

Britannia, Naandi and GAIN: A Public-Private Partnership for Delivering Nutrition through Fortification in India

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“Addressing hunger does not necessarily always mean addressing nutrition.”

—Rohini Mukherjee, Naandi Foundation

IT WAS EARLY November 2007, and Anurada Narasimhan, Britannia’s category manager, headed down the hall to meet with Neeraj Chandra, vice president of Marketing, Sales and Innovation, and PP Roy, head of Research and Development (R&D). CEO Vinita Bali was leaving to attend a World Bank Institute-sponsored conference in Washington, D.C., in a few hours and putting the final touches to her presentation on Britannia’s food fortification efforts. Britannia had partnered with the Naandi Foundation to bring iron-fortified biscuits to 150,000 children in the Indian state of Andhra Pradesh through Naandi’s midday meal program.¹

The partnership had been highly successful and both parties were very pleased, but both faced challenges to grow and sustain their efforts. Britannia faced the question of how to commercialize their fortified Tiger biscuit to reach a wider market; Naandi struggled to find ways to make Tiger biscuits, or other fortified food, a sustainable part of the noon-time meals. While a grant from the Global Alliance for Improved Nutrition (GAIN) had made it possible to procure the biscuits from Britannia at cost, and

funding had been committed for 18 months, this was not a sustainable approach for the long term. Naandi also continued to search for other sustainable ways to provide critically needed nutrients to India’s poorest children. The biscuits had been a popular addition to the noon-time meal, but they had to be purchased and distributed alongside the cooked meal. It was expensive and added an extra step; was there a way to fortify the more elemental ingredients in the lunch meals? In India’s wheat-eating regions, iron fortification had made significant strides; rice, however, was difficult to fortify effectively. Those parts of India that relied on rice for a major portion of their diet risked falling further behind in terms of nutrition through fortification efforts.

Data revealed that in 2007 60% of India’s children and 41–60% of women aged 15–49 were iron deficient (see Exhibit 1 for data on malnutrition amongst children across the world). “This is close to two-thirds of our children,” Neeraj said, “so it is not limited to the poor but also India’s middle class.” “From the age of six months to puberty, every lost year of adequate iron intake meant a year of development lost,” PP added. Most agreed that to reach such a large sector of the population, only the government could truly mobilize resources. “The government has to be the primary resource of

1. At Naandi’s centralized kitchens in Andhra Pradesh, the rice-based meals were supplemented with iron-fortified biscuits twice a week, while the wheat-based meals prepared in Naandi’s centralized kitchens in Madhya Pradesh and Rajasthan were fortified with iron and folic acid.

sustaining nutrition,” Neeraj said. Getting government support was a long process, however, and nutrition was not a priority issue among donors; as GAIN’s Dr. Rajan Sankar noted, “The investment horizon is very long.” Vinita’s presentation in Washington would highlight these challenges for discussion amongst her peers from around the world.

Iron Deficiency and Food Fortification

According to PP, two factors should drive any food fortification efforts in India. Food was not a luxury for the vast majority of the population. “People need food to fill their belly, most recommend at least two square meals a day,” he said. Reports put India #1 in terms of levels of starvation, even above Africa, with 38% of the world’s malnourished children, and 47% of those children under 5 years old who were moderately or severely underweight (see Exhibit 2 for comparative statistics). Three-quarters of children aged three and under suffered from iron deficiency (anemia); 50% of children suffered from Vitamin A deficiency; iodine deficiency disorders were a public health problem in all states and Union Territories; India recorded very high rates of zinc deficiency, and had the highest recorded incidence of folate (folic acid) deficiency.

Secondly, mothers were concerned to give their children better opportunities, and “since we are not a nation of athletic specimens,” as PP said, they focus on mental performance instead as a way to get ahead. “In India, being good at sports might give you a name, but won’t make you money, except in some very rare instances of our cricket players,” he noted. “A child’s mental performance was their ticket to a better life. Mothers determined what food came into the home, and that was what everyone in

the family ate.” Convincing mothers that better nutrition would give their offspring greater academic chances in life was therefore key to improving nutrition amongst children. However challenges were not insignificant; adding supplements, or promoting a vitamin pill as a way for children or pregnant women to get necessary micronutrients, as in some other countries, was not a successful tactic in India. “If you are taking a pill,” PP explained, “there must be something wrong with you.”

Ensuring an adequate amount of iron in children’s diet had two benefits. Iron was essential to hemoglobin (blood) which carried oxygen. Half of the problems in the body could be traced to inadequate oxygen levels in blood; iron had been directly linked to IQ development in many studies, and general lack of energy, which in turn impacted learning and performance. As much as 60–75% of India’s population was iron deficient. Given that this deficient population was widely distributed across the country, and even across socio-economic strata, such developmental issues could have a great impact on the country as a whole. The recommended daily amount of iron was 12–50 milligrams. Excess iron in the system was also a problem, however. Any excess iron was stored in the liver, and surpluses caused toxicity, and could lead to liver or heart failure. To date, India had not focused on iron supplements; while the country had identified iodine as deficient in the nation’s diet, and mandated fortification, iron as an important nutrient had been largely ignored.

