

Galen Wong
Marketing Design

Galenwong.com
510.381.1687

Stop Arsenic in Drinking Water the Largest Mass Poisoning in History

**200 Million people drink
arsenic contaminated water**



**Out of 200 million, 36 million will develop a cancer of some form.
After our water treatment, we will reduce the cancer incidents by 98.6%.**

Public Health Catastrophe

200 million historically marginalized people around the world are being poisoned by toxic levels of naturally occurring arsenic in the groundwater they depend on for drinking. Chronic arsenic poisoning has no cure. Its effects include debilitating disabilities, internal cancers, and death.

Arsenic poisoning disproportionately affects vulnerable populations in poor rural areas, including women, children, and the most socioeconomically disadvantaged.

- Malnourished individuals – the truly poor – tend to develop earlier and more severe symptoms of arsenicosis than their more affluent counterparts.
- Chronic exposure reduces children's cognitive development and intellectual functioning.
- Symptoms of arsenic poisoning often suffer extreme stigmatization and social exclusion, such as young married women in India being returned to their parents.

Prevent mass arsenic poisoning via safe drinking water

We will end this mass poisoning by scaling an effective arsenic-removal technology with a solid business model. We have developed and successfully piloted ECAR (ElectroChemical Arsenic Remediation) to provide poor rural communities with safe, affordable drinking water. ECAR works under even the harshest conditions and purifies water locally. It generates sufficient revenue for ongoing operation and sustainable expansion while improving communities' health and standard of living.

ECAR Team

Innovators in engineering and social science at the water-energy nexus, our team is driven by a shared passion to alleviate poverty and human suffering. Team leader Dr. Ashok Gadgil is a well-known inventor and the Distinguished Chair Professor of Safe Water and Sanitation at UC Berkeley. Jadavpur University, based in India, will provide crucial expertise on social placement that will help gain acceptance and integrate ECAR in a culturally-appropriate manner. Our industry partners, who will help with implementation, have extensive experience building and operating distributed, community-scale water delivery systems in rural India. The core team has worked together for more than six years building and operating ECAR, which now serves more than 5,000 people in West Bengal.

Our Team:


Our team: UC Berkeley (lead), Jadavpur University, Liverpool, Sarvajal, and WaterLife

ECAR Proposal

This is a proposal for the Electro-Chemical Arsenic Remediation (ECAR) program.

The purpose of the proposal is to illustrate the massive impact of reducing cancer caused by drinking water contaminated with arsenic by 98.6%.

Illustrations done in Illustrator and layout in InDesign.



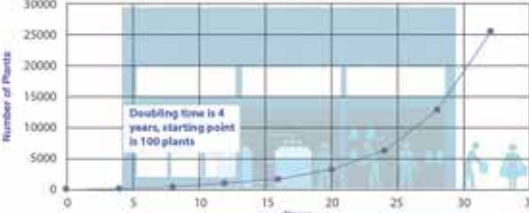
100 plants serve 500K people water

sold at 4C per gallon

30% ROI

Reinvested to produce more impact

Scale up plan
With a \$10 million investment, we can install and operate 100 ECAR plants to provide safe, affordable drinking water to 500,000 people within three years, starting in South Asia where the problem is most acute. Our focus on community awareness, consistent usage, monitoring, and timely maintenance will establish the self-sustaining infrastructure to permanently eliminate water-based arsenic poisoning in these 100 communities. As we scale up, our operations will achieve the financial viability and community enthusiasm needed to cross the adoption tipping point to end what the World Health Organization has called "the largest mass poisoning in recorded history."




Number of Plants

Years

Doubling time is 4 years, starting point is 100 plants

The Time is Now
For the first time in 25 years, we have a proven, rapidly scalable technology to address arsenic poisoning from groundwater. Demonstrating the durability, effectiveness, and financial viability of 100 new ECAR plants will unlock further resources for growth. These include potential funding from the pool of INR 8 billion (~ USD \$120M) released by the Indian Central Government in 2016 to the affected States for community-scale remediation of arsenic and fluoride from drinking water. In the absence of a demonstrated solution, these funds have remained mostly untapped. Access to this capital, as well as the inflow from corporate-social-responsibility funds required in India, will allow industry to continue building, operating, and improving ECAR plants in the most affected regions since the success of the first 100 plants has been demonstrated. Ultimately, ECAR's built-in mechanism for financial sustainability will attract public and private investments to construct the additional 40,000 plants needed to serve the 200 million people worldwide living in communities currently suffering from arsenic poisoning.



