

INTEGRATION OF TELECOMMUNICATION IN PASSPORT MAKING PROCESS - A PSEUDO MEANS TO REDUCE TRAVEL DEMAND AND OTHER SUFFERINGS

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ABSTRACT

Telecommunication or Information Communication Technologies (ICT) that is changing rapidly every aspects of life, is also bringing significant changes in the traditional concept of transportation. Like other telecom enabled services (1), telecom enabled passport making process has the potential to reduce significant travel demand and associated sufferings of the clients, hence of the society. On this consideration, existing passport making, renewal, amendment processes have been critically analyzed in this paper to identify the amount and pattern of physical trips and associated sufferings involved in these processes as well as to explore the way of how telecommunication or ICT can gainfully be integrated with the system. The analysis found that for the purpose of passport making, renewal and amendment process daily approximately 18,000 trips are made around Dhaka passport office. Most of these trips are made during the peak periods availing the highly congested city transport network spending huge amount of fuel, time, money and labor. It is further estimated that effective integration of ICT in the existing system can reduce or convert 63-75 percent physical trips to Fuel Free (FF) electronic trips. In addition, ICT enabled system can also speed up and simplify the process, minimize massive paper works and corruptions, ease up the social sufferings, and increase the productivity of the system. It is expected that this study would help the transport planners and policy makers' better way of understanding how the ICT can reduce the need for travel demand in different fields and thereby solve local traffic induced problems.

Keywords: Telecommunication, ICT, Peak period trip, Fuel Free Trips, Electronic Trips, Travel Demand

1. INTRODUCTION

Passport making, renewal or amendment processes involve certain steps fulfilling of what demands numbers of physical trips to passport offices, banks and other related offices/ organizations. In Bangladesh, there are 15 passport offices all over the country including one at Dhaka who is responsible for the people of six districts namely Dhaka, Narayanganj, Munshiganj, Narshigdi, Gazipur, and Manikganj. The statistics reveals that every year more than a million of passports (new making, renewal and amendment) are being issued to the people all over the country from these 15 offices. Dhaka office alone issues 47 percent passport and rest 14 offices of the

country issues 53 percent passport i.e. each of the rest of the 14 offices issues only 4 percent passports (1). This implies that about 12 times more people are visiting only Dhaka office than any other office of the country. As such huge amount of trips are generated around Dhaka Passport office. These trips are made using already overburdened and insufficient transport network and transport mode of the city. They aggravate the already unmanageable city traffic congestion and environmental/health hazards. Parking of cars and mass gathering of people in the office premises impose incredible distress for other people of the city too. In addressing these issues, the scope of expanding road network by traditional measures is difficult and expensive due to the acute scarcity of space. The

possibility of augmenting roadway capacity by introducing low cost traffic management measures is also limited.

On the other hand, thorough literature review reveals that Telecommunication or Information Communication Technologies (ICT) has huge transport potential to manage urban traffic problems (2, 3, 4, 5). It can be used effectively to replace vehicle or physical traffic on the streets and highways into digital traffic through national information infrastructure (NII). Other countries mainly developed countries have been successfully exploiting the transportation potentiality of it (6, 7, 8). Unfortunately hardly any initiatives in this regard have been taken in Bangladesh though the country's ailing ICT scenario is getting healthier since last few years. From these perspectives, it was necessary to make an endeavor to harness the transport potential of ICT in reducing the traffic induced problems related with the present passport making process.

The specific objective of this study is to carry out a comprehensive system analyses of the existing passport making, renewal or amendment process to identify the amount of physical trips involved as well as to identify the physical trips that could be minimized or converted to e-based Fuel Free (FF) trips by making the system ICT enabled with a view to solve a part of the existing transportation problems of Bangladesh particularly of Dhaka city. Here an endeavor is also made to explore the ICT status of the country as a whole and concerned offices in particular to see whether the ICT can be gainfully integrated with system.

In this paper, the evaluation is made basing on the use of existing (Option 1-short term evaluation) and improved ICT options (Option 2- long term evaluation). Considering higher intensity of trips and more critical traffic condition, the investigation is kept limited around Dhaka city only. This study is expected to help

policy makers' better way of understanding how the ICT can gainfully be integrated in the passport making, renewal or amendment process to reduce the travel demand and associated sufferings.

2. DATA COLLECTION

Study specific various data are collected mainly from primary sources by conducting comprehensive surveys (questionnaire, telephonic and photographic surveys) among different categories of clients. Valuable information are collected through face to face interview with number of officials designated as Director General (DG), Deputy Director, Deputy Assistant Director, Officer in Charge (OIC) of passport section, and other staffs particularly those working in different counters (reception counter, delivery counter, inquiry cell etc) of the office. In order to get clear picture and most accurate information surveys were conducted on different categories of clients in different dates and time (during morning, noon and afternoon) in the passport office premises. Number of photographs and video clips were also captured as the evidence of few events. Besides the physical survey, different personnel were contacted over telephone time to time to learn their experiences and sufferings.