Malnutrition and the consequences of vitamin and mineral deficiencies could cost as much as 2–3% of a country’s GDP in terms of health care, with an additional cost of low productivity estimated at up to 3% of GDP for some countries (\$8 billion).² Yet the

2. See “Malnutrition,” GAIN Website, www.gainhealth.org/economic-costs, accessed November 15, 2007.

costs of food fortification to reduce malnutrition by supplementing diet with complex vitamins and minerals (such as iron) could be as little as 25 cents per individual per year.³ Dietary diversification, supplementation and fortification, especially in tandem with each other, were the best ways to tackle vitamin and mineral deficiencies.

Britannia

History

Founded in 1892 in Kolkata (Calcutta) with a small initial investment, Britannia grew from a small non-descript baker of biscuits to become one of India's biggest brands and market-leading food companies by 2007. The company had acquired a reputation for quality and value early on; the brand's status as trusted provider of quality food was illustrated from the outset when the government contracted with Britannia to supply the armed forces with "service biscuits."⁴ By the mid-1970s the company had grown and not only produced but also distributed its biscuits. In 1978 the company issued public shares. In 1979, the company was renamed Britannia Industries Limited (BIL) and by 1983, crossed the \$25 million revenue mark.⁵ In 1997 the company began offering dairy products and by 2002 had formed a joint venture with New Zealand's Fonterra.

Britannia was a leading innovator in both products and marketing. In 1997 the company launched a new corporate identity: "Eat Healthy, Think Better," (the literal Hindi translation was "Eat healthy,

bring your mind, body and spirit to life."); the brand was amongst the most recognizable in India. As Vinita noted, "The brand has been around for over 90 years, it is part of the culture and ethos of the country." Britannia regularly pursued powerful affinity opportunities to promote its message, such as the "Britannia Khao, World Cup Jao" promotion of cricket in 1999, and the Lagaan Match promotion in 2001. Forbes Global rated Britannia amongst the "Top 200 Small Companies of the World" in 2002, and in 2007 The Economic Times rated Britannia as India's Most Trusted Food Brand.⁶

Biscuits

Biscuits represented a viable nutrition category with 100 grams of glucose biscuits providing 20% of energy, and proteins required by the average adult. Branded biscuits was a US\$1.5 billion market (Rs. 6,000 crore) in 2007, with 1.2 million tons of biscuits sold, reaching over 90% of all urban and rural households. Biscuits were a low cost nutritional supplement for at-risk populations. Over 50% of biscuits consumed were eaten in rural areas; 35% were consumed by income groups that earned less than US\$25 per month. Packaging ensured safe and hygienic delivery of a processed food, one of the few such products in India.

Britannia's brands included Tiger, Milk Bikis, 50-50, Good Day, Marie Gold, Nice Time, Nutri Choice, Pure Magic, Time Pass, Treat, and Greetings. For a large portion of middle-India, biscuits represented affordable, healthy fillers. Britannia's products were

3. "Malnutrition," GAIN Website, www.gainhealth.org/economic-costs, accessed November 15, 2007.

4. "Company Overview," Britannia Industries Limited Official Website, www.britannia.co.in/companyoverview-overview.htm, accessed December 30, 2007.

5. "Company Overview," Britannia Industries Limited Official Website, www.britannia.co.in/companyoverview-overview.htm, accessed December 30, 2007.

6. "Company Overview," Britannia Industries Limited Official Website, www.britannia.co.in/companyoverview-overview.htm, accessed December 30, 2007.

available in 3.5 million retail outlets (biscuits were available in 6 million outlets) and penetrated to 60% of homes in India. They were sold at an accessible price point for all, at Rs. 1, Rs. 2, Rs. 4 (2.5 cents, 5 cents and 10 cents) for a 16gm, 45gm and 67gm packet, respectively. Prices for the mainstay Tiger glucose biscuit had not changed for 10 years, despite a rise in the cost of raw materials. “We’ve managed to gain more efficiencies in production in order to ensure that the at-risk population is not deprived access to this source of nutrition,” Neeraj said.

Britannia played a significant role in the nation’s food basket with their biscuits penetrating 71% of the urban market and 45% of the rural market, “That is a why GAIN chose us as a partner in addressing vitamin and mineral deficiencies,” Neeraj said.

Frequency of biscuit consumption was at least once a day in urban settings and four times a week in rural settings, with around 3 biscuits eaten per consumption (on average). “Biscuits are a part of the Indian consumers’ daily habits,” Neeraj noted, with a “large stomach share” next only to main meals. This success had helped make Britannia one of India’s most trusted food brands.

The Naandi Foundation

The Naandi Foundation, an autonomous, public trust that worked together with governments, corporate houses and the society to improve the lives of the underprivileged, was founded in 1998 by Dr. K Anji Reddy, founder and chairman of Dr. Reddy’s Laboratories, one of India’s largest pharmaceutical companies. Rather than a traditional charity or granting organization, Dr. Reddy and his part-

ners, several prominent Hyderabad industrialists, determined Naandi should be a “professionally run social services organization.”⁷ In Sanskrit, ‘Naandi’ translated as ‘dawn’ or ‘a new beginning.’

