

## *Akshay Patra, Gandhinagar: Supply Chain Challenges*

Shravanti Mitra, G Raghuram, and Atanu Ghosh

### *Case Analysis I*

#### **Sanjay Choudhari**

Assistant Professor  
Indian Institute of Management, Indore  
e-mail: sanjayc@iimidr.ac.in

The Akshaya Patra Foundation's (TAPF) journey undoubtedly demonstrates the success story of public-private partnership between the government and the ISKCON (International Society for Krishna Consciousness) group with the purpose of serving nutritious and delicious food to 2.30 lakh children in Gujarat. The success of the model is an outcome of sincere efforts of the Government and the selfless attitude of TAPF toward society. However, one of the greatest challenges for TAPF is to sustain the success in future by making both ends meet. There is a gap of ₹2.27 per meal in the initial capital expenditure. Even though TAPF is trying its best to fill this gap with the help of donations received from various sources, there is a decline in the receipt of donations from year 2009-10 to 2010-11 (Exhibit 17).

The ability of TAPF to make timely delivery at low cost is achieved by operational excellence. This is evident from the innovative practices being used in the different stages of production and distribution. The cost efficiency in production of meal is the result of economies of scale achieved by centralizing the production and mechanizing the kitchen having less human intervention. The use of custom-designed vehicles for distribution helps TAPF to carry more number of containers than the normal vehicles. While there is no doubt that in order to sustain the existing model, inefficient practices in supply chain right from sourcing, production to distribution should be eliminated, such action should not deteriorate performance in terms of quality, hygiene, and timely delivery.

One can identify and look for various opportunities for developing a sustainable model. For example, one such area where TAPF may like to focus is in motivating individual, corporate and various foundations for generating and sustaining the sources of funds. We argue that removing inefficiency in the supply chain could strengthen the viability of such model in future. This case analysis identifies the few such opportunities for improving the supply chain cost efficiency.

The current issue of Vikalpa carries the Case, Akshay Patra, Gandhinagar: Supply Chain Challenges. This Diagnoses features analyses of the Case by Sanjay Choudhuri and Lalitha Iyer.

## Procurement, Sourcing, and Storage

The raw materials used for preparing mid day meal can be classified into subsidized and non-subsidized. Government-subsidized food grains such as rice and fortified *atta* form the major portion of the meal. Non-subsidized food can further be classified into two types: groceries such as *moong dal* and oil and vegetables such as tomatoes. Essentially, TAPF deals with three types of raw materials: Dry food grains - subsidized, dry food grains - non-subsidized, and green foods such as vegetables. For improving the system, the following steps could be useful:

- A lot of time and cost is spent in cleaning (rice-cleaning machine) the subsidized dry foodgrains such as rice which not only increases the cost but also reduces the quantity. For controlling the quality of rice, government intervention may be required.
- There are marginal differences in grocery rates due to the natural pricing variation by different suppliers. Rather than repeating the procurement process every month, TAPF may go for a yearly contract with only one supplier for each item. This will assure large volumes leading to cost economy in purchasing. The terms of contract price can be negotiated between both the parties without sacrificing quality. One such possibility could be supplying the items at a price 15 to 20 percent lower than the wholesale market price. Further, quantity of agreed raw materials can be continuously replenished by the selected supplier within the storage limitation (maximum and minimum quantity) through a coordinated effort. It may further reduce inventory cost.

## Production

Production planning is a key factor for appropriate quantity of meal production every day. On a daily basis, the drivers and helpers get information, such as the number of children attending school, from the school authorities. This is considered as the real input for the next day's production. Any change in this data may cause tremendous wastage of food. The standardized processes and menu containing two to three food items each day reduces the complexity of production planning. Here are certain possible alternatives for improving production:

- Estimates for the next day's requirements are obtained by respective drivers and helpers every day at the time

of delivery to individual schools. There is thus one day lag between the estimation of requirement and the actual requirement on a given day. Some variability of consumption is inevitable. It is obvious that real inputs are required before the start of food production due to certain time window associated with cooking. On an average, the cooking process takes 3-4 hours in the morning. The wastage of food due to absenteeism of children could not be more than 30 percent at the aggregate level (assuming on an average 70% attendance). There is the possibility of cutting and readjusting the expected aggregate estimate of the previous day to the real time aggregate estimate of a given day by collecting additional information from the school authorities in the first hour of school. Assuming that 40 to 60 percent of the food is already prepared based on the previous day's estimate, the planning department can regulate the quantity of further production based on the revised estimate. It is possible by controlling the inputs (raw materials, say rice) that are still in the raw form and have not entered the cooking stage. Of course, one would need to work on the process of obtaining and summarizing additional information. However, it may not pose difficulty in the era of mobile technology. One possible solution is decentralizing the information collection process by the respective driver and helper from the school authorities and passing it to the central planning department in real production time. This concept is coined as tailored postponement in supply chain literature.<sup>1</sup>

