

Force Field Analysis on Traffic Jam in Dhaka City and Its Impact on Economic Growth in Bangladesh

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Abstract

Under considering the above theoretical concept of force field analysis we have found that the traffic jam in Dhaka City is really great problem and burning issues. Researcher has given efforts to do a force field analysis on traffic jam in Dhaka City. Bangladesh is a developing country and Dhaka is its capital. Most of the economic activities are performed centering on Dhaka City. But the traffic jam in here damages the general flow of people as well as the economic activities. That's why we have got the traffic jam in Dhaka City as an important problem that may have a negative impact on economic growth in Bangladesh.

Keywords (Force Field Analysis, Traffic jam, economic growth, Cross correlation, driving factors, Restraining factors, Strategies, Budget, Action plan, Critical path method.)

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I. INTRODUCTION

Force field analysis is a management technique developed by Kurt Lewin, a pioneer in the field of social sciences, for diagnosing situations. The force field analysis is a widely-used change management model; it works as a diagnostic tool and a powerful decision-making tool during change planning.ⁱ

Theoretical analysis of this study

Purpose:

Force Field Analysis is a general tool for systematically analyzing the factors found in complex problems. It frames problems in terms of factors or pressures that support the status quo (restraining forces) and those pressures that support change in the desired direction (driving forces). A factor can be people, resources, attitudes, traditions, regulations, values, needs, desires, etc. As a tool for managing change, Force Field Analysis helps identify those factors that must be addressed and monitored if change is to be successful.

The Basis of the Tool

The basic idea behind the force field analysis is that a certain given situation remains as it is because of counterbalancing forces, or because of the state of equilibrium between the forces that drive change and oppose change.

In order to promote change, either the driving forces must be strengthened or the forces of resistance must be weakened.ⁱⁱ

Procedure:

Step 1: Defining the Problem

What is the nature of our current situation that is unacceptable and needs modification? It is useful to separate the specific problem from those things that are working well.

Step 2: Defining the Change Objective

What is the desired situation that would be worth working toward? Be as specific as possible.

Step 3: Identifying the Driving Forces

What are the factors or pressures that support change in the desired direction? What are the relative strengths of these forces? Place these driving forces on the chart on the Force Field Analysis diagram as labeled arrows with the length of the arrow reflecting the relative strength of each force. What are the inter-relationships among the driving forces?

Step 4: Identifying the Restraining Forces

What are the factors or pressures that resist the proposed change and maintain the status quo? Represent these forces on the diagram as you did those for the driving forces. What are the inter relationships among the restraining forces?

Step 5: Developing the Comprehensive Change Strategy

The diagram created in steps three and four reflect what could be called a state of quasi-stationary equilibrium. Although this is a relatively stable state, movement can be achieved altering the factors currently contributing to this equilibrium. Change can occur as a result of any combination of the following:

- strengthening any of the driving forces
- adding new driving forces (possibly by transforming a former restraining force)
- removing or reducing any of the restraining forces

Step 5 should also include some consideration of some of the possible unintended consequences when equilibrium forces are altered (e.g. increase resistance, new alliances, fear, etc.).

Lewin assumes that in any situation there are both driving and restraining forces that influence any change that may occur.ⁱⁱⁱ

Driving Forces

Driving forces are those forces affecting a situation that are pushing in a particular direction; they tend to initiate a change and keep it going. In terms of improving productivity in a work group, pressure from a supervisor, incentive earnings, and competition may be examples of driving forces.

