.edu) copying the Network Secretariat at [hwtsn@who.int](mailto:hwtsn@who.int)

1. Respondent Information

Name of respondent  
Position of respondent  
Email of respondent  
Date

2. Institutional Information

Organization  
Address

Telephone(s)  
Fax  
Email (if different than above)  
Website (if available)

a) Type of Organization (please describe)

Non-Governmental Organization (NGO)  
 Private sector / Commercial  
 Public sector / Government  
 Inter-national organization  
 Academic institution  
 Professional association  
 Religious or organization  
 Other (please describe)

b) Focus of HWTS activities (check all that apply)

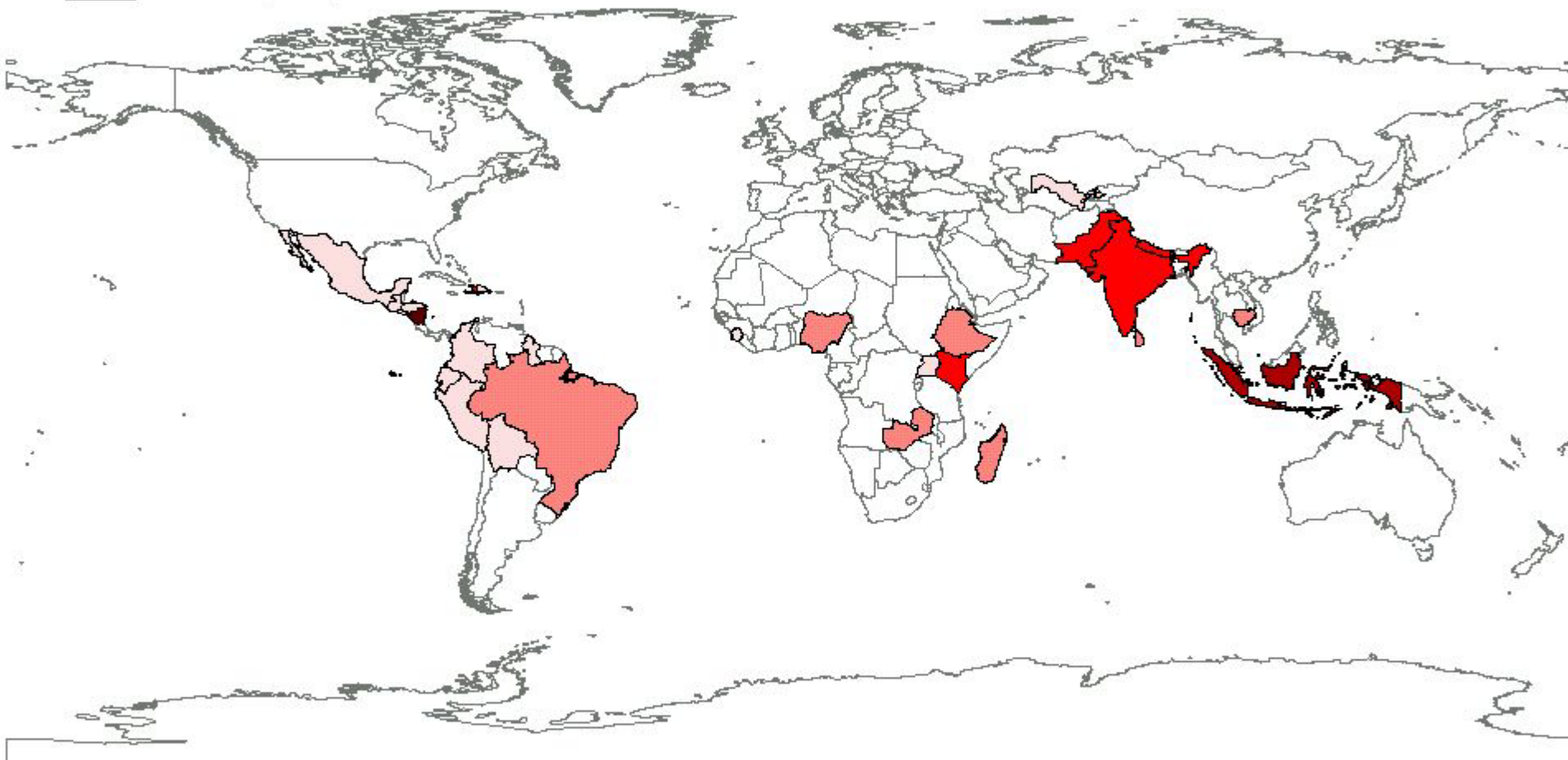
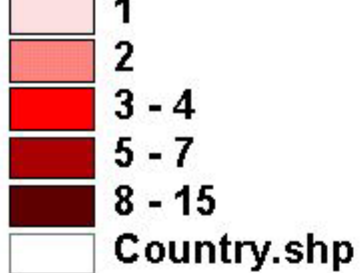
On-the-ground implementation  
 Advocacy  
 Education and training  
 Funding  
 Research  
 Product development  
 Information exchange  
 Supplier of technology, materials or chemicals  
 Other (please describe)