Naandi was directly involved in helping elected governments in India achieve equitable and efficient delivery of critical social services, specifically focusing on the protection of child rights. Services included developing sustainable livelihood options for small and marginal farmers and providing employability skills to underprivileged youth; and providing safe drinking water to various communities with contaminated water supplies. Naandi specifically furthered the protection of child rights through its midday meal programs, quality education initiatives in primary schools, comprehensive schoolchild healthcare plans, and support of girls of underprivileged families.⁸

Naandi and India’s School Feeding Programs

In 2001 India’s highest court passed a mandate that directed all state governments to provide cooked midday meals in primary schools. The school feeding programs focused on “filling bellies” rather than providing specific supplements to alleviate nutritional deficiencies. The midday meal program was government-funded, providing hot cooked meals in the government and state schools, Monday through Saturday. With child labor and rural poverty still wide-spread concerns, getting children to attend school and stay in school past the age of 9 or 10 was a challenge. Providing food was a significant enticement: “For some children, this is the only food they get all day,” said Rohini Mukherjee, Naandi’s manager of global partnerships. Since the launch

7. Amy Yee, “Two Worlds Collide,” ft.com, www.naandi.no/artikler-fra-presse/two-worlds-collide.aspx, accessed February 2, 2007.

8. See http://www.drreddys.com/coverview/sd_sr_naandi.htm, accessed February 20, 2007.

of the midday meal program, school attendance had gone up, and attendance of girls particularly had increased. A significant decrease in dropouts was also reported, and many schools found that students completed more schooling. Some noted that children sitting together to share a common midday meal worked to “erode caste prejudices and class inequalities.”⁹

Each state and region handled the implementation of the government’s mandate differently; and the program sat under different state offices from state to state.¹⁰ In some areas, the programs were very informal, run by so-called self-help groups, mostly women who cooked food in the school’s kitchen, which might have been no more than a small kerosene stove and a pot. In urban areas, schools were notoriously poor and over-crowded, with no space for cooking safely. Naandi first became involved in the midday meal program through the Ministry of Education in Hyderabad. Naandi had been running outreach programs in the schools, so had relationships and infrastructure in place. When the court mandate was passed, the state government approached Naandi for help as they had only six months to implement a meal program for their school system. Leena Joseph, on Naandi’s midday meal program board, began to help organize the effort; she became Naandi’s manager of the midday meal program.

By late 2002, Naandi had signed a Memorandum of Understanding (MoU) with the government of Andhra Pradesh, and by February 2003 had found someone to donate land for the first kitchen and begun to set up operations. A combination of public and private donations funded the build-out

of the kitchen and the initial investments in trucks, management, and logistics planning. “We had been doing learning programs up until then,” Leena recalled, “Kitchens and meals, those was completely out of our expertise. We told the government, No, the first time they asked. It was a complete quantum jump for us to get involved in this.”

There were many challenges, and in order to begin to understand how to meet the initial goal of feeding 50,000 children in the pilot program, Leena and her team visited large kitchens such as those run by religious institutions and catering colleges. The team brought in technical experts to help learn about steam-based cooking, which had exacting requirements in terms of pressures; with steam the food had to be cooked a certain way, there was no room for error. “It’s OK if you fail in teaching children to read,” Rohini noted, “but there was no scope for failure here.” The government asked the program to provide rice varieties, such as tamarind or biriyani; Leena and her team introduced vegetables in the hopes of adding more nutrition, “but the children picked them out, they were used to only eating potatoes, tomatoes.” Leena’s solution was to grate the vegetables so finely that they could not be picked out of the curry. Innovations like these were constant, but were always geared to the local palate.

Naandi’s midday meal program cost Rs. 2.10 per child per meal for urban areas similar to Hyderabad, but over Rs. 3 for rural areas. Delivery costs were a significant portion of the overall expenses. Logistics were extremely complex; the meals had to be prepared to ensure secure and tasty food, and then delivered in metal canisters (similar to those used for milk) in time to be served while still warm. Naandi

9. Kalyan Singh Kothari, “Midday meal scheme is showing success,” *OneWorld South Asia*, January 7, 2008, <http://southasia.oneworld.net/article/view/156601/1/1893>, accessed February 17, 2007.

10. In Andhra Pradesh, for example, the midday meal program was under the auspices of the Department of Education, in other states it sat under the head of the municipality, or the rural equivalent of the head of the municipality.

studied optimal distances for delivery of warm food in each region, given traffic patterns and congestion (40 kilometers); the food had to be delivered within 4–6 hours of cooking in order not to spoil. This required extensive delivery planning, with test runs by trucks in real time to find the fastest route during traffic. The team tested loading and unloading and used canisters filled with water to determine spillage rates. Additionally, the food had to be delivered securely, guaranteeing safe and untainted food. “We have a driver and at least one or two lifters for each truck,” Rohini explained. “One of them must always stay with the food canisters, at all times.” Everyone involved, from cooks to cleaners to drivers, took great pride and ownership in the project, “because it is for children,” Leena said; many had children in the schools served by the program. The entire crew was also fed by the kitchens.

Some areas the kitchens served were a ways off the beaten track; in one area of Rajasthan, meals were carried by donkey to some of the outlying villages in the mountainside. “We focus on solving each problem for each area, India is incredibly diverse, so replicating or scaling our original model is not straightforward,” Leena said.

