CHAPTER-1

INTRODUCTION

1.1 INTRODUCTION

Krishna Rajendra Market (K.R. Market) is one of the oldest markets in the city and the first place to be electrified in the country. K.R. market is a hub for dealers and merchants of grains, vegetables, fruits and flowers. Over the years, the market has become congested, messy and is in complete disarray due to lack of proper maintenance. Vendors trade their wares on footpaths and abandon the waste at the end of the day. The market generates 80 tonnes of waste daily. Since the vendors occupy most of the space there is no sufficient space for the customers to walk. There is a need to organize the vendor’s location, provide parking space for cars and two wheelers, provide a designated location for dumping of garbage and collection of garbage, provide space for movement of vehicles and goods vehicles and also improve the public transportation facilities in the vicinity. Some of the shops in the upper floors have not been occupied by the vendors and if they had occupied the upper floors there would have been less congestion in the ground floor.

Source: www.google.com

Source: www.google.com
1.2 OBJECTIVE OF THE STUDY

The objective is to study the existing scenario of K.R. Market with respect to vendor location, vehicular movement, parking, movement of people, bus stop & waste management and come up with suitable suggestions so that the movement of vehicle and people are systematic.
1.3 METHODOLOGY OF THE STUDY

The methodology of the study is given below

Figure 1.1: Methodology of Study
CHAPTER-2

HISTORY AND CURRENT SCENARIO

2.1 INTRODUCTION

K.R. Market locally known as city market is named after the King Krishna Rajendra Wodeyar. This market was built in 1921 and it is one of the Bangalore’s oldest markets. The bustling K.R. Market was once a battlefield. Soon after the British occupation of the Bangalore Fort, the battlefield was made a public place. Since the area was a buffer zone between the native town which is at present the Avenue Road and the fort area, it turned into a market place. Since there used to be a platform known as Siddikatte, merchants and vendors from the neighboring villages came here to sell their produce and it soon grew into a big market. In 1921, a new market building named after the King Krishna Rajendra Wodeyar of Mysore was built (Mathrubhumi Yearbook 2014).

Prior to 1920, the existing K.R. Market was a collection of low roofed, narrow zinc sheet sheds. In January 1907, the Diwan and other important officials visited the market and suggested that the municipality should build a new market and that the market should be shifted to a new place as the present location was dirty and unhealthy. Later the members of the Bangalore City Municipality visited the market and also the site where the new market was proposed to be built near Kalasipalyam. In view of the unsuitability of the new site, which was made up of soil formed by filling up of the old fort trench and considering the convenience of the public in general, municipal councilors unanimously decided to improve the existing market instead of building the new one. The members of the Bangalore City Improvement Committee at their meeting on 7/1/1914 took a decision to acquire three low lying unsanitary streets of Siddikatte near the market and include them in the proposed enlarged and improved market. They also decided to acquire a number of private shops adjoining the market. The new market was designed by Sri. Lakshminarasappa on the model of Sir Stuart Hogg Market of Calcutta with certain modifications and was opened on October 11, 1921(Karnataka history.blogspot.in).
Figure 2.1: Old and New Bangalore Map Showing K.R. Market and Surrounding Areas

Source: www.google.co.in/ww team-bhp.com
Figure 2.2: The buffer zone: A photograph of the K.R. Market bus-stand area taken in the 1870s by an unknown photographer

Source: Mathrubumi Yearbook 2014

Figure 2.3: K.R. Market photo taken decades ago by The Hindu's Photographer

Source: The Bean City, S. Srinivas, The Hindu, Tuesday, Feb 22, 2005

Source: www.google.com

Source: www.google.com
The new market building was constructed in 1997 and it is one of the most modern markets in the country. The three storey building has 22 shell roofs and is designed in such a way that sunlight reaches every nook and corner of the building. The new building was constructed at a cost of Rs. 5 Crores and it has provisions like cold storage room, lift and drainage system etc., The cold storage has been under lock and key for the past many years. The structure has a garbage shoot facility from the time the building was built in 1997. A refrigeration system has also been installed to prevent any odour, in case of delay in transporting the muck (www.wikimapia.org). Photos show the vendors selling, ginger, garlic, spices, vegetables, sugarcane etc., in the K.R. Market.