'School children in West Bengal collecting water from an ECAR plant. Over 3,000 students and school staff have been served since 2016. During scale up, we will prioritize installing plants on or near school campuses'

Contact Us
Email: ajgadgil@berkeley.edu Phone: 1-510-486-4651 Website: arsenicfreewater.its.berkeley.edu 02/2020

ECAR Team

Innovators in engineering and social science at the water-energy nexus, our team is driven by a shared passion to alleviate poverty and human suffering. Team leader Dr. Ashok Gadgil is a well-known inventor and the Distinguished Chair Professor of Safe Water and Sanitation at UC Berkeley, Jadavpur University, based in India, will provide crucial expertise on social placement that will help gain acceptance and integrate ECAR in a culturally-appropriate manner. Our industry partners, who will help with implementation, have extensive experience building and operating distributed, community-scale water delivery systems in rural India. The core team has worked together for more than six years building and operating ECAR, which now serves more than 5,000 people in West Bengal.

Our Teams:

Our teams: UC Berkeley (lead), Jadavpur University, Ujjwale, Sarvajal, and WaterLife

Water



Form.
idents by 98.6%.

levels of naturally occurring arsenic in
effects include debilitating disabilities.

cluding women, children, and the most

symptoms of arsenicosis than their more

functioning.

social exclusion, such as young married

a solid business model. We have

poor rural communities with safe,

water locally. It generates sufficient

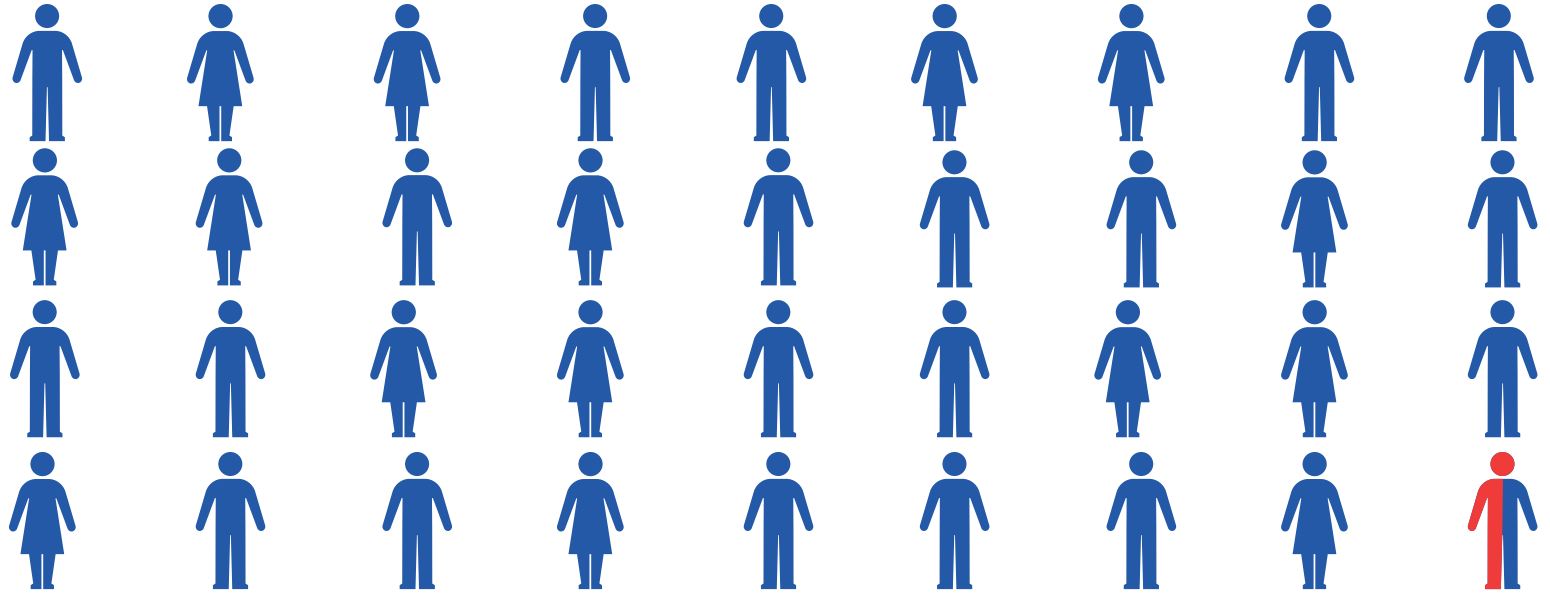
health and standard of living.

