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BAKEYS CUTLERY: AN INNOVATIVE SUSTAINABLE PRODUCT[[1]](#footnote-1)

[Rambalak Yadav](https://iveypubs.my.salesforce.com/003A0000021LKLP) and [Pallavi Pandey](https://iveypubs.my.salesforce.com/003A000001xo8po) wrote this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

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Bakeys Cutlery (Bakeys) was founded by Narayana Peesapaty in 2010 in Hyderabad, India.[[2]](#footnote-2) The company dealt in edible cutlery, with the objective to provide an alternative to plastic spoons and pass on a better environment to future generations. With Bakeys’ product being an innovative, environmentally friendly, and healthy alternative to plastic cutlery, it was expected that demand for the product would increase rapidly in a short period of time. Peesapaty had a vision to make Bakeys’ presence felt in the domestic market on a larger scale. In 2017, despite seven years in operations, demand for and the penetration of Bakeys’ cutlery in the domestic market was low.[[3]](#footnote-3) The major challenges for Bakeys in the domestic market were the high prices of the cutlery compared with plastic cutlery and low environmental awareness among domestic consumers. Response to the company from the international markets was positive, but how could Peesapaty create a success story in the domestic market?

bakeys’ BACKGROUND

Bakeys, founded in 2010 in Hyderabad, produced edible cutlery—i.e., spoons, forks, and chopsticks that could be consumed after use. Peesapaty envisioned Bakeys being one of the leading companies in edible cutlery, a vision that would be achieved by creating awareness of the ill effects of plastics on health and the environment.[[4]](#footnote-4) He also visualized growing Bakeys by making edible cutlery available worldwide and encouraging farmers to grow millets and sorghum, the main ingredients of the edible cutlery. The eco-friendly initiative began when Peesapaty learned of the damaging effects of plastic on our health and environment. Since its launch, Bakeys had been growing exponentially. It had doubled its production capacity and had gained the attention of investors (raising more than US$120,000).[[5]](#footnote-5) Bakeys had a growing client base in India and in other parts of the world.

The Eureka Moment

While travelling from Ahmedabad in Gujarat to Hyderabad in 2005, Peesapaty was inspired with the idea of replacing plastic cutlery with edible cutlery. He had noticed that another passenger was using *khakra*,[[6]](#footnote-6) a thin cracker as a spoon to eat a dessert. The idea of an edible spoon stuck with Peesapaty, and he wondered how to enter the business of manufacturing edible cutlery.[[7]](#footnote-7) The idea prompted him to leave his job as a scientist at the International Water Management Institute.

Plastic was a concern for Peesapaty for several reasons. Each year, India, Japan, and the United States together used and disposed of 350 billion pieces of plastic cutlery, with India alone throwing out 40 trillion tons (120 billion pieces) of plastic every year. As plastics were non-biodegradable, they created many problems for land fertility, and adversely affected marine creatures.[[8]](#footnote-8) Also, because of the high cost of plastic recycling, plastic cutlery was generally sent to landfills, which had a negative impact on the environment.[[9]](#footnote-9)

Peesapaty was also concerned about plastic because it contained harmful chemicals—its components were toxic and could leach into food.[[10]](#footnote-10) He had personally visited various manufacturing units and found the manufacturing process for plastic cutlery to be unsafe. He realized that although people followed strong food safety norms in India, no such norms were in place when manufacturing the utensils used for food. As a result, hygiene was the first casualty of cost-cutting in this competitive market.[[11]](#footnote-11) Peesapaty had also discovered that at some *dhabas* (small roadside restaurants) in India, to save costs, plastic cutlery was sometimes reused, neglecting the ill effects of this practice on human health.[[12]](#footnote-12)

Looking for the Best Alternative

After being inspired with the idea of replacing plastic cutlery with edible cutlery, Peesapaty started his research on ingredients that had a good shelf life, were decomposable, and retained their shape even at high temperatures. He narrowed down sorghum (*jowar*) and rice as the two best options for the main ingredient in edible cutlery. However, he was concerned about the water required for growing these two crops. After learning that growing sorghum required 60 times less water than rice, and because of his concerns about depleting levels of groundwater, Peesapaty chose sorghum as the main ingredient for the edible cutlery. Sorghum could be easily grown and cultivated in 95 per cent of the world’s arable land with less water than needed for rice, which motivated farmers to pursue sorghum cultivation and thus help to sustain a better livelihood for themselves.[[13]](#footnote-13)

Further, Peesapaty justified the use of sorghum in place of sugar cane and corn, which were used in biodegradable products, because, compared with those two crops, sorghum consumed less energy during the manufacturing process. The energy used to manufacture one plastic spoon could easily produce 100 sorghum-based spoons, whereas the energy used to manufacture one corn-based spoon could produce 50 sorghum spoons (see Exhibit 1). This knowledge confirmed Peesapaty’s choice of sorghum as the main ingredient for the edible cutlery. His motive was also to create a market for sorghum in the long run and reduce farmers’ over-dependency on rice, which required more water to grow.