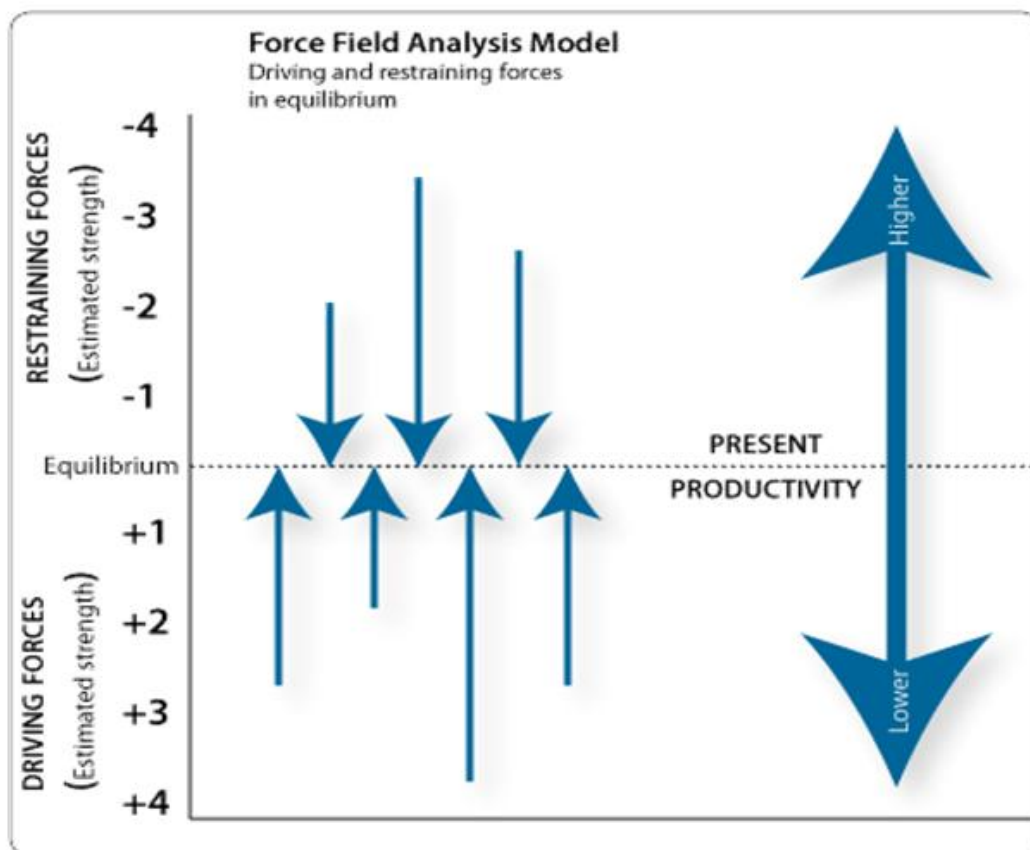
Restraining Forces

Restraining forces are forces acting to restrain or decrease the driving forces. Apathy, hostility, and poor maintenance of equipment may be examples of restraining forces against increased production. Equilibrium is reached when the sum of the driving forces equals the sum of the restraining forces. In our example, equilibrium represents the present level of productivity, as shown below.

Equilibrium:

Now a new equilibrium at a significantly lower productivity is faced by the new manager. Now just assume that our new manager decides not to increase the driving forces but to reduce the restraining forces. The manager may do this by taking time away from the usual production operation and engaging in problem solving and training and development.^{iv}

Figure 1 Forced field analysis model.



Selected problem

“Traffic jam in Dhaka City might have a negative impact on economic growth in Bangladesh”

Driving factors	Degree of intensively	Degree of influence	Total scores
1) Corruption of traffic police	8	8	64
2) Lack of road facilities in Dhaka city	10	8	80
3) Unskilled drivers	8	6.5	52
4) Excessive vehicles	10	8.5	85
5) Lack of enforcement of traffic law	7	9	63
6) Lack of coordination among the institutions	7	5.5	38.5
7) lack of public awareness	6	5	30
8) Improper settlement of urban informal sectors	8	9	72
9) Over population	10	9	90
10) Excessive presence of non machine vehicles and unfit cars	7	6	42

Table 1: Driving factors

From the table we have got four driving factors:

- Over population. (90)
- Excessive vehicles. (85)
- Lack of road facilities in Dhaka City. (80)
- Improper settlement of urban informal sector. (7)

Restraining factor	Degree of intensity	Degree of influence	Total scores
1. Strict enforcement of traffic law	9	9	81
2. Creating public awareness	6	5	30
3. Proper coordination among the institutions	7	7	49
4. Ensuring accountability of traffic police	7	8	56
5. More facilities for traffic department	7	6	42
6. Facilitating modern technologies for traffic signals	8	9	72
7. Special facilities for traffic police and drivers	6.5	7	45.5
8. Exaggerating narrow roads	8.5	9	76.5
9. Proper implementation of DAP	7	8	56
10. Constructing more flyovers and metro train	7.5	8.5	63.75