Infographic

The infographic was designed as an illustration to inform and intrigue.

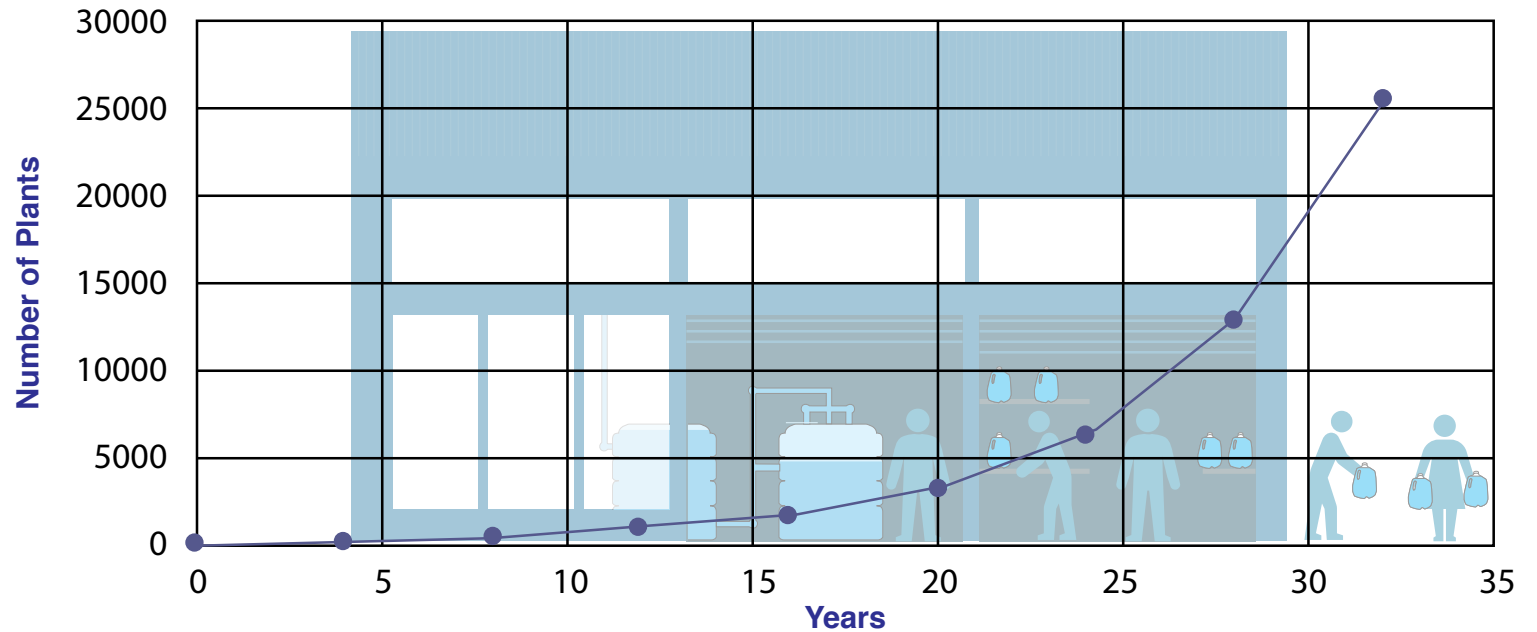
Top:

This graphic has 36 figures, each one represents 1 million people. This infographic represents the 35.5 million people who would not get cancer from drinking water contaminated with arsenic, who would have otherwise developed cancer.

