

DABBAWALAS OF MUMBAI

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Abstract

Despite the current emphasis on high technology for solving complex business logistics issues, a group of largely illiterate Indian entrepreneurs known as *dabbawalas* has been coordinating the delivery of home-cooked lunches to thousands of Indian office workers for over a century. Using *Six Sigma* principles to improve their operations, the dabbawalas have capitalized on the high demand among Indians in Mumbai for food prepared in their home villages. Originated under British colonial rule, the dabbawala system of food delivery uses a hub-and-spoke system of foot, bicycle, handcart, and train-based transport linking local village kitchens to urban consumers in metropolitan Mumbai. For an up-front investment of roughly 5,000 Rupees, a dabbawala can earn an average of 5,000-6,000 Rupees per month. Each dabbawala donates a portion of his earnings to their member association, which invests the funds in community projects and low-interest loans. Known for its ingenious use of simple symbols to coordinate thousands of daily deliveries, the *dabba* system represents a classic example of using a *base-of-the-pyramid* approach to benefit low-income workers and high-income earners alike.

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Dabbawala, India, food, Mumbai, Six Sigma, hub and spoke, mukadams, entrepreneur, logistics, HIV/AIDS, vegetarian meals, Indians, base of the pyramid, emerging economy

DABBAWALAS OF MUMBAI

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1. Introduction

A *dabbawala* is a person in Mumbai, India, whose job is carrying and delivering freshly-made food from home in lunch boxes to office workers. They are formally known as MTBSA (Mumbai Tiffin Box Suppliers Association), but most people refer to them as the dabbawalas. The dabbawalas originated when India was under British rule. Since many British people who came to India did not like the local food, a service was set up to bring lunch to their offices straight from their home. The 100-odd *dabbas* (or lunch boxes) of those days were carried around in horse-drawn trams and delivered in the Fort area, which housed important offices. Today, businessmen in modern Mumbai use this service and have become the main customers of the dabbawalas. In fact, the 5,000-strong workforce (there are a handful of women) is so well-known that Prince Charles paid them a visit during his recent trip to India. Several academic institutions regularly invite the dabbawalas' representatives for discussion, and to complement and enhance their academic content. At times, businesses find it useful to illustrate the application of how such a system uses *Six Sigma* principles to improve its operations.

The main reason people use the service of the dabbawalas is to eat a proper, home-prepared meal during lunch. Office-goers in Mumbai usually leave at 7 am and do not get back until after 7 pm. Most of them commute from suburbs of Mumbai and travel south to the main commercial area of Mumbai. The railway network during the peak hours is jam-packed with commuters hanging on the trains with one hand. Thus bringing one's lunch at that time is not feasible. Commuters need to use one hand to hang on from the trains and hold on to their briefcases with their other hands. Most of the commuters cannot afford to eat outside every day. Offices often do not provide a canteen or cafeteria service for their employees. Eating on the roadside is unhealthy and unhygienic. Plus, the Indian diversity of food habits makes it very difficult to answer the specific need of each employee at the office canteen. By delivering to each employee his tiffin or lunch filled with food prepared at his home, the dabbawalas solve the problem for an estimated 200,000 people. They charge between Rs. 150 to Rs. 300 (roughly 3-7 USD), per dabba per month, depending on the location and collection time.

2. How it works

During a dabba's journey from kitchen to consumer, it is handled by between three and twelve different deliverymen. For a dabbawala, the day begins at 9 am, with an hour spent collecting all the 20-25 dabbas in his area. He will have a pre-assigned set of homes under his area. He will either walk or travel on a bicycle to collect the lunch boxes. The households are expected to have the lunch box ready when he goes for collection. After the collection, he will go to the local train station (see Exhibit 4 for a map of the railway network in Mumbai) where he gathers with the other dabbawalas of his area. At the departure station, the dabbas will be shared out according to their next destinations. A detailed and elaborate codification process facilitates this sorting (see coding of the boxes in the next section).

Next, the dabbas are sorted according to the next train station and are handed off to the dabbawala who is responsible for that particular station for delivery to the final destination. By using a hub and spoke method, the dabbas are sorted and handed over to the next dabbawala who happens to be going to that particular area of the city. Based on which section of the area dabbas need to go, they are then distributed out to appropriate dabbawalas. For some of the areas where there are a large number of dabbas to be delivered, two or three dabbawalas are assigned who use a hand cart to push these to their respective owners. So by the time 12:30 pm rolls around, these dabbas are delivered to the appropriate owner, who at that point can enjoy a home-cooked meal. By the time a dabba reaches its final destination, it will be handled by four dabbawalas. It will be the same for the return of the empty dabbas after lunchtime. The same dabbawala who delivered at the offices of a specific area will collect them and reach the closest station. Then the same sharing-out will start again until the dabbawala of the residence area has gathered his 25-30 customers in order to begin his return delivery (see Exhibit 2 for a Process Map).



