

Stanford SOCIAL INNOVATION^{Review}

What's Next
Creating New Markets for Tribal Art
By Kristine Wong

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WHAT'S NEXT

NEW APPROACHES TO SOCIAL CHANGE

SOCIAL ENTERPRISE

Creating New Markets for Tribal Art

BY KRISTINE WONG

In 2009, Chandrakali Pushyam was spending her days fishing, farming, grazing cattle, and taking care of her family. But when her husband, an indigenous artist from the Gond tribe, unexpectedly died that year, Pushyam suddenly had the sole responsibility of supporting her parents, in-laws, and two children.

"I didn't know how to handle the situation, so I started looking at my husband's [art] and painting in his memory," remembers 37-year-old Pushyam, who lives in rural Madhya Pradesh, a state in central India.

Over the next five years, Pushyam—who is also of Gond descent—continued to include her husband's signature patterns in her work, and now paints on cloth, pots, and wood, as well as on canvas. Gond art often features whimsical brightly colored animals depicted with bold outlines and detailed brushstrokes. But the art doesn't bring in much money, according to Rebecca Hui, an American who first went to India in 2011 to learn more about the country's shifting rural-to-urban demographics.

"Like other parts of rural India," Hui says, "there are pressures to move to the city for jobs that will pay more than farming." Cultivating land and raising livestock have traditionally been major sources of income for the tribe.

While living in Madhya Pradesh, Hui observed that many villagers in the Central Tribal Belt struggled to transition to an urban environment. She also noticed that children seemed to display a lot of artistic talent and creativity, traits that she felt were nurtured to a greater degree in the absence of mass-produced toys and games. She wanted to find a way to bring more value to the tribe's art so that villagers could prosper on their home turf.

So in 2015, she founded Roots Studio, a company that partners with artists by setting up digital scanning stations in their villages, then makes their designs available for use on a wide variety of objects, such as clothes, pillows, and stationery.

Currently, staff are based in India, Jordan, and the United States.

"Roots Studio acknowledges that there are thousands—if not millions—of creative people in the world who come from vibrant communities in rural areas that lack access to Internet infrastructure," Hui says. "We want to connect them with this massive \$32 billion art, décor, and retail licensing market."

So far, the company has worked with 1,600 artists across eight different Indian tribal communities, as well as in the Middle East (where it works mostly with Yemeni and Syrian refugee artists). It has also conducted pilot projects in Indonesia and Panama. Roots Studio sells prints, home goods, and paper products featuring the artists' work on its website, but licensing their designs in a business-to-business marketplace is its main focus. The company licenses a design for two to five years.

Roots Studio conducts a workshop in August 2016 with Chandrakali Pushyam (far right) and other members of the Gond tribe in Madhya Pradesh, India.

Roots Studio pays the artist well more—500 percent more on average—than what the artist's design would have sold for in the village. In general, the artist receives 75 percent of the proceeds, and the artist's village receives 25 percent, though the split can vary depending on how individualistic or communal each community is, Hui says. Village decision makers (which can be in the form of a village council or another structure) choose how they want to spend the funds—with restrictions that they must benefit the entire village and cannot be used for alcohol. Roots Studio publicly launched in December 2017, and though it has yet to decide the percentage cut it will take from licensing agreements, Hui says Roots Studio does take a cut that gets reinvested as cash into company operations.

"The more remote tribal areas in India, like Madhya Pradesh, have this extraordinary craft and artistic tradition," says James Wescoat, a MIT professor who studies water systems, planning, and design in India and South Asia. "If the artists see that their work is valued more, that decreases the pressures for urban migration—and breaking craft tradition."

As for Pushyam, she hopes that Roots Studio can help Gond artists like herself continue to do what they love by exposing their work to a greater audience. In the last few years, 25 of her paintings have been sold as prints through Roots Studio. One of her paintings depicts three birds decorated in swatches of patterned dots against vibrant hues of apple



KRISTINE WONG (@wongkxt) is a journalist based in the San Francisco Bay Area who reports on energy, the environment, food, and sustainable business. She is a contributor to *The Guardian* US/UK, *Modern Farmer*, *Sierra*, *Civil Eats*, and other publications.