After several trials, in 2010 Peesapaty came up with the right combination of ingredients that could withstand high temperatures: sorghum (the main ingredient), wheat flour, rice, and spices—cumin seed, black pepper, and rock salt. Cutlery made with these ingredients had up to a 24-month shelf life (i.e., it remained fit for consumption two years from the date of manufacture). The cutlery could also sustain hot soup for 20 minutes. Additionally, if not consumed after usage, the cutlery could easily decompose in three to seven days, whereas plastic cutlery took years to degrade and adversely affected human health and the environment.

After five years of such research and development, Bakeys was officially founded in 2010.

Concept Development and Feedback

The major concern in getting Bakeys off the ground was converting an idea into a concept. The concept for the cutlery focused on eco-friendliness, hygiene, and safety, and it was positioned as an environmentally friendly and health-conscious product that had no side effects on human health or the natural environment (see Exhibit 2). The company had already cleared certification for being preservative-free, vegan, trans fat-free, fair-trade, and dairy-free. The organization also aimed for additional certifications, including gluten-free, organic, and kosher. These certifications were important in creating trust among consumers regarding the environmental and health benefits of Bakeys’ products. In addition, the edible cutlery was reported to have good nutritional value (see Exhibit 3).

The concept of edible cutlery was tested in Bakeys itself by employees. Further, the sales teams were asked to give free samples to individuals in hotels and restaurants to ascertain their reactions to the product. True to the company’s intuition, the product received a positive reaction in the concept-testing stage, as people liked it for its factors of fun, health, taste, nutrition, and eco-friendliness.

MARKETING STRATEGY DEVELOPMENT AND COMMERCIAL LAUNCH issues

After the successful concept development, Peesapaty decided to pursue a full-fledged marketing strategy for the edible cutlery. People who were health-conscious and supported environmentally friendly initiatives were identified as the target market for his products. A pack of 100 spoons was priced at $4.66, and consumers could initially order the products online through the company’s website. But as product demand increased, Bakeys planned to expand through an authorized dealership for the sale and distribution of its products. Interested parties could apply for dealership without charge; the only criterion was a minimum sales volume of 2,000 packs per month. The authorized dealers would receive a 25 per cent margin for sales. The cutlery would be provided to dealers at $3.49 for a pack of 100 spoons. The company also invited prospective dealers to first try packs of 60 spoons as a test for their markets; based on the experience of that test, they could opt to become an authorized distributor.[[14]](#footnote-14) Promotion included participating in an organic trade fair, presenting at conferences and on talk shows, and posting a video of the product and its benefits on YouTube. Since money was a concern for Peesapaty, promoting through these methods was ideal, as doing so involved little cost.

Initially, three flavours were offered: sweet, plain, and savoury. For further value addition, millets such as soybean and barley were added, making the product gluten-free.

A problem began at the commercialization stage, as the concept of edible cutlery was new, and no one had agreed to invest in it. Peesapaty had needed to mortgage his house as collateral for the loan. In the beginning, it was very difficult to continue, but he felt assured about the success of this product in the long run. Peesapaty said, “It was never easy to work on the concept of edible cutlery.” After leaving his job in 2005, it took a total of nine years—five years of research and four years of marketing—to receive inquiries from customers. Bakeys was founded in 2010; however, it wasn’t until 2014 that Peesapaty began to receive inquiries about the product.[[15]](#footnote-15)

In terms of the commercialization of the concept, Bakeys had initially sold its product to both Indian and overseas consumers through the company’s website. As a result of increased demand, Bakeys had opted for an authorized dealership, which seemed to be fruitful, as people began to inquire about the product, its features, and its price, and about other variants of Bakeys’ edible cutlery.

