

## Edible Pathways Project: Tamil Nadu, India

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Returning home to Western Massachusetts after five weeks of tropics, trash piles, thick days and thin nights softened my heart and sharpened my skills. As the 2014 David Bird Fellow, I was sent on a mission to Auroville, an ecovillage in Tamil Nadu, India, three kilometers from the Bay of Bengal and a 10 minute motorbike ride to Puducherry/Pondicherry. The community in which I would be living, studying, working, eating, playing, sleeping, and teaching is Sadhana Forest (<http://sadhanaforest.org>), an off-the grid volunteer-run community focused on water conservation and re-forestation of the indigenous Tropical Dry Evergreen Forest.

I elected to undertake the “Edible Pathways” project on Sadhana Forest’s wishlist. As I understood it prior to my arrival, the project was about supporting efforts of food security in the region. The brilliance of an Edible Pathways project at Sadhana, I thought, was to combine the re-forestation efforts of the community with designing and planting tree crops to feed its volunteers. My assumption, as I later learned, was incorrect, and the project became much more about the power of on-site resources and using non-financial forms of capital instead of acquiring fruit and nut trees for a fancy permaculture design.

More about the community and its context: Sadhana’s 100+ volunteers hail from all over the globe, and during their stay, they agree to maintain a vegan diet, refrain from drinking and smoking, participate in a gift economy, and practice *seva* (selfless service). Mornings begin at 5:45am where volunteers choose their *sevas* for the day, such as preparing meals on rocket stoves, turning the solar panels, hauling excrement from the compost toilets, working in the forest, or repairing the physical infrastructure. Evenings are programmed with group events like sharing circles and the famous ‘un-talent’ show. Fridays are ritualized by the showing of an ‘eco-film’ on a large screen preceded by tours of the forest open to the public.

For this reason—the 1,000+ visitors a year who tour the grounds—Sadhana Forest sought an ecological designer who could create an “Edible Pathway” design to demonstrate appropriate strategies for growing food in marginal spaces amidst a degraded, arid landscape. The landscape had been deforested in the process of British and French colonization that went hand in hand with massive resource extraction, leaving today’s residents of Tamil Nadu with what is referred to locally as “a waste land.” To add to the region’s challenges, the predictable two monsoons a year (which typically last four to five months and cool down the sweltering heat of April and May) have recently dwindled down to two months a year.

Before arriving at Sadhana Forest, I rented a guest house for 10 days in Auroville proper. I spent time bicycling to various farms and permaculture sites that were producing polycultures of rice, mangoes, papayas, cowpea, and more. Krishna at Solitude Farm, for instance, employed Masanoba Fukuoka’s method of no-till “Natural Farming” based on a study of indigenous methods of farming world wide. Passive rain water catchment systems such as cisterns, hand-dug basins, and swales captured water used for irrigation in the times between monsoons. Nitrogen-fixing herbaceous plants and shrubs built soil and became sources of

natural fertilizer. Larger fruit-producing species such as bananas and papayas provided much needed shade from the hot Indian sun for annual vegetables below. In other smaller scale operations such as Sapny Farm, permaculturalist Snehal used grey water from his homestead's outdoor showers to fertilize edible perennials such as canna and moringa. The compost toilets had a separate receptacle for urine that directed the stream to bio char below. The bio char functions as a sponge to absorb the on-site and abundant human-produced nitrogen to use for slow-release fertilizer in the gardens.

Two days before Christmas, I arrived at Sadhana Forest. There were barking dogs, small, with big eyes and likely flees; there were barefoot people from every background on this globe working in the communal kitchen, cooking over four rocket stoves, cutting tapioca and peeling chowchow, talking, singing. There was a woman in the kitchen pumping well water into her bucket for a much longed after (bucket) shower.

Ohad, an Israeli man, gave me a basics tour," here is the compost toilets (where you separate poo from pee, squatting over holes, and wiping without toilet paper, and instead using a bucket of water and the left hand); here is the hand washing station with biodegradable soap and grey water irrigating banana trees; here is the main hut where people eat, host workshops, and community meetings; here is the router for wi-fi, powered from solar panels; there is a dishwashing station set up using coconut husks as appropriate 'sponge' technology and ash from the rocket stoves as appropriate 'soap' technology; there is a separate dish washing station labeled 'sick people only.' No candles, they will burn the teak-thatched huts. No food products allowed on site with dairy, meat, honey, or egg; this is strictly vegan community. No Tom's of Maine, it's not biodegradable; instead, everyone uses a curry neem powder in jars hanging on all the huts."

I walked to the 'dorm'—a 40 person outdoor living space with a roof and upper level classroom. Sleeping spaces, separated by hanging sheets, slept three to six people in rope-woven beds with musty mattresses. The floors were red sand dirt. There were large black slugs slowly moving on the floor. I remember seeing a rat out of the corner of my eye walking on the beams. I took my wormwood and black walnut hull complex for parasite prevention and stepped further into India.

The beginning of week three brought the arrival of ten American college students to Sadhana who were taking a course in Low-Carbon Living. The class culminated with two capstone projects: Sadhana Zero Waste and Edible Pathways.

Working with a team of four passionate yet "green" students, we gathered information about residents' goals and priorities, the challenges of a transient volunteer community, the previous pitfalls of permaculture-related projects at Sadhana, and the existing conditions of the landscape.