Source: www.google.com

Source: www.google.com
2.2 PROJECT LOCATION

K.R. Market is one of the oldest commercial centres in Bangalore. The market lies in the central part of the city with well connected roads and public transportation. K.R. Market is situated one kilometer away from the Bangalore City Railway Station. Its area extends up to Kalasipalyam Road in the North, Binnypet Road in the South, Mysore Road in the West and Town Hall in the East. The market is located on Mysore Road at its junction with Krishnarajendra road. Figure 2 shows the location of K.R. Market and also the Road Network, BMTC Bus Stand, Pedestrian Subways etc., which are in the vicinity.
Figure 2.4: K.R. Market Location
2.3 CURRENT SCENARIO AND DEVELOPMENTS

The Bruhat Bangalore Mahanagara Palike (BBMP) constructed a new market building more than a decade ago. But still its second and third floors are vacant till today. Krishna Rajendra market is one of the biggest vegetable markets in the city. But the filth and unhygienic conditions make visitors think twice before buying vegetables from there. Recently, more than 10 shops have come up illegally at a vacant plot at the market. Flower and vegetable sellers are ready to do business from the second and third floors of the building. But the BBMP officials are yet to take a decision. Since there is a proper planning, the vendors sit all over the place and sell their goods obstructing the movement of people who come to the market. The shopkeepers and vendors litter the market with garbage because of which the market is dirty. Set back areas of the building are being utilized in an unplanned manner by vendors and for goods unloading. The waste littering is due to the absence of designated dumping space and inefficient cleanliness initiatives by BBMP. The market houses around 500 stalls in its fruits, vegetables and greens sections and around 300 hawkers sell their wares within the market which meets at least 40 percent of the demand for flowers, fruits, greens and vegetables in the city.

On September 23, 2013, the students of Sri Krishna Pre-University and Degree College of ITI Layout embarked on a mission to clean up the K.R. Market premises. Around 980 students removed the piled-up garbage scattered in and around the K.R. Market as a part of the intensive cleaning programme conducted by Bruhat Bangalore Mahanagara Palike (BBMP). Their hard work paid off and at the end of three hours of cleaning, they managed to collect four truckloads of wet and dry waste. This is the third week in a row that a cleaning drive has been taken up in K.R. Market.

A report on 30/11/2013 in Deccan Herald says that the clock tower at K.R. Market has developed cracks. The traders say that a decade old peepal tree has caused the damage. Though the extent of damage appears negligible now, it may lead to the collapse of the entire structure if not repaired say the traders. The BBMP chops off the branches of the tree once in six months, but it grows through the structure again, causing further damage says the trader. When a portion of the building collapsed a month ago, the traders vacated the
building in panic. The officials of Indian Council for Historical Research have suggested that the BBMP can consult the Archaeological Survey of India (ASI) for conservation assessments.

On 23rd December 2013, the BBMP demolished the old gate at K.R. Market to enable a road to be widened. This created a panic the hawkers because they thought they will be evicted. Apart from the gate, an old structure on the left side of the market was also demolished. BBMP officials told that they are demolishing the structures in order to reduce traffic congestion.

A feasibility report for multilevel car parking and some reorganization in K.R. Market has been prepared and being discussed by Venkataraman Associates and BBMP officials. In the BBMP council meeting which was held on Monday, December 30, 2013 the feasibility report was presented. The feasibility report points out the planners failure to predict the future population and demands which resulted in an over-crowded and congested market. Vast area in and around the market is largely left underused. The principal architect says that there are more than 10 problems in the market resulted by lack of planning. Some of the proposed transformations planned for the market are,

1) The old market building would be retained and the space would be better-organised.
2) A dilapidated building in the corner on the west end of the old market building would be demolished to make space for a wider road.
3) The width of the Westside road (continuation of B.V.K. Iyengar road) will be optimized (road will be widened) and a ramp will be constructed on the market side for the multi-level parking.
4) Entry and exit for the underground parking and pedestrians would be well-defined. The garbage dumps and other blockages would be cleared.
5) Hawkers from the streets will be shifted to demarcated areas in the area, in front of the building and beneath the flyover.
6) All the hawkers occupying the 8-metre wide road will be cleared and re-accommodated, and the traffic will be made to flow easily on the road beneath the flyover.