Slowly but steadily, sales of the product had started to gain momentum by 2016. According to Peesapaty, he received 80,000 emails from around the globe related to product inquiries and purchases. He also received some $400,000 from crowdfunding platforms, which would be used to set up automatic machines for manufacturing the cutlery.[[16]](#footnote-16) Consumers from India and overseas placed 32,000 orders for edible cutlery through Bakeys’ website. In April 2016, the company received inquiries from refugee camps in Germany and France for the supply of edible cutlery. By June 2016, Bakeys had orders to supply 25 million pieces of cutlery to customers in India and overseas.[[17]](#footnote-17)

Peesapaty said that demand was the major issue earlier on, and that later, supply seemed to be the concern. The company began to face difficulties in managing orders, due to the high demand. Earlier, it had been manufacturing 5,000 spoons per day; later, the capacity increased to 30,000 per day. The company was also planning to upgrade its machinery to enable its production capacity to match consumer demand.

Besides generating sales online, Bakeys had teamed up with a few hospitals and cafés in Hyderabad that used the company’s edible spoons. Bakeys had also participated in a local organic fair and other events to increase its visibility and awareness of its brand image. The organization was also in talks with various corporate houses and popular food establishments in southern India about using its eco-friendly cutlery in their day-to-day activities.

According to Peesapaty, the company focused on sustainability, as its concern was not only profit but also the environment and society. Further, he added that Bakeys was an almost all-women enterprise, in which Peesapaty’s wife was the director. He believed that the social and economic upliftment of women in the society was important for the growth of the nation.[[18]](#footnote-18)

FUTURE PLANS AND CHALLENGES

Peesapaty was looking for a better packaging solution—one without plastic—for the edible spoons. Bakeys had a network of 20 distributors and resellers all over the globe, including in Australia, Dubai, South Africa, and the United States. Bakeys’ edible cutlery was receiving a good response and had high demand in countries such as Canada, the United States, and Australia. Considering the positive response and success in international markets, Peesapaty planned to expand the company nationally and globally. Additionally, it had also started manufacturing edible salad bowls for Japan and China, according to those countries’ customized needs. Considering the overwhelming demand from foreign countries, Peesapaty planned to expand Bakeys’ farming and manufacturing at geostrategic locations for growing the crops and manufacturing the cutlery, thereby staying close to the consumers rather than always exporting from India. Further, the company also planned to enter the market for edible chopsticks, forks, and other forms of cutlery to provide a wide range of options to consumers.[[19]](#footnote-19)

Pricing was identified as a major challenge for Bakeys, specifically in the Indian context, as Indian consumers were price-sensitive. Bakeys’ edible cutlery was priced about two to three times higher than the plastic cutlery available in the market. Despite the initial success in the international market, Peespaty had been unable to fulfill his dream to substitute plastic cutlery with edible cutlery in the domestic market.[[20]](#footnote-20) Regarding pricing issues, Peesapaty mentioned the need to create a market for sorghum so that it could be purchased directly from farmers, resulting in low costs to the company for raw materials.[[21]](#footnote-21) Little awareness of environmental issues among consumers was identified as another challenge for Bakeys. The concept of green/eco-friendly consumption was still at a nascent stage in India, so convincing people of the importance of eco-friendly consumption on a larger scale would require more effort. Further, Pessapaty believed that consumers’ preference for plastic products was a behavioural issue, and that people accustomed to plastic would thus find it difficult to switch to edible cutlery.[[22]](#footnote-22) What could Bakeys do to improve its sales, considering its high prices and the low environmental awareness among Indian consumers?

Rambalak Yadav is assistant professor at the Institute of Management Technology, Hyderabad, and Pallavi Pandey is assistant professor from OP Jindal University, Raigarh.

Exhibit 1: EFFICIENcy of BAKEYS EDIBLE CUTLERY COMPARED with alternatives

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Manufacturing One Pound of the Material** | **Energy Used (kWh)** | **Water Used (in Gallons)** | **Solid Waste (in Pounds)** | **CO2 Emissions (in Pounds)** |
| Polypropylene | 9.340 | 5.120 | 0.029 | 1.670 |
| Corn PLA | 5.370 | 8.290 | 0.042 | 1.300 |
| Sorghum | 0.18 | 1.15 | n/a | n/a |

Note: PLA = polylactic acid; kWh = kilowatt hour; 1 gallon = 3.8 litres; 1 pound = 0.45 kilograms CO2 = carbon dioxide; n/a = not applicable.

Source: Sarah Munir,“Edible Cutlery: The Future of Eco Friendly Utensils*,*” Kickstarter,March 18, 2016, accessed April 10, 2017*,* <https://www.kickstarter.com/projects/1240116767/edible-cutlery-the-future-of-eco-friendly-utensils>; figures for Plastic (polypropylene) and corn are from World Centric, “Energy Savings,” accessed June 20, 2017, http://worldcentric.org/sustainability/energy-savings.

