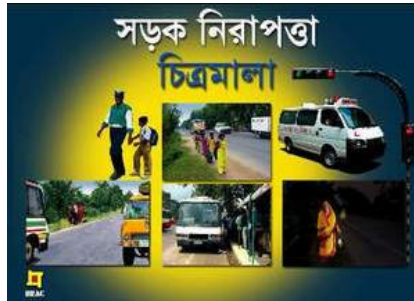


# Promoting Road Safety through Community Education Programmes



## Study Report: Betila (Bangladesh)

April 2004



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## Glossary

BBS	Bangladesh Bureau of Statistics
BPS	Bangladesh Population Surveillance
BRAC	Bangladesh Rural Advancement Committee
CBO	Community Based Organization
CTW	Community Traffic Warden
DALYs	Disability adjusted life years
FGD	Focus Group Discussion
FC	Flip Chart
GDP	Gross Domestic Product
GoB	Government of Bangladesh
GRSP	Global RS Partnership
IEC	Information Education and Counseling
NGO	Non Government Organization
NRSC	National RS Council
NRSSAP	National RS Strategic Action Plan
NRTA	National Road Transport Authority
RS	Road Safety
RSD	Road Safety Day
RSE	Road Safety Education
RTIs	Road Traffic Injuries
SD	Social Development
TRL	Transport Research Laboratory
VO	Village Organization

## Executive summary

This is a community based action research titled ‘Promoting RS through Community Education Programs’ which was jointly conducted by BRAC and Transport Research Laboratory, UK to help documenting a cost-effective “Good practice guidelines” to carry out road safety community education programmes in developing countries.

The study is based on empirical observation of local pedestrians’ behaviour, investigation (in-depth individual and household survey) and focus group discussions with different segments of the Betila community and on existing accident records. A ‘before and after intervention’ evaluation process is also applied to see the impact of interventions in improving pedestrians’ knowledge and behaviour. To cope with local situations, a certain amount of flexibility and triangulation were also made among observation, investigation and existing accident information.

The accident information of the study population shows that road traffic accidents increased alarmingly during the period 2001 to September 2003. Only one accident out of 125 occurred was reported to the police. The highest amount of collision have occurred involving pedestrians with motorized vehicles.

Before interventions, only 5% of pedestrians were found to be walking by the right side of road and knowing the traffic rules. This percentage increased to 66 % after interventions. Besides, 100 % population became aware of safe walking and crossing rules of the road after interventions.

The reasons behind this dramatic improvement in knowledge, as well as, walking behaviour of local pedestrians is that it was the Betila people who played a prime role in identifying their road safety problems and possible countermeasures. Besides, after considering the preference of Betila people and examining the existing resources of the project, a set of conjunctive programmes like courtyard meeting, classroom discussion and demonstration, staging RS theatre and deploying Community Traffic Warden were selected initially. Moreover, to cope with the local situation, door-to-door counselling and erection of roadside signboards with pedestrian reminder messages were taken. Two pedestrian focused posters on safe walking and crossing rules and one flip chart were used as road safety education resource materials. These resource materials were found to be very effective and attractive to the study community.

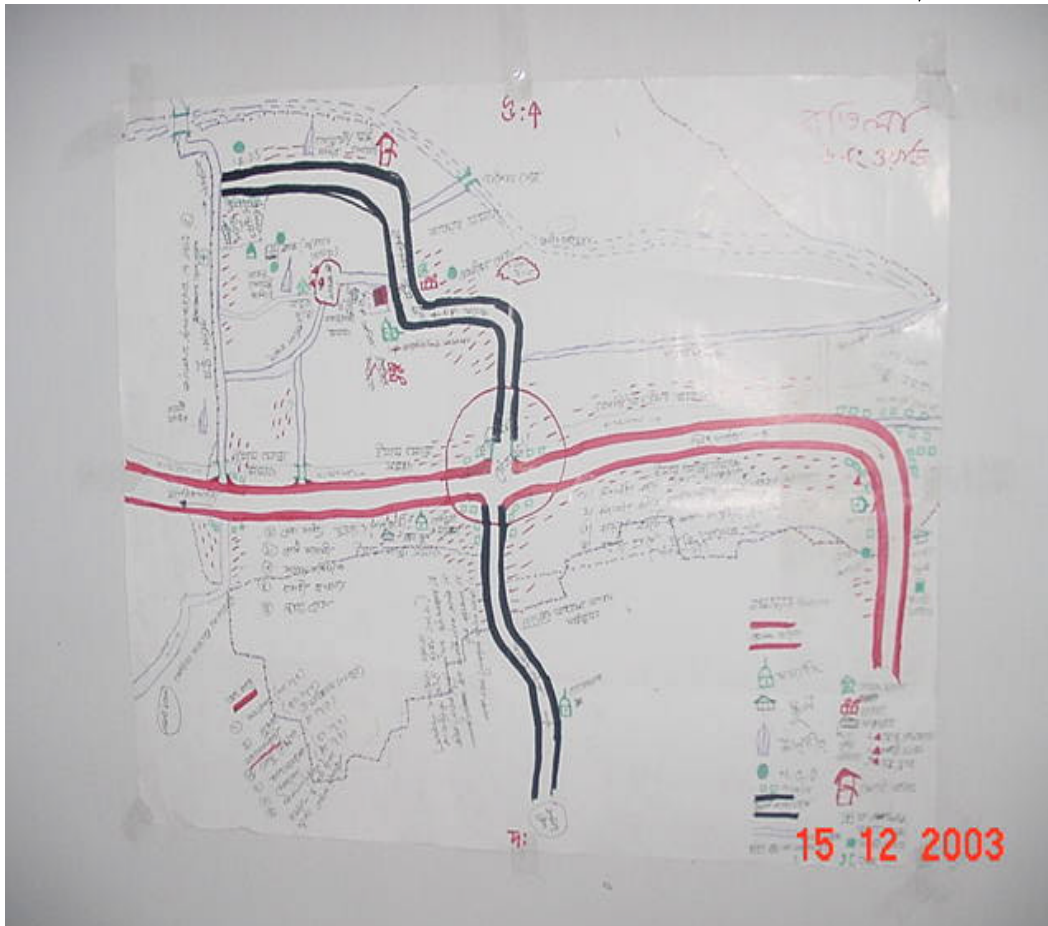
Throughout the project cycle, the participation of local people was voluntary. The project also arranged road safety awareness campaign based RS trainings for concerned staff and local volunteers and aimed at improving the capacity and skills of the project.

For sustainability of the ongoing interventions and to keep alive people’s enthusiasm at Betila, a ‘*Betila Road Safety Community*’ has already been formed. The members of this committee agreed to continue the progress achieved within their own capacity. The Betila community observed ‘**Road Safety Day**’ at their area.

Different activities that took place on the day were visual presentation of project interventions, feelings and lessons learnt from local accident victims were presented and a colourful procession was held which helped mobilize the community at the mass level. Since then there has been an increasing demand to replicate similar campaigns in other areas of Manikganj from the local Upazilla Road Safety Committee, NGOs and local government representatives of adjacent areas.

Based on the experiences and lessons learnt from this project, it can be said that if local people and local networks and resources are actively involved in the identification, prioritisation, planning, designing and implementation of RSE initiatives simultaneously - it can be possible to bring changes in knowledge, attitude and behaviour of a community. These lessons may be used to produce 'good practice guidelines' for replication of community based RSE programmes in developing countries.

### Map of the study area (Betila, Bangladesh)



Betila Ward as visualized by Betila Volunteers



## CHAPTER ONE: INTRODUCTION

### 1.1 Background

- Road traffic Injury (RTI) is a major threat in public health and hence is a social and economic burden worldwide and Bangladesh is no exception. It is estimated that in 2002, 1.18 million people were killed in road crashes, while about 20-50 million or more were injured, which is more than 2.1% of global mortality (WHO, 2004). Globally RTIs are projected to rise from 9<sup>th</sup> in 1998 to 2<sup>nd</sup> in 2020 as a leading cause of disability-adjusted life years (DALYs) lost in developing countries and 3<sup>d</sup> in developed countries (WHO, 2001; Krug, 1999). Road traffic accidents are the world's number one cause of death among young people between 16 and 24 (ITC, 2003).
- Despite the growing menace of RTIs round the world, it is still a silent, hidden and unrecognised epidemic; especially in developing countries like Bangladesh.
- In Bangladesh- the most densely populated country in the world with 123.1 million and 834 persons per sq.km. (BBS 2000), road transportation is an extremely important part of the economy. About 12% of GDP and 20% of the annual development budget is spent on transport, and 9.4% of the national employment is in fact in the transport sector. The road accident fatalities are increasing frighteningly with the rapid expansion of population, urbanization, motorization and inadequate road safety. Today, there are over .70 million registered motor and 1.5 million non-motorised vehicles in Bangladesh (NRSSAP, 2004-2004). At the current growth rate, the number of vehicles in the country is expected to double in the next ten years. The complexity of road environment with mixed traffic is another reality of road transportation in Bangladesh (Hussain, 2003), where road designs are not appropriate for mixed traffic standards.
- Bangladesh has one of the highest accident fatality rates in road accidents –higher than 73% deaths per ten thousand registered motor vehicles every year (NRSSAP, '02-'04), developed countries, where the rate is below 5. It is estimated that about 4,000 people are killed and injure, while another 4,000 live with road accidents every year. But data constraints and widespread under reporting of accidents prevent understanding the real magnitudes of road accident problems (Rahman, 2003). National loss due to road accident is estimated to be about 15 billion taka (US\$ 300 million) every year (NRTA, 2002). The major victims of all accident casualties are usually pedestrians (53%) which often rise up to 70% and one third of the victims are adult males of age between 21-40 years (NRSSAP, '02-'04; Khan, 2004). The prime contributory factors in road accidents explored in this research are engineering factors, like narrow road and road junctions, absence of pedestrian facilities, too many bends and sloppy bridges etc., aggregated by behavioural factors like-- lack of RS knowledge of road users' and drivers, Illiteracy, poverty, inadequate number of public transports, ineffective law enforcement etc. Besides, very few road safety programmes and initiatives have been undertaken in Bangladesh (Shafinaz et. al, 2004; Khan, 2004) to combat road accidents.

