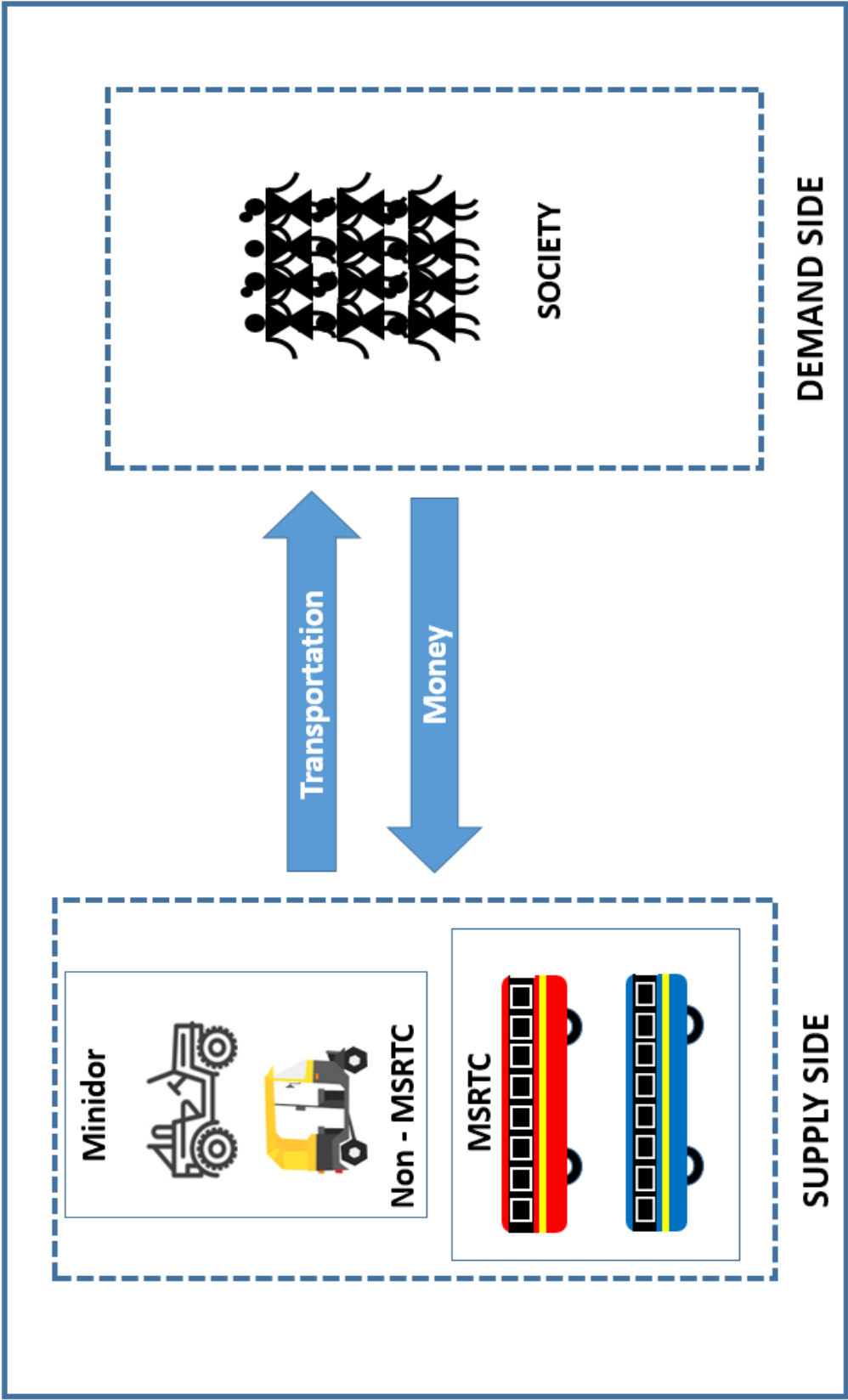


M.T.P. FIELD WORK



Rural Transportation a typical Planning Approach

	A	B	C	D	E	F	G
1	Designation	Task	Input	Output	Used by	Stored at	Stores as
2	Announcer	Announces arrival of Buses	Bus Schedule from MSRTC Portal	Announcement of arrival of Bus, Delay in bus service and inquiry	Announcer	MSRTC Server	Softcopy
3					Passenger	NA	NA
4		Updates the Control chart with the arrival time of the bus	Control Chart	Arrival Timings of Bus service	Depot Manager	T29 Office	Hardcopy
5	Traffic Controller	Assigning duties to the Crew as per Daily Shift Schedule	Daily Attendance of Crew	Daily Shift Allocation Schedule	Traffic Controller	Traffic Controller Office	Hardcopy
6			Shift Schedule Roster		Depot Manager		
7		Revenue Report	Hard-copy of ETIM Daily Revenue data from TRIMAX	Updated Current Month's Updated Table with ABC grading of the Bus Services	Traffic Controller	Traffic Controller Office	Softcopy
8			Last month's ABC Table		Division Traffic Controller	Thane Division Office	
9	T29 Clerk	Maintaining files (Control Chart)	Last month's ABC Table (C8)	Updates Daily Control chart (C4)	Announcer	T29 Office	Hardcopy
10	TRIMAX Staff	Printing reports, Technical Support of ETIM portal	Credentials	Hard-copy of ETIM daily revenue report (C7)	Traffic Controller	Traffic Controller Office	Hardcopy

Typical schematic of Traffic Control Office in Shahapur Bus Depot

Lacunae encountered:

1. Announcer:

There was no proper documentation of delay data on the control chart. And mostly the data was scribbled and hardly legible. Upon asking I was reverted with the same timings as scheduled. There was only documentation of *cancelled bus services*. The data was not reviewed by depot manager or any other authority for retrospection.

2. Traffic Controller:

Process for updating ABC data:

- Obtain the daily revenue data from ETIM portal in hardcopy, provided by cash section to Traffic control office
- Update the daily data on **TRIPWISE_REG_** table of the ABC table
- The summation reflects as **tray earning** in **A-B-C** table
- This summation data along with **schedule number** are written manually in a notebook
