Committed to delivering clean water to the world through sustainable enterprise and education

**filterpure mission statement**

FilterPure is committed to improving human survival and well-being in developing countries while always maintaining respect for the culture and the individual.
filterpure strategy

1. Facilitate the manufacture and distribution of high quality ceramic water filters in developing nations.

2. Educate about water and its effects on health; basic hygiene and sanitation; and the use and care of the filter.

3. Implement safe water programs that are sustainable and adaptable in countries with limited infrastructure.

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water-related disease facts

- 884 million people lack access to safe water supplies; approximately one in eight people.
- 8,000 children between the ages of 8 and 14 die every day from water-related disease.
- For children under age five, water-related diseases are the leading cause of death.
- 88 percent of all diseases are caused by unsafe drinking water, inadequate sanitation and poor hygiene.
- Diarrhea kills at least as many people as tuberculosis or malaria, and five times more children than HIV/AIDS.

Source: Water Partners International
**Effective Intervention**

No intervention has greater overall impact upon national development and public health than the provision of safe drinking water and the proper disposal of human waste.

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**The FilterPure Filter**
ceramic water filtration

- First filters manufactured in the early 1800’s in England to control cholera outbreaks.
- Purify water by passing the water through pores in the ceramic membrane that are smaller than the bacteria and parasites.
- Made from clay mixed with sawdust and silver, a natural anti-bacterial agent.
- Filters about 30 liters per day, enough for a family of six.
- Can be used in developing countries because of their low price and high effectiveness at filtering bacteria.

manufacturing process

Simple and sustainable at the local level

- Harvest and process clay into fine homogenous particles
- Mix clay, processed sawdust, silver and water into homogenous mixture
- Press clay mixture using press outfitted with filter molds
- Slowly dry, then fire in kiln at 900° C (1650° F)
- Insert ceramic filter into receptacle bucket outfitted with spigot and fitted lid
**filterpure filter effectiveness**

- Pore size of 1.3 microns filters out turbidity, bacteria, protozoa
- Silver kills remaining bacteria as it passes through membrane
- Removes 99.9% of pathogenic bacteria and oocytes
- Charcoal core improves odor, taste, and color
- Retains healthy, naturally-occurring minerals

<table>
<thead>
<tr>
<th>Test Sample</th>
<th>Total Coliforms</th>
<th>Fecal Coliforms</th>
<th>E. Coli</th>
<th>Salmonella</th>
<th>Pseudomonas</th>
<th>Class</th>
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<td>&gt;2420</td>
<td>1120</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>D</td>
</tr>
<tr>
<td>Filter Initial</td>
<td>&lt;1.1</td>
<td>&lt;1.1</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>A</td>
</tr>
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<td>After 25 mo.</td>
<td>&lt;1.1</td>
<td>&lt;1.1</td>
<td>No</td>
<td>No</td>
<td>No</td>
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</table>

**education and distribution**

- Local community education is key to the success of FilterPure’s vision for clean and safe drinking water
- Employ early and intense education and monitoring to motivate population to properly use and maintain the filter
- Partner with local NGO’s to ensure proper implementation and monitoring
- Offer programs to not only purify water in the home, but also in local community centers
**filterpure impact**

Saves lives and reduces illnesses, especially for young children
Empowers families to assume responsibility for their own health
Stabilizes the income of impoverished families due to improved health of primary income earner
Frees women to do other work important to the family by providing an efficient and reliable way to purify water.
Protects the environment, since burning wood and coal are no longer required for boiling water
Provides employment opportunities to local people via the manufacturing and distribution process
Improves the standard of living by increasing overall productivity of adults and learning capacity of children.

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**the filterpure team**

- **MANNY HERNANDEZ**
  Associate Professor, Northern Illinois University

- **LISA BALLANTINE**
  AguaPure, Dominican Republic

- **TRACY HAWKINS**
  Sing’isi Pottery Project, Tanzania
the filterpure story

- 2004-2006 - Lisa Ballantine studies filter technology under Manny Hernandez, planning and fundraising for DR project
- 2005 - Tracy Hawkins starts a ceramic arts education project in Tanzania
- 2006 - Lisa moves to the Dominican Republic and starts Agua Pure. Tracy and local pottery staff in Tanzania decide to make CWFs
- 2007 -
  - Tracy start Safe Water Ceramics in Tanzania, Manny assists and consults
  - Filter re-engineered to 99.9% bacterial removal rate and a 5 year life
  - 11,000 filters distributed in DR affecting more than 70,000 people
  - Lisa and Tracy Hawkins introduced by Manny Hernandez
- 2008 - Lisa and Tracy develop FilterPure concept and form non-profit org
- 2009 – Filter Pure partners with CDC, PAHO, Emory, and Georgia Tech for technical expertise, testing and studies

filterpure goals

- Manufacture a ceramic water filter that is 99.9% microbiologically effective and affordable.
- Provide jobs and transfer knowledge to local project teams through local and sustainable enterprises for the manufacture and distribution of the filters
- Partner with NGOs and private distributors for widespread distribution, training, and monitoring
filterpure goals