- Current Version: 1
- Length: 4 pages
- Target: HWTS Implementation Organizations
- Time Required: 30 Minutes
- [http://www.who.int/household\\_water/implementation/en/](http://www.who.int/household_water/implementation/en/)

# Mapping HWTS Implementation

- Received 21+ responses to date representing HWTS Implementations in 57 regions
- Mapping in ArcView 9.0
- Demonstrate Map

# Number of projects



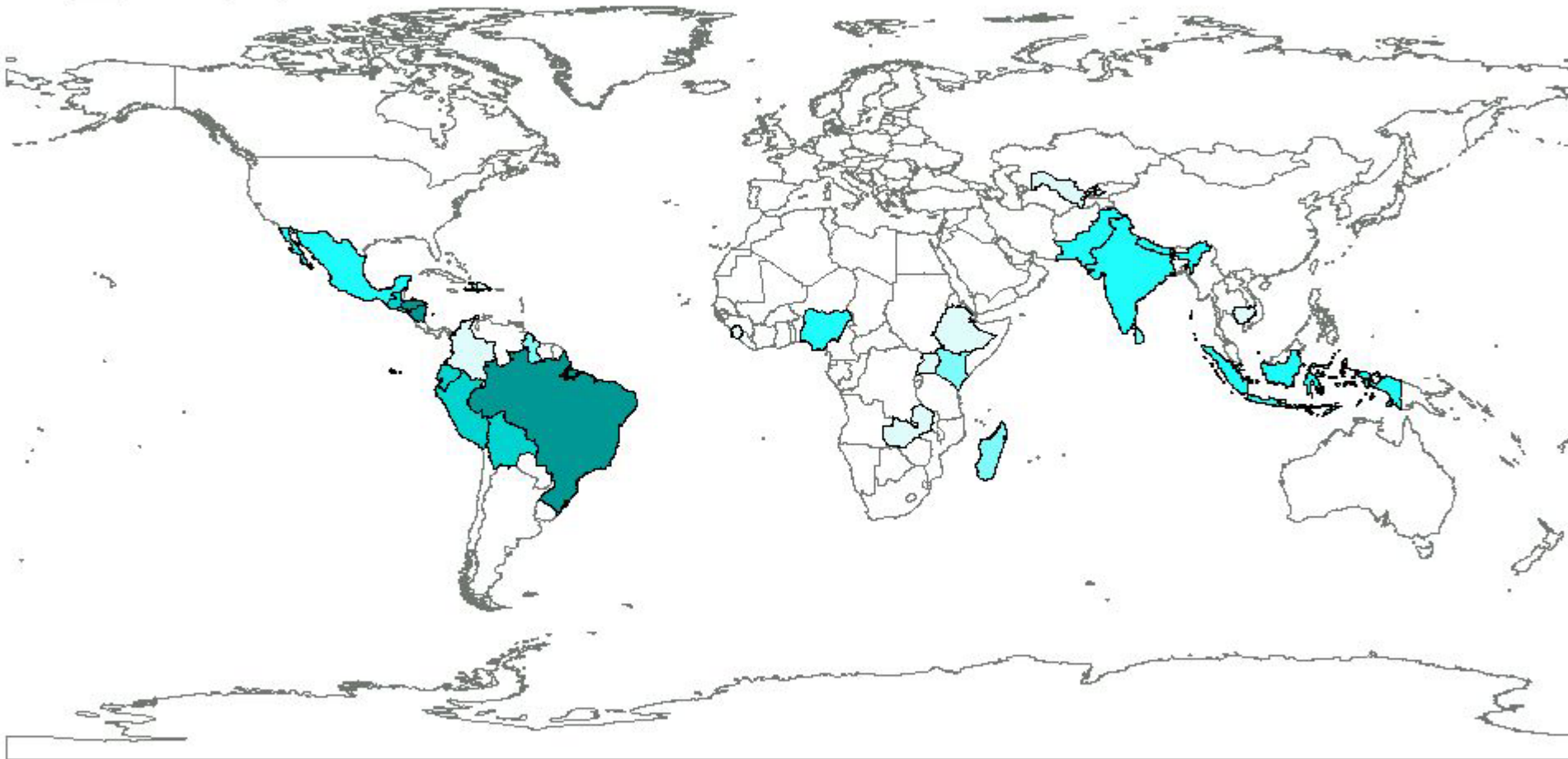
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0