- A factor is updated on this notebook in **red ink**

$$\text{Senior citizen multiplying factor} = \text{SCE} / (\text{SCE} + \text{TE})$$

Where,

SCE : Senior Citizen Earning

TE : Tray Earning

- This factor is then multiplied as an excel formula and dragged down
- For each schedule the process is repeated

Comments:

- Amount of drudgery is high because data is coming from Trimax server
- So entire month's data of around 18000 data entries is done by 1 person
- This process takes at least 5 days to complete
- Hence, there is loss of productivity of employee
- Since the entire process takes around a week for analysing previous month's data, analysis doesn't serve the purpose of improving the performance of *C type routes*
- This opens way to *software intervention* that takes the data from Trimax data server and then just leaves scope for entering depot related data
- So real-time monitoring can be done for routes
- Drudgery will be reduced
- A fore-warning mechanism can be set for probable list of B type bus-services that can be in C category in near future

Scene 1:

- “Sir, bagha tumcha ABC cha data kasa aalay!”
Response to this sentence was used as an indicator of willingness and enthusiasm amongst the employees (2 in number) in Traffic control office

Emp1: (*ignored*) despite repeated attempts to bring his attention to the project

Conjecture: If he sees it, this system management doesn't come under his purview as he's responsible for maintaining the communication; he feared that this work will also fall as additional work-load. Hence chose to ignore. No response is neither yes nor no.

Emp2: (acknowledged) "Me baghto thodya velane."

Didn't see the work. "Hyane hi khurchi jail na?"

The underlined sentence highlights the fear/ resistance / apprehension towards automation and insecurity for the job.

Conjecture: As he was not able to understand the system and was quite overwhelmed by the maps; this behaviour is very much expected from an otherwise hardworking clerk of depot.

A major request was put forward by Traffic controller for making a software for managing **Daily Crew Allocation Schedule** to monitor and allocate crew duties to the driver-conductor pair.