Table 2: Restraining factor

From the table we have got top four restraining factors as: -

- Strict enforcement of traffic law. (81)
- Exaggerating narrow roads. (76.5)
- Facilitating modern technologies for traffic signals. (72)
- Constructing more flyovers and metro trains. (63.75)

Cross correlation:

Restraining factors Driving Factors	Strict enforcement of law	Exaggerating Road capacity	Facilitating modern technologies	Constructing more flyovers & metro train	Total
Over population	2.50	3.50	2.75	3.00	11.55
Excessive vehicles	3.25	4.00	3.50	3.75	14.50
Limited road capacity	1.50	4.00	2.50	3.50	11.50
Unplanned settlement of urban informal sector	3.75	2.00	2.00	2.50	10.25
Total	10.80	13.50	10.75	12.75	

Table 3: Cross correlation

The above cross correlation reveals our critical points of address. These are:

- Excessive vehicles – 14.50
- Exaggerating road capacity – 13.50
- Constructing more flyovers & metro trains – 12.75

With the consensus of our team, we have taken the “Excessive vehicles” to focus on our action plan.

Action plan

Develop a strategy to manage excessive vehicles in order to reduce traffic jam for accelerating economic growth.

Area

The plan will cover the total area of Dhaka City (1468 square kilometers).

Purpose

General objective

1. The plan aims to confirm a decision for reducing traffic jam based on the principle of managing excessive vehicles.
2. Enable regulatory framework to monitor the progress of our plan.
3. Provide the capacity for traffic police/concern ministry to control major plan.

Specific objectives

- a. Exaggerating road capacity.
- b. Constructing more flyovers and metro train.

Broad purpose

In general, the plan aims to manage traffic jam in order to reduce excessive vehicles. The focus is on Dhaka city to create an environment where traffic jam can be reduced with exaggerating road capacity and constructing more flyovers and metro trains.

Strategies

Strategy1:

Make a comprehensive review of the regulatory framework for providing license to vehicles.

Sub strategies:

- Reforming the license providing department.
- Review the prevailing license of car in Dhaka city.
- Providing new license to the new entrants under new strategies.

Rationality of the strategy:

There is no standard regulatory framework for providing license to the drivers and vehicles besides this department is corrupted and it lacks efficiency and effectiveness. So there is a need to reform the license providing department to review the prevailing license and to the new entrants.

How to implement/concerned authority:

- Mayor of Dhaka City Corporation.
- Related ward commissioner.
- Joint secretary from road and highway ministry
- RAJUK

- Joint secretary: ministry of law, justice and parliamentary affairs.

Strategy 2

Increasing tax on private car and importing new car.

Sub strategies:

- Disseminating information of high taxes among the people
- Imposing 600 taka each car per day, if enters into road
- High fee car parking (vary place to place)
- Monitoring and evaluating the functions of subtask no 2

Rationality of the strategy

The number of private cars is increasing day by day consequently traffic jam is increasing in Dhaka city. So, when high tax will be imposed on cars the number of vehicles may be reduced.

How to implement

- Effective disseminations of information through both electronic and print media and billboards and signboard.
- Establishing 30 booths for collecting fees.
- Formation of monitoring and evaluation committee divided into two teams composed of 1 magistrate, 2 sergeants, and 4 members from (NBR).

Behind the strategy of imposing high tax our objective is to reduce the excessive number of vehicles. If the number of car is reduced we will provide the necessary amount of VIP cars for those who generally used private car.

Strategies 3

Removing unfit and date expired car.

Sub strategies:

- Make a committee for spot operations and mobile court in Dhaka City
- Monitoring the subtask.

Rationality of the strategy:

There are many old cars in Dhaka city which are stopped in middle of the roads and it creating obstacles for rest of the vehicles.

Concerned authority:

- Secretary of road and highway.
- Magistrate
- Sergeant

We will provide new car for each cars that have been removed from Dhaka City through spot operation and mobile court.

Strategies 4

No entrance of external of vehicles in Dhaka city.

