Food Security in India- A Logistics and Supply Chain Challenge

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Food Security in India

The World Food Summit of 1996 defined food security exists when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life. Commonly, the concept of food security is defined as including both physical and economic access to food that meets people's dietary needs as well as their food preferences. Food security is built on, availability of sufficient quantities of food on a consistent basis, having sufficient resources to obtain appropriate foods for a nutritious diet and finally appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation.

The Government of India has launched several initiatives towards ensuring food security to its citizens. They include the public distribution scheme (pds), the mid day meal program for school children, the National rural employment scheme, and several others to help people below the poverty line and also for improving the literacy rates. There are lots of problems with the execution of these schemes by the Governments. At the other end of the spectrum, there are millions of hawkers in all major cities, who are termed illegal traders by the municipalities, serving the food needs of the millions of urban poor and lower middle class. They are self employed serving the needy cause. The whole sector is rampant with corruption and depends at the base on PDS or food coupons etc. What is missing is the integrative, co-evolutionary innovation strategy based on the end to end logistics and supply chain that would lead to high service quality food solutions to millions of people by combining innovations in several of the ecosystem elements and also their convergences.

The Public Distribution System (PDS) is operated under the joint responsibility of the Central and the State Governments. The Central government, through Food corporation of India, has assumed the responsibility for procurement, storage, transportation and bulk allocation of food grains to the State Governments. The operational responsibility including identification of families below the poverty line, issue of ration cards rests with the State Governments. Under the PDS, wheat, rice,
sugar and kerosene, are allocated to the States for distribution. In June 1997, the Government of India launched the Targeted Public Distribution System (TPDS) with focus on the poor.

The Mid-Day Meal Scheme was launched by the Ministry of Human Resource Development (Department of Education) with effect from 15th August, 1995 for the benefit of students in primary schools. It involves provision of lunch free of cost to school-children on all working days. The key objectives of the programme are: protecting children from classroom hunger, increasing school enrolment and attendance, improved socialization among children belonging to all castes, addressing malnutrition, and social empowerment through provision of employment to women. The Scheme presently covers students of Class I-VIII in the Government Primary Schools / Upper Primary Schools/ Schools aided by Govt. and the Schools run by local bodies. The Department of Food & Public Distribution makes allocation of annual requirement of food grains under the Scheme to Department of School Education & Literacy, Ministry of Human Resource Development. 120 million children are so far covered under the Mid-day Meal Scheme, which is the largest school lunch programme in the world. Allocation for this programme has been Rs 4813 crore in 2006-2007.

The State of Karnataka introduced the provision of cooked meals in June 2002. It has successfully involved private sector participation in the programme. One of the successful of the ventures is Akshaya Patra, which started with leadership from ISKCON in the Bangalore community. The Foundation gets a corpus from the State government but meets a major share of its costs with donations from private corporations and individuals in the city. The programme is managed with an ultra modern centralised kitchen that is run through a public/private partnership. Food is delivered to schools in sealed and heat retaining containers just before the lunch break every day. The programme contains one of the best menus in school meal programmes in India with tasty sambar, rice, vegetables and some curd on most days.

Naandi Foundation is one of the largest and fastest growing social sector organizations in India working to make poverty a history. In partnership with state governments and through corporate donations Naandi runs several automated central Midday Meal Kitchens across the country. These kitchens prepare and deliver high-nutrition noon meals to lakhs of underprivileged children every day.

National Rural Employment Generation Act (NREGA) is an important Central law having a large demographic and geographical spread. It assures livelihood guarantee to the entire population
above 18 years of age residing in rural areas of the country. The act gives the right for 100 days of guaranteed employment in manual/unskilled work in rural areas. During 2008-09, Rs.27,137.87 crores was spent creating 216 crore days of employment for 4.5 crore rural households. Of all the wage seekers, there are 48% Women, 29% SC and 26% ST community members.

All the three schemes above are very good initiatives but all of them have issues in implementation. The main problems with the system are the inefficiency in the targeting of beneficiaries and the resulting leakage of subsidies. Several opportunities to manipulate the system exist with widespread collusion across the supply chain. The Planning Commission had the following to say on the PDS system in its 2005 report. “For every Rs 4 spent on the PDS, only Rs 1 reaches the poor” The Supreme Court-appointed vigilance committee has slammed the public distribution system (PDS) in the country for "rampant corruption, black market and diversion involving a vicious cartel of bureaucrats, fair price shop owners and middlemen". Similar comments are available in the press for NREGAS and mid day meal programs.