7000

14000 Miles

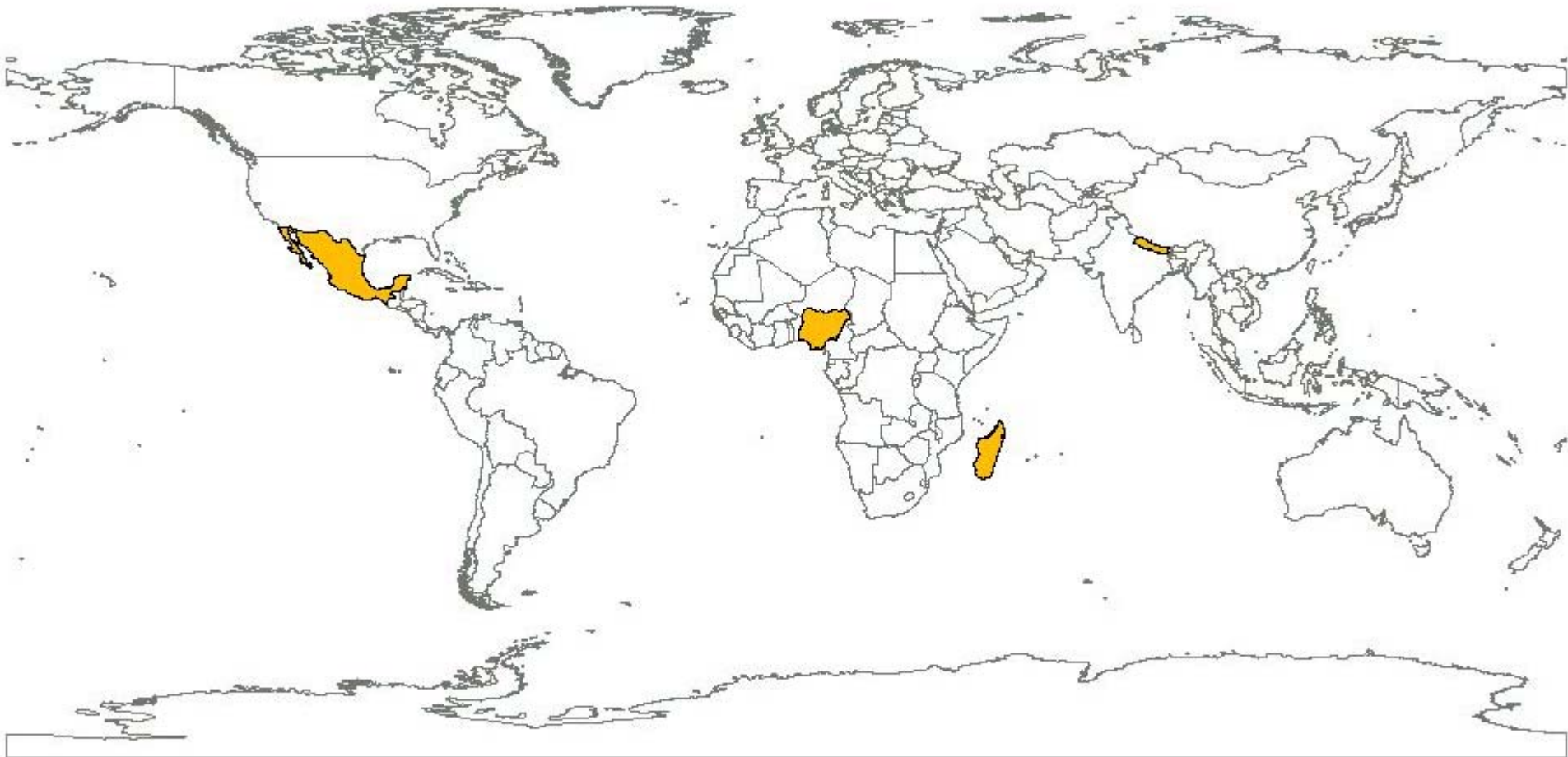
Number of technologies



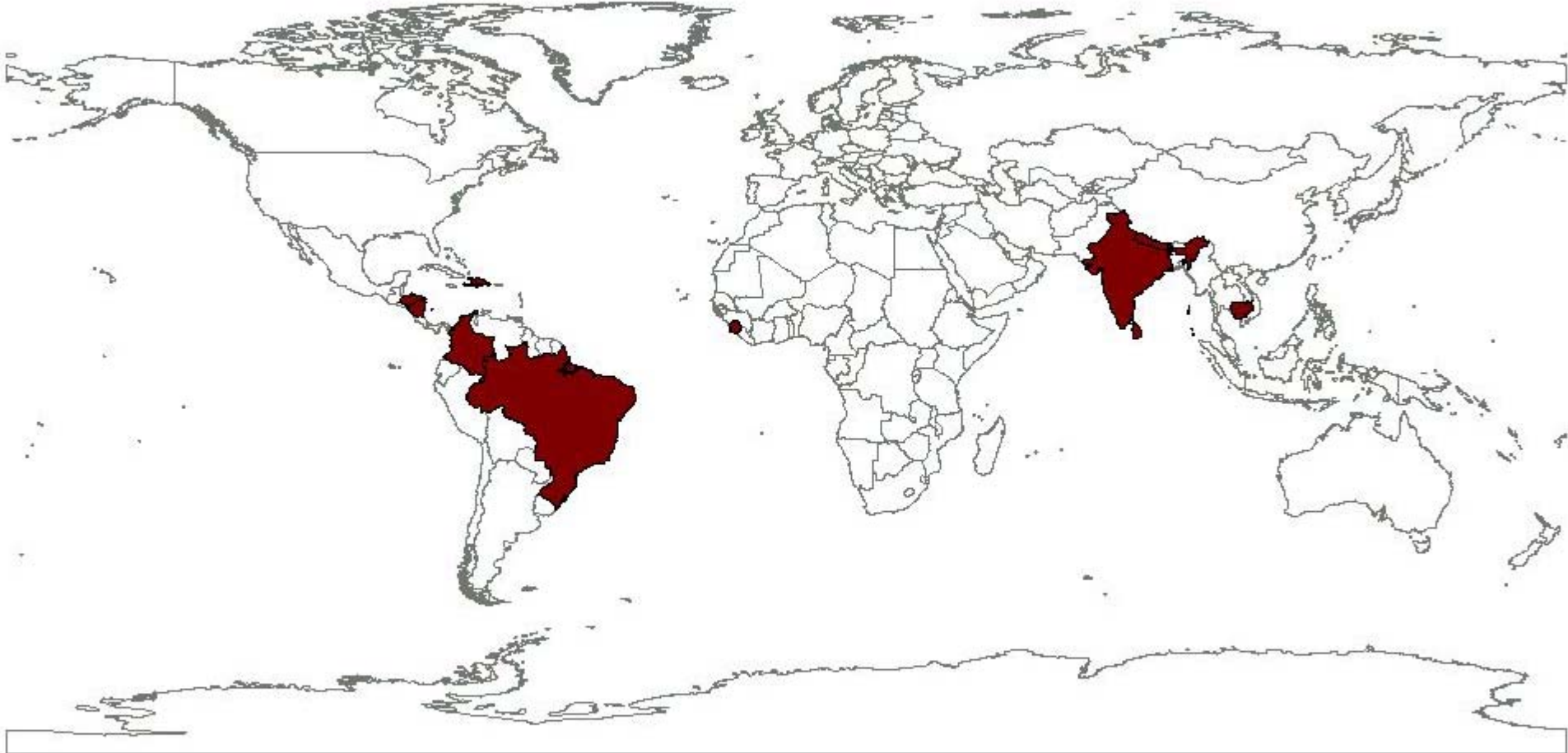
## Biosand filters



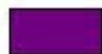