How to Implement:

Constructing four transports for external vehicles or large parking place near but outside Dhaka city.

Rationality of the strategy

There is no definite number of cars in Dhaka city. When a large number of external cars are entering in Dhaka city, they are increasing traffic jam. So, Constructing four transports for external vehicles or large parking place near but outside Dhaka city.

Strategies 5

Disseminating traffic laws and creating public awareness in Dhaka city.

How to implement

Effective dissemination of traffic law and creating public awareness through advertisement street drama, newspaper, pestering, billboards with the concern Ministry.

Rationality of the strategy

A large number of people in Dhaka City do not know about the traffic laws. This creates unexpected death & traffic jam. So, we will disseminate traffic laws and creating public awareness in Dhaka city.

Strategies 6

Modifying traffic law and regulations and disseminating it.

How to implement

Forming a committee to modify present traffic law and regulations the committee will be composed of one chairman and three members will be:

- One specialist or advocate of traffic law
- One deputy inspector of police
- Joint secretary of Ministry of Law, Justice & Parliamentary Affairs

Strategies 7:

Using modern technologies to reduce traffic jam.

How to implement:

Ministry of Communication will conduct tenders by traffic related technology specialist.

Rationality of the strategy:

In present, the traffic controlling technologies in Dhaka City are analogue that are not capable to maintain the increasing number of vehicle. That's why new and modern digital technologies are essential.

Strategies 8

Constructing new road crossing bridges for cars

How to implement

- Appointing an urban planner for a proper road planning.
- Forming a committee for coordinating various sectors like Dhaka City Corporation, RAJUK, DESA and DESCO.

Rationality of the strategy:

Dhaka City is an old city and its infrastructures are near to spoil. Beside the road of Dhaka City are zigzag extremely and it is difficult to cross the turn. We see that most of the traffic jams are caused centering on a turn. That's why we need to construct some crossing bridges for cars

