Mirroring Hope

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Because water is so scarce, women in rural India have to share wells with neighbors or walk long distances, often miles, to gather water. And, they are responsible for sending their children to school and working alongside their husbands in the fields. For example, in a farming village in Gujarat, **Shilpaben,** a 21-year-old mother of two daughters, is forced to do manual labor on other people's farms six days a week, making 100 rupees ($1.3 USD) a day. She said: "We don't have enough food in the house. That's why we have to go outside to do manual labor." In the most recent flood in 2016, Shilpaben's house was completely destroyed and she had to borrow 6,000 rupees (about $80 USD) from relatives to rebuild it.

As environmental sociologists, we had heard of the tremendous pain and suffering that resulted from the 2001 Gujarat earthquake –massive flooding in the monsoon season that affected nearly 450,000 people and led to the relocation of more than 130,000 people to homeless shelters – but we had not considered the way women's lives were affected. In 2016, through a *Women for Results* program sponsored by the United Nations Framework Convention on Climate Change (UNFCCC), we learned about an innovative climate change adaptation program, *Bhungroo* ("straw" in English), that purportedly turned this humanitarian crisis into a powerful opportunity for women who previously had little voice in their homes or communities. We interviewed the creators of the program, Trupti Jain and her husband, Biplab Paul, via *Skype* and, then, in 2019, we traveled to Gujarat to interview women in their villages. We wondered if it was really possible for this simple technology to change women's social status.

Bhungroo is a water-conservation technology that filters, injects, and stores excess farm water or stormwater underground for usage in lean periods. It is ideal for areas where rainfall is unpredictable, as up to 4 million liters of water can be stored during the monsoon season or during excessive rainfall and saved for the drought season. The water stored from the excessive rainfall is used to help the farmland become fertile during the dry season. There are seventeen different design forms of the technology to best adapt to an area's needs. All of the designs have a zero-water footprint, which means that the water is free from sediments, contaminants, metals, and ions. Each design guarantees productivity for over twenty-five acres of land per year, allowing the owner to pay off the cost of the device in less than two years after installation. Operated under a social enterprise, Naireeta Services, *Bhungroo* is open-sourced, which means that poor rural communities can gain access to it without paying steep licensing fees.

After we returned to the United States and reviewed our recorded interviews, we realized that we had to think differently about what we saw – we, in temperament and outlook, needed to change. The journey had transformed our views of what real social change is.

In the United States, we are taught to value productivity—a certain kind of productivity. We need to be a certain kind of useful, and a certain kind of intelligent. We are taught to work hard and not be distracted, and that, if we do those things, we will be where we want to be. We will meet our goals. But sometimes the values society teaches you are not for you, or your well-being, and are instead alienating and make you question your self-worth. And sometimes it takes some time to realize that.

In February 2019, we arrived in Ahmedabad, a bustling financial center where Trupti and Biplab managed the *Bhungroo* program through Naireeta Services. Our first glimpse of the city, true to stereotypical ideas about India, was of cows roaming the busy, dusty streets. We also noticed that water came in trickles from a communal well that operated at short intervals throughout the day.

Trupti invited us to her temple to observe how her congregation prayed and fed multitudes of the urban poor. She arranged for us to take the *Mandir to Masjid* walk from a temple to the mosque, representing the value of religious tolerance, visit Mahatma Gandhi's *ashram*, and shop at street vendors. We wondered why we needed to spend time doing this: We were only there for two weeks and we wanted to meet and talk to the farmers!

It wasn't until we returned to the United States that we realized that Trupti and Biplab had anticipated our reaction. They had studied in the US, Trupti as a Fulbright scholar and Biplab as an Ashoka fellow. While we were eager to talk to the women farmers who received the *Bhungroo* technology, Trupti and Biplab knew that we needed to learn to understand more about Indian culture and society, which was crucial to the context within which their work arose.

Women's disempowerment and inequality is a worldwide problem. But it is so globally pervasive and so culturally entrenched that it rarely gets the concerted attention it deserves. The women farmers we met in India spurred us to think differently about the world around us and to better understand ourselves and our own impulses to do good. Even Trupti and Biplab, who originally considered taking on the "big guns" in India to find a way to give women land rights, realized that the Indian tradition of men owning the land was too strong and that women would not gain anything from that fight. They had struggled to think differently, which led them to a "human-centered design" (HCD), a form of thinking that generates solutions tailored to improving the lives of the people who will employ those designs. Biplab explains:

> We have to work on multiple aspects of designing a solution that caters to every farmer's needs. You have to be micro-oriented; but the problem is that our country is so big, and the system is so flawed. So, in that context, we need to provide new opportunities that should be in place for younger minds.

And, while they were concerned primarily with improving the lives of poor, rural women, Trupti and Biplab understood that changing *our way of thinking* was a natural extension of *their work*.

By inviting us to Gujarat, Trupti hoped that we would break free of our norms and live among different perspectives. Before we went to India, we assumed that women would *need* training to understand the technology, as well as a certain level of education, in order to enrich their lives and plan for the future. But Biplab and Trupti designed the *Bhungroo* technology with the women at the hub of the design process. The women knew what they needed to know to use the technology; and they already valued what the technology would help them do.