3. Organization Structure

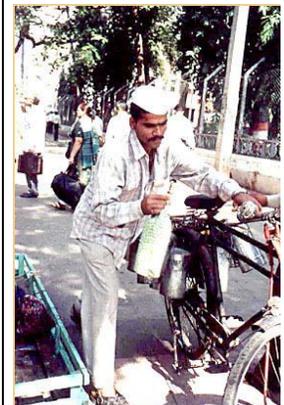
The Mumbai Tiffin Box Suppliers Association (MTBSA) is a streamline 120-year-old organization with 4500 semi-literate members who provide quality door-to-door service to a large and loyal customer base. MTBSA is a three-tiered organization: the governing council (president, vice president, general secretary, treasure and nine directors); the mukadams; and, the dabbawala (see Exhibit 1 for the MTBSA Organization structure). MTBSA is also the uncontested institution that regulates activities of all the dabbawalas and solves possible conflicts between them or with customers or authorities. It also has the authority to fire "bad" dabbawalas or give fines to those who commit errors repeatedly.

The dabbawalas are divided into sub-groups of 15 to 25, each supervised by four mukadams. Each group is financially independent but coordinates with others for deliveries. The service could not exist otherwise. The process is competitive at the customers end and united at the delivery end. Each group is also responsible for day-to-day functioning. And, more importantly, there is no organizational structure, managerial layers or explicit control mechanisms (see Exhibit 5).

Apart from commitment and dedication, each dabbawala, like any other businessman, has to bring some capital with him. The minimum investment is two bicycles (approximately Rs. 4,000), a wooden crate for the tiffins (Rs. 500), at least one white, cotton *kurta-pyjama* (Rs. 600), and Rs. 20 for the trademark Gandhi *topi* (hat).

On average, one dabbawala can earn anywhere between Rs. 5000 to Rs. 6000 each month. Out of this, he contributes Rs. 15 per month to the association, which spends the money on community work, loans and providing venues for marriages at a discount.

Meetings are held every month to discuss customer service, investigate complaints from customers and solve other disputes within the organization. If a customer complains of poor service, the



association can shift the customer's account to another dabbawala and no one is allowed to undercut each other.

Dabbawala Community

The dabbawalas come from the rural area of Maharashtra, about 200 kilometers east of Mumbai. They are the descendants of soldiers of the legendary Maharashtrian warrior-king, Shivaji. They belong to the Malva caste and arrive in Mumbai from places like Rajgurunagar, Akola, Ambegaon, Junnar, and Maashi. They believe in employing people from their own communities and village elders recommend a relative from their village. They belong to families of small farmers and still work in the fields from time to time. Most of the dabbawalas leave Mumbai at harvest time, stopping the delivery service for a week. The trainees, coming from the villages, always belong to the family of an older dabbawala who will take care of the training.

The dabbawalas see themselves as migrants. Their wives, children, and older parents actually live in the villages where the men go visit about every three months since the journey is long and expensive for them. In Mumbai, they are a community of males only, living disseminated in the city slums or *chawls*. There is no idea for returning back to villages for these dabbawalas unless they are sick or have an accident, or are coming home for retirement.

Dabba Markings

The dabbas or the tiffin (lunch box) is a cylindrical box made of tin or sometimes aluminum. The "address" of the customer is painted on the top by the dabbawala. The coding system "speaks" to its bunch of illiterate workers who provide cheap labor and a committed workforce. The code, which is painted on the dabba top, is restricted first by the size of the top itself – six inches in diameter. The codes use color, dashes, crosses, dots and simple symbols to indicate the various parameters such as originating suburb, route to take, destination station, whose responsibility, the street, building, floor, etc. The work is known for its ingenuity, special codes and markings. For example, a "3" marked at the centre of the dabba indicates the destination, Nariman Point; "12 MT 7" in red along the sides indicates 12th floor, office number 7 at Mittal Tower; and "10" at the bottom means that it has to be unloaded at Churchgate. The "K" adjoining the "10" stands for the suburb Kandivili, the home of the dabba. In a city where the names of roads and even buildings change often, the dabbawalas have their own names and identifying marks. Apeejay House near Churchgate station is known as "*Zendka*" office and SNDT university buildings as "*Khamba ka*" office because both of them have flag posts. The Life Insurance Corporation office at Nariman Point, because of its curved structure, is identified as "*Vakda*," and the Income Tax offices at Marine Drive, because of its red color, is known as "*Lal*" (red).