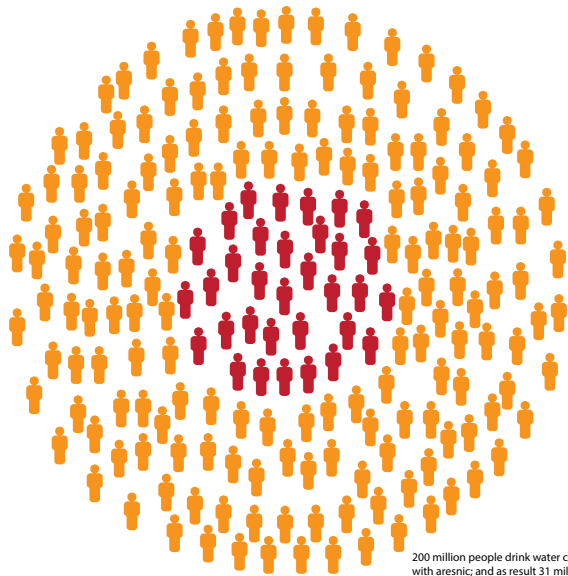


Below:

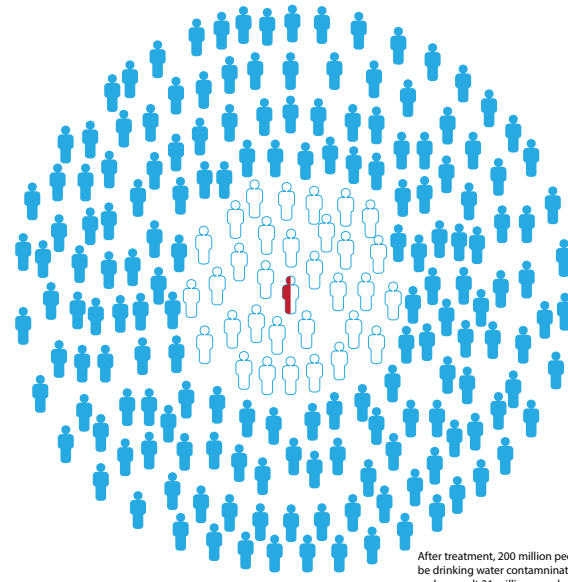
The graph below represents the rate of growth of production plants through out the years. The illustration behind it, is a simplified explanation of how the plants operate.



A



200 million people drink water contaminated with arsenic; and as result 31 million people will get cancers.

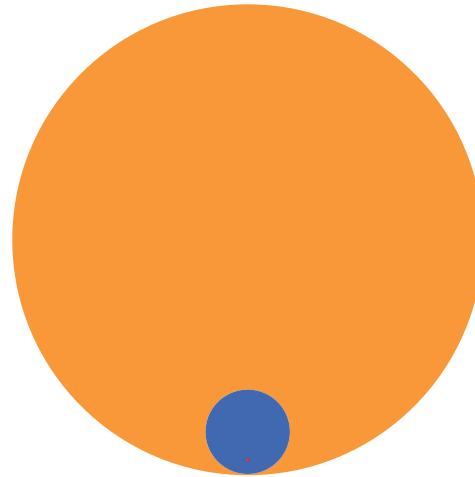


After treatment, 200 million people will no longer be drinking water contaminated with arsenic; and as result 31 million people will not get cancer from arsenic contaminated water.

B



C



Concepts

In the initial meeting the team went through a few iterations of the infographic.

A) In this iteration the illustration represent a before and after of the total population affected.

B) This graphic represents the 200 million people affected. It then shows the 36 million affected by cancer, and the portion that would be affected after the treatment.

C) This graphic is a scale representation of the population affected. Represented in circle or a square.