In this study work, existing local situation of ICT infrastructures and its usage in the whole process by

passport office and other related offices/organizations have been assessed by gathering relevant data/information both from primary and secondary sources (inventory list and by face to face interviews with the clients and officials). In this connection, people from other concerned sectors and fields were asked both closed and open-ended question to get their opinion regarding the prospect and limitation of introducing ICT based passport making process in Bangladesh.

3. SYSTEM ANALYSIS - PASSPORT MAKING PROCESS

3.1 STEPS INVOLVED IN THE PROCESS

Though passport office is the sole authority to deliver the passport, the investigation unveiled that one has to visit several other institution or offices like banks for payment of fees, Special Branch (SB) of police offices for pursuing or verification, brokers and authorized person for filling up and attestation etc. The whole system, through which a passport is made as envisaged from the system analysis is outlined by the flow diagram as shown in Figure 1.

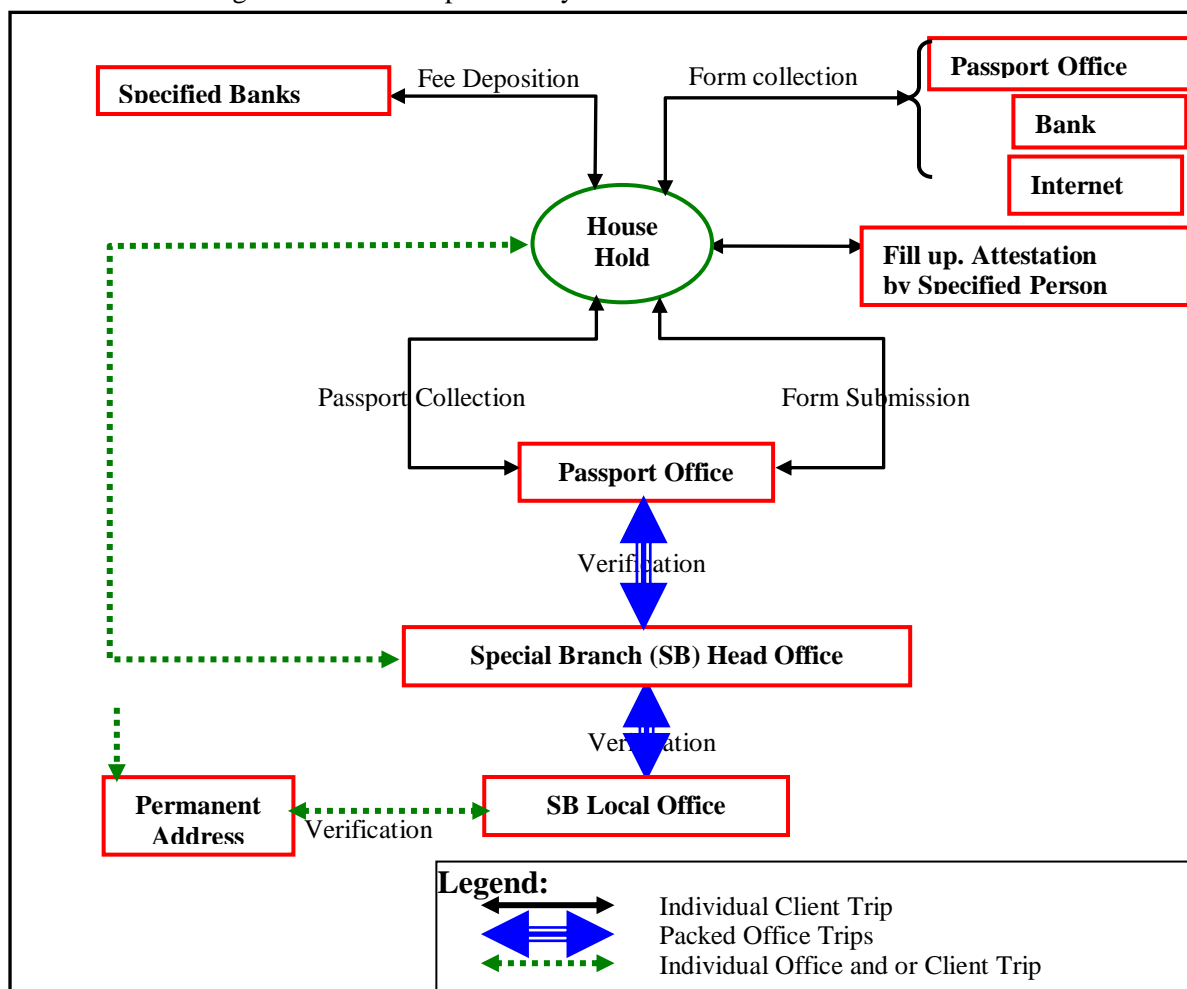


Figure 1: Actual Passport Making Procedure

Close observation of Figure 1 reveals that clients are to make at least one round trip for each of the following purposes (indicated by solid thin black arrows):

- Form collection
- Deposition of fee to bank
- Attestation / certification by specified person
- Submission of Form
- Passport collection

Trips (indicated by broken/dotted lines) to SB offices may be needed for verification and necessary pursuance. Trips indicated by solid thick triple lined arrows are supposed to be in a packed form for following purposes:

- Sending applications from passport office to SB office and back
- Forwarding of the same from SB office to local offices and back
- Trip by police personnel to applicants addresses or back

Keeping in mind the objectives of the study, deliberate efforts are made to investigate the above procedures in details in the subsequent paragraphs.