The dabbawalas do not need to know the precise home address since they know the address in the collection area by heart. If a new customer appears in his area, the dabbawala will do the complete journey to check the address of delivery and check with other colleagues to see who has a free place in his crate to add one more dabba. Once the chain has been established and all the necessary stops for exchange decided, the address on the dabba is marked. (See Exhibit 5 – Markings of a dabba)

4. Sustainable Enterprise

A sustainable enterprise is one that is aligned and coexists with society, the environment, and financial opportunities in the marketplace through models and systems of strategy, leadership, innovation, and technology. Keeping this definition in mind, the dabbawalas of Mumbai operate a business enterprise that provides financial opportunity for migrant workers, and coexists socially by providing a service to large number of customers in Mumbai and is environment-friendly. This enterprise is probably the most environment-friendly, with zero percent fuel usage, using existing public transportation, bicycles and handcarts to get the job done.

The operations that dabbawalas are running are a very good example of how the *base of pyramid* is being used to help people in that same segment (see Exhibit 6 – Base of Pyramid). They are

providing employment to low-income members of the community and using the cheap labor to deliver lunches.

5. Critical Success Factors

What is the secret to the dabbawalas success? 5,000 dabbawalas make about 400,000 transactions per day for a cost of \$4 per month, per dabba. The defect rate is as low as 1 in 6 million!

The success of the operation, in six sigma terms, lies in the extreme certainty and predictability of the operation, coupled with an equally simple design. Repetitive/predictable transactions with high visual content get mastered by human minds rather easily. Practically nothing changes for months in the entire course of operation, except an odd addition/deletion of containers and maybe a few persons. The number of variables (effective *defect opportunities*) is kept to a minimum. The only processes involved are sorting, loading, and unloading and they don't need any technology or qualified personnel to operate.

Although the number of transactions per day is large, each person handles a limited number of transactions at a time. In addition, the dabbawalas typically do not deliver to the exact office of the client. Instead, they deliver it to the floor or the wing of the building and the client identifies his dabba from the lot based on his personal markings on the container, and puts it back in the lot after lunch. This shortens the address and error opportunities. The external container that houses the lunch box inside is of standard shape & size. The containers are placed in a single file in a wooden crate with the lids of the entire lot visible. Also, the dabbawalas never lose custody of the wooden crate throughout the delivery process, although they use two to three modes of transportation. In addition, the contents of this consignment are unique in that they are low-cost, perishable goods and hold no value to thieves.

Mumbai is an archipelago of several small islands, off the west coast of the state of Maharashtra, and is the most populous city in India with an estimated population of 13 million. In a way, the city is very similar to New York. The geography of the city is predominantly north-south, with people working in the central part and commuting outward to return home using the suburban rail network (see Exhibit 4). The dabbawalas' elegant logistics system involves 25 km of public transport and 10 km of footwork involving multiple transfer points. Since the majority of the journey involves public transport, the meticulous timing of the dabbawalas is dependent on Mumbai's extensive suburban rail network. The dabbawalas use the rail network very effectively by employing simple, straight routes, mostly north-south, and limit sorting to a few central points. This is key to the dabbawalas' efficiency and success.

Another aspect critical to the dabbawalas success is the bonding between the dabbawalas. The dabbawalas have a remarkably flat organization with just three tiers. Here nobody is an employer or an employee. Each dabbawala considers himself a shareholder and entrepreneur. The dabbawalas are supervised by mukadams, experienced old-timers who are familiar with the logistics process. They play a key role in resolving disputes, training juniors and creating a bond between the dabbawalas. Most of the dabbawalas hail from the same region, hence, there is a brotherhood built on similarity and trust that cannot be found in the corporate world.

Success of a sustainable development project such as this can be measured in three aspects, namely:

- Environmental;
- Social; and
- Governance.

Environmentally speaking, the process focuses on: reducing energy use and toxic emissions by using public transport; enhancing recycling of materials through using the same dabba over and over as opposed to fast food containers and wrappers, which are typically use-and-throw; maximizing the use of renewable resources; and basically being an *eco-efficient* process. From a social standpoint, the system enhances workplace conditions by providing a good place for

employee development through mentorship and trust. In addition, the dabbawala business model is philanthropic in nature. Governance is achieved by instilling ethics, values and principles in employees and by holding employees accountable at all times. For example, by firing irresponsible employees immediately, the dabbawalas set strong examples of ethical decisions.