7) A multi-level car parking will come up behind the market on the north-side. An estimated 250 cars can be accommodated in one floor. Five floors have been proposed.

8) A loading/unloading dock will be constructed next to the multi-level car parking on the northside.

9) Existing vendors in this space where the car parking comes up will be given alternative shops to be constructed in the space between old and new market buildings, on the south, northwest and east side of the market.

10) The garbage dumping spots inside and outside the market will be cleaned.

11) A common waste management unit will be installed on east side of the market.

12) Another dumping/unloading spot beneath the flyover will make way for the hawkers plaza.

13) A two-wheeler parking is likely to come up beneath the flyover next to the hawkers plaza.

14) Vendors will have options like fully enclosed shelters, elevated slabs for display purpose and elevated slabs for lockable storage.

15) A small park and some landscaping will be done in front of the old market building.

16) The plan has elevators on the west and north side that gives direct access to the second floor. The report proposes a ‘media city’ and a supermarket as the option for the second floor.

17) The roadblocks in using the basement parking, like garbage dumps and hawkers, will be cleared and the space will be re-organised for optimal use.

When the plan was presented in the council, the council members did not express any opposition. However as of now it is only in a proposal stage, the cost is yet to be estimated. The project will be floated under BBMP not on public private partnership (PPP) says the mayor.
In order to renovate K.R. Market, BBMP officials went to K.R. Market on 17/1/2014 to clear the encroachments but there were vehement protests by the traders. The local MLA intervened and told the BBMP officials to give time for the traders to vacate. The BBMP officials reportedly told the local MLA and the encroachers that the property belongs to the palike and those encroaching upon it have not paid any tax or rent to the civic agency for the past 30 years. They also accused the traders of causing damage to the building and obstructing its improvement. They also told the MLA that the remodeling of the building was necessary to utilize the entire space of the structure. At present, about 1.5 lakh sqft of area is unused and if the redesigning of the structure is done, the entire space could be utilized in the best possible way. Later the palike officials as well as the encroachers agreed to pave way for renovation and evict the encroached portion by Monday so that the work could be started. Photos show the outside view and inside view of K.R. Market and vendors selling various types of goods like flowers, vegetables, pooja items, beetle leaves etc.

Source: www.google.com

Source: www.google.com
KRISHNA RAJENDRA MARKET (K.R. Market)- Problems and Solutions

Source: www.google.com

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2.4 PROBLEMS AND ISSUES

There are many problems and issues that need to be solved in order to make the market vibrant. Some of these problems are listed below,

1) Due to unplanned location of vendors, they sit all over the place obstructing the movement of people.
2) The garbage is littered all over the place by the shopkeepers and vendors.
3) Even though parking is provided in the basement it is not well maintained and it is not sufficient.
4) No maintenance of the building and services.
5) There is congestion near BMTC bus stop.
6) The second and third floors are vacant for the past 14 years which can be used. Vendors complained that some BBMP officials do not want the shops given away because the money will then stop flowing to their pockets.
7) Six months ago there were four illegal flower shops at K.R. Market and now six more have come up.
8) There is a rule that no shops be built in the open spaces left for ventilation but ten shops have come up at these places.
9) Due to lack of shelter the vendors suffer losses.
10) Vendors complained that BBMP employees, police and local rowdies regularly collected hafta from them for allowing them to run their businesses.
11) Vendors complained that BBMP staff collected money from vendors every day and no receipts are given for that.
12) Vendors complained that garbage and vegetable wastes dumped in the market are not carried out every day.
13) Vendors complained that there are mosquitoes, dogs, cattle and rats are all over the place and this poses a serious health threat to shoppers and vendors.
14) Vendors were not willing to use the top floors and if good facilities are provided they told they will use it.
CHAPTER-3