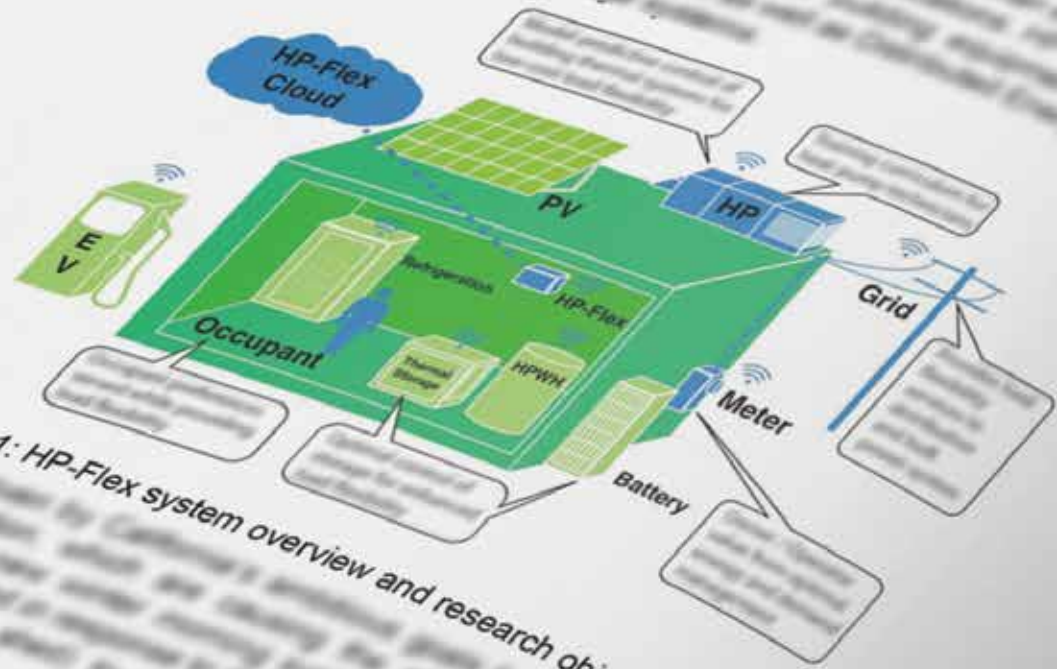