Process for allocating duties is as follows:

- The driver-conductor report to the T29 office for signing the register
- Duty is allocated as per roster
- if there is lack of staff then they are asked to do double duty

Comments:

This is a typical system dynamics problem:

- An employee chooses to take holiday as EL
- Employee who reported was asked to do **double duty** on his/her behalf
- The employee put in double duty is in hurry of finishing the second duty as early as possible
- As a result places where bus wait till 11:30 AM the bus arrives at 11:15 AM, picks up the passengers till 11:20 AM and just leaves without waiting (complaint of which was done by a passenger in the office, NO Written complaint was registered)
- This affects the income
- Additionally, this very employee will take EL and the cycle continues

This system when viewed by the new recruits (100 in number) was considered as a **normative workplace behaviour** and they also started taking holidays uninformed

Reprimand Mechanism

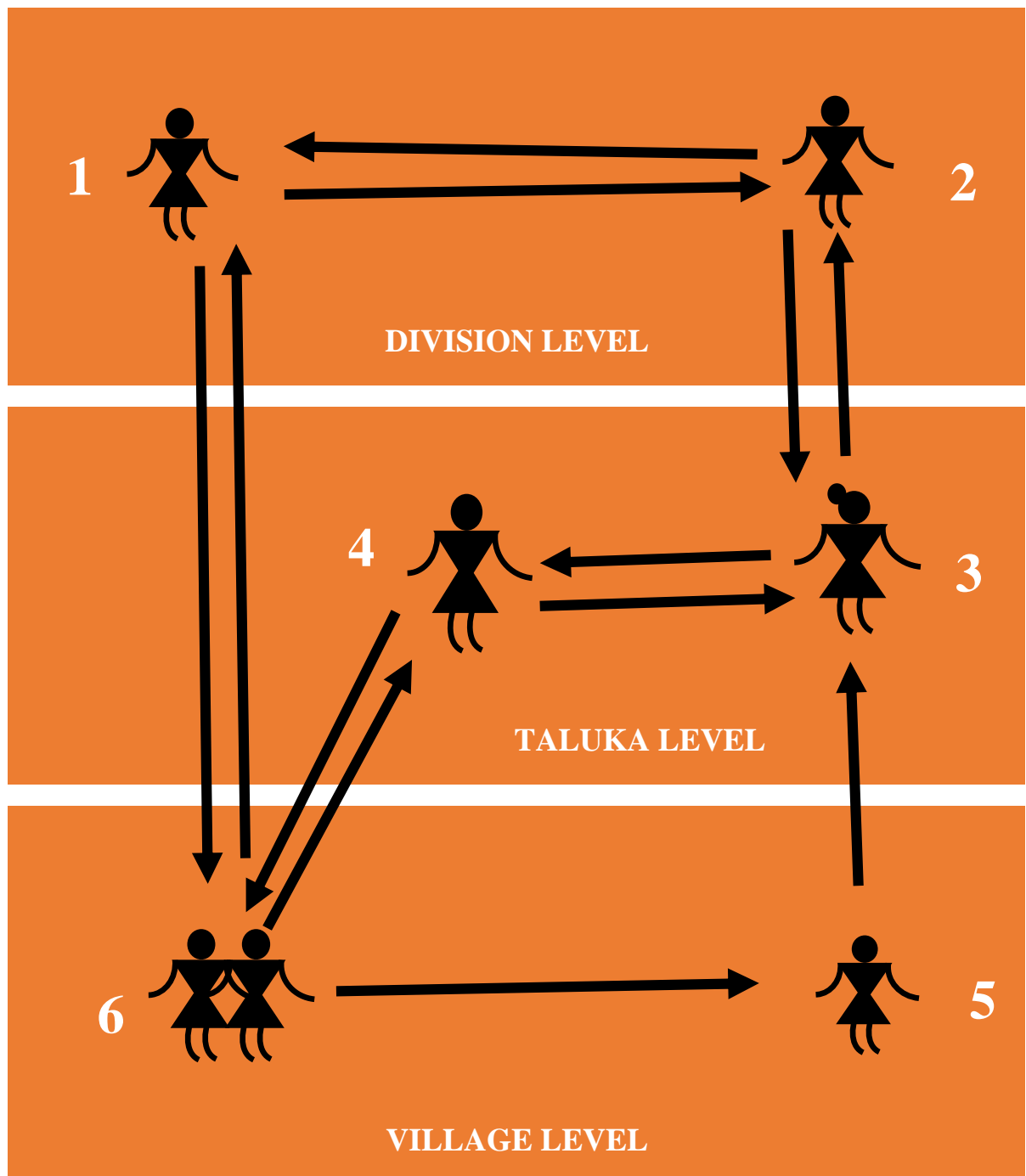
- Depot Manager sits in traffic controller office in the first half and ordeal is taken for reporting Driver-Conductor pair for their behaviour
- No punishment/ penalty is awarded
- Conjecture: Casual sexism and since depot manager is new to the system she is taken for granted by the otherwise senior lot, hence they take her for a ride and the mismanagement continues