3.2 APPLICATION FORM COLLECTION

As shown in Figure 1 application Forms may be collected from passport office, few prescribed branches of Sonali bank located in Dhaka or downloaded from internet (recently made available). Most of the surveyed personnel were found to collect the Forms from passport office, very few were found to collect the same from the prescribed banks making physical trip, but none among the surveyed clients were found to download the Form from internet. Surprisingly, some of the officials were not also sure whether the Forms were available on internet or not. Few clients said if they would know the availability of Forms in internet, they would download the same from internet. Many are found not very familiar with the internet and have traveled to Dhaka from even other districts to collect the Form. When they are told that they could collect the Forms from the phone/fax/internet café without traveling down to banks or passport office, most of them agreed to do so if knew earlier. Very few knew the availability of Form in internet but did not get it from there. the analysis revealed that ignorance about the availability of Forms in the internet, fear of unknown, negligence and lack of knowledge for not availing the internet option.

3.3 FILL UP AND ATTESTATION

Out of seven sections, at least three have to be completed by the applicants and two by the office. Most people are not expert in filling up the Forms as this is not a regular phenomenon in the daily activities thereby found seeking help from others mainly brokers. Questionnaire survey among clients reveals that most of the clients make physical trips for filling up and certification of application Forms. However, few clients said that, if the Forms with a specimen were made available on internet, they would fill up by themselves or could seek help from cyber café personnel for

the needful. It is confirmed from General Secretary of Cyber Café Owners Association of Bangladesh that they are capable of doing so (1). It is unveiled from the questionnaire survey that, most of the clients (60-80%) depend on brokers for filling up of Forms and certification or attestation. Clients and officials said that many are involved in making fake attestation in lie of 50-100 taka thus directly or indirectly doing forgery. This is also educated to be true from other sources (9). Few officials as well as many clients claimed to omit the provision of certification or attestation. They said “Officials in the counter can easily verify the client by seeing the photographs during submission of Form and if necessary by tallying the signature.” This provision would minimize physical trips, effort and cost involved in the process and prevent people from doing forgery.