- There is significant loss (12 to 13%) in the *roti*-making process due to recycling (re-feeding the remaining portion of flattened dough after cutting and removing circular rotis) and poor quality (undercooked or overcooked) output. Identification of the causes of poor quality and subsequent use of quality control practices (controlling temperature and flow of *roti* through burner, improvement in technology being used) can reduce wastage.
- The case appreciates TAPF as a role model due to its innovations in technology and processes quality of food, variety provided in the meal, large scale production, and timely delivery. It is obvious that *rotis* cut in square or rectangle would provide more cost efficiency

<sup>1</sup> Chopra, S., Meindl, P., & Kalra, S. V. (2013). *Supply chain management: Strategy, planning and operation*, New Delhi: Pearson Education.

as mentioned in the case. TAPF model of reaching and feeding 2.3 lakh children is a great innovation in itself. TAPF has great scope to experiment and make square or rectangle *rotis* without compromising on quality. TAPF should not see traditional hindrance to such innovation which may be well accepted by children.

- The breakdown of equipment being used in the kitchen is another considerable cause of delay. Productive maintenance practices such as scheduled maintenance, preventive maintenance, and record keeping of failure of such incidents can be initiated. Some of these practices can easily be carried out in the afternoons when the equipments are not being used. TAPF can train some of the employees to perform these procedures.
- The issue of open space, *rotis* and rice being prepared in different places are not difficult to sort out. Appropriate measures in terms of additional expenditure and managerial practices can resolve these problems.

## Distribution

TAPF currently covers 33 routes to reach all the schools. The routes are possibly designed based on the capacity of vehicles and appropriateness of time window for service. Some possible actions toward improvement are provided below:

- We are not sure whether the given 33 route combination is an efficient solution. There is possibility of identifying the revised routes for the given combination of vehicles (capacity) as per the demand to reduce cost for the given timely delivery. The resulting routes solution could be one-time optimized solution as the demand quantity and locations are not dynamic and more or less remain the same throughout the year. The routing should not be changed even with the idea of moving from the expected estimate of the previous day to the real time estimate of a given day as discussed earlier.
- With the idea of moving from the expected estimate to the real time estimate, the drivers and helpers make sure that the vehicle is loaded with new revised estimate for all food items. This decision is responsive to

the demand requirement. Some possible alterations in packaging and containerization (sizing of containers, i.e. small, medium and large) process can bring sea change in terms of responding to the real time demand. One such solution could be to fix 50 to 70 percent of the demand of each (depending on variability of children's attendance) school in big or medium-sized containers and ready them for loading while the remaining demand can be fulfilled at aggregate level in medium and small combinations and allocated (based on real revised estimate) to each school once the revised estimate become available. However, in this case, one should not bother about utilization of space in vehicles as the objective of such initiative is to match the supply with demand.

- In case of hired vehicles, TAPF can go for a long-term contract to facilitate temporary changes (flexible rack system, temporary insulation materials) in the vehicles to equip them at par with the standard of its own vehicles. This is absolutely necessary in order to prevent food from any external exposure to temperature and contamination. It will further increase cost effectiveness by increasing the capacity of vehicles (may reduce the need of few temporary additional vehicles) and also through better routing system discussed earlier. However, over a period of time, TAPF can attempt to add the required number of vehicles from corporate donations or other funds.

Finally, the case raises the question of increasing the number of beneficiaries in schools and extending similar kind of service to the patients in the civil hospitals. Centralized large scale production is the key success factor for low cost mid day meal. The expansion or use of the existing centralizing facility may cause difficulties in managing and coordinating a large system leading to diseconomies of scale. It makes sense to add another large centralized capacity perhaps at another location to cater to the needs of other beneficiaries. The new location can be chosen based on demand concentration to reduce distance and ensure timely delivery. We believe that continuous improvement and innovation in technology and managerial practices can make the existing model sustainable and a role model of operational excellence. 

## Case Analysis II

### Lalitha Iyer

Independent Researcher & Consultant  
Bengaluru  
e-mail: lalithaiyer13@gmail.com

I have admired the work of Akshaya Patra for many years and the case study gives me a feel of the scale and complexity of the task undertaken by them. The description and the data are indeed stimulating. I offer here my reactions and response from three interconnected perspectives – managerial, system dynamics, and political economy.

### Managerial Issues

The sheer scale of the task at hand – cooking and distributing good quality nutritious lunches for 2,30,000 children per day in Gujarat – is humungous. Akshaya Patra has developed an efficient ‘production’ system.

The manager’s first interest would be in fixing the parameters to determine the right or an appropriate scale for a central kitchen. For instance, the kitchen in Gandhinagar feeds 1,50,000 and the one in Vadodara feeds 80,000. Does this indicate that Gandhinagar should have two kitchens in different locations instead of one? Is there a modular structure in the production arrangements? Can the activity be organized so that each kitchen can be a chain of sub-kitchens capable of cooking for 10,000 each?

Inventory management, supply and distribution systems are the other major elements that the operations manager will have to focus on.