By 2007, Naandi’s midday meal program, with Leena running it, fed about 500,000 children, 120,000 of these were in Hyderabad (Exhibit 2 provides a map of Naandi’s coverage). Soon, the program was on track to reach 1 million children; informally throughout the kitchen network everyone referred to these as “Leena’s children.” All involved were agreed that to scale the program beyond Naandi’s reach would require the government to step in and coordinate it for all of India. “We’ve set this program up in as simple and streamlined a manner as possible,” Leena noted. “Much of it is self-sufficient and modular, so the government could replicate it in other regions.” Rohini added, “We’ve provided

proof of concept; but to reach all of India’s children will take a much larger and national perspective.”

Global Alliance for Improved Nutrition

The Global Alliance for Improved Nutrition (GAIN) was committed to reducing malnutrition through the use of food fortification and other strategies aimed at improving the health and nutrition of populations at risk. Created at the United Nations General Assembly’s Special Session on Children in 2002, GAIN was a Swiss Foundation funded by the Bill and Melinda Gates Foundation, USAID and CIDA. GAIN built partnerships between the public and private sector, enabling innovative solutions to improve nutrition on a large scale by providing financial and technical support. GAIN measured progress to demonstrate the return on investment, improve its program and communicate success. And GAIN advocated for better nutrition worldwide as a cost-effective way to make people and economies stronger, healthier and more productive.

GAIN’s India office was located in Delhi, where Dr. Rajan Sankar oversaw the organization’s efforts in India, Bangladesh and Pakistan. Dr. Sankar, an MD in clinical epidemiology by training, had worked in the armed forces for 25 years before getting into development work. He had spent years working on micronutrients, particularly iodine deficiencies, first for UNICEF and now GAIN. While at UNICEF he had led an initiative in partnership with Unilever, and had seen first-hand “the benefits of bringing private sector and business to the table together.” The Delhi office had a small staff, with six people overseeing a range of projects throughout South-east Asia; consultants were brought on board as needed. The team directed five types of work: food fortification, performance measurement, advocacy, Infant Young Child Nutrition and Investments and

Partnerships. The office also oversaw grant management. As Dr. Bérangère Magarinos, GAIN's senior manager of Investments and Partnership Programs, based in Geneva, noted, "We want to be sure we don't scope too broadly, so we are very selective. We want to be sure to support each project enough for it to succeed, rather than doing many projects, some of which may fail."

Contrary to other fortification efforts which focused on creating demand, Dr. Sankar and his team worked on the supply side; as he said, "It's so much easier, we see tangible results much sooner. And you can measure that the food is reaching the target population." However over the long term, he knew GAIN had to work with partners to create sustained demand. "If you want to sustain this you have to create demand pull for it. It won't happen otherwise." He admitted to some of the challenges: "You have to raise resources to do this over the long term, and in India the government has not been very successful doing this to date."

GAIN had specific priority areas of focus for its efforts in India: nutrition for children under two years and pregnant women, and good feeding habits. General knowledge about nutrition, along with educating the public about how food processing removed nutrients and vitamins, was essential for long-term progress. "Once children and their mothers understand good feeding habits," Dr. Sankar said, "the knowledge transfers throughout the family, then they will naturally look for it through the rest of their life."

An Opportunity to Make a Difference

Two Possible Partners with Complementary Needs

Britannia had been exploring ways to contribute to improving nutrition for years, and had several

mainstream products with a nutritional focus, including breads. Britannia had provided supplies of customized biscuits to the United Nations' World Food Programmes (WFP) for Afghanistan, Iraq and the tsunami-hit areas of Indonesia, as well as supplying tribal belts in a few of India's less developed states, such as Rajasthan, to help address their nutritional needs. "Doing well by doing good," Vinita explained, was at the heart of company's way of doing business. "This is an integral part of the way we are as a company," Neeraj added, "We had been getting our feet wet in the space for a while." The company had also partnered in various education programs, providing micro-advocacy and sending educational materials home through children to reach parents to spread the notion of "Eat healthy, Think better." The company's programs focused on driving awareness for healthy food habits and nutrition, and leveraged India's popular story-telling medium to drive home the message of nutrition. By 2007, over 5 million children had been impacted, many of them in India's so-called "media dark" states.

Britannia had made prior efforts in the fortification area. Milk Bikis, a favorite household brand, which had always been associated with milk nutrition, was relaunched in 2006 as a product fortified with calcium, iron, iodine and 4 "smart nutrients"—Vitamins B1, B6, B12 and D. Four biscuits provided the equivalent energy of a glass of milk in the tasty, fun form of a cream-variant biscuit with a smiley face and cream center, making a mother's task of providing nutritious food for her child that much easier. "But to date these efforts had not been coordinated in a concerted tangible push," Neeraj noted. "We also knew we can't do this on our own. We were looking to find a partner."

The company's journey began in earnest when a workshop offered by GAIN and the World Bank Institute (WBI) brought several Indian food and

nutrition companies together, and provided the genesis of the idea “affordable nutrition.”¹¹ Vinita, Neeraj and PP were invited to Delhi, and after the presentation, they met with Dr. Sankar to continue their ongoing discussions about exploring opportunities. GAIN wanted to replicate their achievements in supporting fortification in China but had only recently established a presence in India. “We focused closely on what the food companies could do,” Dr. Sankar recalled. “We’d been looking at this area and trying to put thoughts together on how to make a meaningful contribution,” said Neeraj. “How could we participate in a responsible manner? Our interest was prompted by our mission in the nutrition space, and our commitment to securing for India’s children the right to good food. We wanted to do whatever it takes to make that happen.” With GAIN, Britannia focused on what kind of contribution the company could make. One of the first outcomes was to form a “nutrition group” with GAIN and other members to start the unique partnership in the school feeding program.