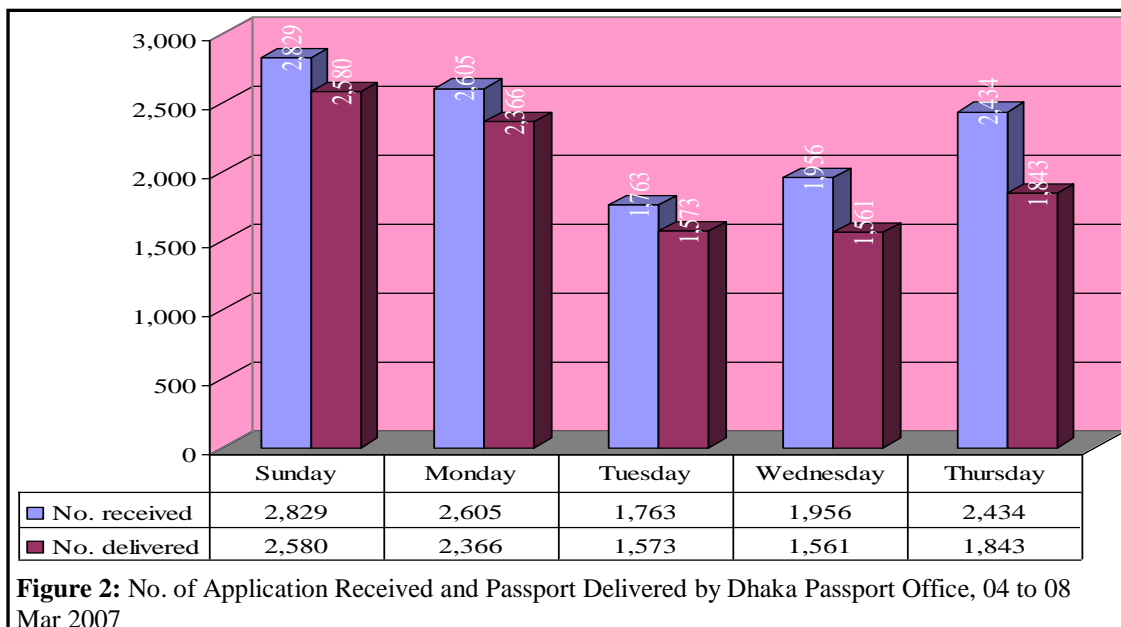
3.4 DEPOSITION OF FEE TO BANKS

It is learned that, fees for new passport or renewal need to be deposited to 10 branches of Sonali Bank located in Dhaka only from 0900 to 1500 hours (1). People from six districts have to make trips to these 10 branches to deposit fees. During field survey, there were found long queues in most of the branches specially Agargaon branch for this purpose. About one in every ten people is found to come here to deposit fees for second days. Most people spend whole day here. Many claimed to come here early in the morning with a view to deposit fees to bank and submit the Form to passport office on the same day. However, questionnaire survey reveals that hardly anybody could do these two tasks at one go. When the clients were asked about the suggestion to get rid of these sufferings, many proposed to increase the number of banks and counters. Few demanded to increase the duration of money deposition period. When the author explained the on-line money transfer system and its benefits, most of the clients agreed to use the option if offered.

3.5 SUBMISSION OF APPLICATION FORM

Two copies duly filled up and attested Forms attached with photographs and a counter foil of fee deposition to be submitted physically to the passport office in every official day from 1000 to 1300 hours. Everyday thousands of applications are received and passports are delivered by Dhaka Passport office as shown by the bar diagram in Figure 2.

During field survey it is found that actual number of people visiting the passport office for submitting application is more than that shown in the Figure. From the questionnaire survey, it is found that two to three in every ten surveyed clients (i.e. about 20%-30% clients) go back unsuccessfully with a desire to come in the next day. During field survey, hundreds of people were found standing under the scorching sun in front of the passport office for submitting their application. Photograph 1 shows a part of queue in front of passport office. Clients explained their bitter experience of long time standing, pushing and pulling, fighting with each other in and around the counters. On receiving the Form the recipient hand over an initialed Receipt (Photograph 2) to the applicants sealed with the delivery date of passport.



3.6 SENDING A COPY OF APPLICATION FORM TO SB OFFICE

One copy of the Application Form is then sent to SB of police at Malibagh, Dhaka and this office in turn send the same to applicant's present and permanent addresses. After necessary verification by SB authority, the Forms are sent back to the passport office again. Officials of the passport office inquiry cell said that in most cases by the

time verification report come back to the passport office; a long time expires and in many cases report come after the scheduled date of delivery. In depth investigation unveils that many clients visit to SB offices number of times to expedite the verification process and some one need to give bribe to the concerned Inspector. Many claimed that SB office do not send the verification report in time if they are not physically contacted.



Photo 1: Clients in queues for Form submission and passport collection, Apr 07

3.7 PREPARATION OF PASSPORT BY THE OFFICE AND COLLECTION BY THE CLIENTS

It is learned from the authority that after getting the positive verification report from SB office and after receiving the bank scroll of fee deposition, passport

division starts making the passport. Finally, on completion, the passport is handed over to the applicants

on scheduled date. Though passports are scheduled to be delivered from 1400 to 1700 hours, clients were observed to stand in line since morning. The lines extend from the front of delivery counter to the main gate (Photograph 1) and at times beyond main gate. More clients are found fighting for their position in the line inside the hall room where few are

found faint due to congestion, heat, and beating of security personnel. Every day about 1500 – 2500 passports are delivered, but number of people found gathering in front of the counters is much higher than the number of passport to be delivered. Many clients are found returning home without the passport after wasting whole day in the passport office. Questionnaire survey unveiled that almost all the clients visit the passport office and approach to the delivery counters on the scheduled date but around 50 percent clients fails to get their passport on due date. On reaching the delivery counters, many clients come to know that the passports are not ready and a fresh delivery date is given. It is educated from the

clients that there are no scope to learn about the state of passport over telephone or by any other means before reaching and talking to the person sitting in the delivery counter. Therefore, delivery counters had to go through extra pressure and clients themselves not only had to make unnecessary travel involving extra effort, labor and cost but also put others who get their passport on due date into troubles. Many clients claim that they are coming to the office several times since few months to get the passport, but not getting the same. As a proof, they produced their receipts that are in Photograph 2.