- The empirical studies and published reports reveal that RTIs are multifaceted and can be prevented or alleviated through understanding the magnitude and nature of the problem, by adopting appropriate community based strategies, collective responsibility, co-ordination and communication at all levels (Shafinaz et. al, 2004; UN, 2003; TRL, 1997). The community itself by virtue of its expertise, participation, resource and network can greatly enhance existing programmes and about 30-40% of accidents and injuries could be reduced through such community based programmes (Vermaak, 2003; Svanstrom, 1993 & 2002) and also by bringing changes in road users' knowledge and behaviour (Clinton, 2003). This project is conceived as a response to the country's unfavourable road safety situation.
- BRAC--a leading Non-Government Organization of Bangladesh, accepting road safety as one of its prime concerns, and thus has signed a Memorandum of Understanding with TRL for conducting a community based action research titled '*Promoting RS Through Community Education Programmes.*' This research was conducted at Betila Ward- a typical rural area of Bangladesh, from June 2003 to February 2004. UK's Department for International Development (DFID) funded the study. Keeping in mind the current magnitude of RTIs and the empirical experiences documented around the country, the project aims at exploring some replicable RSE programmes and community initiatives in a cost-effective manner. It is expected that the outcome of the project may be an invaluable aid for documenting a '*good practice guidelines*' in conducting community RSE programmes in developing countries.

## 1.2 Objectives of the project

This is a community based action research project. The main objective of this study is to develop and use community participation programmes as a sustainable pathway to help document a "*Good practice guidelines*" for conducting similar activities within the country with a view to improve road safety and thereby quality of life.

### **The specific objectives are:**

- Empower local people emphasising on women and poor people by enhancing their personal capacity to foster responsible attitudes and good practices of road use. These goals are achieved by participating in the identification, prioritisation, planning, designing and implementation of RS initiatives, which will be helpful for sustainability of the programme.
- Raise awareness and bring positive changes on knowledge, attitude and behaviour of road users' about RS rules and road environment through community-preferred interventions and using local resources and networks, which will help to reduce poverty as well.
- Enhance responsible attitudes and appropriate behaviour for their own safety and safety of others on road.
- Find sustainable and replicable RS education programmes, tools or interventions.
- Develop community ownership.

### 1.3 Methods and tools

*This is a community based action research in which local people were involved in the identification, prioritisation, planning, designing and implementation of RSE interventions. The research is primarily based on empirical observation, investigation and focus group discussion with different segments of the Betila community, local stakeholders and representatives. All methods and tools used in this research were influenced by local circumstances and advice from the local community. Through triangulation local RS problems and possible countermeasures were visualized.*

Furthermore, a certain amount of flexibility has been followed throughout the project cycle to cope with the local situation and community demand.

**Table 1.0: A brief summary of data collection tools**

<b>Nature of data</b>	<b>Tools used</b>	<b>Materials used</b>	<b>People Covered</b>	<b>Objectives</b>
<b>Qualitative</b>	Observation	Checklist	<ul style="list-style-type: none"> <li>▪ Pedestrians'</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pedestrians' actual walking and crossing on road</li> </ul>
	Focused Group Discussion	Checklist	Children, parents, pedestrians, passengers, drivers, school teachers, community leaders, local businessmen	<ul style="list-style-type: none"> <li>▪ Opinions on RS problems &amp; countermeasures</li> <li>▪ Knowledge on road vocabulary</li> <li>▪ Safe &amp; unsafe places for road users</li> <li>▪ Road use pattern etc.</li> </ul>
	Case study	Checklist	<ul style="list-style-type: none"> <li>▪ Local accident victims</li> </ul>	<ul style="list-style-type: none"> <li>▪ A detail of accident information</li> </ul>
<b>Quantitative</b>	Individual survey	Semi-structured questionnaire	Children, Pedestrians Passengers, Drivers, School teachers, Community leaders	<ul style="list-style-type: none"> <li>▪ Knowledge on safe use of road</li> <li>▪ Local RS problems &amp; Countermeasures</li> </ul>
	Household screening survey	Semi-structured questionnaire	<ul style="list-style-type: none"> <li>▪ All households</li> </ul>	<ul style="list-style-type: none"> <li>▪ Demographic characteristics of Betila people</li> <li>▪ Accidents information</li> </ul>
	Accident statistics	-	<ul style="list-style-type: none"> <li>▪ Local accident victims</li> </ul>	<ul style="list-style-type: none"> <li>▪ Accident information</li> </ul>

The project cycle was divided into four phases: preparatory, development, implementation and dissemination. A 'before and after intervention' evaluation process has been applied to assess the impact of the project interventions in improving knowledge and behaviour of road use practices in the studied community. Therefore, for ensuring quality of action research, guaranteeing actual involvement of Betila people and building a sense of ownership, a certain amount of flexibility was followed throughout the research.

### 1.4 Ethical considerations

The residents of Betila were not given any financial assistance in cash or kind. All activities were executed conforming to the conveniences of local people in terms of time, local norms, values, beliefs and views of different segments of community. The participation of local people in this research was totally voluntary.

### 1.5 Improve capacity of RS professional and community volunteers

One of the key objectives of this project was to enhance capacity of the community and concerned personnel to carry out community RSE campaigns. As part of this, a weeklong training titled ‘RS Survey Management’ facilitated by a group of Research and RS Trainers from BRAC was conducted from 12-17 July 2003 for the project staff at Project Field Office. The training was arranged to improve knowledge and skills so that they can facilitate community needs assessment, as well as, RS survey properly (Appendix A).

For *effective use of Flip Chart* as a resource material during RSE campaign (Appendix B<sub>1</sub>), a ‘RS Awareness Training’ was conducted for community volunteers, local school teachers, personnel from local BRAC Development and Education Programmes and NGOs etc.

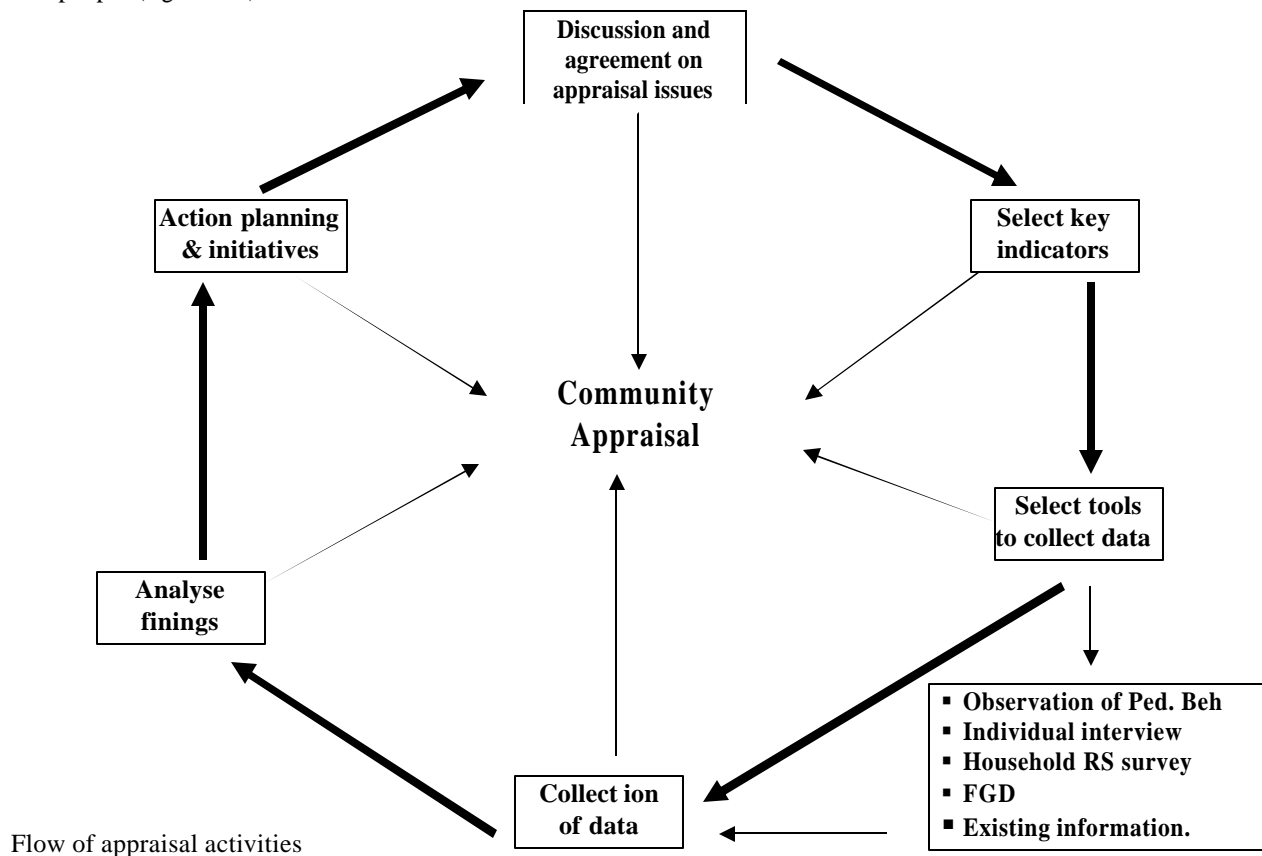
<b>*Contents of RS Survey Management Training</b>	
<ul style="list-style-type: none"> <li>▪ <i>Orientation on BRAC and project</i></li> <li>▪ <i>Road vocabulary</i></li> <li>▪ <i>Classification of road</i></li> <li>▪ <i>Traffic signs</i></li> <li>▪ <i>Best practices for pedestrians and passengers</i></li> <li>▪ <i>Accident victim management and compensation</i></li> <li>▪ <i>RS related laws</i></li> <li>▪ <i>Community RS initiatives and role of NGOs</i></li> </ul>	<ul style="list-style-type: none"> <li>▪ <i>RS education, information and publicity</i></li> <li>▪ <i>Moral ethics and responsibilities of citizen about road use</i></li> <li>▪ <i>Concepts and methodology of PRA</i></li> <li>▪ <i>Tools of PRA and their application in the project</i></li> <li>▪ <i>Discussion and trial fill up of project questionnaires</i></li> <li>▪ <i>Problems and way outs of using PRA tools</i></li> <li>▪ <i>Elaborate discussion on project questionnaires and field application</i></li> </ul>

## CHAPTER TWO: PREPARATORY PHASE

### 2.1 Community appraisal

The Betila community has been consulted in the identification, prioritisation, planning, designing and implementation of road safety initiatives. Depending on local circumstances and preferences from local community it followed multiple methods and tools for appraisal of RS situation. Accordingly, community appraisal issues and key indicators were identified initially through discussion with local people and various stakeholders and local representatives. The project then gathered information through observation, in -depth individual interviews, household screening surveys and a series of FGDs. A detailed account of fatal accident case stories and information on local accident incidents were collected. The secondary data on the prevailing road safety situation of the community and the country relevant to this study were also collected for appraisal of the community.