DETAILED ANALYSIS OF CURRENT PROBLEMS

3.1 INTRODUCTION

A detailed analysis was done regarding vendor location and movement, goods vehicle movement, movement of people, parking, garbage disposal, public transportation etc., by making repeated visits to the market. A master plan was created showing the vehicular movement, movement of people, adjacent buildings, vacant buildings etc., Separate drawings showing the current vendor location, current parking spaces, current vehicular movement, existing bus stop etc., were made in order the analyze each of the problems and come out with solutions.

3.2 EXISTING MARKET PLAN

The existing plan shows the K.R. Market Building, Adjacent Buildings and Vacant/Unutilized Land. Since the vendors are occupying most of the places like footpaths, the spaces in and around the market, there is not sufficient space for the people to walk. The movement and parking of the goods vehicles is also not systematic because of which it creates a lot of congestion in the market. Lot of garbage are thrown away by the shopkeepers, vendors and goods vehicles people because of which movement of people is difficult and also there is a bad smell. Photos show the existing condition of the market at various locations like north side, south side, east side and west side. Lot of conflict points are created because the movement of people and vehicle are not segregated.
Figure 3.1: Existing Market Plan
3.3 CURRENT VENDOR LOCATION

Figure 3.2: Current Vendor Location

Area occupied by existing Vendors = 2970 Sq.m
Figure 3.2 shows the current vendor location. The vendors occupy spaces in the south, north, east and also on the west side of the market. The vendors occupy even the footpath leaving no space for the people to move around. The vendors do not sit in a systematic way and also they don’t occupy uniform space. Each vendor occupies space depending upon the merchandise he sells. Most of the vendors sit on the floor which is dirty and badly maintained. There is also no shelter for the vendors during the rainy season as well as in the hot summer. Different photos shows the unsystematic way of seating of vendors, lack of shelter, irregular space occupation etc.

3.4 CURRENT PEDESTRIAN AND VEHICULAR MOVEMENT

Figure 3.3 shows the current pedestrian and vehicular movement which is not systematic because of which it creates a lot of conflict points between the pedestrians and vehicles. The goods vehicle keeps coming to the market to deliver goods and because of the congestion inside the market they will not be able to deliver the goods and move out of the market fast. Since the vendors occupy most of the space in and around the market the pedestrians cannot move freely and they have to wade through the vendor and vehicles. The pedestrians cannot move freely in the market because of lack of space due to haphazard occupation of space by vendors, movement of goods vehicle, garbage dumped everywhere etc.,

Figure 3.4 shows the current congestion points. On the west side of the market there is congestion due to road side vendors on both sides and undefined unloading activities. On the south side (front side) of the market there is congestion due to vendors on both sides, two way vehicular movement and pedestrian movement.
Figure 3.3: Current Pedestrian and Vehicular Movement
Figure 3.4: Current Congestion Points
3.5 EXISTING BUS STAND

There is a public transportation (bus) facility in K.R. Market which has network to different parts of the city, but there is no proper bus shelter for the passengers and the movement of buses is also not systematic. There is a need to provide a small bus terminal with bus shelters and bus bays. Figure 3.5 and the photos show the existing bus stand and the bus movement. Since there is heavy traffic in and around the K.R. Market the haphazard movement of buses create lot of congestion near the market. So the movement of buses should be streamlined, space should be provided for the buses to park and proper bus shelter should be provided. Photos show the buses parked and also their current movement.