Photo 2: Initialed Receipt with the Delivery Dates. Dates have been changed several times. Even very urgent passport are not issued on the scheduled date

A close look to Photograph 2 discloses the fact that the deliveries dates are changed several times even for very urgent case. Mere promulgation of the passport delivery list prior to the delivery date could save the sufferings of the clients and could reduce the pressure on counters. On interview, authority inform that since recent past passport delivery list is being promulgated in main gate ‘Sheba Kendra’ on the same day in the morning. Practically no such list was found in the gate though all clients opined that such list could save their valuable time and sufferings. Truly speaking this provision may relieve few from standing in long queue and may reduce extra pressure on delivery counters but will pay hardly any benefit from transportation point of view, as already they have made trip to the site. However, actual transportation benefit could be obtained by making a clientele based inquiry system or by making the delivery list available on-line beforehand. From survey, it is discovered that clients who do not get the passports on scheduled date make trips again on next scheduled date and undergo similar troubles every time. For many people this going and coming continues several times. In the mean time, many tries to know the reasons for delay and in doing so they need to go to an inquiry cell (functions from 1000 to 1300 hours). Practical observation found that the personnel sitting in the inquiry desk taking long time to handle a single case as

they works in a traditional way to find out the disputed files from the rack where thousands of files are stacked. Staffs working in this cell said that they could give attention to 800-1000 clients per day though around 1000-1500 clients are coming for the inquiry everyday. Besides, about 40-50 people are always found standing in front of OIC passport office who tries to solve many anomalies, but people from all classes cannot reach him. She (OIC) claimed to attend 100-150 clients per day.

Objective conversation with the clients as well as discussion with the officials of inquiry cell, it is unveiled that delay in delivery is caused mainly due to following reasons:

- Improper submission of Forms
- Delay in getting police verification report or Negative verification report
- Failure to make the passport ready by the authority on scheduled date
- Failure to deliver ready passport to the clients due to time limit
- Failure to receive bank scroll of fee deposition in time by passport office. It takes a day or more for bank scroll to reach to the passport office even from the bank 100 meter away. This problem could be reduced if passport office would be linked with banks having real time/on-line banking facilities. (10).

Whatever may be the reasons of delay; all these unnecessary trips and sufferings would be eliminated if clients could confirm the delivery date on-line beforehand. Almost all clients desired to use on-line inquiry system before making trips to passport office. Every surveyed client agreed with the mobile phone based inquiry desk, majority also voted for land phone based one. Very few, favored internet based system.

4. ALTERNATIVE SYSTEM ALREADY THOUGHT OF BY THE AUTHORITY TO GET RID OF THE PROBLEMS

Face to face interview with numbers of officials unveiled that, there were number of alternative proposals from their side to ease up the condition. They are as follows:

4.1 MACHINE READABLE PASSPORT

This is well known as MRP. This would mostly benefit the authority in term of security, data management etc. It is less likely to reduce the trips and other sufferings of the clients.

4.2 DECENTRALIZATION OF PROCESS

This was aimed to distribute the concentrated pressure on the single passport office at Dhaka. But this would require more manpower, more infrastructures etc. This system is less likely to have much transportation benefit other than to reduce the travel length.

4.3 AGENT BASED SYSTEM

The authority proposed a system in which number of agents would be given the responsibility for processing of passport. Clients instead of coming to the passport office directly can visit the authorized agents. This system may suffer from reliability problems. Trips or trips length reduction will depend on the number and location of the agent offices or their representatives.

Recently (10 June 2007) government has taken a decision to decentralize the passport making system. From 15 July 2007 passport will be provided through 17 district commissioners office in addition to existing 15 passport offices. It is also decided that whole passport making process will be done through agents in the near future^a.

5. STATE AND USE OF ICT

5.1 COUNTRY PERSPECTIVE

Though ICT infrastructure of Bangladesh's was not in a good shape even before few years, the scenario is changing fast as private telecom operators are taking aggressive initiatives to provide internet, telephone as well as various ICT enabled services to the people. Some of the indicators are as follows:

- At present six mobile and 15 (10 functioning) PSTN operators are there in the country.
- Mobile subscribers have reached to 40.34 million in April 2008^b.

- Teledensity (fixed and mobile) has reached to nearly 30 i.e. 30 people in every 100 people of the country has a cell/telephone.
- Both BTTB and private and mobile operators are providing internet facilities. Mobile internet has reached to the most remote area of the country.
- Cyber center or internet café, phone / fax shop etc. are available at walking distance of the city people at present.
- About 85% offices have internet connectivity and overall 60% offices have own websites.
- Efforts have been taken to introduce on-line banking, on-line education, on-line shopping etc. General banking services as cash deposit or withdraw, inquiry, statement, regular bill payment etc. can be performed through internet, ATM, SMS etc. any time round the clock.
- Fund transfer through Flexiload, i-top etc. is effectively introduced by the mobile operators countrywide.
- Some information and Forms are made available on line like the Forms for passport, tax, BTTB's phone and internet connection etc.

5.2 IN THE PASSPORT MAKING SYSTEM

from investigation it is found that Dhaka passport office is equipped with number of computers, telephones, Fax, internet connection which is not used directly for passport making process. But in the whole system use of IT facilities are very much limited or almost nil. It is seen that Fax is used for correspondence from SB head office to some district offices mainly in case of urgent cases. Most of the staff do not know the existence of fax and internet in this office what to talk about the use of the same. Staffs are found to move physically up and down stairs, left and right rooms for passing any information, which could very well be done by local area networking among the computers. It takes long time for processing a matter. Days together are taken to provide any simple information which would be possible by pressing simply a button as found in case of some private organization like banks.