Therefore, for better understanding of the RS scenario and to find out locally suitable interventions, a set of qualitative and quantitative tools were used in a conjunctive way. *Triangulation* was also made among findings of questionnaire surveys, observation and discussion sessions. On the basis of gathered information and recommendations of the community, an action plan was prepared for carrying out RSE campaigns at Betila Ward. Thus community appraisal was done through following a cyclical order and with active participation of local people (figure 1.0).



**Figure 1:0 A cyclical model of community RS appraisal**

## 2.2 Searching for a suitable area

Statistics reveals that rural people, especially the poor are usual victims of road accidents in Bangladesh. Thus NRTA Report (2001) indicates 73% of road accidents casualties occur in rural environments. Considering the vulnerability of the rural road users', the project preferred to conduct this research in a rural area of Bangladesh. Local knowledge and contacts have been used to identify a suitable community for executing this project. The following criteria were prepared to identify the feasible community for the study:

### *Area selection criteria*

- *A rural community through or beside which a national or regional highway has passed*
- *Road accident casualties repeatedly occur.*
- *Accident data available and indicates a treatable problem.*
- *Community willing to participate in road safety measures.*
- *Presence of large trip generators like school, hospital, market, factories etc.*
- *Low-income rural residents.*
- *NGOs and CBOs experienced in participatory approaches are available.*
- *Involvement of women in development activities.*
- *Active representative of local government institutions.*
- *BRAC interventions available.*

Based on the above criteria, community profiles of 8 areas located in Dhaka, Narayanganj, Tangail and Manikganj districts were prepared. Betila, which is situated about 40 km from Dhaka- a ward cum village of Betila-Mitara Union Parishad of Sadar Upazilla--Manikganj District was finally selected as being the most feasible. It is a typical rural Bangladeshi village, which is situated on the Dhaka-Singair-Manikganj road (old Dhaka-Aricha road). It is important to note that 'Ward' is the lowest administrative unit in Bangladesh. Although Betila apparently seems to be a farming community, majority of its people earn their living through non-agricultural activities.

### **2.2.1 Dhaka-Singair-Manikganj road**

This is the old Dhaka-Aricha road, 12 feet wide and is featured by too many road bends, broken surfaces and bridge with high gradients, road side canals and ditches and without any pedestrian facilities. It is a short and straight way to go to Manikganj town. This road is markedly encroached by roadside residents, shopkeepers and is used for storing and keeping straw, goods and cattle. Motorized vehicles like mini-bus, truck, tempo, motorcycle and human howler etc. ply on this road in addition to non-motorized traffic like: rickshaws, rickshaw van, bicycle and animal driven vehicles. This road has no pedestrian's facilities so when two buses or trucks cross each other, pedestrians have little space to walk or even stop.

### 2.2.2 The profile of Betila Community (in brief)

The community profile was prepared through a household based RS screening survey through which local demographic characteristics of people in Betila were collected. The heads of the households were selected as informants, but in their absence housewives or adult female or male persons were interviewed. Before commencing the survey, a semi-structured questionnaire was field-tested in a non-intervention area. After the field test, the questionnaire was finalized with few modifications. Two interviewers selected from the same community were provided training on field survey management. For ensuring the reliability and validity of survey data, about 20% surveyed questionnaires were checked at the interview spots and re-interviewed. The field data were edited, sorted and compiled at the Project Field Office.



A project interviewer is talking to a local woman

**Population:** The survey reveals that Betila Ward has 652 households with a population of 3063. The average size of the households is 4.70, which is very close to the country standard (i.e. 4.8, BPS: 2001).

**Dwelling house ownership pattern:** The residence pattern at Betila reflects the poverty prone character of its people. About 92.48% dwelling houses were found as *straw roofed, bamboo walled, soil made floor, two shed tin roofs* followed by 6.29% as houses made of *tin roofs, brick walled, cement floor, tin made wall* and 1.23% were buildings made of *tin, bamboo, wood and brick*.

**Education status:** Education is the prime important *factor* for mobilizing people at grassroots levels. A person who can read, write and understand a message/paragraph successfully is literate (as defined in this survey). The findings show that about half of the population (five years & above) are literate.

**Occupation pattern of household head:** The majority of the household heads are involved in non-agricultural activities. The main occupations of the household head are: working for daily *wages* (34%), agriculture activities (21%), household activities (17%), service (12%), driving (11%) and small trading (5%) etc. The findings indicate a certain amount of mobility of local working people using NMVs or MVs transportation while searching for income opportunities or livelihoods in Manikganj and Dhaka city.

**Affiliation with NGO:** The role of NGOs in mobilizing people at grassroots level is widely acknowledged. About 54% of the households were found to be affiliated with NGOs mainly to get micro credit for income generating activities. National NGOs like BRAC, Grameen Bank, ASHA and local NGOs like Grameen Sheba Songstha were found to be prominent.

**Local mode of transportation:** The findings of the individual surveys show that the trips in and around the Ward are mainly on foot or by bicycle; pedal rickshaw for shorter trips; and Auto - rickshaw (3 wheeler), motorcycle and mini-bus for longer trips. Auto - rickshaw (tempo) is considered as the most dangerous vehicle and is blamed for one fourth of all accident casualties followed by minibus (15%), motorcycle (14%) and human hauler (11%) etc. Respondents also blamed the drivers of public transports of recklessness and having no license.

**Accident casualties:** The survey shows a total of 125 persons as being victims of road accidents during 2001 to September 2003. The chart 2.0 reveals that road traffic accidents among Betila people are increasing alarmingly. It has been noted that 3 people were killed by road accident at or near Betila intersection during the last two years but only one of those was reported to the police.

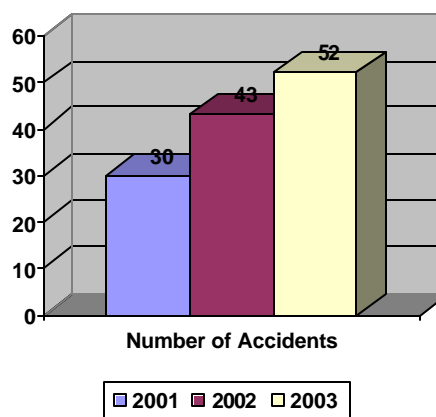


Figure 2.0: Total accident casualties during (2001-'03)

**Collision type:** Table 2.0 shows that hit pedestrians (33%) was higher than any other type of collision during the time period 2001-'03. Collision between non-motorized and motorized vehicles appeared to be high as well. The self-accident incidents here include mostly by itself fall accidents.

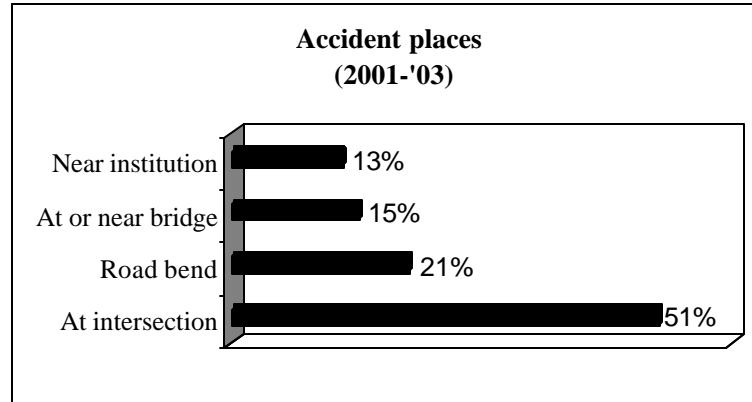
**Table 2.0: Accident collision type among Betila people**

Collision type	Number of accidents by year			Total
	2001	2002	2003	
Hit Pedestrian	10	18	12	41 (33%)
Between non-motorized and motorized vehicles	3	11	13	27 (21%)
Self accident	05	04	11	21(17%)
Between motorized vehicles	6	5	4	15(12%)
Between non-motorized vehicles	3	3	6	12(10%)
As passenger	2	1	3	6(5%)
Hit animal	01	01	02	02(1.5%)
Hit road side tree	00	00	01	01(.5%)
<b>Total</b>	<b>30</b>	<b>43</b>	<b>52</b>	<b>125(100%)</b>

Based on the accident collision statistics it can be said that pedestrians and drivers focus education campaign are absolutely necessary to reduce the increasing number of collisions.

**Accidents casualty by place (2001-2003):** The findings shown in figure 3.0 reveal that intersection is the most accident-prone spot, which is followed by bridge, road bend or busy locations like bazaars.