- Train distributors and end users on the use and maintenance of the filter
- Monitor acceptance and impact on the population for quality control and potential improvements.
- Educate communities on basic hygiene, sanitation, and disease prevention.

Expand the FilterPure ceramic water filter solution to all people who have a need for clean, safe and affordable drinking water

filterpure filter user testimonials

- "I notice that my children don't have stomach pain anymore, and they eat more."
  - Mother in Ranchito

- "My children are growing taller."
  - Mother in La Vega

- "FilterPure filter changed my family."
  - Mother in Buyacanes

- "I like how the water tastes, and the neighbors are amazed because when I put dirty water in, it comes out clean."
  - Woman in Buyacanes
“Filter Pure has a simple and sustainable solution to provide clean and safe drinking water to people with the greatest need. ...If we are serious about reducing the proportion of people without sustainable access to safe drinking water, we should get behind projects like this one and make a change in the world now.”

– Tom Rooney, leading expert on domestic and international water issues

filterpure needs

- Publicity and Fundraising
  - Filter subsidies, current operations, new factories, transportation to factories for consulting and certification, filter marketing and distribution
- Testing and Studies
  - Existing studies of the filterpure filter’s effectiveness show promising results, but are too small-scale to be statistically significant.
  - Studies of filter performance over time are needed.
- Strategic Organization Planning
  - Committee comprised of Filter Pure staff, business leaders, students and technical experts
  - Avoid and learn from common mistakes in CWF industry
  - “Doing a good job of doing good”
Atlanta and filterpure

- Filter Pure’s U.S. base
- AJC – Published an article in March 2009
- Georgia Tech – Partnered in May 2009
- CNN – Ran two stories in August and September 2009
- CDC – Technical advisement, testing and studies since 2008
- Emory – Testing and studies since 2008
- Georgia State – Public health operations in DR
- CARE – Potential filter distribution partnerships in Tanzania and around the world
- UPS – Potential shipping partnership

Georgia Tech and filterpure

- Tracy Hawkins, B.S. in Industrial and Systems Engineering, Georgia Tech, 1985
- ISyE - Pinar Keskinocak and Amanda Mejia began working with FilterPure in May 2009
- Engineers without Borders - Partnered with FilterPure in July 2009 to electronically document filter and factory designs
- College of Management – Social entrepreneurship department provides advisement and meeting space for strategic planning initiative
- ClaroChem – Filter testing
GT ISyE and filterpure

- What we can do:
  - Quantify impact of filter usage for funding agencies – SROI (Social Return on Investment)
  - Test and study filter effectiveness and durability using statistical tools
  - Manufacturing process study and improvement
  - Quality control testing
  - Local and international supply chain logistics
  - Facility location and filter distribution optimization

Social Return on Investment

<table>
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<tr>
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<th>One Filter plus Education</th>
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<tbody>
<tr>
<td>Cost</td>
<td>$30 for a family of 4-6</td>
</tr>
<tr>
<td>Diarrhea Cases</td>
<td>Reduce by 60-70%. Each child under the age of 5 has around 4 diarrhea cases per year.</td>
</tr>
<tr>
<td>Lives Saved</td>
<td>Reduce chance of a diarrhea-related death by at least 60-70%. Severity of cases that may still occur will be reduced, so impact may be even greater.</td>
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<tr>
<td>School Days</td>
<td>Gain up to 40 additional school days each year for a family of 6.</td>
</tr>
<tr>
<td>Income</td>
<td>Gain up to an additional $160 each year due to less work missed.</td>
</tr>
<tr>
<td>Medical Expenses</td>
<td>Save up to $35 each year due to less frequent and less severe diarrhea cases</td>
</tr>
<tr>
<td>Cost of Firewood</td>
<td>Save up to $20 per year on firewood, since water no longer needs to be boiled before consuming.</td>
</tr>
<tr>
<td>Environment</td>
<td>Save up to 700 kg of CO₂ emissions and 500 kg of wood.</td>
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