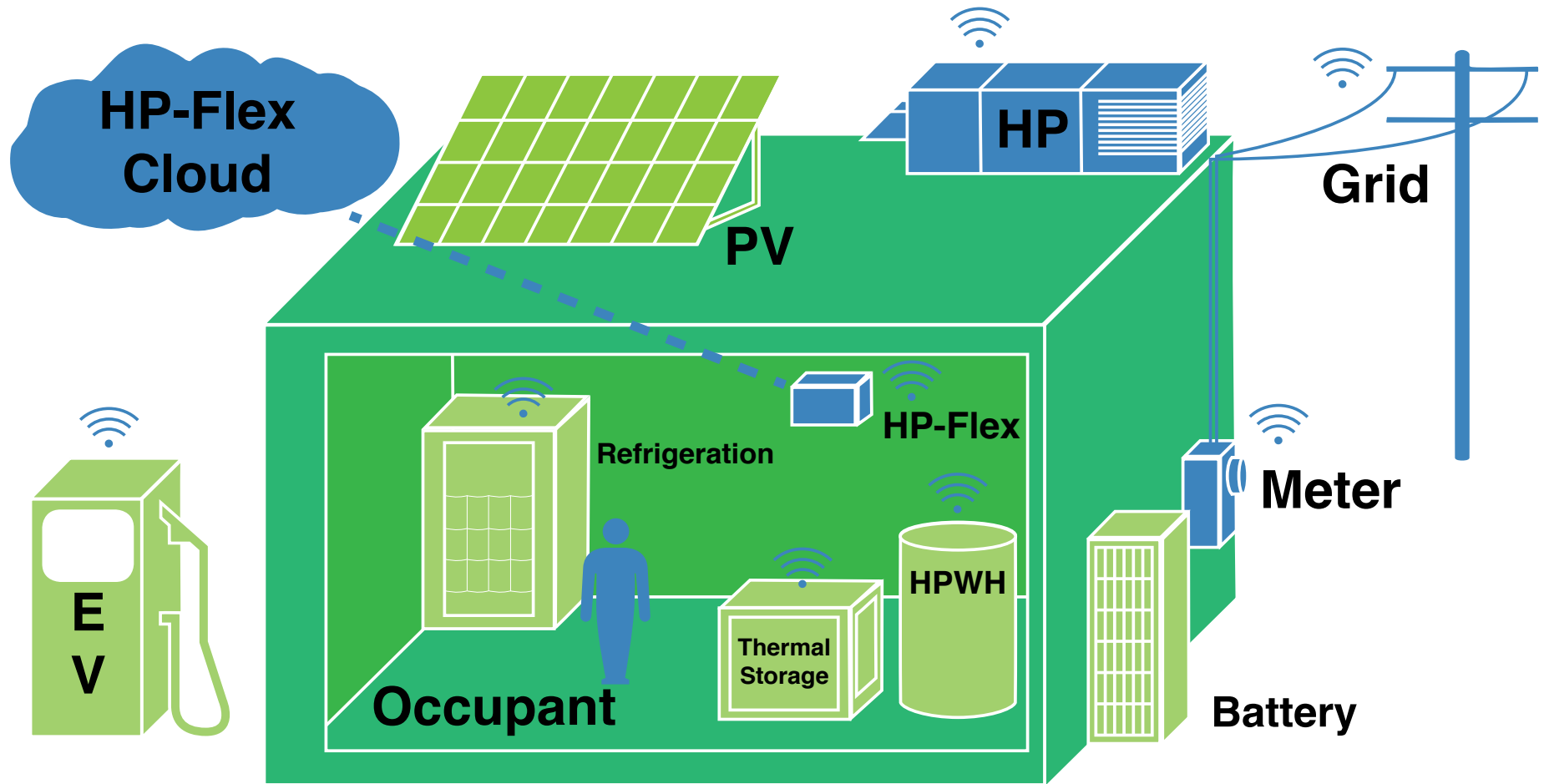