Two things informed Britannia’s efforts to enter the fortification space: it had to be sustainable and it would be an integral part of the company’s nutrition efforts. “This is not about corporate social responsibility,” Neeraj explained. “This is the other side of the business coin for us. Whatever we do, we want to do it as sustainably as possible. We are a publicly listed company, a sustainable effort is the only way we can make an impact.” PP and his R&D team had considered an iron fortified product, and had wanted to do small-scale clinical trials, but were hesitant due to political sensitivities.

For Naandi’s part, Leena and her team had been exploring opportunities to leverage the fact that

Naandi fed an increasing number of some of India’s poorest children. But the hot meals, especially those in the rice-based areas, did not provide additional micronutrients. In March 2007, Leena and Naandi’s team, now with 8 kitchens running, decided to take on the added challenge of fortifying the midday meal offerings. The technology element was a challenge; “How do we do this?” Leena asked. The team called in experts on nutrient amounts, and cooking practices, with the overall concern to maintain taste. “Children can be picky eaters,” one staffer said. With the advent of fortification came the need for an even higher level of transparency. “Food safety is our greatest concern,” Rohini said. “We are always worried about contamination, nothing can go wrong.” The kitchens had experimented with ways to fortify wheat quite successfully, but providing fortification for rice-based meals remained a challenge.

With its significant “outreach infrastructure” in the state of Andhra Pradesh (India’s fourth largest state by area and population), and close work with the government over several years, Naandi had extensive reach.

The Partnership

GAIN and Dr. Sankar already had seen the potential to link Britannia with the Naandi Foundation as partners. Naandi’s founder, Dr. Reddy, was also a GAIN board member, so the alliance was an easy one to forge. Given Naandi’s midday meal program, they were an ideal partner that could benefit from Britannia’s strengths. For its part, Naandi provided insight into a previously difficult market for Britannia to reach and understand. Working

11. Dr. R. Sankar, senior manager for GAIN, presented “What is at stake? The Public Health Issue,” in New Delhi. The seminar gathered the GAIN Business Alliance India Chapter, including interested parties from private sector, government and NGOs to discuss malnutrition and food fortification opportunities.

through micro-advocacy at the village level, Neeraj said, that Naandi “showed us how things happen at the grass roots level. We learned about living conditions, eating habits—or lack thereof—Naandi made it tangible for us.” Britannia, for its part, brought its own valuable expertise, including accessibility and insight into the consumer and their psyche. “We brought food know-how, consumer insight, especially about children and our brands,” Vinita noted. GAIN brought essential funding. “The partnership was very synergistic from all three sides,” Vinita said.

In November 2006, Vinita met with Naandi CEO Manoj Kumar in Hyderabad. They agreed a partnership would be fruitful and set February 2007 as a target date for bringing a product to the market. Coming to an understanding of what to deliver was important; the initial goal was to find some way to provide a supplement for the rice-based meals, with the idea to expand beyond this as the program took hold. In their earliest discussions, GAIN and Britannia had determined that biscuits would be the most effective product to fortify. The team chose the Tiger line of biscuits because the brand was already directed at children. “It stood for fun and energy,” Neeraj noted, and had wide presence in the market.

Iron was quickly short-listed as the most obvious fortificant to target. It was amongst the nutrients of which there was the most severe deficiency in India’s children and women of child-bearing age. Additionally, using biscuits as the vehicle in the food program meant distribution could be controlled in terms of dosage. Further, biscuits were widely accepted; “the kids love them,” Vinita said. While not providing an answer to Naandi’s concern to fortify rice at the source, Britannia’s iron-fortified biscuits could present a winning shorter-term solution while rice-fortification experiments continued.

“The children would at least get what they needed,” Leena acknowledged.

Biscuits were economical too. According to PP, putting certain kinds of nutrients into liquid food was difficult, packaging was tough, stability and shelf-life were an issue, as were storage and distribution. “The biscuit was an excellent vehicle,” Neeraj said. Once they decided on biscuits, Britannia brought several important elements to bear on the effort. As Neeraj explained:

“We bring much more than money to the table. We bring a commonality of purpose and commitment to the cause. Our company motto says it best: ‘Eat healthy, Think Better.’ Our brands and our business have the broadest reach in terms of children and the category of all products in India. Particularly our Tiger brand—it is second to none. We have developed our distribution, so we have accessibility across the length and breadth of India. We feel we must leverage this. We have a deep understanding of food and how to make it. But we know that it is about more than stuffing it down people’s throats. We know how to reach out to kids, make eating food—that is good for you—fun.”

Neeraj recalled, “Once we had made the commitment, everyone in the company was behind it.” It was important to make these connections explicit internally, however, and to have a clear picture of the overall goals as this was “not part of anyone’s regular job.” Internal communications were critical, as only a very small group of people were involved, about 10–12 out of Britannia’s 2,000 employees. For Vinita, the program and its potential was like “a dream come true” for Britannia; “it extended our concept of securing every child’s right to nutrition,” she said.

