

Background

Despite our different upbringing and backgrounds, growing up, we (Eashan and Anoushka) were constantly reminded of the importance of healthy eating and good nutrition. At school, we would learn about the vitamins derived from eating different vegetables and grains. At home, our parents would always remind us to eat all the food on our plates. As such, we never had to worry about our diets because we knew that we had the luxury of always being given healthy, filling food. Unfortunately, this is not the case for many young children in India.

India offers one of the most competitive labor costs in Asia, varying between INR 176 (US\$ 2.80) and INR 420 (US\$ 6.40) per day, depending on several criteria². According to The Reserve Bank of India, the overall average daily wage rate of non-agricultural laborers in rural India was INR 293.5 (USD 3.94)² in 2019-2020. With common food items (like cheese and red meat) costing a third of this rate, India’s laborers must focus on eating smart over eating healthy; their diets focus on meeting the required calorie intake over nutrition. Filling foods are preferred to healthier substitutes. Research has found that the average cost of a nutritious diet based on nationally recognized prices for various foods consistently outpaces this wage³. This has led to about 63 percent of the rural poor being unable to afford a nutritious diet, affecting the health outcomes of entire families.

Food insecurity has been a powerful agent of conflict and misery in most countries and through all of human history. This holds true for many regions in India, including Dharavi, one of the largest slums in Asia. Dharavi has a large percentage of low-wage earners, involved in manual labour oriented jobs. Many of these people are also daily earners, with limited visibility of earnings even for the near future. Coupled with severe housing density and poor living conditions, residents in Dharavi are prisoners of limited food choices, ever increasing prices at their local grocery store and negligible social security from the Government. They must pick the quickest and cheapest options, often neglecting healthier alternatives. Through our survey based approach, we expect to be able to not only promote awareness, but also, expect that our pointed questions, coupled with solutions, will enable a degree of realization and empowerment. We expect our project to provide peace to the residents of this slum by allowing them to focus on the integration of nutrition into their meals, rather than maximizing calorie intake for cost. By achieving our goals, we expect the overall living quality of the households we help to improve, thereby creating meaningful change and peace in a region like Dharavi.

Project Details

Our project is going to be divided into three parts. The first part will entail conducting an in-person survey of the households in Dharavi. Some of the questions we plan on asking are presented in Appendix 1. Our goal is to acquire concrete information on household income and spending on food and other goods⁴. This survey will also allow us to gain a more precise understanding of the extent to which the government has been providing subsidies and other ration to the occupants of Dharavi. While we expect to have a more accurate assessment of dietary needs and preferences after we complete the survey, based on public data⁵, data from the NHS⁶, and conversations with our nutritionist (Asha Herekar⁷), we have come up with some basic ideas for low-cost meals that are filling and nutritious, and suitable for occupants of a slum like Dharavi, where dust, air pollution, congested environments, and a lack of access to health care; safe water; and sanitation facilities plague the residents. These meal options include

¹ *Poshan* translates to “nutrition” in Hindi

² <https://www.minimum-wage.org/international/india>

³ <https://www.sciencedirect.com/science/article/pii/S030691922030186X>

⁴ According to the Business Standard, NGOs have estimated that the average income in Dharavi is Rs. 5000 (\$67.20) per month

(https://www.business-standard.com/article/current-affairs/dharavi-asia-s-largest-slum-holds-its-breath-as-covid-19-causes-rise-to-5-120040500945_1.html), and based on public data we estimate that the average household in Dharavi spends approximately 30% of this on their food (₹1500/\$20.16).

⁵ <https://www.numbeo.com/cost-of-living/in/Mumbai>

⁶ <https://www.nhs.uk/conditions/vitamins-and-minerals/>

⁷ Asha has a Masters in Food Science and Nutrition, and has 5 years of work experience in different health sectors and hospitals.

Maharashtran staples such as *varan bhaat* (yellow lentils and rice), *doodhi curry* (squash curry), and *matki chi usal* (cooked moth beans) as well as *sabjis* (vegetables) like beetroot and sweet potato. The importance of these meals lies in their basic macro nutritional value and their relatively low-cost. *Varan bhaat*, for example, is packed with protein from the cooked lentils and carbohydrates from the rice, while both lentils and rice are covered by the ration from the government that all occupants in Dharavi receive each month. Boiled eggs have also been making constant appearances in our research and conversations with Asha, since they are relatively inexpensive (12 eggs costing approximately ₹60 or \$0.80), and are packed with nutritional value.