6. Challenges

In an emerging economy like that of India, a sustainable enterprise like the dabbawalas face several challenges. From a managerial standpoint, it is critical to maximize employee engagement and performance, and to get the most out of a varied workforce so they work as a team. It is important to realize that while financial benefits certainly play a role in influencing employee performance, a key factor is intrinsic motivation, i.e. doing a task simply for the challenge involved. However, this is easier said than done. In a country where the economy is booming at ten percent per year, and inflation rising at five percent, it is tough to retain a workforce and keep workers from job-hopping. It is human nature to want more and to “keep up with the Jones.” The dabbawalas are no different. That said, the dabbawala management has thus far done an amazing job of creating a “great place to work” atmosphere, where employees trust the people they work with, take pride in what they do, and enjoy the company of each other. The dabbawalas find their jobs challenging and meaningful. Although this seems very basic, corporate America, and the world, for that matter, has missed the essence of “work.”

In developing economies, pollution, poverty, and depletion of natural resources affect businesses, and present challenges, especially to sustainable enterprises. The dabbawalas depend heavily on public transport infrastructure. As India’s population continues to increase, it will bring about more pollution from motor vehicle emissions, and create stress on existing road networks. This could affect the delivery times. In addition, Mumbai has inclement weather during the monsoon season which usually is a harbinger of disease. This creates difficulties for the dabbawalas in making sure the food is transported in a safe manner from a sanitation standpoint. Over time, as the dabbawala clientele increases, their challenge lies in developing strategies to cope with increasing population, disease, saturated infrastructure, and greater expectations.

The times have changed as well. Ever since Prince Charles’ visit to India, the dabbawalas have become celebrities, often appearing on primetime TV shows like *Deal or No Deal* (See Exhibit 7). In the past, they were just another lower-class business. Now, their representatives give talks at top Indian business schools. It is easy to let success go to your head and get enamored with money. Currently, the dabbawalas charge a very meager amount in return for their services. However, with increasing labor costs, transportation costs, and salary expectations, the dabbawala management has a tough road to traverse ahead of them. They need to ensure that there are no rifts between management and the workforce, no labor strikes and to keep that bond between them very strong.

Times have changed, but the dabbawalas have kept up with the changes. Today’s lunch boxes are sleeker than the huge, unwieldy aluminum boxes of the past. During the 1980s, it used to be Rs. 50, but today the rates are Rs. 250 per dabba. But certain things have not changed – the dress, the dedication and the punctuality. However, India’s burgeoning middle class is on the fast track to Westernization. It is considered fashionable to eat lunch at McDonald’s or Pizza Hut. It is a fad to spend a few hundred Rupees at a *coffee pub* in the afternoons and, yes, it is old fashioned to eat lunch from a box (be it plastic or aluminum) at your desk. After all, even an ordinary call center representative at Dell for example, earns about Rs.15000, and some of these employees are college students looking for extra money to spend on food, alcohol, movies, and the like. Will the dabbawala service lose its importance and charm as people start to eat out and prefer fast food to home-cooked food? The dabbawalas disagree. According to an interview with the daily *The Hindu*, veteran dabbawala Jayasingh Ghorpade says: "Let the youngsters eat junk food. Our targets are the office and factory workers. Occasionally, they may stop our services and opt to eat at the canteen/restaurant. But in three months or less, they are back."

7. Conclusions

The dabbawalas are an incredible team. They have survived for over one hundred years, through wars, through political crisis, the technological craze and the Blackberry revolution. But they are still intact. They have a record of no strikes against management in a socialistic country such as India, and they are always on-time, even through the rainiest days on the planet. Their creativity and ingenuity have kept them alive. When telephone services were at a premium in India, the dabbawalas encouraged housewives to use their system to communicate with their spouses by placing little chits inside their boxes. The husbands enjoyed the chits as much as the food. Thus, the dabbawalas were able to “think outside the box” and broaden their capabilities given very limited infrastructure.