**Figure 3.0 Accident places**

**Causes of accident:** Causes of accident have been difficult to measure as pedestrians or passengers have a tendency to blame drivers on the one hand, while drivers blamed the victims or the road engineering for accidents. It is important to note that during focus group discussions and individual surveys, almost all informants have viewed road design problems like narrow road and bridges, broken surfaces of road and roadside as the cause of road accidents. In the household screening surveys, which focused on victims' point of view for accident, the majority of the respondents (62%) blamed drivers.

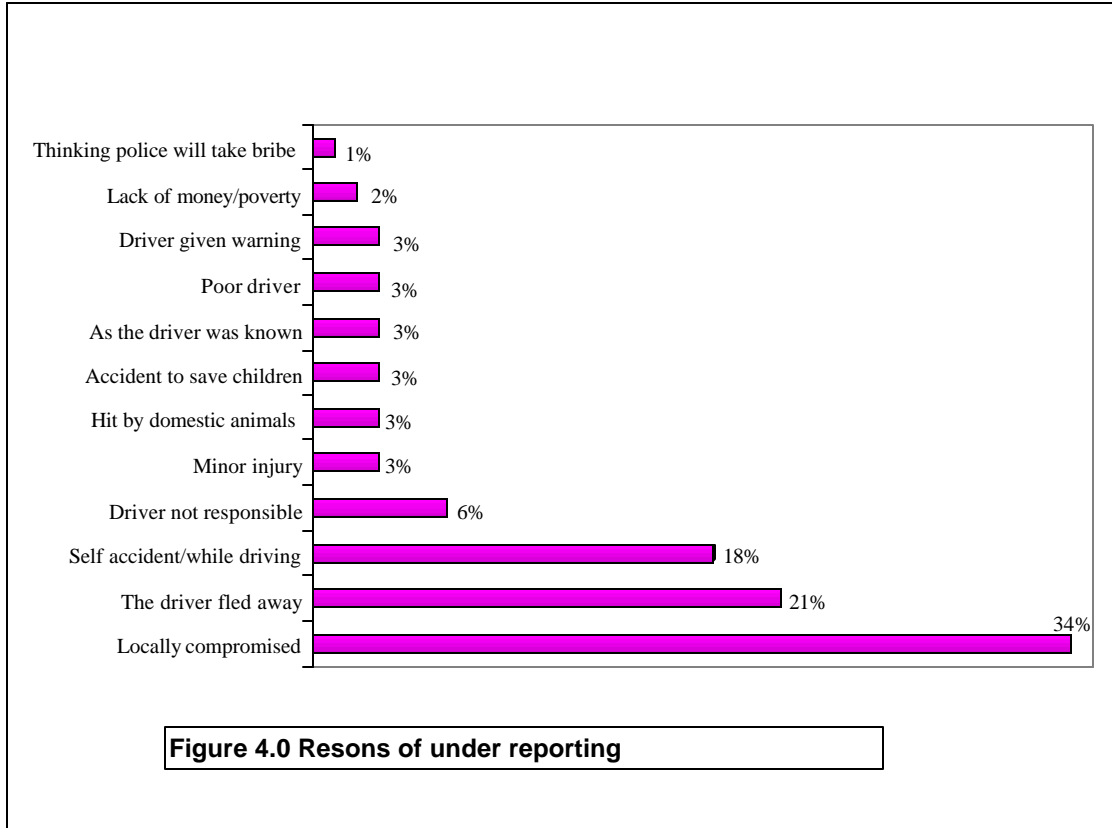
**Table 3.0: Cause of accident**

Particulars	2001	2002	2003	Total
Driver's behaviour	20	26	32	77 (62%)
Pedestrian behaviour	8	10	14	32(25%)
Passengers behaviour	02	01	02	06(5%)
Road engineering and maintenance	00	05	03	08(6%)
Improper use of road	00	01	01	02(2%)
<b>Total</b>	<b>30</b>	<b>43</b>	<b>52</b>	<b>125(100%)</b>

Here it is noticed that 92% of accidents occurred due to human error, whereas table-3.0 which shows places of accidents were found to be with engineering faults. Without proper skills to find causes of accidents, the tendency of the residents was to blame each other. So, based on this empirical observation, it can be strongly recommended that awareness about safe use of road s need to be increased, rather than focusing on engineering measures.

**Complain to Police:** Only one accident was reported to the police. Figure 4.0 shows that 34% of accident cases have been settled locally, either by paying some treatment cost or begging pardon or making some financial compensation. The second major reason for underreporting was drivers fleeing the scene (21%) with the accident vehicle.

The three years' accident statistics indicates that a vast number of accident casualties go unreported. Hence, this study strongly demands the concerned authority and the policy makers take appropriate measures for ensuring regular reporting of accident occurrences for investigation.



**Compensation received:** Out of 21 victims, 20 have received compensation from the drivers or owners of accident vehicles mostly in cash (70%) ranging from Tk. 20 to Tk.5,000. In the rest of the cases, the victims were provided part of the treatment costs. This also indicates that if people are made aware about post-accident measures like claiming compensation from the accident vehicle owners and insurance companies, they may seek and receive treatment. The pressure of paying money by the vehicle owners may influence him to appoint good drivers even if he has to pay the drivers more, but at least save compensation money for accident victims.

**Table 4.0: Received type of compensation**

Type of compensation		2001	2002	2003	Total	
Cash	20-100 Tk.	1	1	2	4	14 (73%)
	101-300 Tk.	00	3	3	6	
	301-500Tk	00	1	00	1	
	1,500 Tk.	00	2	00	2	
	5,000 Tk	1	00	00	1	
Treatment		3	2	00	5 (27%)	
<b>Total</b>		<b>6</b>	<b>10</b>	<b>6</b>	<b>19 (100%)</b>	

## 2.3 Individual questionnaire survey: Personal opinions/views

**2.3.1 Background:** The individual interview survey was executed for appraisal of Betila RS scenario from individual point of view. A total of 121 individuals of six different segments like children, pedestrians, parents, schoolteachers, drivers, community leaders and roadside shopkeepers were interviewed using a semi-structured questionnaire. This survey was found to be very effective for the persons who felt hesitant to express their own views or opinions at group discussion sessions.

### 2.3.2 Findings

**Roadside used:** The respondents were asked about the side of road they use normally for walking; the survey findings show that the majority of the respondents (70%) walk by the left side of road followed by 23% on right side and 7% use no particular side for walking.

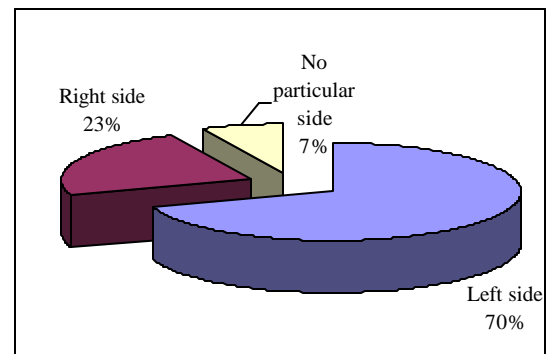


Figure 5.0: Walk facing traffic

**Mode of walking and crossing:** The survey also revealed that the majority of the respondents (65%) when accompanied with others walk behind the other, 30% stated that they walk side by side, while the rest (5%) followed no particular way.

Table 5.0 demonstrates that respondents don't follow safety rules while crossing the road. All respondents (children and pedestrians) reported to the interviewers that they just look or see if any vehicles are coming and then cross the road. Notable number of respondents reported to have crossed the road through walking straight across without even looking, whereas, about one fourth of the respondents stop and look while crossing road. This picture indicates that local pedestrians are very vulnerable road users, as they don't follow safe crossing rules, like stop on safe places, look to both sides of road, listen for the sound of coming vehicles and then cross road. The findings also reveal that people have no knowledge about safe crossing rules.

**Table 5.0: Crossing behaviour**

Particulars	*Children	*Pedestrian
Look only (coming vehicle)	20	20
Walk straight across	14	10
Stop and look only	5	4
Listen only	0	4
Look whether the road is vehicle free	2	0

\* Multiple responses has come from the same respondent

Stopping and waiting for the road to become free from vehicles are practiced by a negligible number of respondents, therefore, it can be assumed pedestrians don't have proper knowledge on walking and crossing roads safely. Hence RSE campaign is necessary to make them aware regarding pedestrians' good practices.

**Safe crossing places:** Table 6.0 shows knowledge on safe crossing places on the roads. Two groups of pedestrians: children (20 nos.) and parents (10 nos.) have been asked about safe crossing places. About half of respondents mentioned that a place far from junction is the safest place, followed by places far from bends and less crowded places.

**Table 6.0: Respondents' opinion about safe crossing places**

Particulars		Children	Parents
Places with good Visibility	Far from junction	9	6
	Place far from bend where vehicle can be seen	6	4
	Less crowded places	5	1
	Far from the parked vehicle	3	0
	Straight road	0	1
Pedestrian facility	Zebra crossing, foot over bridge	0	2

**Knowledge on dangerous places of a road:** In table 7.0, it is observed that all most all the respondents have knowledge about accident-prone areas of the road. Engineering features like road junctions, narrow spaces of roads and bridges, road bends and slope of bridges have been identified as dangerous places resulting in road accidents. Respondents identified poorly maintained road conditions such as broken roads as accident-prone areas as well.