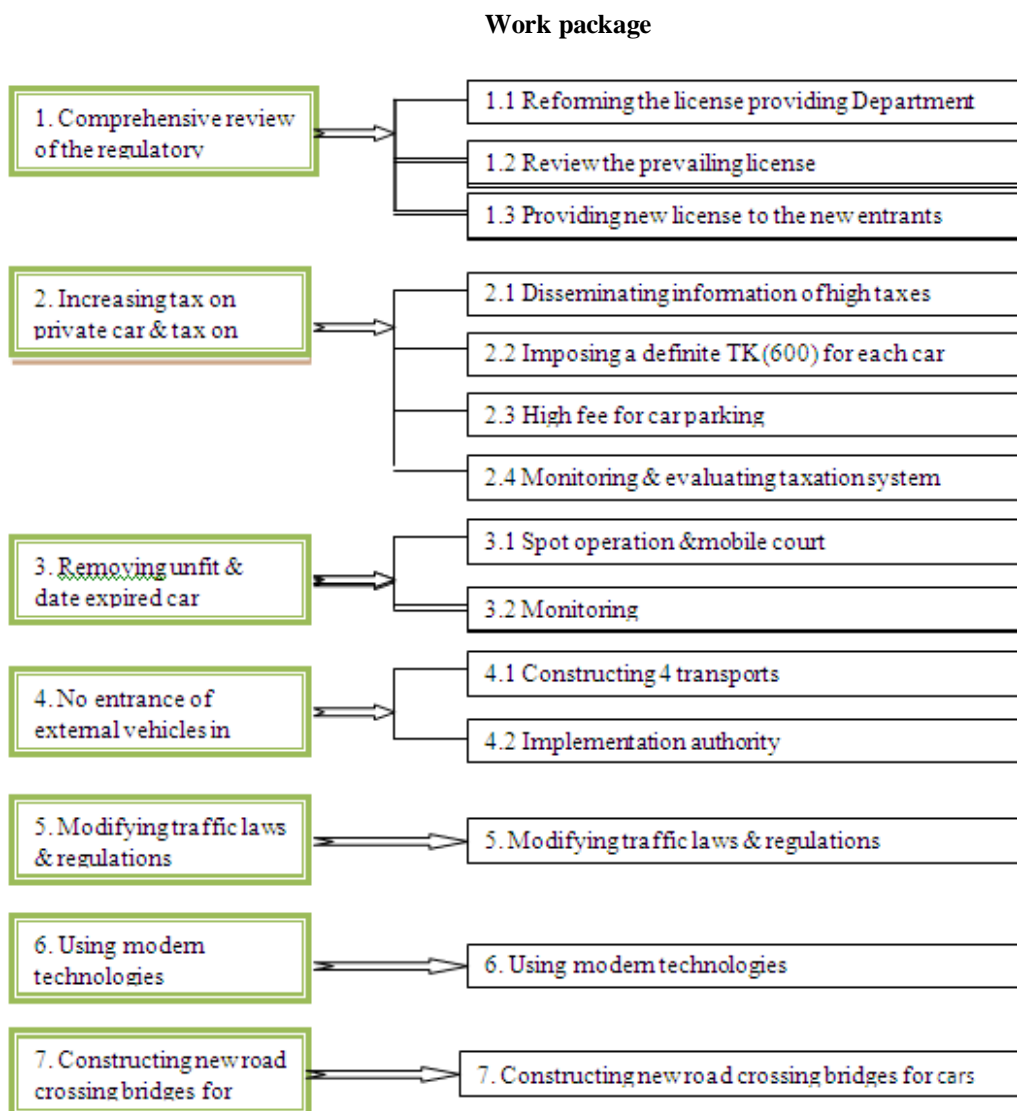


Figure 2 Work package

Action plan

Work Package	Tasks	Task volume	Time requires	Task dependence	Manpower	Responsibility
1. Comprehensive review of the regulatory framework	1.1 Reforming the license providing Department	Not complex Medium volume	15 days	Start work	5 experts	Ministry of Law, Justice & Parliamentary Affairs, BRTA, Communication Ministry
	1.2 Review the prevailing license	Complex High volume	3 Months	1.1 is FTS predecessor	25 employees	Ministry of Law, Justice & Parliamentary Affairs, BRTA, Communication Ministry
	1.3 Providing new license to the new entrants	Not complex low volume	5 $\frac{1}{2}$ Month	1.3 is FTF of 1.2 & 1.3 is FTS predecessor of 1.1	15 employees	Ministry of Law, Justice & Parliamentary Affairs, BRTA, Communication Ministry
2. Increasing tax on private car & tax on importing new car	2.1 Disseminating information of high taxes	Not complex Medium volume	15 days	2.1 is FTF of 1.1	2	Ministry of Law, Justice & Parliamentary Affairs, BRTA, Communication Ministry, Finance Ministry
	2.2 Imposing a definite TK (600) for each car	Not complex Medium volume	5 $\frac{1}{2}$ Month	2.2 is FTS of 2.1	65 employees	Ministry of Law, Justice & Parliamentary Affairs, BRTA, Communication Ministry, Finance Ministry
	2.3 High fee for car parking	Not complex High volume	5 $\frac{1}{2}$ Month	2.3 is FTS of 2.1 & FTF of 2.2	150 forth class employee	Ministry of Law, Justice & Parliamentary Affairs, BRTA, Communication Ministry, Finance Ministry
	2.4 Monitoring & Evaluating taxation system	Not complex High volume	5 $\frac{1}{2}$ Month	2.4 is FTS of 2.1, FTF of 2.2, & FTF of 2.3	1 magistrate 2 sergeants 4 members of employee	Ministry of Law, Justice & Parliamentary Affairs, BRTA, Communication Ministry, Finance Ministry
3. Removing unfit & date expired car	3.1 Spot operation & mobile court	Not complex Medium volume	1 month	3.1 is FTF of 1.2	5 magistrates 10 sergeants 25 constables	BRTC/ Home Ministry
	3.2 Monitoring	Not complex Medium volume	15 days	3.2 is FTF of 3.1	1 magistrate 1 representative of	BRTC, Home Ministry member from audit department