More recently, on December 1, 2005, when Mumbai office workers opened their lunch boxes, they were in for a surprise. They found a variety of HIV/AIDS-prevention messages because it was World AIDS Day. The Health Communication Partnership implemented this innovative program by working with the dabbawalas to reach several thousand workers a day. In addition, 5,000 dabbawalas wore red ribbons on their shirts to show their support for AIDS prevention and cure. The commitment that the dabbawalas have shown towards advanced diseases like AIDS is exemplary, given that most of these workers are supposedly illiterate. The media was also mobilized to support and promote the dabbawala program. Radio City FM 91 encouraged people to wear the red ribbons and to SMS CARE signifying their commitment to the fight against HIV/AIDS. Radio City FM also broadcast programs addressing myths and misconceptions around HIV/AIDS, interviews with a medical doctor on frequently asked questions about HIV/AIDS, interviews with the dabbawalas, and interviews with people living with HIV/AIDS.

The Dabbawalas have also embraced technology. On March 25, 2006, the dabbawalas went online with www.mydabbawala.com. The event was covered by every major TV channel in India. The website will not only enable potential customers to know more about the system and become members, but give existing customers an opportunity to get closer to their dabbawalas by giving suggestions and improving the process. Speaking on the occasion, Mr. Raghunath Medge, president of the dabbawalas said “We want to take full advantage of IT to improve processes and provide new services like getting pizza or ice-cream delivered to your desktop.” One can even buy dabbawala memorabilia on the website.

The dabbawalas have also inspired entrepreneurs to follow in their footsteps. In 2004, a San Francisco native, Kavitha Srivathsan, began as a hobby a homespun operation of delivering home-cooked, vegetarian meals during lunch for \$6 per meal. Her husband and a few close friends would perform the job of delivering the hot lunches. In no time, her business became so popular that she decided that she could no longer run it from home. She had to make it a legitimate business, rent a kitchen and hire cooks. Since India is a large country and Indians tend to favor cuisine from their own region, she hired cooks from different parts of India. Customers click on her website (www.annadaata.com) and can choose from several different Indian cuisines, pay for the meal with their credit card, and home-cooked, healthy food in recyclable containers is delivered to their desktops.

The dabbawalas have become icons of hard work and dedication. They are here for the long haul and over time will only get better. It is no doubt that Prince Charles had words of praise for them during his visit to India. He must have wondered if they could deliver home-cooked food for him from the Buckingham Palace. Well, given proper transport arrangements, the dabbawalas might have done that too.