**Table 7.0: Accident-prone places of road**

Road features		Children (20 nos.)	Pedestrians (20 nos.)	Drivers (NMV-15 nos.)	Drivers (MV-27nos.)	Parents (10 nos.)	School Teachers
Engineering features	At junction	19	19	15	27	10	19
	Narrow space of a road and bridge	10	16	6	22	8	8
	At road bend	7	11	9	19	7	14
	At or slope of bridge	7	7	6	10	3	15
Poorly maintained	Broken road, roadside and bridge	14	14	17	22	8	16
Busy locations	Bus stop, junctions and market	6	3	7	15	2	10

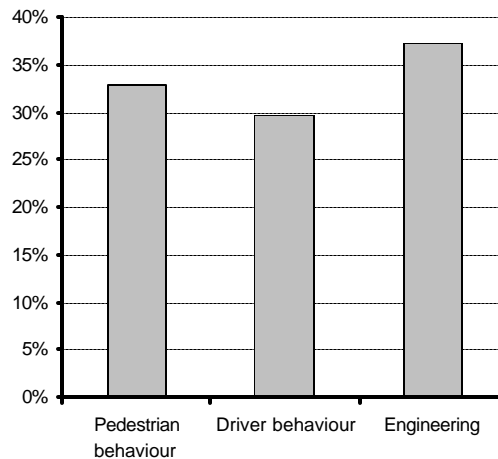
**What causes accident?** Respondents identified a great deal of problems causing accidents. The foremost factor as visualized by the respondents was related to the design and absence of regular maintenance of roads and bridges and the absence of pedestrians' facilities. In table 9.0 it is observed that overspending, overloading, drunk driving and overlooking traffic rules by drivers are major causes of road accidents. Respondents also mentioned that improper use of road and roadsides for drying and keeping goods, straw and keeping cattle etc. often are causes of accidents.



Playing carom on road

**Table 8.0: Local RS problems at a glance**

Problems in road design		Narrow road
		Absence of road markings and signs
		Insufficient space at junctions, bus stations
Poorly maintained road		Broken road surfaces and broken bridges
		Broken road and roadsides
Inadequate options for pedestrians		Hawkers, shopkeepers and rickshaw drivers obstructing road sides
		Insufficient walking space at road sides
		No footpath
Behaviour	Pedestrian behaviour	Lack of knowledge on walking and crossing rules
		Gossiping/sitting / lying/sleeping on road and roadsides
		Children playing /running on road/roadsides
	Improper use of road	Allowing domestic animals on road/roadsides
		Drying straw/goods/wastages on roads
		Roadside shops, tree/bamboo/bushes/tree plantations
	Passengers behaviour	Lack of awareness about using vehicle, getting down from running vehicle, pressure on driver for speedy driving
	Driver's behaviour	Reckless/over speeding/dangerous overtaking/out training and skill drive with carelessly vehicle
		Drive without skill, helper driving vehicles
		Poorly maintained vehicles
Over loading, drunk, unsafe driving, drive without lights, use of high beam lights, fake licenses, non-observance of traffic laws, talking while driving.		
Law enforcement	Absence of traffic police	
	Dishonesty of traffic police/collection of toll from drivers	



Before designing the interventions of the pilot project, a baseline was carried out to better understand the problems, needs and perceptions of various groups of people in the community with respect to road safety. The figure above summarizes the various road safety problems mentioned by the respondents grouped into three themes—those related to pedestrian behaviour, driver behaviour, and road engineering, i.e., construction, repair and maintenance. It is not surprising that road engineering related problems were the most predominant. The importance of drivers’ behaviour related problem is also not surprising. However, the respondents also thought that pedestrian behaviour is also an equally important problem area.

**What are the ways out?** *‘There is no way out without widening and improving our roads and roadsides’.* This is strongly recommended by the respondents for improving local RS situation. Respondents have preferred pedestrians including children and driver focused awareness campaigns for reducing road accidents. The teachers and parents were also preferred to be educated on RS and then disseminate the knowledge to their children and students.

**Suitable programmes preferred by respondents:** Respondents have expressed their preference to make people aware through mass media like television, radio and newspaper followed by meeting or discussion at home ground or courtyard, disseminate messages through poster, microphone, demonstration with picture, video show, staging theatre on RS issues and RSE at school etc.. Recommendations also come from students to mobilize people, especially the children through pictorial demonstration.

## 2.4 Focus Group Discussion (FGD): Group opinions/views

**2.4.1 Background:** This tool has been used for appraisal of Betila community on local RS issues within a group context. Accordingly a series of FGD sessions were carried out with 8 different sorts of local road users like children, parents, pedestrians, drivers, passengers, teachers, community leaders and roadside shopkeepers. Each group with homogenous occupation and age participated by 8-14 persons.

### Key issues of community survey/FGD

- Knowledge on road vocabulary
- Safe & unsafe places of road
- Road use patterns
- Existing RS problems & countermeasures
- Target groups for CRS interventions
- Recommended programs

### 2.4.2 Methods and materials:

The project personnel with required expertise facilitated all FGD sessions with the help of prepared checklists. Sessions were arranged according to the participants' convenience of time and places. To get more effective and verifiable information, a total of two of groups from each category was interviewed. During the FGD sessions, the participants were encouraged to identify their local RS in their own vocabulary that they use. All sessions were recorded in micro-cassette players with permission from the participants. A trained note taker took notes of all proceedings.

### 2.4.3 Findings

**Parts of a road used by pedestrians:** The FGD participants viewed that they usually walk on the left side of a road. Few of the participants said that they walk on the right side of the road to easily access places like right side markets, shop and other places. None, however, identified right side as the safest side for walking. Their view expressed may be quoted as follows:

*"We walk through the left side of road normally. We also walk on the right side of road. In fact, we don't use any particular side of the road. We walk wherever we feel convenient".*

**Safe crossing and accident black spots:** The findings reveal that participants have some idea about safe places like places with less traffic, zebra crossing, places where on-coming traffic can be seen from far away etc. Places like junctions (Betila intersection mentioned by all groups), road bends, bridges with high gradients, broken surfaces of road and bridges, crowded places etc. have also been identified as accident black spots.

**Table 9.0: Safe crossing places of a road**

Pedestrian	Children	Parents	School teachers	Passengers
<ul style="list-style-type: none"> <li>▪ Places with less traffic</li> <li>▪ Near zebra crossing</li> <li>▪ Far from junction</li> <li>▪ Near speed breaker</li> </ul>	<ul style="list-style-type: none"> <li>▪ Places with less traffic</li> <li>▪ Where on-coming vehicle can be seen from far away</li> <li>▪ Road with line/zebra crossing</li> <li>▪ Foot over bridge</li> </ul>	<ul style="list-style-type: none"> <li>▪ Looking or coming vehicle</li> <li>▪ Walk on straight roads</li> <li>▪ Stop, look at on-coming traffic</li> <li>▪ Far from slope of the bridge</li> <li>▪ Through traffic signal points</li> </ul>	<ul style="list-style-type: none"> <li>▪ Zebra crossing and traffic post</li> <li>▪ Far from junction or bends</li> <li>▪ Places with few vehicles</li> </ul>	<ul style="list-style-type: none"> <li>▪ Near speed breaker</li> <li>▪ Cross straight road</li> </ul>

According to the roadside small business group-

*“Junctions are dangerous places as these places are found to be always crowded. Rickshaw and passenger vehicles are parked here. They move in their own will. Drivers, passengers and even pedestrians don’t follow traffic rules”.*

**What causes road accidents?**

**Problems in road design:** Almost all participants viewed problems in road design like narrow roads for crossing and driving of heavy vehicles through Dhaka-Singair-Manikganj road as fundamental causes of local accident casualties. The pedestrian group said, ‘*Local pedestrian becomes more vulnerable when two buses or trucks cross each other giving little options for the pedestrians on both sides of local roads*’. This statement means that local road is very narrow and local pedestrians have no walking space



**Intersection:** accident black spot (a bridge with high gradient accessing the main road)

or space to stand on the roadside, when two large vehicles like two buses or trucks cross each other. Besides, the absence of speed breaker at junctions and road bends, higher gradient bridges and roadside canal etc. have been identified as RS problems by the participants.

*“Existing road and bridges should be widened first. People should stop keeping goods on road, to make existing road bends more visible,”* this demand came strongly from the participants of all groups.

*We need to be more careful while driving. Young children should be educated first. Safety rules should be taught to those who don’t know it”* the drivers spoke out during discussion sessions.



**Road condition:** The Dhaka-Singair-Manikganj road is an older and abundant road. Surfaces of this road and bridges on it are broken everywhere, which leads to increased accident casualties. All discussants disclosed this fact. Immediate construction or reconstructions of the road surfaces and bridges have been strongly recommended.

**Roadside used by Betila Pedestrians :** ‘Knowledge on safe use of road is a pre-condition for safety of the pedestrians’. But Betila pedestrians including children are hardly observed to be walking facing the traffic or crossing the road safely. This is due to their lack of knowledge on safe use of road.

**Key problems identified**

- Children, youth, aged people are careless on road
- Children run or play on road
- People gossip on road
- Women hesitate to cross road
- No knowledge on traffic signals

*“Usually we walk on the left side of road. We also use right side for walking. In fact, we don’t use particular side of a road. We use whatever we find convenient,”- unanimously said by the participants of pedestrians’ group.*

This picture reveals that local pedestrians are not aware about safety. Their ignorance often makes their journey dangerous. Here is a brief fatal case story of a 6 years old local boy.

**The tragic death of Billal**

*Billal aged 6 nicknamed Dulal was an affectionate local child. Their house was adjacent to the road.*

*Billal’s maternal uncle together with his aunt came to see Billal at their house with bananas for Billa. They called him to come and take the bananas. At that moment Billal was playing with his friends on the opposite side of road. He began to cross the road to meet his uncle. A tempo coming from Baleertek bus station at a high speed hit Billal and threw him about three metres away. Billal was seriously injured on his head and different parts of his body and breathed his last breath on the way to the Manikganj Hospital. The tempo driver Monu Mia also a resident of same area was trying to flee. He was caught by local people and was handed over to the police.*

*The driver Monu Mia who was blamed by local people for causing serious accidents even before, is drug addicted and holds no valid license. A case has been filed in the local police station and Monu Mia has to appear before the court in a month. Now he is trying to compromise with the parents of Billal’s.*

*The fatal incident of Billal reveals that Billal, his maternal uncle and the driver were equally responsible. Further Billal was playing on the roadside, which is also very dangerous. On the other hand, the driver Monu Mia was driving his tempo in such speed that he couldn’t stop. The house where Bilal lived with his parents was situated dangerously adjacent to the road, which is not supposed to be allowed by road engineering department.*

**Improper use of road:** Road encroachment is a major RS problem in Betila, as well as, in other places in Bangladesh. Most parts of Dhaka-Singair-Manikganj road are used for storing or drying cow dung, straw, keeping cows or goats on the sides, and running shops. This sort of road encroachment is also mentioned by discussants. According to the discussants, the best way to keep road from encroachment is by making roadside people and encroachers aware of the risks.