Country.shp



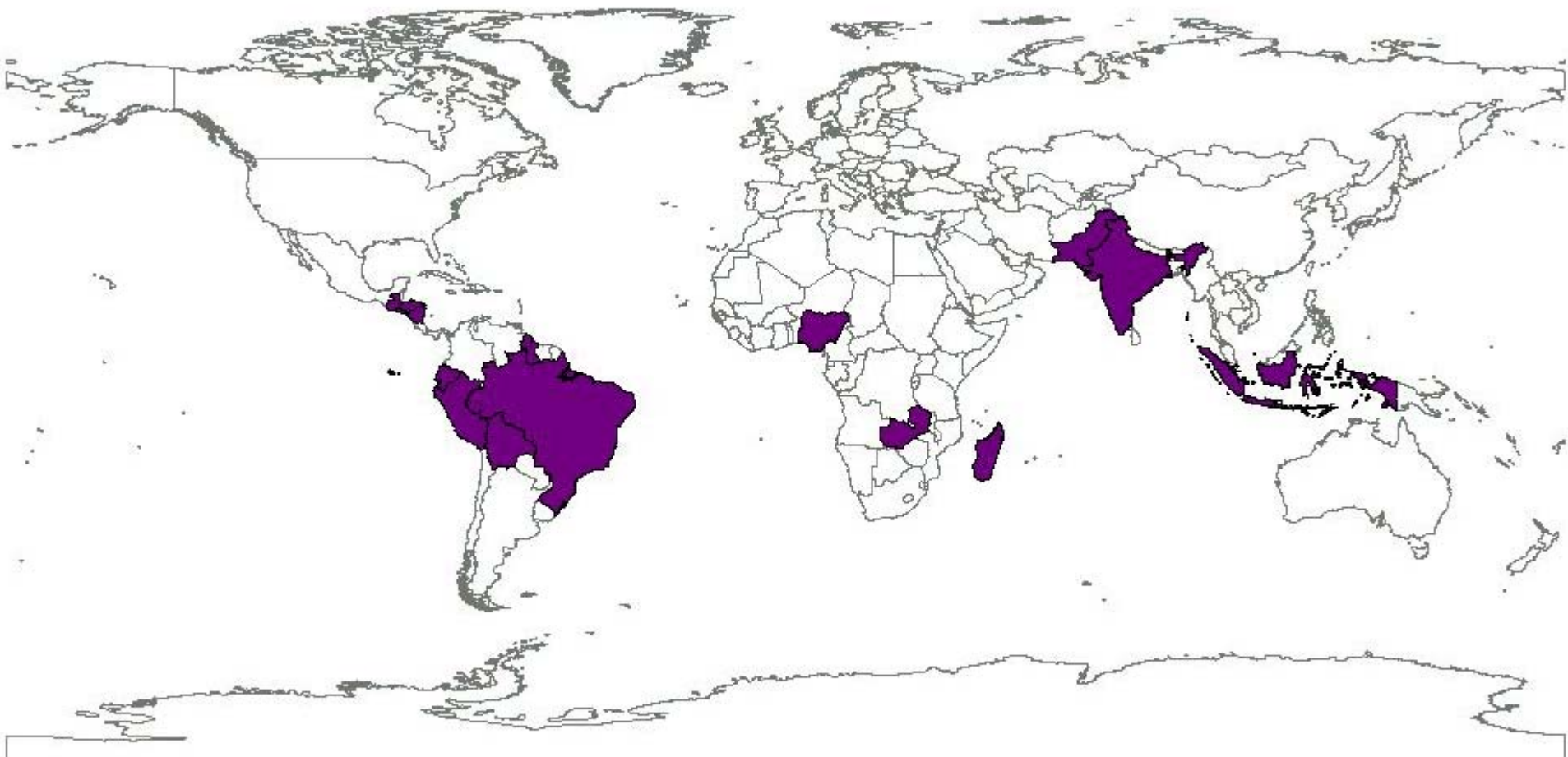
**Ceramic filters**



SWS



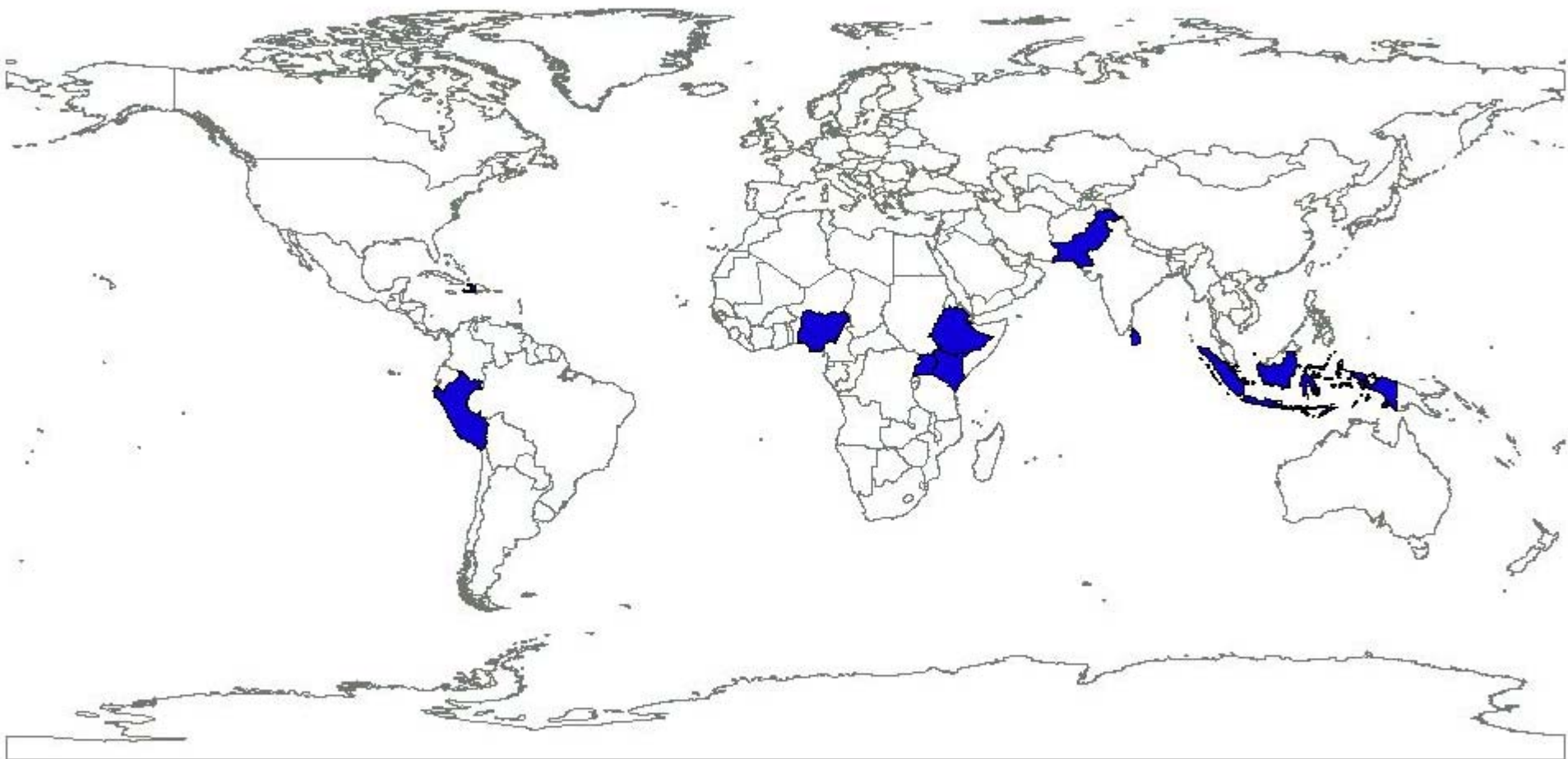
Country.shp



PuR



Country.shp



# Acknowledgements

- Robert Baffrey (MIT) and Jill Baumgartner (Harvard School of Public Health);
- CDC and Care-Kenya
- Kenya Ministries of Water and Health
- Our 11 host organizations in Kenya and the WHO “Network” who welcomed our questions and site visits.
- Civil and Environmental Engineering Dept, Massachusetts Institute of Technology