3.6 CURRENT PARKING SPACE

K.R. Market has underground parking which is not maintained by anybody. The shopkeepers and the parking contractors say that the building is not maintained and it has been more than 2 years since that building got painted and also the spider webs and garbage are all over the parking place. The parking at grade caused a lot of inconvenience to the incoming BMTC buses. The underground parking can accommodate 250 + two wheelers resolving the congestion caused during peak hours. The parking can be accessed from the upper concourse – the subway. The underground vehicle parking area is dilapidated, stinking and garbage-strewn. Vehicles, which have not been removed for months, are piled in corners, considerably reducing the usable space in the 600 square feet parking lot. In addition to the garbage, the floor is damp with water leaking from the pipes running down the walls. Contrast this with the swanky parking areas in shopping malls and is the reason why shopkeepers in the market are worried. “The area is so filthy and unhygienic that shoppers may not want to come here at all. Particularly during rainy season when the roads are flooded and garbage accumulates, making it hard to take vehicles out of the parking lot. During festivals, it takes around one hour just to get out of the market area. Hawkers occupy most of the pavement at the exit area, making traffic regulation and clearing of garbage difficult. Beneath the pavement is a drain clogged with garbage, visible due to the many missing concrete slabs on the pavement. This garbage flows out onto the roads...
during rainy season, worsening the situation. Moreover, uncovered drains pose huge health and life risks. “The BBMP Commissioner, during his visit seven months ago, had promised that the parking area will be renovated. However, no action has been taken so far”. Unless renovation work is taken up and traffic rules followed stringently, the bustling market area is likely to become redundant in the long run. The 'No Parking' area on S.J.P. Road, stretching from Chandra Bhavan to Masjid area, has vehicles parked most of the time.

3.7 CURRENT SOLID WASTE MANAGEMENT PRACTICE

At present the garbage is dumped all over the place. There is no systematic way of collection, dumping and disposal of the garbage because of which the movement of pedestrians is very difficult and also the market stinks. The vendors who come to sell their goods will leave all their waste at the end of the day without throwing the garbage in the dumpster. During rainy season it becomes still worst. Figure 3.7 shows the places where the organic and mixed wastes are dumped in the market. Photos show the garbage dumped all over the place.
Figure 3.5: Existing Bus Stand
Figure 3.6: Current Parking Space

EXISTING CAR PARKING

LEGEND
K.R. MARKET BLOCKS
ADJACENT OTHER BUILDINGS
VACANT UNUTILIZED LAND

EXISTING UNDERGROUND TWO WHEELER AND FOUR WHEELER PARKING
Figure 3.7: Current Solid Waste Dumping Spots
CHAPTER 4

PROPOSALS TO IMPROVE THE CURRENT SITUATION

4.1 INTRODUCTION

After doing detailed analysis of the current problems, proposals were made for each of the problems. These proposals will help to improve the K.R. Market to a considerable extent. Proposals has been made for vendor location, parking, pedestrian and vehicular movement, bus movement and bus stands and solid waste management. Conceptual designs have also been made for the vendor space and shelter and the bus stand.

4.2 PROPOSED MASTER PLAN

In the proposed master plan the movement of people and goods vehicle has been segregated because of which there will no conflict points. Vendor zones, unloading bays, parking space for goods vehicle, parking space for cars and two wheelers, solid waste site, landscaping etc., has been created in the new master plan so that the movement of people and movement of vehicles is systematic. An unloading bay has been created for the goods vehicles in the master plan which helps in unloading of goods without obstructing the movement of other vehicles. Bus bay has also been created and the movement of buses has been streamlined. Landscaping has been provided on certain areas so that the market area looks beautiful. Figure 4.1 the proposed master plan.
Figure 4.1: Proposed Master Plan
4.3 PROPOSED VENDOR LOCATION IN THE MARKET AREA

Figure 4.2: Proposed Vendor Location
Figure 4.3: Proposed Vendor and Sidewalk Treatments
Vendors have been given sufficient space in the front and on the left hand side of the market as shown Figure 4.2. Since the vendors occupy irregular space, a design has been made as shown in Figure 4.3 which gives not only space but shelter for the vendors. The vendors can also store their goods in the design given. Figure 4.4 shows the view of the ground floor retail shops if the proposals given are implemented. The dimension of the space given for vendors depends on the merchandise sold by the vendors. Each type of vendor will be given specified amount of space in which they can display their goods and sell.
4.4 PROPOSED PEDESTRIAN AND VEHICULAR MOVEMENT