Scene 2:

2 men from *Mauje-Adivali* village visited with a letter of approval from **PWD** regarding starting bus service till their village. The reason was 10th class students who wanted to take tuitions from a teacher in Shahapur Taluka. They had:

- Letter from *Gram Sevak* (G.G.P. Manekhind)
- Letter from **PWD** regarding repair of “*Suraksha Bhint*” (*Safety wall*) on the bridge

Earlier also similar request came, which was forwarded by Depot manager to the Division Manager



Here,

- 1: Surveyor**
- 2: Thane division traffic controller**
- 3: Shahapur Taluka Depot Manager**
- 4: PWD Engineer Shahapur**
- 5: Gram Sevak / Sarpanch**
- 6: Villagers/ Society/ Village**

➡ **Represent the communication between the two actors via letter**

This entire incidence brings me to the question:

Who estimates the demand?

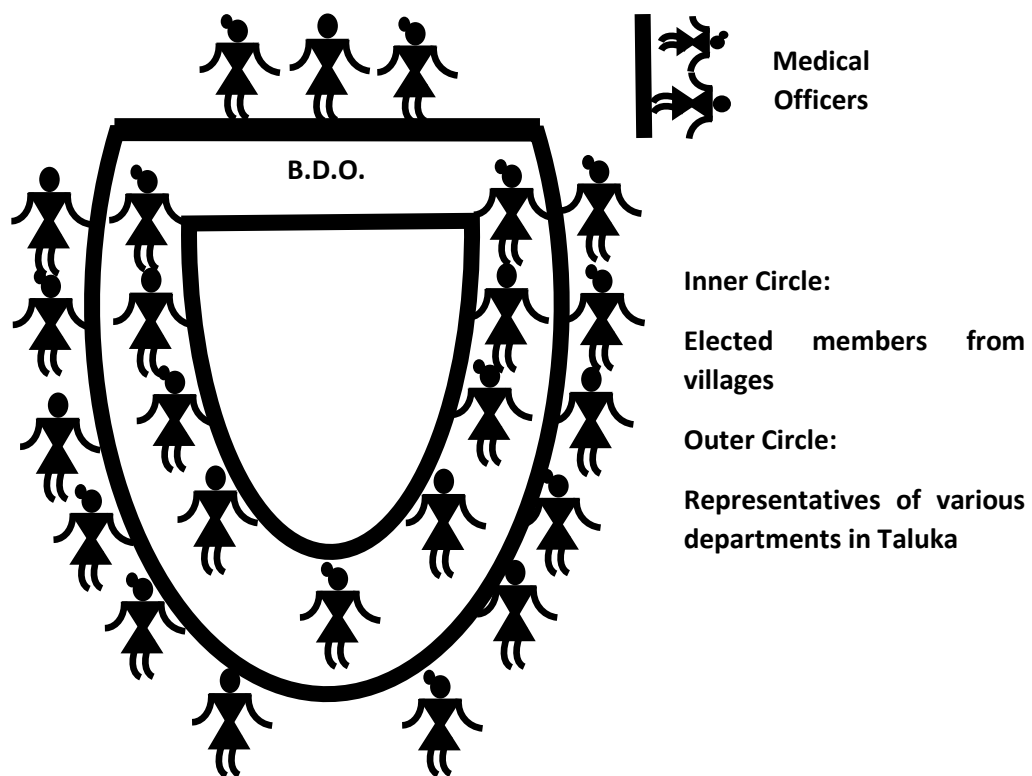
How is that demand estimated?

The answers are:

Demand is estimated by the Division Traffic controller and is estimated typically by taking census data into account.

There is little societal participation in deciding the bus-service timings and route. Hence bus scheduling must be done on participatory basis. Why it is necessary?

Scene 3: Panchayat Samiti Monthly Meeting



A setting of Panchayat Samiti Meeting taken place at 2nd of April 2019

Observation:

- Most of the elected members were women and were busy on their android phones
- Representatives from department were coming one by one on mic and speaking of some numbers
- In case of Bus Depot, Traffic Controller represented Depot manager
- Only details of revenue earned in last month and trips operated was announced
- None of the members questioned

This brings me to the next part of the problem that is Participatory based bus schedule formation because when there will be an agenda of gram-sabha regarding bus then there will be definitely some inputs from people and this will be sent to the BDO by Gram-Sevak.