Storing straw on roadside: a typical scene of improper use of roadsides

**Driver’s behaviour:** “Reckless, over speeding, competing with others, over loading, driving with fake licenses and violating safety rules on roads are the main causes for accident casualties in Dhaka-Singair-Manikganj” Both drivers and other non-driver groups have mentioned this. The following are some typical behavioural problems of local drivers as identified by discussants:

- Using high beam lights, parking on road, not knowing traffic rules, driving without proper training
- Tendency to give no side to non-motorized vehicle by motorized vehicle
- Speeding, driving drunk, driving without light, and unskilled
- Driving poorly maintained vehicle
- Overtaking and over loading without knowing rules
- Having no brake system

**Possible ways out**

- Alert drivers to drive safely, ensure regular maintenance of vehicle
- Avoid overloading, drunk driving, follow traffic rules, ensure proper training
- Alert drivers to follow traffic rules within speed limit, drive carefully, avoid over loading
- Drive well maintained vehicle
- Alert vehicle owners on dangers of over working their drivers
- Alert drivers about traffic signals, safe parking and danger of drunk driving

**Passengers’ behaviour:** Discussants also spoke of lack of knowledge about safe use of passenger vehicle e.g., ways of getting into or down from a vehicle, getting into over loaded vehicles causing accidents. The participants suggested educating passengers of public transport and safe use of vehicle.



Travelling on roof of bus: a very common scene

**Ineffective law enforcement:** *“We drive with dui number (fake) licenses. Licenses are available if one can pay bribes. It is very difficult to get valid licenses*

with actual fees. One can easily get fake licenses spending only taka 1,200 to 2,000 without sitting for a test or interview, so drivers take this opportunity. It (authority) should stop giving fake licenses," said a group of bus and human howler drivers at Balirtek bus station near Betila Ward.

<b>Measures</b>
▪ Ensure effective law enforcement
▪ Need traffic police at road bends and junctions
▪ Need signboard near road bend and broken roads
▪ Issue legal licenses and renew them regularly
▪ Ensure driving with valid license
▪ Ease of issuing valid license, ensure valid license without bribe
▪ Organize Mobile Court to stop collection of toll from drivers
▪ Must ensure driving with valid licenses

"I, Sayed Ali-a auto-rickshaw driver of tempo, used to give Tk. 10-20 to traffic police as bribe when I am asked to show valid driving documents. As it is possible to drive a tempo with Tk. 10-20, so why do I go spend more money for actual license (fees Tk. 1,200 for a valid license). Our driver community takes this opportunity," said a tempo driver spontaneously.

The above situation indicates that malpractices are heavily practiced by the law enforcement sector. To improve the present situation, drivers strongly recommended issuing valid licenses with proper medical test and interview. They also spoke out for making the license issuing procedure easier.

### Who should be educated first?

The findings shown in table 10.0 demonstrated that pedestrians' list that included children, parents or guardians, illiterates and teachers were given preference to be given RS education first. Therefore, the discussants of FGD sessions preferred pedestrians' focussed RSE campaign. In fact, pedestrians are the most vulnerable road users as found in NRTA Report, 2002. The findings also reveal that RS education especially for children are effective tools for improving road users' behaviour on road (ADB, 1997; Sayer et. al. 2000).

**Table 10.0 Target people for intervention**

Pedestrian	Children	Parents	School teachers	Drivers	Passengers	Community leaders	Roadside business groups
Parents Children/ Youth Illiterate Older people	Children Driver Parents	Parents Children Driver Women	Women Children Guardian Drivers	Parents Children Drivers Older people	Children Older people Driver	Children Older people Driver Teachers	Children Parents/guardian Woman Older people

**Preferred programs:** Parents and pedestrians group opined, "through meeting, people can be brought together. They should be demonstrated on how accidents occur and what should be done to use roads safely.

*Persons unable to be present in neighbourhood meetings should be educated door to door” In fact, meeting especially at the courtyard has been preferred as effective way of carrying out awareness campaigns.*

### **Programs**

- *Meeting (at courtyard, homestead, para, CBO/NGO)*
- *School programs (curriculum, campaign)*
- *Television/radio based RS programs*
- *Mobile cinema/talky/video show*
- *Staging theatre*
- *Miking*
- *Demonstration with picture/Posters*
- *Popular/Boul song*
- *Provide traffic police or Road signs*
- *Rally/banner*

*“Taking awareness initiatives by locale people united or by union parishad will reduce accidents. Local people should be informed not to keep cow, straw or dry cow dung, and any kind of goods on road or roadside. Besides, existing law should be properly used against road encroachment”- said community leaders.*

Further, suggestions have come to include lessons in school curriculum, followed by television and radio based programs, disseminating RS messages through multimedia, using microphones.

## 2.5 Observation of Betila Pedestrians' behaviour and appraisal of concerned knowledge

**2.5.1 Background:** Bringing change in behaviour of a certain community to a particular issue is challenging, often a life long process. One of the prime focuses of this action research is to make people aware of safe use of road and thereby bring change in walking behaviour of Pedestrians. Keeping this in mind, an observation survey on walking behaviour, as well as, knowledge on safe walking rules of Pedestrians was conducted. This sort of observation survey may be complementary to find and get an actual idea about pedestrians' walking behaviour, while facilitate designing of initiatives for carrying out road use education campaign.

The survey was conducted at Betila portion of Dhaka-Singair-Manikganj road among 365 pedestrians, which continued from 07:30 - 11:45 am on 04 September 2003.

### Issues covered

- Behaviour:
  - side of road used by pedestrians
  - walking in line or row
  - hold hands of children by adult
  - male/female
- Knowledge on safe walking rules

<u>Key features</u>	
<i>Total observed pedestrians</i>	: 365
<i>Duration</i>	: 4.15 hours
<i>Target pedestrians</i>	: Betila Ward
<i>Walk facing traffic (total)</i>	: 166 persons (55%)
<i>Walk facing traffic knowing rules:</i>	17 persons (5%)
<i>Walk facing traffic/right side (General):</i>	41 % ( 149)

**2.5.2 Methods used:** Only pedestrians residing within Betila ward were considered for the survey. A total of four spots located at Palora bend, Betila -Outpara intersection, a place adjacent to Betila intersection, and Kheya ghat (Betila shoal jetty ) were selected initially. Amongst them, the area located in front of Joustna Hardware store near Betila intersection on Dhaka-Singair-Manikganj road was found to be used the most by Betila pedestrians and hence was selected for observation of walking behaviour.

The pedestrians walking on the right side of road were asked whether they belonged to Betila Ward. Whoever answered yes, was then requested to tell the interviewer what were the reasons for walking on right or left side of road. A checklist was used to keep record of the findings.

### 2.5.3 Findings

**Walk facing traffic-knowing rules:** The observation survey found only 17 (5%) pedestrians from the ward to walk facing the right side of road or knowing traffic knowing rules. The survey has also found a majority of them were Muslims (11 persons), and who have learnt about messages in favour of walking on the right side of roads from religious discussions. The existing knowledge level of pedestrians shows their vulnerability while on road.



Walking on left side

#### Reason of walk facing traffic

- Accident may occur : 1 person
  - Vehicle may hit from behind : 2 persons
  - Vehicle will not hit from back : 3 persons
  - Lesson of prophet : 8 persons\*  
(older persons mainly)
  - Heard from tablik jamat (religious gathering) : 1 person\*
  - May go to behesth/heaven (Hadith education): 2 persons\*
- \*All are male aged above 16 years

**Walk in-group:** Figure 6.0 shows two groups out of 35 have been found to walk in line or one behind another during the observation.

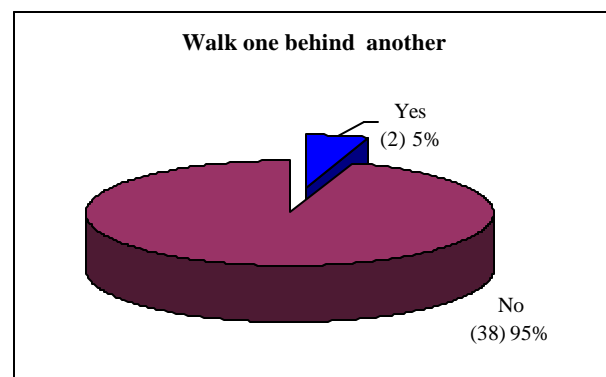


Figure 6:0 Walking behaviour while in group

**Holding hands of children (5-8yrs):** The safety of children especially the younger ones mainly depends on adults with whom they walk. But at Betila it was observed that five out of 11 adult persons walk without holding the hands of their younger children, even aged below six years.

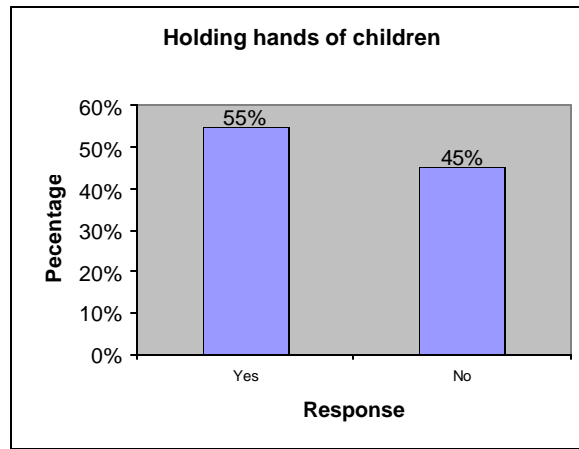


Figure 7.0 Walking behaviour of Betila residents while walking with children

Based on the findings of this survey it can be said that the existing knowledge on safe walking rules and road use behaviour of Betila Pedestrians especially the child pedestrians strongly require pedestrians' focused RS awareness education campaign.