6. REDUCTION OF TRIPS AND ASSOCIATED SUFFERINGS

6.1 DAILY TRIPS TO PASSPORT OFFICE

One can say that, the number of visitors to the passport office should be the sum of the clients coming to deposit the application and clients coming to collect the passport. Above system analysis is enough to prove this assumption wrong. For better understanding, some of the findings of the above system analysis are mentioned below:

- About 20-30% clients were found to go back failing to deposit the application Form.
- Around 50% clients do not get their passport on scheduled delivery date.
- Around 1000-1500 clients come for inquiry for knowing the reason or facts for delay in delivery.
- OIC passport office claimed to attend 100-150 clients per day.
- Few clients mainly women, sick and elderly (about 12%) are accompanied by one or two additional persons.

Based on above considerations, the number of visitors on a typical weekday is estimated [i.e. $(1.2*b + 2*c + 1,000 + 100)*1.12$] and presented in Table 1.

Table 1: Daily Estimated Trips to Passport Office, April 07.

Date	Number received	Number delivered	Total visitors
(a)	(b)	(c)	(d)
4/3/2007	2,829	2,580	10,814
5/3/2007	2,605	2,366	10,033
6/3/2007	1,763	1,573	7,125
7/3/2007	1,956	1,561	7,358
8/3/2007	2,434	1,843	8,632
Average	2,318	1,985	8,793

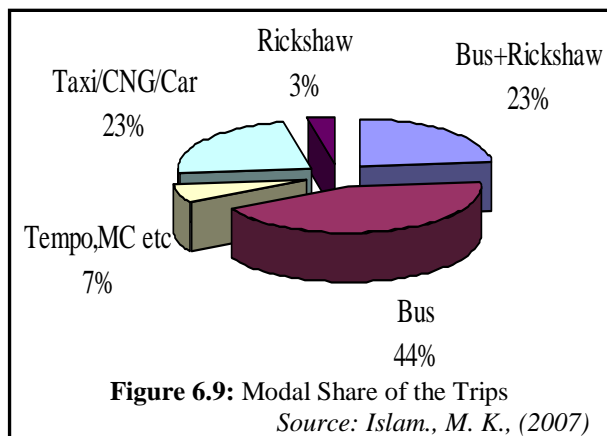
Source: Islam., M. K., (2007)

It is seen that the number of trips to passport office varies approximately in the range of 8,600 - 11,000 per day and on average can be considered as 9000 per day. Actual people visiting the passport office are likely to be more as some clients are accompanied by additional people. The estimated visitors make 9,000 round trips or 18,000 individual trips daily to the passport office. The number of trips would be more if trips for fee deposition to the banks and for pursuance to the SB office would have been considered.

6.2 MODAL SHARE OF THE TRIPS

Questionnaire survey revealed that around 23 percent people used CNG, Taxi or Private car, 23 percent used bus plus rickshaw, 44 percent used only bus and 10 percent availed other means like rickshaw, tempo, Motorcycle etc. which is presented in the pie chart (Figure 3).

Critical observation of the pie chart implies that 56 percent clients are mostly coming and going by using individual mode. It is also learned from the clients that many have used CNG, Taxi or car at least for one trip among total trips made by them. Private car users are parking their car on the road in the east of the office thus occupying half of the road. Most of the women, elderly or sick are found to avail CNG, Taxi or Private car. It is estimated that about 4,140 automobiles (Car/CNG/Taxi) trips are taking place on the city roads during the peak hours and around 4,680 (4,140 + 540) rickshaws are also plying on the roads in and around the passport office (1).



6.3 TRIP PATTERN

From the system analysis, it is learned that application Forms are received from 0900-1000 hours, passport are delivered from 1400-1700 hours, inquiry cell remain open from 1000-1400 hours and banking transaction from 0900-1500 hours. questionnaire survey among the clients unveil that most people starts in the morning to reach passport office or bank in time to get the desired services. And they starts falling back after the office or concerned branch ceases their function.. These travel patterns reveal that most of the daily trips take place during morning peak (0800– 1000 hours), afternoon peak (1300 – 1400 hours) and evening peak (1600-1800 hours).