Figure 1: HP-Flex system overview and research objectives

Diagram

This illustration was done for a proposal. The elements in this diagram are color coded. The components that are connected together are illustrated in the same color. Differentiating their functionality together, apart from the whole.





What Is Demand Response?



Demand response happens when a utility, aggregator or grid operator enables electricity customers to change their power consumption through financial or other incentives. Our group's research touches on various facets of demand response technology, programs and incentives, which can help the grid become cleaner, more affordable and more reliable.



The majority of demand response has traditionally involved hot summer day reductions in load. There is a growing interest in demand flexibility



Group Web Sites

Lawrence Berkeley Laboratory has many research groups focused in a variety of fields. Each image illustrates the subject of the page it goes to.





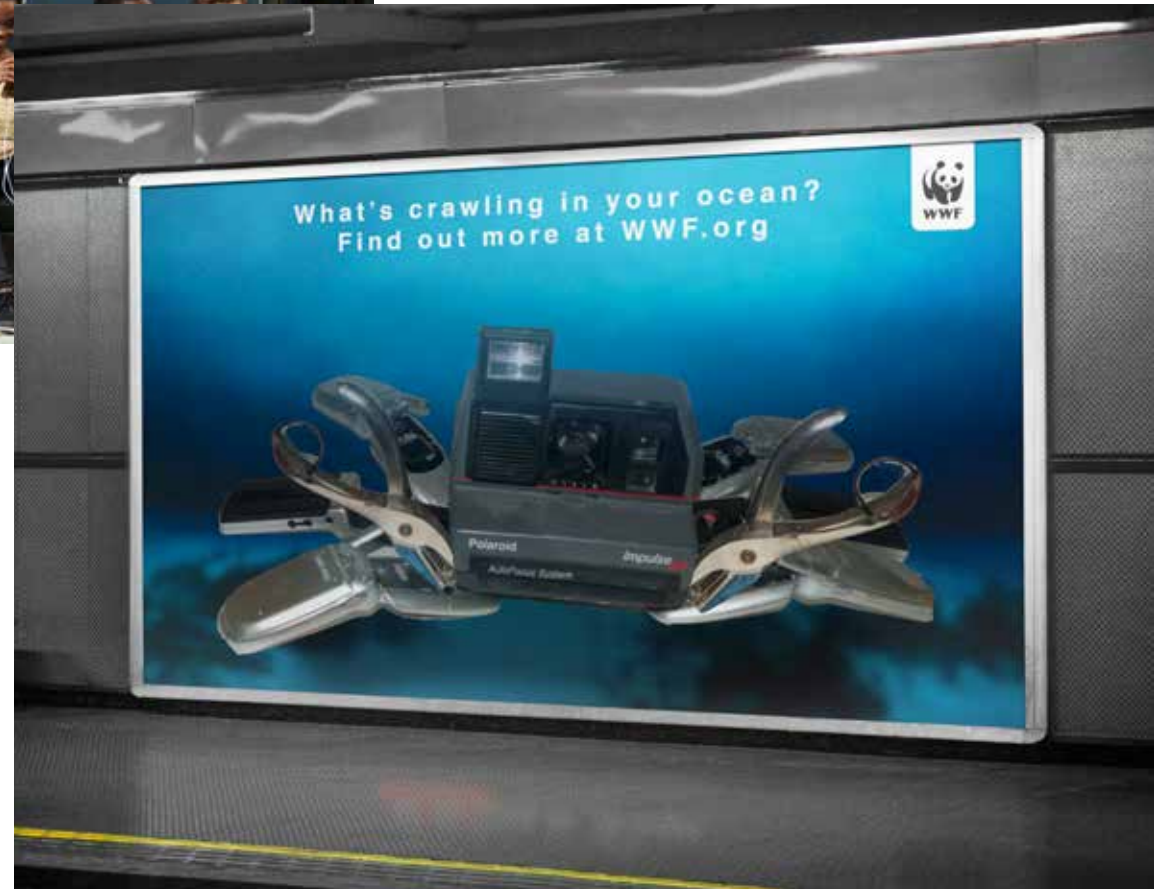
What's in your ocean?