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EXHIBITS

Exhibit 1 –

Organizational Structure

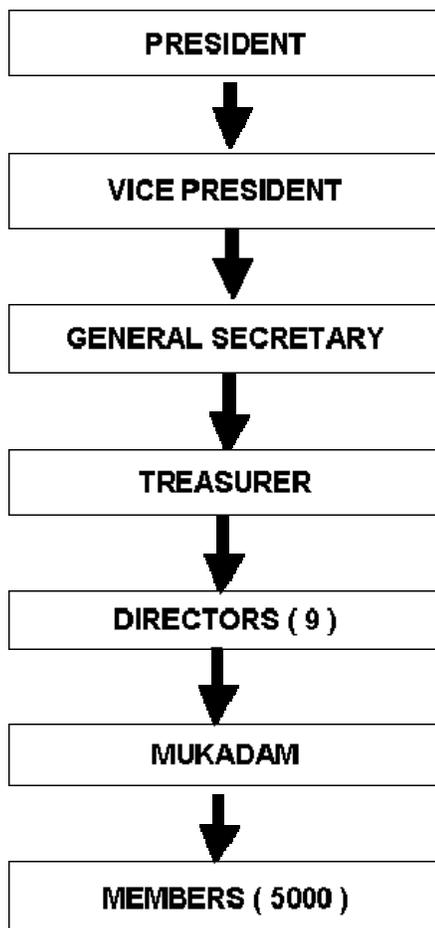


Exhibit 2 - The Process

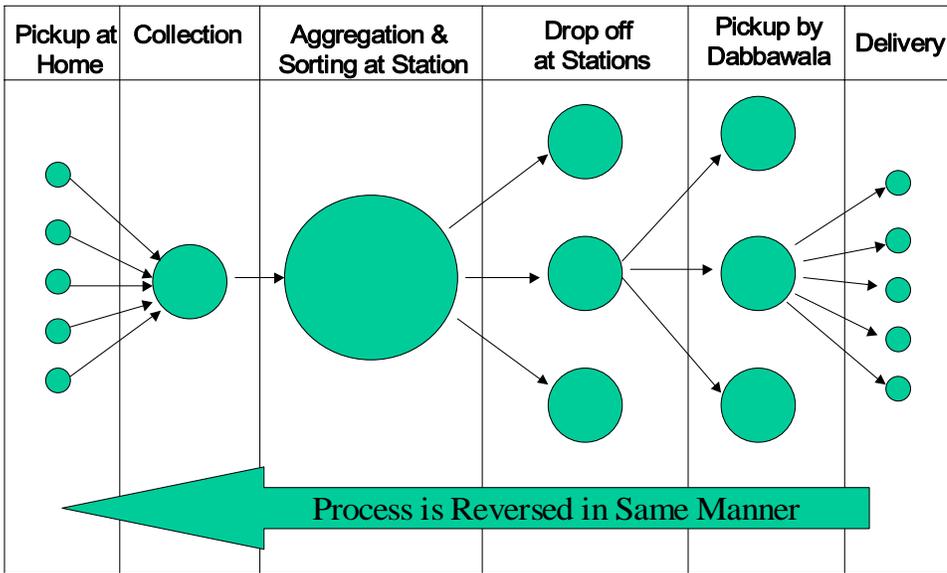


Exhibit 3 - The Map of India



Exhibit 4 - Map of Suburban Railway Network in Mumbai



Exhibit 5 – Markings of a Dabba

| | |
|-------|--------------------------------|
| VLP | Vile Parle (suburb in Mumbai) |
| 9EX12 | Code for Destination |
| EX | Express Towers (Building name) |
| 12 | Floor number |
| E | Code for residential station |
| 3 | Code for destination station |



Exhibit 6 – Base of Pyramid

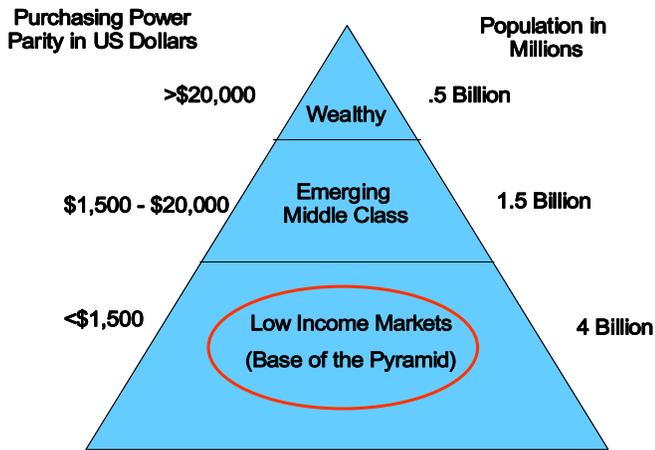


Exhibit 7 – Dabbawala on the TV show 'Deal or No Deal'



Exhibit 8 – Salute to the Dabbawala

A home-cooked warm lunch
Delivered to office workers in Bombay
Six days a week, always on time
Never late, never fails rain or shine
Dabbawala has delivered for 114 years.

From 70 kilometers or less
Hot meal is picked up at your home
At a given time, no delays, no excuses.
Group of 20 arrives at the station
To catch 10 15 commuter to Bombay.

Each Tiffin box is destined
Color coded, assigned and routed
Delivery man ready to collect his 40 boxes
At Bombay Central with head pad, or a hand-cart
To weave through the crowded streets at 11 20.

He walks without stopping, through traffic lights
One way streets, sidewalks, and alleys
Balancing his load of 70 kg on his head
Up the elevators, on the stairs, through the doors
To arrive on 12th or 15th floor at 12 30 p.m.

Last Tiffin delivered, he rests in a stairwell
To eat a meager lunch from his home
Chat with his fellow workers until 2 00 p.m.
And starts on return journey collecting empties
To bring them back to station to catch 3 15.

He may be 15 to 85 years old and
Has only 8th grade education.
He works for himself in the only coop
Owns equal share with 5000 members
Delivering and returning 400,000 tiffins a day.

He charges \$6 per month for service
Pays \$3.00 for a railway pass
And 35 cents to coop for admin
Takes \$100 /month home
To support his old parents and family.

He has no insurance, no high tech backup
No paperwork, no contracts, no retirement
He remembers his clients by the name, the face
The building, the floor, and the room number.
If he is no show, client goes hungry.

If he is sick, someone else takes his place
A few elder managers supervise
When trains don't run, he has a day off
He does not own a wristwatch
But MBAs study his time management.

Simple, down to earth men devised the system
That has worked for hundred years
With error rate of 1 in 16 million
Now in this world of high tech management
Everyone wonders how they do it?

Six sigma award recognized Dabbawala
Next only to the Motorola.
Mumbai Dabbawala met Prince Charles
But only at 11 20 am at Bombay Central.