6.4 OTHER SUFFERINGS

Most of the people (officials and clients) failed to visualize how the existing systems are imposing restriction on the city transportation system. However, when explained the facts, everybody understood the reality. During field survey, following other irregularities are also observed:

- It is observed that gathering of people and parking of vehicles on the road reduces the effective width and causes hindrance to other people and vehicles movement which can easily be understood from Photograph 3.
- Temporary kiosk established on the footpath around the office also cause obstruction to other’s movement.
- There are no sitting arrangements and shed nearby. Clients get tired standing hours together under the scorching sun as well as rain.
- It becomes very difficult for security personnel to maintain the discipline of human wave in front counters. At times they are found to apply forces.
- People waiting long at times become aggressive and involves into quarrelling.
- Women, children and elderly are found innocent during collection of passport.
- It was observed that few personnel (in coordination with few officials sitting at delivery counter) were involved in collecting the passport through backyard.
- Innocent and inexperienced people are being fraud by the brokers as well as by some dishonest staffs of the office.
- Delay in dealing any matter reduces the office efficiency and compel clients to make more trips wasting valuable time, labor and money, availing limited transports through limited and already congested city road network.
- Clients coming to passport office spend 3 to 10 working hours including journey period. Most of the clients said, by coming to the passport office they loss the whole day and cannot do any other job on that day. They also claimed to spend daily 200-300 taka for the purpose of journey and refreshment in addition to the loss of working days.



Photo 3: Clients outside main gate along the road (Left) and vehicles on the road (right) adjoining Passport office. They are hindering through movement clients and causing congestion in and around.

7. IDENTIFICATION OF REDUCIBLE TRIPS

Rigorous system analysis implies that some of the existing physical trips can be reduced and some of them can be converted into Fuel Free electronic trips if telecommunication or ICT can be integrated with the system. Scopes are also

there to improve the system, speed up the process and reduce the sufferings of the clients and the concerned authority. From the questionnaire survey, it is unveiled that present system demands approximately 4-12 physical trips for making a new passport as shown in Table 2. It is evident that adoption of Option 1 and Option 2 would reduce the trip by 63 to 75 percent respectively.

Table 2: Comparison of Present and Trip Reducible ICT Enabled System

Events	Round Trip in Present System	Round Trip in Proposed System	
		Option 1	Option 2
Form collection	Physical Trip (PT) (1)	On-line fill by seeing a specimen filled up Form (to be made available on-line) or by taking help from café personal, get printed out	
Fill up	PT (0-1)		
Attestation	PT (0-1)	No attestation	As option 1
Fee deposition	PT (1-2)	PT (1)	On-line
Form submission	PT (1-2)	PT (1)	PT (1)
Any inquiry	PT (0-3+)	On-line	As option 1
SB visit (if require)	PT (0-1)	On-line	As option 1
Passport delivery	PT (1)	(1)	PT (1)
Total trips required	4-12	3	2
Average trip required	8*	3	2
Trips Reduction %		63%	75%

Notes: Numeric figure within bracket indicates the number of trips likely to be made by clients.

Source: Islam., M. K., (2007)

Most of the trips are required for inquiry purpose. The clientele based inquiry system and provision of on-line delivery list beforehand will allow the clients to know any information like deficiencies, state of passport and will be able to confirm about the delivery date etc. on-line/over telephone hence they will not make any unnecessary trips. During survey, few personnel were found in the PS to DG office and OIC passport offices, came for renewal and amendment on the passport. By talking to them, it was learned that the officials were known to them and they came after confirming the readiness of the passport over telephone. This implies that IT is being used and trips are being minimized but it was possible for personal relation. Physical trips required for Form collection can also be reduced, if the availability of Forms in internet are widely publicized and the availability of same in the banks and passport office are prohibited. Attestation of Forms and photographs may be omitted. Signature and photograph of the applicant can easily be checked during submission by the person to whom it is

submitted. Moreover, the provision of police verification is also there. This system can be implemented immediately with no or negligible investment and would reduce the trips to 3 as shown in third column of Table 2 (Option 1). Smooth functioning of this system may need some prohibitory measures like prohibiting the physical contact for Form collection, inquiry etc.

If some more efforts are taken, the required trips could be reduced to only 2; one for Form submission, other for passport collection as shown in column 4 of Table 2 (Option 2). This involves linking of all concerned offices or branches through internet and introduction of secured on-line payment system. Clients get the desired services their own internet or they can visit a cyber café/internet/mobile shop/bill pay centers presently available within walking distance of the city people. These services will be available round the clock; hence, if someone even desires to do these tasks during off peak hour, he or she will be able to do so.

Trip for passport collection can also be reduced if a reliable courier or mail service can be introduced. Trip for Form submission cannot be eliminated because recipient needs to verify the photographs, signatures etc. of the applicants. However, trip for Form submission is not even required in case of renewal, amendment as application and other details can be fed to passport office through internet, and old passport can be send through reliable courier or mail service. The graphical representation of ICT enabled systems as discussed above is portrayed in Figure 4.