Figure 4.5: Proposed Pedestrian and Vehicular Movement
In the proposal the movement of pedestrians and vehicles has been totally segregated. The movement of vehicles has been restricted to the west side and north side of the market. The east side and south side of the market have been earmarked only for pedestrian movement. The vehicles can enter the underground parking lot from the east side road which has been restricted only for vehicles and there is no pedestrian movement. The goods vehicle which comes to the market can unload their goods and move out of the market without any hindrance and also parking has been provided for the goods vehicle.

4.5 PROPOSED BUS STAND

In the proposed bus stand, bus bays, bus stops, traffic island and little bit of landscaping has been proposed. This will make the movement of buses systematic, the commuters can wait for their buses in the bus stops and there is enough space for the buses for parking in the bus bays. Figure 4.6 shows the proposed bus stand with bus stops, bus bays and landscaping. Figure 4.7 shows the conceptual design and view of bus stand. Two types of bus stop design have been shown in the drawing (Option 1 and Option 2).

4.6 PROPOSED PARKING SPACE

In the proposal for parking, parking has been provided for four wheelers under the flyover and also in the front (south side) of the market. Two wheeler parking has been provided near the bus stand. These parking facilities have been provided apart from the parking facility which already exists in the basement of the market. Only thing is the existing underground parking has to be maintained properly. Parking fee should be levied for the vehicles and the money collected should be used for the maintenance of the parking lot.

4.7 SOLID WASTE INTERVENTION

Two segregated solid waste dumping site for degradable and non-degradable waste has been proposed. The proposed location of solid waste dumping site will facilitate in easy removal because the trucks can come easily near the dumping site. The vendors should be instructed strictly to dump their waste only at these locations and if they dump their waste elsewhere they should be heavily fined and
if they repeat the mistake thrice, they should be told to vacate the market premises immediately by giving one month notice to them. There should be a good Solid Waste Management System in the market so that the market premises remain clean and hygienic.

**Figure 4.6: Proposed Bus Stand**
Figure 4.7: Conceptual View and Section of Bus Stand
Figure 4.8: Proposed Parking Space for Vehicles
Figure 4.9: Solid Waste Intervention

- Segregated dumping for degradable and non-degradable waste.
- Inorganic waste to be carried away by municipal corporation.
CHAPTER 5
CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSIONS
K.R. Market is one of the oldest markets of Bangalore City. The market is facing varied problems like lack of waste management system, improper allocation of vendor space and too many vendors, lack of space for movement of pedestrians, vehicular congestion, lack of parking space for customers who come to the market etc., It is the duty of the authorities to maintain the market so that the more people come to the market to buy the goods. The allocation of space for the vendors should be made systematic so that there is no overcrowding of vendors and also there is space for customers to walk around. The market stinks due to the accumulation of garbage and the vendors throw the garbage all over the place and there is no waste management system in place in the market. More people would like to come to the market because the prices of goods in the market are way cheaper than any other market or place in Bangalore, but because of lack of maintenance people hesitate to come to the market.

5.2 RECOMMENDATIONS
After studying the problems faced by the market, various proposals has been made which if implemented may help to ease the congestion in the market. Proposals have been made for vendor location, parking, vehicular movement, waste management; movement of buses, bus stop design etc., Vendor spaces should be divided into three groups like A, B, C depending on the area. A group will have bigger space then B group and C will have the smallest space. The vendors can choose the space depending upon the merchandise they sell. Vendor should be charged based on the area they occupy. All the vendors should be instructed to throw the garbage at designated places only so that removal of garbage becomes easier and vendors who throw garbage other than the
designated places should be fined heavily and if they repeat three times their vendor license should be cancelled and the space should be given to the other vendor on the waiting list.
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