Product Development: Cracking the Code

Indian food tastes were easily segregated into four regions: north, south, east and west, with each showing distinct preferences, but cereals formed the staple of the country's diet, with the curries changing according to whether they relied on rice or wheat. The south and non-vegetarian parts of the east were predominantly rice-based in their diet, with a lot of spicy curries of fish, meat and chicken. The north and west represented a mix of vegetarian and non-meat eaters with a predominance of butter and cream in their curries and favored the wheat-based *chapati* as their food staple.

The technical challenges of how to get iron into the biscuit were not insignificant. There were two sources of iron: ferrous (Fe_2) and ferric (Fe_3). Bio-availability, or the body's ability to absorb the iron from either source, varied and presented a critical factor. Ferric was considered less bio-available, with a higher chance of not being absorbed, but food technicians could work with this form of iron more easily. Ferrous sulphate (the commonly used form of iron for salt fortification) was fairly unstable in its soluble format making it difficult to work with in food products, it turned everything black, had a strong metallic taste and killed off or made inactive any other nutrients in the food product, yet the body accepted (absorbed) it well. Whatever the team settled on, it had to be sourced in India, there could be no re-importation, and they had to be able to manufacture something children would like on an affordable basis. In the end the team settled on ferrous fumarate as the compound to use.

Several aspects to the process presented challenges. The powder mixture of ferrous had to be evenly distributed or there would be no benefit. To validate the adequacy of their process design, test batches

were run, and post-baking, sent to an independent testing lab to measure the iron levels, with test results sent from there to GAIN. As the team continued to test recipes, PP was particularly concerned about the possibility of excess iron. If they fortified each biscuit with 5 milligrams of iron, 5–6 biscuits would provide the recommended daily dose. "Yet, no one can prevent a child from eating 10 biscuits," PP said.

The team had only a few short months to meet the February launch date; in August PP organized a small team of two from the Tiger manufacturing operations to get the recipe right. They set up a test facility and went through every permutation to get the right mix of nutrients while keeping flavor and color stable. There were a number of challenges in baking—including loss of other nutrients given the higher baking temperature, and having to adjust fat levels to mask the flavor contributed by the iron. "They left no stone unturned," PP said, in trying to come up with the optimal process for fortifying the biscuits, while not adding to the overall formulation cost. The team undertook 16 different trials to ensure the right amount of fortification without losing product taste. The cost of fortification was brought down to 6 paise per kilogram (1 paise = 1/100 rupee). From the outset, the team knew the biscuits would need to be made affordably, with the possibility of launching to the mass market. "PP was the man behind getting nutrition into the biscuits in the end," Dr. Sankar recalled. "He worked very quietly to prove it would not impact Britannia's sales to pursue this idea. It helped that through Naandi, they had access to a ready market. But PP's mantra throughout was "Whatever we do, think about it from the point of view of nutrition." Naandi provided a "very small market in the scheme of things," Dr. Sankar said, "but it gave Britannia tremendous visibility and great press."

Tiger Biscuits

Britannia's Tiger biscuits were the most widely recognized biscuit in India, and the Britannia team considered them the best "in-between" food (snack). "They give solid energy, they have taste plus nutrition," said Neeraj. "As we say, 'Jo Man Se Nahi Khaya, Vo Tan Par Nahi Laga,' or 'Good taste drives health.'" They were manufactured in 30 factories across India. Margins on manufacturing were very tight, so the cost of fortification had to be very closely managed. No changes could be made to the supply chain or manufacturing process (factories could not be retrofitted, for example).

The team went to work to test sample biscuits. They teamed with the National Institute of Nutrition (see Exhibit 3 for nutritional information). They decided to fortify the biscuits with 5 milligrams of iron, with the assurance that distribution would be limited to 4 biscuits per child a week, thereby guarding against accidental overdosing.

In 2007, a special version of Britannia's best-selling "Tiger" biscuits, fortified with iron, made their debut as part of Naandi's midday meal program in Hyderabad. The initial reach was Naandi's 150,000 students; although this was only a fraction of the 110 million children who participated in the midday meal program nationwide.

Inspiration for Continued Change

As the program gained success, Britannia looked to further opportunities. Their intent was to take the fortified biscuit program more broadly into the school feeding program, and additional bio availability tests were already underway. As Vinita noted, "There are several ways forward for us to pursue. We can extend the school feeding pro-

gram to impact larger numbers of malnourished children. We can fortify our market lines as well. But we will continue to drive awareness and advocacy through key stakeholders—nutritionists, key NGOs, children and mothers." The Britannia team continued to press for public/private partnerships to provide both reach and access. "For us, corporate social responsibility is best achieved through our business, not as a separate activity. It has to be embedded in what we do, that is the sustainable model." Britannia had also worked to secure new avenues of funding for the program. The team planned to extend the current program through additional funding to other states where GAIN and Naandi operated.