As I soon came to learn, this project had very little to do with agroforestry—the practice of cultivating tree crops and/or crops grown in the understory shade of a forest canopy. The project liaise at Sadhana Forest said absolutely no trees were to be introduced to the residential area in mind for the project. He explained that the community needed to be vigilant about potential blow downs from the ever increasing cyclones in Tamil Nadu. The huts built with teak and rope could be obliterated by just one small tree. Plus, taller trees in the residential area provided habitat for the ever-encroaching tropical termites and snakes. So no, this project was not about re-forestation with edible species!

I had also assumed Sadhana Forest was looking to increase its internal food security by installing these Edible Pathways. Wrong again. I was humbled by my Western Massachusetts ideas of food sovereignty projected onto this community I had never before encountered. Sadhana was very clear that their mission did not include growing and providing food for their volunteers. They reasoned that if they put their efforts towards food production on their incredibly degraded soil, they would spend all their time growing food crops when their big picture mission was to regenerate the Tropical Dry Evergreen Forest. Leave the food cultivation to the nearby farms.

The vision for the Edible Pathways project, as I slowly learned on the ground, was to serve as a demonstration site of best practices for growing food on desiccated soil with little year-round water access. The key stakeholders in the community realized they could inoculate visitors taking a Sadhana Forest tour with ideas of permaculture, and in *their* backyards they could grow their own food.

Yet, as the project took a life of its own, it was clear that another focus was emerging. The time I spent at Sadhana, the “long-termers” report, was an intense apex in community life, to say the least. A unique combination of the following ingredients added unprecedented stress on the community: the height of the volunteer season (December to January) with many people to organize, feed, and house; the irregularity of the holidays and numerous staff birthdays (leading to many late night celebrations with dancing to solar-powered DJ’ed music in the main hut); 31 days of the rice harvest festival *Pongal* (with nearby techno music blaring beginning at 4am every morning); Sadhana’s 10<sup>th</sup> Birthday Party (a huge all-night music festival free and open to the wider public and put on by volunteer staff); a new outbreak of Denge Fever (extremely contagious); and relationship strife and shifts among many of the core staff (yikes!).

The climax of the Edible Pathways project was a huge Community Installation Day where over 30 resident volunteers helped to install the design. And, something magical happened. The early morning *seva* forest workers, who had been looking quite ragged and lacking the spirit of “selfless service” after the birthday festival came back to life. The transient volunteers and “long-termers” worked side by side. People who didn’t get to sweat together normally had a chance to collaborate, solve problems, and transform a complete landscape. The day brought a renewed sense of community and possibility.

The Morning Circle area, site of the final design, became a place rather than a space people walked by. This area was the only cleared site in the residential area—a key resource to frame and honor as such. People living in a forest need a place to nap outside, play games, or practice yoga. Prior to the project, it had been a depot for garlic skins and locks of hair leftover from hair cuts and other forms of unwanted refuse. The circle had an overgrown border and was a dead end, with only one clear point of entry and no feature to pull people through the space.

The following description is an excerpt from the Edible Pathways plan set about the intended impact of the design:

The final design transforms a space into a place. By removing barriers to access—both visually and physically—the overall circulation and use of the focus site increases. Overgrown vegetation is cleared from around and on top of the archway, the falling down fence lining the north side is disassembled, and new pathways enable residents

to enjoy a walk through the Morning Circle area from the Training Dorm to the kitchen. Benches are strategically placed on the edges and in the shade, inviting people to take a well-deserved rest and enjoy the edible landscape.

The existing edible vegetation—the guava, chayas, bananas, amaranth, rosella, etc.—are now more legible after thinning out their herbaceous neighbors. Nearby tulsi, pineapples, and lemongrass are transplanted to the focus area as a demonstration of using on-site and non-monetary forms of resources. Another readily available on-site resource, the grey water from the kitchen, is transformed into an input for the banana circle with sponge. Existing infrastructure such as the side of the wood storage area, archway, and re-habilitated western fence get incorporated to provide climbing support for edible vines such as purple winged bean and black lima. Any bare earth is seeded with cowpea, a local nitrogen-fixing edible pea, or re-vegetated with small divisions of mimosa or toothache plant to hold soil in place, suppress ‘weeds’, and help build organic matter.

The final design demonstrated diverse soil building and irrigation techniques. Composted food scraps, humanure, and mulch began to build the organic matter of the desiccated soil. Pebble Garden, a nearby homestead started on pebble soil, regenerated its 20 acres with Silver Acacia trees and a local recipe for lasagna gardening. The lasagna layers mimicked termites’ process of soil building. Water soaked acacia leaves layered with charcoal and termite droppings created a lasagna bed to sow seeds into directly. A banana circle (locally referred to as a “sponge”) contained woody biomass for soaking up grey water for slow, passive irrigation in a basin ringed by banana trees, taro, and lemongrass. Over time, soil builds up inside the “sponge.” The installation team also borrowed a technology developed at Sadhana Forest. Cotton wicks threaded through two liter plastic water bottles provided a slow drip irrigation for the woody cuttings of chaya and moringa in their first months of establishment. The cuttings were then planted in a mound of finished humanure mixed with native soil. The future plan is to install signs to make the soil building and irrigation techniques legible to visitors new to permaculture in the arid tropics.

Together, my team and I cleared overgrown vegetation and laid down a new blanket of mulch, seeds, transplants, banana circles, and infrastructure for growing food and recreating. Not only was the landscape transformed that day, but I believe we all were, as well.

[To view the project plan set, view: <http://issuu.com/abrahmdresdale>]

Sadhana Forest has established sites in both Haiti and Kenya in the last several years, and continues to grow its mission: Water, Trees, People.