We went to Gujarat to better understand these struggles. We arranged to interview equal numbers of those who had and did not have the *Bhungroo* irrigation system -- 48 farmers in all. On this website, you will find summaries of all of the interviews. For example,

Lilaben describes how she helps her husband take care of cattle and works on others' farms. She has three grandchildren who attend school. Still, the family is not able to grow crops regularly, or in every season, so their financial situation remains bleak. The lives of poor families in rural villages around Gujarat have been difficult. Natural disasters make it even more challenging for families, and future generations, to have their basic needs met and their values realized. The *Bhungroo* technology helps break this cycle, by leading to a material change in these people's lives.

With *Bhungroo*, we found that women's lives improved dramatically. For example, as a young mother with a preschool daughter, **Tinaben** used to work on a dairy farm and her husband had to migrate to find work. Now, her family farms their own land, and she decides how to use the money. Maybe they will get electricity next year but, for now, she says: "We get enough water for bathing; our bucket is full. We don't need bathrooms and we have enough money. Before, I used to walk miles to get water; but now, I have more time to do my work and help others." She has a hopeful existence and plans to start her own small business to knit clothes and sell them in the village. She said: "I feel proud because I can contribute to the family's income."

On the other hand, **Premilaben**, also a young mother, had no say in family decisions. Premilaben, who studied up until the 6th grade and also didn't educate her daughter beyond that, said, "… because of love affairs as they grow up and we're scared. We sent our daughter to school in the village, which was up to 6th grade as well. After that, grandfather said no to going outside of the village to study." She explained: "I used to take animals to the lake to drink water which was very far. After *Bhungroo*, we have bathrooms now because now we have water." She walks less to get water and gets milk from the buffalo to make ghee. When she sells it, she gets to keep the profit, though all other money goes to her grandfather, who still makes all of the decisions.

Bhagwatiben, 33, has an infant son and lives with her three brothers and their wives. Her family installed *Bhungroo* technology at their farm two and a half years ago and everyone reaped the benefits. She used to have to walk three kilometers to get water, but after installing *Bhungroo*, she said: "Now, we don't have to walk so much to

get water. We stay here." It cost her 20,000 rupees (roughly $300 USD) to install *Bhungroo*.

To be honest, we were a bit confused by these stories. Their stories were of simple victories over daily chores. They were not the answers we were expecting but, then again, what were we expecting? This didn't sound like what *we* thought empowerment was, but what did we think empowerment was? Did it involve female leaders? Women calling the shots? Going from village to village inspiring other women? What was inspiration? It took us a long time to realize what we had not realized.

Our anxiety for "getting into the field," our worry that we were "wasting time" while we were enjoying ourselves getting to know Trupti, her family, and her city, and our insistence that we knew who and what was important to listen to was just the beginning of our quest to be "good researchers." As social scientists, we had the rule book, but we had no exceptions to the rules. But Trupti and Biplab knew this. Having lived in the US, they had learned about Americans as the products of a privileged, capitalist society, and they knew exactly how to deal with us.

In the United States, we are taught to value not just productivity but a certain kind of productivity. There is a certain way to be useful and a certain way to be intelligent. The narrative goes: Work hard, don't get distracted, persevere, and you will succeed. We needed to step outside of our social position to see what our perspective was missing. We understood the transformative power of self-worth when we looked closer at what the women farmers actually valued.

After much reflection, we finally recognized how to interpret the data. We were looking for big success stories of women's "empowerment" in terms of how they adapted to "climate change." In fact, no one used those words. The farmers' voices that we had recorded actually contained detailed evidence about how the *Bhungroo* technology gave women *what they valued*. Of course, a technology designed for them, to be useful to them, to mirror their hopes and what they valued in their specific context, would give them what *they* valued—and how could we ever expect that it would give them what *we* valued?

Tinaben, Premilaben, and Bhagwatiben had different paths that brought them to the technology, but their words show us that they each gained something through the technology. They gained what we can understand as a sense of self-respect or increased self-worth after getting the *Bhungroo*. The technology reinvigorated motivation to improve their lives. In particular, the women gained a rise in status in their jobs—the ability to work in the fields alongside their husbands. They did not have to spend so much time collecting water—a job that was crucial to their society, but not as highly valued. They no longer had to do labor on others' farms or perform other types of manual labor. They gained money to put their children in school. They gained money to buy more clothes and jewelry. And, while we didn't ask about the actual amount of money they gained, it was clear that they gained many things that their society valued and that they valued, improving the way they saw themselves and their lives, which we now think must be what empowerment means.

Let our words not be twisted as cultural relativism—women are not equal to men in this society just as the poor are not equal to the rich. Inequality is easy to see when you know what to look for and it cannot be written off as a cultural difference. However, recognizing the practical solutions to inequality, and the context with which those can be achieved, is difficult. “Mirroring Hope” means that you not only need good translators to get it right, but you also need to listen, try to understand, and most importantly, admit when you are wrong.