					Communication Ministry	
4. No entrance of external vehicles in Dhaka city	4.1 Constructing 4 transports	Complex High volume	2 months	4.1 is FTS of 3.2		BRTA
	4.2 Implementation authority		3 $\frac{1}{2}$ Month	4.2 is FTS of 4.1	40 employees	Ministry of Home Affairs
5. Modifying traffic laws & regulations	.....	Not complex High volume	1 month	5 is FTS of 1.1	1 Chairman & 3 Member	Ministry of Law, Justice & Parliamentary Affairs, Communication Ministry
6. Using modern technologies	.....	Complex High volume	1 month	6 is FTS of 5	.....	Communication Ministry/ Information Ministry
7. Constructing new road crossing bridges for vehicles		Complex High volume	5 $\frac{1}{2}$ Month	7 is FTS of 1.3, 2.2, 2.3 and 2.4	2 chairman and 4 members	Dhaka City Corporation, RAJUK, DESA and DESCO.

Time Frame of the Plan

The Action plan will be completed over 6 months from October 2010 to March 2011. The major strategies to complete are listed below:

Major Strategies	October	November	December	January	February	March
1.1 Reforming the license providing Department	■					
1.2 Review the prevailing license		■	■	■		
1.3 Providing new license to the new entrants		■	■	■	■	■
2.1 Disseminating information of high taxes	■					
2.2 Imposing a definite TK (600) for each car		■	■	■	■	■
2.3 High fee for car parking		■	■	■	■	■
2.4 Monitoring & Evaluating taxation system		■	■	■	■	■

Major areas of expenditure	Budget		
	Allocation	Money	
		\$	TK
1. Reforming the license providing Department	For 1 Chairman 80000 4 members 100000	2,647	1,80,000
2. Review the prevailing license	25 employees 15,000 TK per month/employee	16,544	11,25,000
3. Providing new license to the new entrants	15 employees 25000 TK per month/ employee	30,330	2062500
4. Disseminating information of high taxes	2 employees 10,000 TK per month/employee	294	20,000
5. Imposing definite TK (1000) for each car	65 employees 5000 per month/employee	26,286	17,87,500
6. High fee for car parking	150 employees 4000 TK per month/employee	48,529	33,00,000
7. Monitoring & Evaluating taxation system	1 Magistrate 25000TK per month 2 Sergeant 10,000 TK per month/sergeant 4 Members of NBR 15000 TK per month/member	8,493	5,77,500
8. Spot operation & mobile court	5 Magistrate 25000Tk per month 10 Sergeant 10,000TK per month/sergeant 25 constable 5000TK per month/constable	5,147	3,50,000
9. Monitoring	1 Magistrate 25000TK 1 Representative of communication ministry 20,000TK	331	22500
10. Constructing 4 transports	For 1 Chairman 80000 4 members 100000	4,412	3,00,000
11. Constructing 25 new road crossing bridges for vehicles	2 chairman 80,000 per month/chairman 4 members 25,000TK per month/member	41,250	28,05,000
Grand Total		1,84,263	1,25,30,000

Table 6: Estimated Budget

The subject matter of budget is a matter to be changed according to the necessity and the situation.

Cost of the Action

Estimated cost of the project

Sources	Amount	Remarks
Sponsoring Agency (WB)	\$92132	
Total	\$ 1,84,263	

Table 7 Estimated cost of this project.

The total *project cost* is estimated to be \$ 1,84,263 with 50:50 equity between the sponsor Agency World Bank and the Government of Bangladesh.

Exchange rate: Rate prevailing at the time of commencement of the project

Mode of financing:

Mode	Govt. of Bangladesh	Sponsoring Agency	Remarks
1	2	3	Details are to be settled through bi-lateral negotiation
Loan/credit			
Grant			
Equity	50%	50%	
Others (to be specified)			
Total	\$ 1,84,263		

Table 8: Mode of financing

II. CONCLUSION

Finally, force field analysis is an important tool to select the main problem among many. This force field analysis has been done with the consensus of researcher. Researcher have found that the main factor of traffic jam in Dhaka City is the excess number of vehicles. To manage this problematic factor, we have determined some strategies that can solve or minimize the problem. But what strategies have given here that are subject to change in accordance with the situation. Everything will be conducted through bilateral negotiation with the concerned institutions or agencies. This study proved that if this can be implemented properly, the traffic jam in Dhaka City will be removed.

Reference

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