Britannia continued to explore other partnership opportunities including identifying partners to assist with technology, such as pharmaceutical companies, and other organizations similar to Naandi, which supplied the government's feeding programs. Britannia looked for two types of partners, those who could aid in distribution or reach, and those who could strengthen advocacy. They had identified several criteria for selecting such partners. Finding like-minded organizations topped the list, including committed companies that did not compete in Britannia's market categories. In some states, self-help groups provided excellent partners, and Britannia continued to work with government programs in school feeding. "Children are a key area of focus for us," Neeraj said. For advocacy partners the criteria varied slightly; in these instances they also looked for partners with a similar vision. GAIN was one such partner; Neeraj noted, "We'd like to build a long term partnership to alleviate malnutrition in India." Recently, the company had made a commitment on nutrition with the Clinton Global Initiative, with clear milestones and deliverables. In the end, Neeraj said, "the product selling is less important than getting the message across."

Britannia was also interested to explore further commercial opportunities for their fortified products so as to deliver nutrition to the base of the pyramid. With 3 billion packs of Tiger and Milk Bikis sold in 2007, there was clear brand awareness and acceptance that could be leveraged for fortified foods. These products, along with fortification experiments with bread, were ideal for reaching the very poor as they were easily packaged into low-unit packs (LUPs), at affordable costs of Rs. 1 or Rs. 2.¹²

For their part, Naandi continued to work to improve supply chain and delivery issues, and to find resources to try to meet the high interest and demand the program was receiving across much of India. Getting an increase in funding—“even of 1 cent per child,” from the state governments—would have an immense impact on the foundation’s reach and ingredient choices, according to Leena.

GAIN continued to look for further private/public partnerships as well. Working with development banks, it planned to assist in leveraging over US\$3 million for new, sustainable business models aimed at making complementary foods available to infants and young children from India’s poorest regions. It had projects underway across various Indian states in late 2007 (see Exhibit 4).

Thoughts for the Future

GAIN was already looking to projects further down the supply chain, at the level of production, procurement, even in the fields with fortified seeds and other such products. Milk had been an important food stuff to add to their nutrition efforts. But Dr.

Magarinos hoped for even greater reach, “We are working on some new ideas, we’re targeting the retail sector.” Engaging the government remained critical. “There are lots of diseases India has managed to eradicate,” Dr. Sankar noted, “such as small pox and polio, through ‘day drives.’ These have the power of the government behind them. The midday meal is a fairly robust machine, but there are other vehicles as well.”

Creating relevant partnerships was a key lesson for all participants. “You have to start with the doable,” said Vinita, “we had got our feet wet, ran pilots and experiments, and honed in on our core competence. This project hit our sweet spot: children and nutrition.” Britannia hoped to replicate the model of this experience, grow the current partnership in other places, and explore new partnerships. Some of the skills gained went beyond successfully delivering the micronutrients. “We also grew our ability to partner,” Vinita explained.

The biscuit supplement to Naandi’s midday meal program was unsustainable without funding and support from both Britannia and GAIN. “If Britannia could develop two lines of biscuits,” Dr. Magarinos noted, “one for the school meal program and a commercial line, perhaps the commercial biscuit could cross-sustain the school program biscuit. But margins are very slim. What would happen if food prices went up?” But there were additional options, Dr. Magarinos noted. Companies such as Britannia could leverage their success and affiliation with food fortification programs and gain an additional profile among consumers as a health and wellness company, as Unilever was already doing. “These are the kinds of people we look to partner with,” Dr.

12. Britannia had several products in development for early 2008 launch, including Tiger Banana, a commercial variant of iron fortification with iron and folic acid (100gms) which met 25% of the recommended dietary allowance, and provided as much iron as a kilogram of bananas. Tiger Banana was scheduled for a January 2008 launch. Additionally, Britannia was working to fortify their mainline product, Tiger Glucose, which enjoyed the widest reach and access of Britannia’s products, with plans to launch in March 2008.

Magarinos said. “People we think can be change agents. The organizations are always a reflection of their people. At Britannia and Naandi, every single person was focused on addressing the problem of nutrition in India. Given their penetration and outreach, these are the change agents that have the power to reach the market.”

Identifying sustainable business models that engaged the private and public sectors in partnership and married technical expertise with local knowledge and infrastructure significantly contributed to addressing the nutrition needs of India’s children. Yet as the partners looked to the future, there was consensus that addressing issues of nutrition and food fortification in a coordinated manner across all of India would require far greater resources than those provided by individual public/private sector partnerships. Ultimately, Dr. Sankar and the teams at Britannia and Naandi hoped their successes could pave the way for the state and federal governments to find ways to support a national effort to address the challenges of malnutrition and vitamin deficiency across the country.