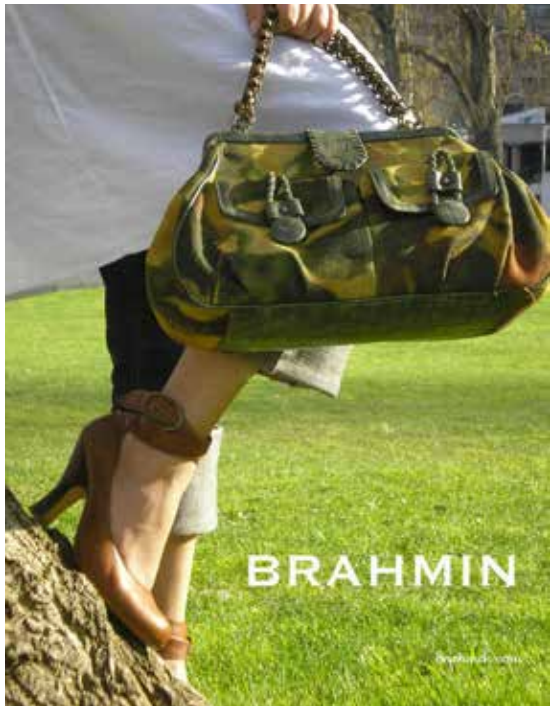
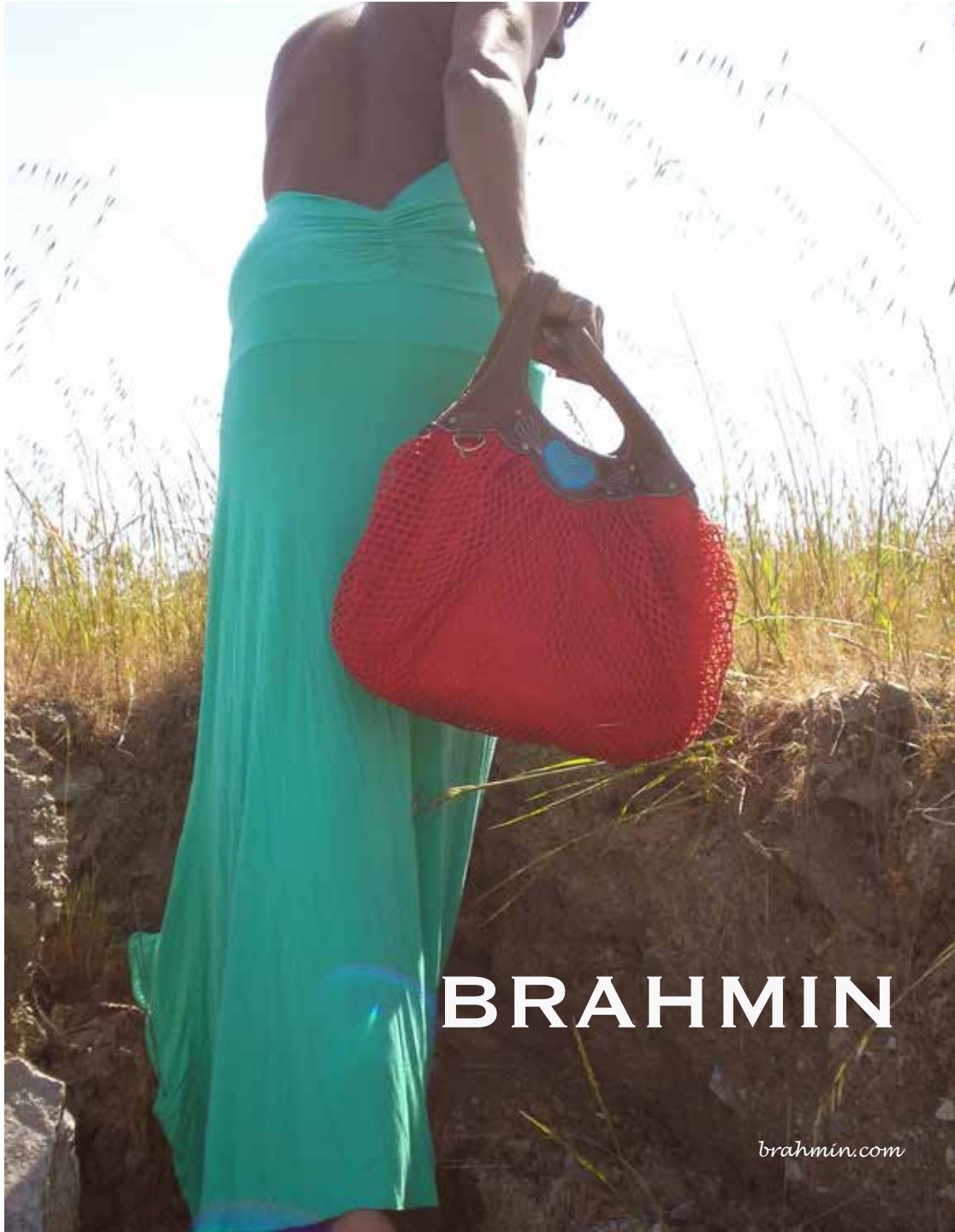
Find out at wwf.org



What's In Your Ocean?

The ocean is filled with trash, and it is slowly replacing the wild life in world. In this WWF (World Wild Life Fund) campaign popular animals were created using a variety of waste.





A Bag For Everywhere

Brahmin is a company that makes bags for travel and adventure. Here we have the bags showing prominently with the model. The locations are vague enough they could be anywhere, yet still feels adventurous.





WE SEE YOUR STYLE

OPTICAL
UNDERGROUND



We See Your Style

Optical Underground is a glasses boutique, that carries unique looks that fit a variety of styles. Limiting to outdoor advertising and local papers, viewers can see a variety of models wearing different frames that go long with a variety of style tribes.







Fiona Apple

The assignment was to create an illustration in limited color process. This illustration is completed using Adobe Illustrator and done in three colors.



Shaper Catalogs

Shaper has a variety of fabric options, that can be used in a variety of combinations. These catalogs give viewers ideas of options and appropriate settings.