Exhibit 2: BAKEYS CUTLERY RANGE



Note: This picture first appeared on The Better India (www.thebetterindia.com), Asia's largest impact media platform, which uses solution-based journalism for change.

Source: Tanaya Singh, “Eat with It and Then Eat It—Meet the Man Who Introduced Edible Cutlery to the World,” The Better India, August 13, 2015, accessed February 27, 2017, https://www.thebetterindia.com/30465/edible-cutlery-in-india/.

Exhibit 3: NUTRITIONAL FACTS for BAKEYS EDIBLE CUTLERY

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Grams** |  | **Micrograms** |
| Protein | 1.06 | Carotene | 3.97 |
| Fat | 0.12 | Thiamine | 0.03 |
| Mineral | 0.13 | Riboflavin | 0.01 |
| Fiber | 0.19 | Niacin | 0.28 |
| Carbohydrate | 7.64 | Folic acid | 1.33 |
|  | **Milligrams** |  | **Calories** |
| Iron | 0.56 | Energy | 34.68 |
| Calcium | 2.43 |  |  |

Source: Sarah Munir, “Edible Cutlery: The Future of Eco Friendly Utensils,” Kickstarter, accessed April 10, 2017, <https://www.kickstarter.com/projects/1240116767/edible-cutlery-the-future-of-eco-friendly-utensils>.

1. This case has been written on the basis of published sources only. Consequently, the interpretation and perspectives presented in this case are not necessarily those of Bakeys Cutlery or any of its employees. [↑](#footnote-ref-1)
2. Hyderabad was a metropolitan city in India and capital of the southern state of Telangana. [↑](#footnote-ref-2)
3. K. B. S. Kumar and Indu Perepu, Narayana Peesapaty—The Anti-Plastic Crusader (Hyderabad, India: IBS Center for Management Research, 2017), case code LDEN115. [↑](#footnote-ref-3)
4. Sarah Munir, “Edible Cutlery: The Future of Eco Friendly Utensils,” Kickstarter, accessed April 1, 2017, https://www.kickstarter.com/projects/1240116767/edible-cutlery-the-future-of-eco-friendly-utensils. [↑](#footnote-ref-4)
5. Munir, op. cit.; All currency amounts are in U.S. dollars unless otherwise specified. [↑](#footnote-ref-5)
6. Khakhra was common in the Gujarati and Rajasthani cuisines of Western India; it was made from wheat flour, mat bean, and oil. [↑](#footnote-ref-6)
7. Kumar and Perepu, op. cit. [↑](#footnote-ref-7)
8. Ibid. [↑](#footnote-ref-8)
9. Editor, “Why Plastic Is Bad,” Green4u, February 2, 2009, accessed February 4, 2017, www.green-4-u.com/2009/02/02/why-plastic-is-bad/. [↑](#footnote-ref-9)
10. Ibid. [↑](#footnote-ref-10)
11. Tanaya Singh, “Eat with It and Then Eat It—Meet the Man Who Introduced Edible Cutlery to the World,” Better India, August 13, 2015, accessed February 4, 2017, https://www.thebetterindia.com/30465/edible-cutlery-in-india/. [↑](#footnote-ref-11)
12. Kumar and Perepu, op. cit. [↑](#footnote-ref-12)
13. Munir, op. cit. [↑](#footnote-ref-13)
14. Bakeys, “To Become a Distributor,” accesed July 20, 2017, www.bakeys.com/to-become-a-distributor/. [↑](#footnote-ref-14)
15. Singh, op. cit. [↑](#footnote-ref-15)
16. Ajuli Tulsyan, “With This Edible Spoon, You Can Really Wipe Your Plate Clean,” Weekend Leader, June 3, 2017, accessed July 19, 2017, www.theweekendleader.com/Success/2624/getting-spoon-fed.html. [↑](#footnote-ref-16)
17. B. Dasarath Reddy, “Bakeys: You Can Use and Eat This Innovative Cutlery,” Business Standard, June 22, 2016, accessed April 21, 2017, www.business-standard.com/article/companies/bakeys-you-can-use-and-eat-this-innovative-cutlery-116062200024\_1.html. [↑](#footnote-ref-17)
18. Ibid. [↑](#footnote-ref-18)
19. Samar Al-Montser, “The World’s First Edible Cutlery,” November 2, 2017, In Focus, accessed January 20, 2018,https://infocus.wief.org/bakeys/. [↑](#footnote-ref-19)
20. Kumar and Perepu, op. cit. [↑](#footnote-ref-20)
21. Ibid. [↑](#footnote-ref-21)
22. Singh, op. cit. [↑](#footnote-ref-22)