**The Street Food Hawkers:** The lower income groups in the country spend a higher proportion of their income in making purchases from hawkers mainly because their goods are accessible and affordable. Had there been no hawkers in the cities the plight of the urban poor would be worse than what it is at present. In this way one section of the urban poor, namely, hawkers, helps another section to survive. Hence though hawkers are viewed as a problem for urban governance they are in fact the solution to some of the problems of the urban poor. By providing cheaper commodities hawkers are in effect providing subsidy to the urban poor, something which the government should have done. Since hawking is not a licensed activity in most Cities, street vendors face harassment from the police and the municipal authorities. Over the past few decades there has been a substantial increase in the number of hawkers in the major Indian cities. Mumbai has the largest number of street vendors numbering around 250,000. Kolkata has more than 150,000 street vendors. Ahmedabad and Patna have around 80,000 each and Indore, Bangalore and Bhubaneshwar have around 30,000 street vendors. The Cuisines by the sidewalks is a successful story from Kolkata which can be copied to advantage.

Recognition of hawking as a profession would also benefit the municipalities. They would be able to officially enforce levies on hawkers. This would provide additional revenue for cash strapped municipalities. For the hawkers recognition would mean that they have a right to their profession, which would in turn loosen the stranglehold of corrupt officials, policemen and gangsters over
them. They would also be entitled to loans from public institutions thus reducing the hold of
moneylenders over them.

Our Solution: Integrated Supply Chain of the meal program

What is missing is the integrative, co-evolutionary innovation strategy that would lead to high
service quality food solutions to millions of people by combining innovations in several of the
ecosystem elements and also their convergences. The business processes can be identified,
streamlined, standardized and automated or semi-automated using IT and sensor networks.
Modernization and Integration of PDS, midday meal program, vocational training programs under
NREGAS, hawkers, and small food outlets using communication technologies would lead to a
block buster industry serving the poor and creating millions of jobs for not so well educated.
NREGAS can be used for training chefs, cooks, hawker owners, PDS employees, school employees
etc. Standardized and automated kitchens and IT enabled and GPS equipped push carts can be
developed. The push carts can be built following standardized design and equipped with solar or
gas run refrigerators and ovens. The entire process can be monitored, executed and controlled using
a call center. The call center can track the Hawkers, the food packets, the consumption patterns; etc.
and can act as an orchestrator of the entire activity.

Currently the hawkers cook the meals each separately and the mid day meals were cooked and
served in the schools. What is missing is the sophisticated kitchens with Chefs and cooks equipped
with automated cookers, refrigerators, and ovens distributed all over the city which can feed into
the hawkers and the schools. The location and capacity of the Kitchens can be determined using
standard optimization techniques from the demand estimates. Now the supply chain consisting of
the PDS, Kitchens and the Hawkers and the schools participating in the midday meal program
needs trained manpower. The vocational training centers can be funded through the NREGAS to
train cooks, chefs, sales people, servers and millions of other jobs required for the supply chain
operate well, given the perishable nature of the supply chain.
Integrated Food Security plan

Governance of Food Security System
Depending on the demand one can find the optimum number and locations of the kitchens which can serve the school and the community. One can streamline the processes using the sensor networks, smart cards, cloud computing, mobile vans equipped with the heaters and refrigerators. One can use modern kitchens such as the Akshaya Patra and with the help of NGOs and corporate. This new ways of meeting the food security aims will get rid of the prevalent corrupt practices and can be made smart and green.

The Governance model for this supply chain can be worked out with an assemblage of NGOs, Corporate, Government and Associations. Making this work is a challenge but the rewards and impact would be tremendous. It would help to give a new direction to the current system which is corrupt and not working. The new system can be designed using new technologies such as smart cards, wireless, smart kitchens technologies, new designs for push carts equipped with refrigerators and ovens, hygiene indicators and several others. In fact MacDonald’s kind of outlets can be opened to avoid traffic issues with push carts. Some kitchen locations could house.

**The Impact:**

Given the perishable and hygienic nature of the supply chain, the products are made in the day and whole produce ends by the night. This requires careful demand forecasting, routing and rerouting of the supplies and monitoring the anti social activities. The program needs trained logistics and IT manpower and millions of other jobs. Several product and process innovations are needed and there are opportunities for several small and big private entrepreneurs. This is a unique opportunity for people from all walks of life: Governments, NGOs, Big business houses and small entrepreneurs and micro finance and other FIIs to come together to make this program successful.