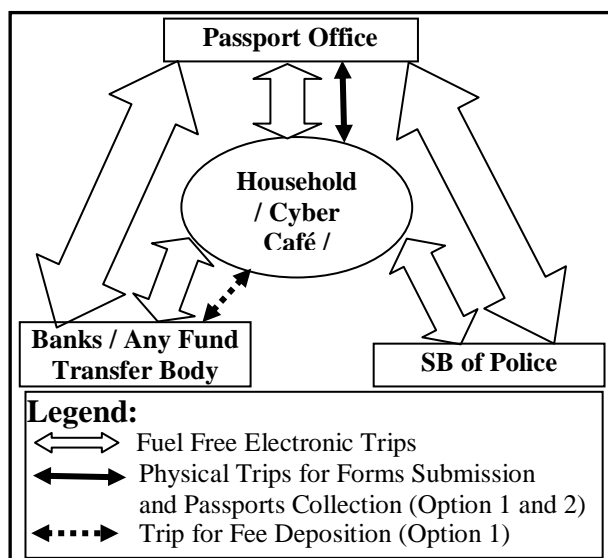


Fig 4: Graphical representation On-line System

Broad arrows in Figure 4 indicate potential electronic trips in lieu of physical trips presently taking place. Thin solid line represent the two physical trips between household and passport office required for both Option 1 and Option 2. Thin broken line indicates trip for fee deposition required for Option 1 but not required Option 2 which would allow on-line payment system.

Summary of the trips requirement based on the rigorous system analysis is present in Table 3. It is evident from Table 3 that of total 18,000 daily physical trips, about 11,340-13,500 trips including 6,350-7,560 individualized vehicular trips would be converted into e-based fuel free trips depending on the state of integration of ICT with the system.

Table 3: Mode wise Trip Pattern (Existing and ICT Enabled Reducible Trips)

Modal Share	Existing Trips	Reducible Trips (ICT Enabled System)	
		Option 1 (63%)	Option 2 (75%)
Automobile (23%)	4,140	2,608	3,105
Rickshaw & Bus (23%)	4,140	2,608	3,105
Others (tempo, MC etc.) (7%)	1,260	794	945
Rickshaw (3%)	540	340	405
Subtotal (56%)	10,080	6,350	7,560
Bus (44%)	7,920	4,990	5,940
Total Daily trips (100%)	18,000	11,340	13,500
Monthly trips (22 days)	396,000	249,480	297,000

Source: Islam., M. K., (2007)

8. CONCLUSION AND RECOMMENDATION

8.1 SUMMARY OF FINDINGS

The study was aimed at exploring the way of how telecommunication or ICT can gainfully be integrated with the existing passport making, renewal, amendment processes with a view to reduce the travel demand and associated sufferings by eliminating or converting existing physical trips. Accordingly an inclusive system

analysis has been undertaken within the scope of the study work. The primary findings of the analysis are:

- This is estimated that daily approximately 9,000 clients are visiting Dhaka passport office making around 18,000 trips including 56 percent individualized and 44 percent bus trips.. It is also unveiled that almost all trips are made during the peak periods and in the process huge amount of

fuel, time, working hour are lost.

- Presence of clients and the transport in and around the passport office induce troubles to others movement in or through that area. The study explored that many of these drawbacks could be reduced to great extent if an ICT would have been integrated with the system.

- ICT enabled system as described in this paper, would relieve city's highly congested road network to reasonable extent by reducing or converting 63-75 percent physical trips to Fuel Free electronic trips.

- On-line system will increase the overall productivity. The whole system would be cost effective, and savings of trip would save huge amount of working hours and fuel.

- This system would have many other advantages like elimination of harassment by touts or brokers, savings of bribe or tips money and travel cost, tremendous savings of time and effort, great relieve of mental anxiety and uncertainty etc.

- Initially most of the clients were not interested on ICT enabled system. However, when benefits of such system were explained, all claimed that the system would be better, economical and less laborious than the existing system. They agreed that the system would give maximum benefits; people would get the services with minimum travel provided the officials are sincere, honest and dedicated to their responsibilities and if they are made answerable to the authority.

8.2 RECOMMENDATIONS

Based on the findings of the study work, following recommendations are proposed to get desired travel related benefit of ICT:

- ICT or Telecommunication should not be thought merely as a means of communication rather it should be considered as a modern and effective tool to reduce travel demand.
- In order to reduce unnecessary and avoidable trips and associated sufferings, the government should give necessary directive to passport offices and other concerned organizations like SB office) to
 - establish a clientele based enquiry system and encourage the clients to use this facility.
 - make available all sorts of Forms, circulars, notices etc. on-line covering all details

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leaving no scope to make unnecessary physical trips.

- undertake appropriate measures to raise public awareness so that the culture of contacting over phone before making any physical trip (for Form collection, inquiry etc.) is established.
- As the signature and photograph of the applicant can easily be checked physically during submission by the person to whom it is submitted and as there are provision of police verifications, government should give necessary steps to discontinue the provision of attestation of Forms and photographs.
- In order to get maximum benefit of ICT government should
 - assist all concerned institutions/ department/organizations (public and private) in developing the telecommunication infrastructure and skill required for complete integration of ICT in the passport making system.
 - enact cyber crime laws and establish special enforcement agency to make on-line data transfer particularly on-line payment system secure and hacking free.
 - prohibit the availability of Forms in the banks and passport office and prohibit the physical contact for Form collection, inquiry etc.