## 2.6 Lessons learnt from empirical observation, in-depth interview and household survey and FGD sessions

From the findings of empirical observation, in-depth interview and household survey and FGD sessions, it has been noticed that the existing pedestrian facilities like sufficient walking space or footpath on local road is very inadequate. Although engineering problems (like very narrow space for crossing two heavy vehicle like bus or truck and bridges with high gradient and broken roadsides and road surfaces etc.) have been identified as foremost causes for road accidents, it has been revealed that the human behaviour or error was responsible for occurring all most all accidents (92%) as stated by respondents during appraisal.

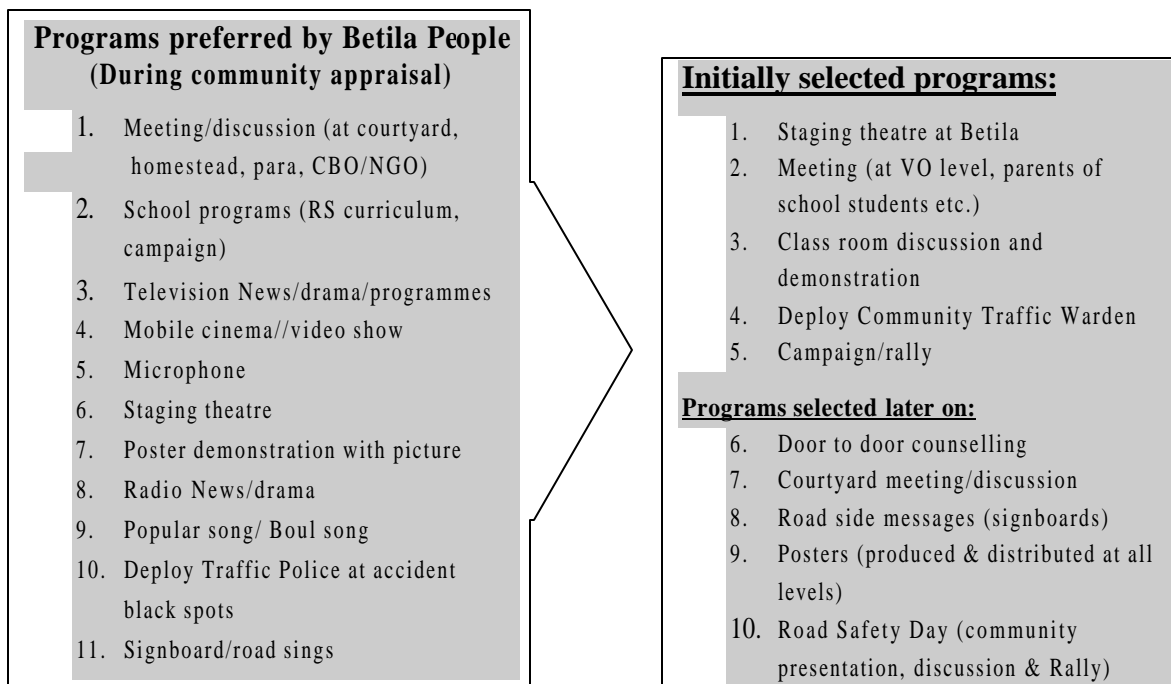
# CHAPTER THREE: TARGET POPULATION AND Appropriate programs FOR RSE CAMPAIGN

## 3.1 Target population

From community appraisal it was found that Betila pedestrians are the most vulnerable road users. Accordingly, pedestrian focussed RSE interventions have been found to be most preferred by drivers and passengers. Considering this preference and the vulnerability of pedestrians, the project has been under taken the following initiatives:

## 3.2 Appropriate programs

A set of multiple programmes like meeting or discussion at courtyard or homestead, classroom demonstration, staging of RS theatre and deploying Community Traffic Wardens were selected initially as RSE interventions. To make the programme more effective and to meet the demand of local situation, interventions like door-to-door counselling with posters, roadside pedestrian reminder messages (signboards) were also included.





## CHAPTER FOUR: DEVELOPMENT PHASE

### 4.1 Key messages identified for campaign

After identifying the target population and suitable programmes, the project then prioritised some pedestrian and passenger focused RSE messages for campaigning. All these messages, as stated below, have come from the people of Betila:

#### Prioritised messages for campaign and IEC

- Walk on right side of road facing oncoming traffic or on footpath
- Find a safe place to cross with a good view of moving traffic
- Stop, look both ways, listen and make sure it is safe to cross
- When walking with a child, hold their hand
- Don't cross in front of or behind a parked vehicle
- Don't run on or near a road
- Don't gossip or gather on the road or roadsides
- Don't use road or roadside for drying or storing crops/goods/straw/wood etc.
- Always tie your animals away from the road or roadside
- Never obstruct road or roadside with building materials/wood/fuel etc.

#### Additional messages

- When walking at night, wear or carry something that makes you easily visible by drivers
- Help the children or older people to cross road safely
- Use safe road to go school or elsewhere
- Don't get on or off a moving vehicle/bus
- Don't ride on the roof of a bus or truck
- Always tie your animals away from the road or roadside
- Don't run on the road or near the road

### 4.2 Suitable resource materials for campaign

**4.2.1 Production of Flip Charts & Posters:** A Flip Chart focussing mainly on road safety messages with picture and facilitators instructions (17 pages) for pedestrians have been prepared in Bengali as IEC materials. Besides, two posters with safe walking and crossing rules have been developed with the consultation and feedback from professionals, stakeholders and community members, and then been finalized.

**Table 11.0 Flip Chart and Poster at a glance**

<b>Particulars</b>		<b>Flip Chart</b>	<b>Poster</b>
<b>Target population</b>		<b>Pedestrians and passengers</b> (Literate and illiterate)	<b>Pedestrians</b> (Literate and illiterate)
<b>Contents</b>		<ul style="list-style-type: none"> <li>• Road vocabulary</li> <li>• What causes road accident?</li> <li>• Safe walking and crossing rules (do's &amp; don't)</li> <li>• Activities/behaviour which lead to road accident</li> <li>• Travelling by public vehicle</li> <li>• Post-accident measures/initiatives</li> </ul>	<p>Poster-1: Safe walking rules</p> <p>Poster-2: Safe crossing rules</p>
<b>Photographs</b>		Pictures used in the Flip Chart were taken from Dhaka to Manikganj via Singair Highway, Dhaka-Aricha Highway, Savar Training and Resource Centre, BRAC and Dhaka City Corporation Area.	Photos were taken from Dhaka to Manikganj via Singair road.
<b>Designed by</b>		Betila Community, Project personnel and BRAC Publications.	Betila Community, Project personnel and BRAC Publications.
<b>Field test</b>	<b>Target personnel</b>	<ul style="list-style-type: none"> <li>• Community</li> <li>• IEC professionals</li> </ul>	<ul style="list-style-type: none"> <li>• Community</li> <li>• IEC professionals</li> </ul>
	<b>Contents</b>	Size, colour, background and picture with context, messages, sequences draft Flip Chart and posters.	Size, colour, background and picture with context etc., messages, sequence s draft Flip Chart and posters.
	<b>Recommendations from field-test</b>	<ul style="list-style-type: none"> <li>• Vehicles and pedestrian from road to be deleted to make the road visible Page (P)-1</li> <li>• Trees colour to be equally green (P-1)</li> <li>• All bridges to be more prominent (P-2)</li> <li>• Dress of traffic police to be changed (P. 2)</li> <li>• Ambulance and fire brigade to be more clear (P-3)</li> <li>• Speeding bus to be more understandable (P - 6)</li> <li>• Women's head to be covered with dress (P - 10)</li> <li>• Advertisement on foot over bridge to be deleted (P-11)</li> <li>• T-junction and road bend to be more clear(P - 12)</li> <li>• New picture of bridge needed (P-12)</li> <li>• All pictures of chart no. 17 to be consistent/and hospital to be prominent</li> </ul>	<ul style="list-style-type: none"> <li>• Preferred blue colour as background</li> <li>• Posters to be colourful and attractive</li> <li>• Messages to be short, specific and easily understandable.</li> <li>• Light at night needs to be more prominent</li> <li>• Women's head should be covered</li> <li>• Road, footpath, roadsides to be more visible</li> <li>• Front of vehicle to be pedestrian facing (in poster no. 2)</li> <li>• Better if smiling women is excluded from the poster (safe crossing rules)</li> <li>• Trees colour to be equally green</li> </ul>
<b>Finalization</b>		Incorporated field-tested recommendations	Incorporated field-tested recommendations
<b>Dissemination</b>		Local education institutes, NGOs, CBOs, Community Volunteer, Stakeholders <i>(Distributed with demonstration)</i>	All households of Betila Ward, local tea-stalls, institutions, public places, grocery shops and local GoB/NGO offices with demonstration.

#### 4.2.2 Theatre for RS awareness campaign

Theatre staged by non-professional performers at courtyard or open place has been used successfully by BRAC since 1998 to promote social awareness at the grass root level. During theatre show, audience were encouraged to think about the road use issues depicted/portrayed in the show and then generate discussions about these issues. There was direct interaction between the performers and the audience.

##### Key features of development theatre

- *Based on actual local accident case study.*
- *No written script.*
- *A group consisting of 11 local non-professional actors and actress*
- *45-60 minutes with 9-12 sequences.*
- *Staged in an open place/courtyard*
- *Encourage audience to think about RS issues and generate discussions.*
- *Provide RS messages to audience with demonstration.*
- *Question and answer session.*
- *Keeping accident story in mind, the whole theatre is composed by the players sitting together.*
- *Each theatre has a theme song composed by players.*
- *One premier show arrange for each theatre before staging at community.*

The RS theatre group comprised of eleven non-professional actors (8 nos.) and actresses (3 nos.) was organised at BRAC Area Offices from local community. This group was provided one-week training at BRAC's training centre on RS issues. The training was conducted by BRAC RS professionals and popular theatre Specialists. After completing the training, the members of the drama group were sent to Betila to collect local accident case stories. The team collected six accident case studies and selected three cases from them to act out in the theatre.