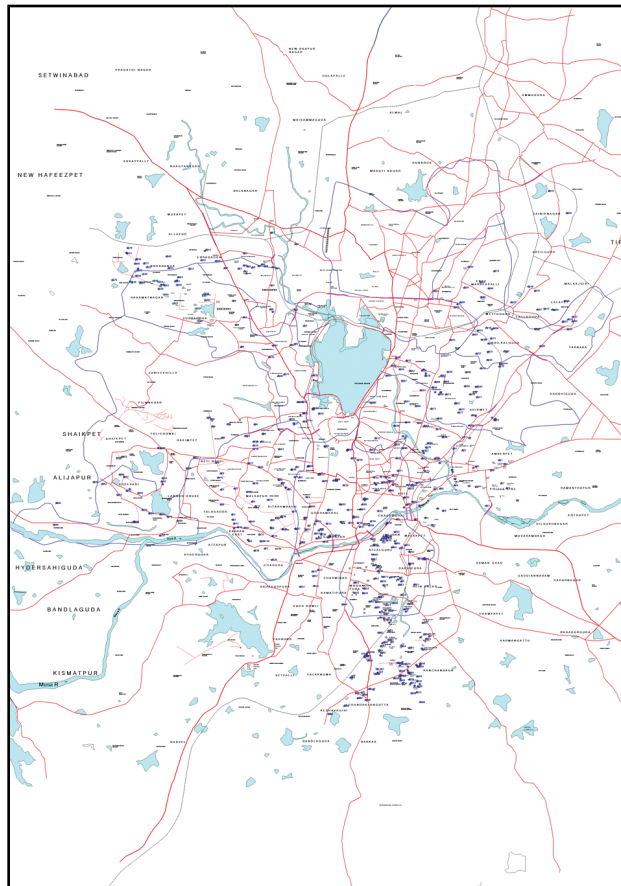
Exhibit 1. Malnutrition in India (1995–2002)

Country	Percent children under 5 years who are moderately or severely underweight
India	47
Sub-Saharan Africa	29
East Asia and Pacific	17
All developing countries	27

	Percent of world's malnourished children
India	38
Sub-Saharan Africa	29
East Asia and Pacific	17
All developing countries	100

Source: GAIN, UNICEF (2007).

Exhibit 2. Naandi Meal Deliveries, Andhra Pradesh (November 2007)



Source: Naandi Foundation.

Exhibit 4. Nutritional Information for Britannia's Fortified Products, 2007 (all values given are for 100g product)

Brand	Micro nutrients	Energy/100 g	Content	Percent RDA met by 100 g
Tiger (school feeding program variant)	Iron	438 kcal	Iron-85mg	300% (10% per day delivered through biscuit quota)
Tiger Glucose	Iron, calcium, and folic acid	431 kcal	Iron-85mg Calcium-15mg Folic acid-25mcg	25%
Tiger Banana	Iron, calcium, and folic acid	430 kcal	Iron-7mg Calcium-15mg Folic acid-25mcg	25%
Tiger Coconut	Calcium	433 kcal	Calcium-65mg	16%
Tiger Creams	Calcium	474 kcal	Calcium-50mg	12.5%
Chota Tiger (pops)	Calcium	432 kcal	Calcium-110mg	27.5%
Milk Bikis	Iron, calcium, iodine, Vitamins B1, B6, B12, and D	447 kcal	Iron-5mg Calcium-60mg Iodine-25mcg Vitamin B1-0.18mg Vitamin B6-0.30mg Vitamin B12-0.15mcg Vitamin D-1.5mcg	17% 15% 16% 15% 15% 15% 15%
Milk Bikis milk cream	Iron, calcium, iodine, Vitamins B1, B6, B12, and D	494 kcal	Iron-5mg Iodine-25mcg Calcium-90mg Vitamin B1-0.18mg Vitamin B6-0.30mg Vitamin B12-0.15mcg Vitamin D-1.5mcg	17% 16% 22.5% 15% 15% 15% 15%

Source: Britannia.

Exhibit 5. GAIN Projects in India (2007)

In Delhi, a milk processing project was piloted ensuring that oil soluble vitamins (A and D) lost during milk processing were reintroduced; GAIN offered subsidies to support milk producers' efforts. India's National Dairy Development Board and Amul Dairy, India's largest dairy cooperative, were both on board, and a pilot was started in Delhi. Dr. Sankar and his team in Delhi were working with the government to make such a process mandatory in India, but as Dr. Sankar noted, "it's a long process, and could take over a year or so."

GAIN's partnership with Naandi would expand with a wheat flour fortification project for Andhra Pradesh, Madhya Pradesh and Rajasthan, states served by Naandi's midday meal program and where wheat-based diets predominated. All wheat flour used in the midday meal would be fortified with iron and folic acid; iron fortified biscuits would be used in some areas as an additional measure and the project expected to reach 400,000 children.

In Gujarat, GAIN and the WFP were partnering to provide fortified complementary infant food for ICDS centers throughout the state, hoping to cover 400,000 infants between the ages of six months and three years. Weekly packets of powdered cereal containing minerals and vitamins would be distributed to mothers for mixing with water or milk for their children.

In partnership with WFP and Tamil Nadu State Aids Control Society (TNSACS), GAIN provided nutrient-dense meals to people living with HIV.

A pilot project to fortify rice was underway in Andhra Pradesh as a preliminary scheme for the midday meal programs in India where rice was the main food staple, which would eventually reach close to 3 million children.

In Rajasthan, GAIN and UNICEF collaborated to reach 200,000 children with sachets of sprinkles—essential nutrients—to be spread on home cooked meals for 120 days.

GAIN continued to work with all three of India's public food aid programs (ICDS, MDM and PDS), the state government, civil society, academia and the private sector in Rajasthan to come up with the most effective strategies to further food fortification. The program was projected to benefit 30 million consumers each year, reaching a total of 90 million people.

Source: GAIN website, <http://www.gainhealth.org/india-targeted-fortification-projects>, accessed February 27, 2007.