NOËL DUAN is a San Francisco- and New York City-based writer, editor, and researcher.

🔧 *Mechanical engineers Sujan Dulal and Dipesh Budathoki help install a Barsha pump in the Tamakoshi river in Dolakha, Nepal.*

green, light pink, orange and lavender. With their beaks nudging each other playfully, the trio exudes energy and mutual affection.

“For us, this art is our God, and we worship it daily by practicing it,” Pushyam says. “We just want an equal respect for our traditional art and for the artists.” ■

WATER & SANITATION

Irrigation Innovation

BY NOËL DUAN

Irrigated agriculture represents the largest proportion of consumptive freshwater use in the world. For that reason, the challenge of sustainable food production in many communities begins with obtaining freshwater.

Most water pumps rely heavily on electricity, gas, or solar energy, and yet many rural areas in the developing world do not have access to power sources. “In absence of a cost-effective alternative, farmers manually carry water for many hours a day or depend only on rainfall,” says Pratap Thapa, a cofounder of the irrigation innovation startup aQysta. They may cultivate only one season per year (as opposed to four), limiting their income significantly.

The Netherlands-based aQysta attempts to provide a more sustainable solution with its Barsha pump, which delivers water for agricultural irrigation without fuel, electricity, operating expenses, or greenhouse gas

emissions. Its three cofounders—Lennart Budelmann, Fred Henny, and Thapa—are engineers who met at the Delft University of Technology.

The Barsha is a spiral pump, in which two vertical discs composed of coiled tubes are partially submerged in a flowing river. Blades sit between these two discs, facing the flow. The river’s movement causes the disks to spin, gradually scooping water into the spiraled tubes, where it is eventually flushed into irrigation pipes and onto farmers’ fields.

Pumps powered by the kinetic force of water are nothing new. The spiral pump was reportedly invented in 1746 to provide water for a dye works outside of Zurich. At that time, the spiral pump wasn’t very efficient due to a lack of lightweight materials, says Yash Shah, a former aQysta engineer now pursuing a PhD in fluid dynamics. aQysta “developed such a pump from materials that allow it to float on a flowing river,” he says. The latest model is both durable and efficient, with a maximum flow of 43,000 liters per day, capable of irrigating about five acres of land.

Nepal offers one of the Barsha pump’s most successful case studies. Though 92 percent of its rural population had access to potable water as of 2015, the country struggles to produce enough food for its 29 million people. Currently, 68 percent of Nepal’s population works in agriculture, producing 34 percent of the country’s GDP—but it’s not enough. Thirty-six percent of children



under age 5 suffer from chronic malnutrition. Increasing the country’s agricultural productivity is a prime concern, and innovations in irrigation efficiency offer one solution.

Nepal’s glacier-fed rivers, which run at high speeds down mountainous slopes to flood-prone valleys, are ideal for water flow. Their momentum helped the pump get started, Shah says. After the first trials, aQysta reworked the designs using lighter materials to make the pump work at slower flow speeds and in flatter terrains.

For farmers like Arjun Kumar Khatri, in the Nepali village of Ratmate, the Barsha pump has been a godsend. Its 24/7 flow “saved my paddy nursery from dying last year during the drought,” he says. He uses the water for his cattle and has started growing vegetables for himself.

Individual farmers as well as the organizations or government agencies that support them purchase the pumps for an up-front investment between \$1,000 and \$2,000, depending on the model. “Making the product accessible to

rural areas in developing markets is a challenge,” says Thapa, who claims that customers can break even in two years. Small-holder farmer markets, which constitute a majority of aQysta’s current customers, are highly price sensitive, so the company is moving to low-cost suppliers in India and China, aiming to reduce the product’s cost by 50 percent by 2019.

aQysta is scaling by partnering with local distributors to meet its goal of having 1,000 pumps in use around the world by 2020. For now, there are 221 pumps, including 170 in Nepal, running in 13 countries, including Panama, Spain, Turkey, and Zambia.

The simple pump has its limits: If the coils capture too much air, it won’t work well with an irrigation system. aQysta is working to remedy this bug with adaptations for different communities. At a pump installation in Spain, for example, Shah and his team added vents and valves to eliminate trapped air. As aQysta scales in different regions, such customization remains critical. ■