In the case study, there is no mention of IT applications for managing the indenting, transport, and other logistics. Simple SMS-based indenting systems can be easily developed and deployed. With most government schools now provided with computers, internet and e-mail can also become the basis for reducing delays in information flows.

The procurement and storage arrangements for grain and other inputs as well as the leftovers can surely be reviewed from the perspective of theory of constraints to identify bottlenecks and improve throughput.

Benchmarking with the distribution arrangements of hos-

pitality services like Sodexo’s onsite services (formerly Radhakrishna Hospitality Services) or airline caterers can reveal opportunities for cost savings through planning, packing, moving, and recycling.

The financial manager would have to focus on fund raising to meet the gap between the cost and the resources provided by the government. Fixed costs for adding or extending kitchens can be met through larger donations. Meal sponsorship programmes can also be expanded.

All this arises from a desire to do more of the same, more efficiently.

### System Dynamics

The rapid expansion in the scale of the programme indicates that the system dynamic is typically a ‘limits to growth’ archetype. We may anticipate balancing loops either from within or from the external environment.

The larger the programme, the greater the need to find the money to bridge the gap between the actual costs and the combined resources generated by the state and the central government. Another internal loop can be the effectiveness of operations management. Beyond a limit, the programme may spin out of control unless the middle management is exceptionally effective.

External balancing loops can be government’s policies or adverse propaganda about the ‘religious overtones’. The brand building strategy should strike a balance, giving adequate recognition to the government funding and the effective service delivery by Akshaya Patra.

Problems crop up when a major financial contribution for a service comes from the government. For example, the Health Management and Research Institute (HMRI) set up the telemedicine call service (104) and the expansion was rapid. The crash too was equally dramatic because the workforce increased rapidly; soon the employees began to see themselves as government officials and demanded state government salaries. Many questions were also raised about flouting of recruitment guidelines on

equal opportunity, reservations for scheduled castes and tribes, and payment of statutory benefits like provident fund.

The leadership should anticipate and plan ahead to reduce the impact of such balancing loops and similar risks.

### Political Economy

Given the nature of the activity with long-term implications for nation building, the leadership must examine the role it is playing vis-à-vis the state.

The government is bound by law to offer mid day meals at all schools for which budget is allocated by the state and central governments. Akshaya Patra has certainly shown how these operations can be managed. It also has a desire to expand further. By taking the problem off the hands of the government at least in urban and peri-urban areas, Akshaya Patra offers the government an easy escape.

The urban formula for success is not applicable in rural areas. Thus the rural areas are allowed to struggle. This is again a political issue.

Further, in a state like Gujarat which is highly polarized along religious lines, the dependence on one large faith-based organization may draw criticism.

### Recommendations to Akshaya Patra

Shri Jaganmohan Krishna Dasa, President of TAPF, and his team would like to take the programme to rural areas. Besides, there may be certain groups of adults who would need these services – e.g. patients in government hospitals, train travellers and so on. A faith-based charity like TAPF should certainly make all efforts to meet their requirements. Here are some ideas for TAPF on how to go forward:

- Identify an appropriate kitchen and distribution network design for feeding 10,000 persons. Any location can be served in multiples of this unit. It would be ideal to introduce these units at the block level to serve 30 to 50 schools
- Develop a model on the lines of franchising
- Invite School Management Committee federations, cooperatives, or SHG Federations and train them to

run these units successfully

- Emphasize the core value that this is a public service and not an enterprise to help community-based organizations (CBOs)
- Maintain central monitoring for quality and efficiency through empowered local committees
- Manage the channel for inputs so that quality and cost are maintained
- Encourage these service providers to mobilize local resources in cash and kind
- Meet costs of building this chain (training, equipment, monitoring, etc.).

An effort to broaden and engage local communities in the activity can lead to the building of a low-cost, freshly-made, locally preferred food supply chain with the Akshaya Patra brand on the line of Amul. The aspiration can be a truly '*desi*' answer to McDonald and KFC! I can envision the square *rotis* from Akshaya Patra taking the nation by storm!

TAPF should watch out for a mission drift from a charity providing a much needed service using budgetary provisions to a commercial venture. Social enterprise is a popular idea today. Conflicts arise when a surplus is generated from operations and a desire sets in to reward promoters. This is usually the trigger for a major backfire – the SKS Microfinance public issue and the decline and fall of microfinance thereafter is a recent example.

I offer a well-known folk tale as the last word.

There once lived a *sadhu*, devoted to prayer and meditation. He lived in a small hut on the edge of the forest and the village folk came in to pay their respect. He offered no miracles, no cures, and was therefore not a famous godman. One day, he looked tired and the villager who came by discovered that he was plagued by rats at night but did not want to set a trap. The thoughtful devotee presented him with a small kitten which would one day become a big cat much feared by rats. It was a tiny kitten in need of milk, and so, the *sadhu* soon acquired a cow. The cowshed had to be cleaned and the cow be cared for, and so, before long he found a wife and was well into the perils of *samsara!* 