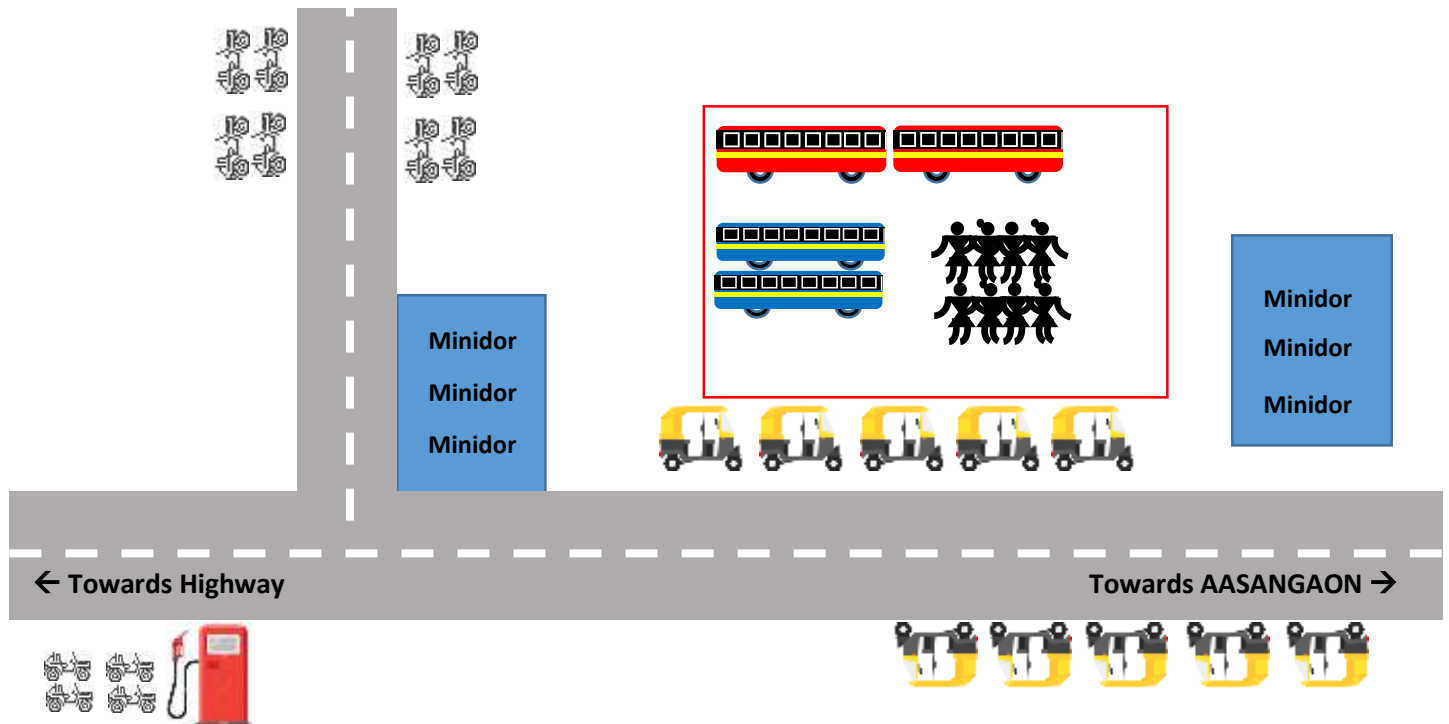
These requests will then be forwarded to Depot manager and Traffic controller can schedule these bus services. Once participatory approach will be implemented people will ask questions in a public forum and the system will automatically become self-sustainable, self-correcting.

Non-MSRTC Transportation Services

The major type of transportation service providers that are prevalent in Shahapur taluka are:

1. Auto-rickshaw
2. Jeeps/SUVs
3. Minidors

Typical plan of Shahapur Taluka Depot and neighbouring areas is as follows:



Summary:

- There are two type of factors that determine service provisioning for a Taluka Bus Depot:
 1. Internal Factors:
Crew Scheduling, unnecessary drudgery of experienced employees, poor leadership and management, poor monitoring mechanism of lossy routes and lack of participatory approach in bus-schedule creation
 2. External Factors:
Lack of infrastructure (like roads, bridge, safety wall etc.), competitors