According to Recommended Dietary Allowances (RDA), the per day energy requirements of a moderate working Indian adult (male and female) ranges from 2230- 2730 Kcal⁸, with daily protein requirements ranging from 0.8- 1 gram per kilogram of body weight. Per serving, the meals mentioned above give approximately 260-300 kcal and 3-4 g of protein.

Our survey will allow us to get more precise estimates of these prices and will allow us to calculate the average cost of one healthy and filling meal per person. Logistically, we expect this survey to take 25 days. We plan on contacting at least 50 households in person to earn their trust and encourage them to share their household finances with us. While this goal is difficult, with persistence and empathy, we expect to acquire data from at least 40 households before the estimated survey period is up. The second part of our survey will entail going from market to market, jotting down prices for common goods and averaging costs for the various geographical areas within Dharavi to get an estimate of the price per unit per item. This will aid us in the meal planning portion of the project, as we will be able to use specific data to curate meal plans for households in different areas of Dharavi, since prices for goods vary across the city, so estimating prices in one area does not ensure that the prices will stay the same in another area. (June 1- June 25)

The next part of the project will entail us working with Asha to come up with more meal plan options that maximize nutrient intake and minimize costs. Keeping budget constraints and costs per unit per item in mind, our plan is to come up with vegetarian and non-vegetarian options that can work for individuals of different religions, backgrounds, and preferences. (June 25-July 5)

The final part of our project is focused on sharing the meal plans and spreading awareness about the importance of a healthy and balanced diet. In an age of smartphones, residents of Dharavi are privy to the latest technology⁹. We plan to use this to our advantage by sharing cooking videos of the meal plans, recipes of the meal plans in Hindi, Marathi and English, over WhatsApp. This will awaken an interest in the residents of Dharavi to try out new recipes and will allow them to easily reshare the videos with other residents, thus causing ripple effects. Through our initial contacts and follow-ups with the Dharavi community, we want to find people who would be willing to become champions for our program. If they share their recipes with 10 others or send us pictures or videos of our meal options, they will be featured in our cooking videos and given some sort of reward, like a basket of fruits. In the case that we are unable to convince participants to become champions for the program, we will still be able to spread information about the meal plans and recipes through video-sharing platforms YouTube, Facebook, and WhatsApp. We will also prepare flyers and distribute them around Dharavi. We expect this part of the project to take a little less a month. (June 25- July 31)

By completing this project, we want to create a community of individuals who are passionate about healthy eating, while cultivating a heightened awareness of the variety of meals that are possible in their budget. We want to make nutrition accessible to everyone, and we believe that this project will touch more lives than we originally planned, making this an important step towards a larger goal.

Appendix 1: Sample questions for survey

1. How many members of your family work, and what do they do?
2. Do you earn any money from other sources other than your job?
3. What percentage of your income do you spend on food?
4. What kind of access do you have to healthcare and insurance?
5. What are the food options available to you through:
 - a. Government ration
 - b. Local markets

⁸ <https://www.ncbi.nlm.nih.gov/books/NBK234938/>

⁹ <https://qz.com/india/8812217/one-of-asias-largest-slums-is-luring-shoppers-with-the-internet-of-things/>

Name: Anoushka Goenka, Eashan Thatte					Note: all funds in US dollars.				
Project Name: The Poshan Project									
School: Reed College					TOTAL FUNDS REMAINING:				
					\$ -				
Projects for Peace grant:		\$ 10,000.00							
Additional Funding, if any:					TOTAL EXPENDITURES:				
Total funding available:		\$ 10,000.00			\$ 10,000.00				
Student Expenses					Project Expenses				
Travel (Including Airfare)	Lodging	Communications	Food (Biweekly)	Miscellaneous	Non-Student Travel and Lodging	Direct Equipment and Supplies	Marketing and Event Support	Staffing Costs	Miscellaneous
4000	1740	50				300	500	1250	
2160									
Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
\$ 6,160.00	\$ 1,740.00	\$ 50.00	\$ -	\$ -	\$ -	\$ 300.00	\$ 500.00	\$ 1,250.00	\$ -
Total Student Expenses: \$ 7,950.00					Total Project Expenses: \$ 2,050.00				