**Production:** After collection of accident stories, the theatre players sat together to compose the key scenes of the act. A theme song or opening song to stimulate the audience was prepared. Road safety messages for pedestrians were used in the play. The performers rehearsed following a basic story line and produced one scene after another. A total of three RS dramas were produced and staged at Betila.

**Field test/premier show:** To improve quality and effectiveness of theatres one premier show was staged at non-intervention areas before having the final show. The first premier show was held at Faridpur TARC, BRAC. The premier shows for the second and third shows were staged at courtyards of Bangora village in Betila-Mitara Union of Manikganj Sadar Upazilla. The primer shows contributed noticeably to improve the performance of players, sequences of story, dialogues to make it more community friendly. The feedback came from the audience of premier shows, which were then integrated into the act.

## Flow chart of theatre production



## CHAPTER FIVE: RSE INTERVENTIONS AT BETILA

**5.1 Background:** After a series of consultation and discussion with community both at individual and group level, a set of interventions were selected for RSE campaigns. Local NGO networks were used. *Conjunctive approach* has been followed so that all segments of population come under the umbrella of RSE interventions. Thus, whoever was found to be absent in the theatre show due to local, cultural or religious restrictions were provided counselling on RS issues with demonstration at their respective homes or courtyard. The education campaign was designed to cope with local culture, beliefs, norms and people's preference as well as their conveniences etc.

**Table 12.0: Interventions at a glance**

Unit of RS Education	Target people	Tools used	Duration (session)	Key Messages
❑ RS Development Theatre	Betila People	Staged at courtyard and open places	45-50 minutes	<ul style="list-style-type: none"> <li>▪ Safe walking and crossing rules</li> <li>▪ Proper use of road and roadsides</li> <li>▪ Safe use of transportation</li> </ul>
❑ Courtyard meeting/ Door to door counselling	Betila people	Poster	30 minutes	<ul style="list-style-type: none"> <li>▪ Safe walking and crossing rules</li> <li>▪ Proper use of road</li> </ul>
❑ Classroom counselling (Local primary & high schools)	Students	Poster	15 minutes	<ul style="list-style-type: none"> <li>▪ Road vocabulary</li> <li>▪ Safe walking and crossing rules</li> </ul>
❑ Classroom counselling (BRAC's non-formal School)	Students/ Younger children	Flip Chart	45 minutes	<ul style="list-style-type: none"> <li>▪ Road vocabulary</li> <li>▪ Safe walking and crossing rules</li> </ul>
❑ Kishoree Path Kendra (Adolescent Study Centre)	Adolescents (female)	Flip Chart	45 minutes	<ul style="list-style-type: none"> <li>▪ Road vocabulary</li> <li>▪ Safe walking and crossing rules</li> </ul>
❑ Meeting with parents of non-formal school	Parents of non- formal school	Flip Chart	45 minutes	<ul style="list-style-type: none"> <li>▪ Safe walking and crossing rules</li> <li>▪ Proper use of road</li> </ul>
❑ Village Organization (VO) Micro-credit Group Meeting	VO members	Flip Chart	45 minutes	<ul style="list-style-type: none"> <li>▪ Safe walking and crossing rules</li> <li>▪ Proper use of road</li> </ul>
❑ Community Traffic Warden	Pedestrians Road encroachers	Motivation Guidance	8 hours a day (also 12 months even during post interventions)	<ul style="list-style-type: none"> <li>▪ Safe walking and crossing rules</li> <li>▪ Proper use of road</li> </ul>
❑ Roadside messages (Sign Board)	All road users	Sign Board	Permanent	<ul style="list-style-type: none"> <li>▪ Safe walking and crossing rules</li> </ul>

## 5.2 Major interventions

**5.2.1 RS theatre:** A total of three theatres, focused on pedestrians including children and local road encroachers and improper road users, were produced and staged at courtyard and local school ground of Betila from mid-September to December 2003. Each theatre staged at night and drew a total of 300 to 500 audience on average. The majority of the audience were women and children.



**Table 13: List of RS theatre staging venues**

1. Bahadur Daroga Bari Courtyard (Adjacent to Ataur Member Bari)
2. Kaju Mian Ground (Adjacent to Palora Bazaar)
3. Mollah Bari Courtyard (Adjacent to Betila Junction)
4. Badal Khan Bari Courtyard (Near Betila -Outpara Intersection)
5. Nat Mondir Ground (Adjacent to Betila Bazaar)
6. Badu Mia Bari Courtyard
7. Messer Mian Bari Courtyard (At Char Betila)
8. Maleka Member Bari Courtyard (At Char Betila)
9. Betila High School Ground

Lot of enthusiasm was noticed among the people especially children about theatre although during community appraisal they haven't mentioned it as a prominent mode of community intervention.

**5.2.2 Courtyard meeting:** During community appraisal it was found that the residents strongly preferred meeting or discussion on RS issues at courtyards—a place shared by more than one household in the rural area. In fact, over the decades, people have become widely familiar with NGO courtyard meeting. About 54% of local households are involved with NGOs like BRAC, Grameen Bank etc primarily for micro-credit. Their experiences may have encouraged them to sit in this type of informal and face-to-face interactive discussion session at courtyard. The project followed no structured time and place for conducting courtyard meetings at Betila. Considering the conveniences of local people especially for women, meetings were arranged. Each session continued for about 30 minutes.



**Demonstration at courtyard on how to walk safely with a child.**

**Key observation:**

- More effective and interactive for those people who find it inconvenient to come at public places.
- People were found comfortable to sit together and were interactive
- Required less time to organize these meetings
- Ensure presence of more people from the target households
- Attended by women and children mostly

**5.2.3 Individual counselling/door to door contact:** This campaign tool was considered suitable for people who felt uncomfortable to sit together in a group with members from other households and neighbourhoods due to local tensions, social and religious restrictions. It was also observed very effective especially for people who use the road for drying and keeping cow dung, straw and rear cattle on road or roadside. It has been observed that if the improper road users are given motivation in the meeting or in presence of another person of the community, they are often found embarrassed and start behaving responsibly. To avoid similar situation and as per preference of residents, door-to-door counselling on safe use of road were conducted with pictorial demonstration and informal discussions. Each meeting lasted about 15 minutes and was held at a time convenient for the villagers.



**Door-to-door counselling**

**Key observation:**

- Very informal counselling
- Effective for improper road users or local road encroachers
- People have been found very lively in expressing their views.
- For rapid mass RS awareness campaign
- Need less time to organize or gather students
- Found effective for rapid mobilization on safe use of road

## 5.2.4 Road Safety Campaigns:

Road safety campaigns have been carried out in the existing local educational institutions, NGOs groups/local networks, community groups and the project area for improving awareness of local community were as followed:

**School programme/counselling:** RSE counselling with demonstration and practices were carried out in classrooms to disseminate messages on safe use of road. Flip Chart was used during the campaign. At Betila, the school-based campaign was found very effective for rapid awareness of students. About 1,400 students from BRAC NFPE, 02 primary and secondary schools were brought under RSE campaign.



Classroom road safety education campaign using Flip Chart

**Table 14.0 Some key features of RSE at local schools**

Activities	Features
Main messages	<ul style="list-style-type: none"> <li>▪ Walking and safe crossing rules on road</li> <li>▪ Find a safe place to play-away from roads and traffic</li> <li>▪ Use safe road to go to school or elsewhere</li> <li>▪ Not run or play on road or near road</li> <li>▪ Post-accident measures</li> </ul>
Materials used	Flip Chart
Process	Deliberate messages through discussion and demonstration
Duration	20-25 minutes for each session
Meeting size	One classroom
Facilitated by	Project personnel
Schools	<ul style="list-style-type: none"> <li>▪ Betila Primary School</li> <li>▪ Betila High School</li> <li>▪ BRAC Pre-Primary School at Betila Ward</li> <li>▪ BRAC NFP School at Betila Ward (3 nos.)</li> </ul>

**NGO Group Meeting:** BRAC' development programme is based on Village Organization (VO) which is comprised of 20-45 disadvantaged poor women. The members of VO meet once in a month for an issue based awareness meeting. A group of BRAC's trained field staff facilitated training on safe use of road in these monthly issue meetings using Flip Chart. A total of 200 persons were given RSE messages with demonstration during RSE campaign.



Road safety awareness of NGO group members



**Parents of non-formal school students:** A total of 100 parents of BRAC non-formal schools of Betila Ward were brought under RSE campaign. At monthly parents meeting, RSE issues were discussed with practices at all BRAC NFPE schools.

**Kishoree Path Kendra/Adolescent library:** Trained volunteers of local NGOs facilitated RSE awareness training for the members of local Kishoree Path Kendra (KPK). The Flip Chart was used as resource materials during the training. It is pertinent to be mentioned that KPK is a centre for recreation for the female adolescents, such as, sitting together, gossiping, reading books, playing games etc.



**Community Traffic Policing:** For ensuring good practices of road users, three Community Traffic Wardens (CTWs) including two female and one male from the local area selected from unemployed poor have been deployed at project area. The CTWs visible on Betila road in green aprons with BRAC logo were given a daylong training on RSE and their duties and responsibilities.

**Some major duties of CTWs:**

- ❑ *assist road users to use road safely*
  - *walk facing coming traffic/right side of road*
  - *motivate people not to dry goods/keeping goods on road*
  - *motivate people not to allow domestic animals on road or road side*
  - *motivate children not to play on roads or near roads*
  - *motivate people to avoid gossiping on road*
- ❑ *assist drives to park vehicles in proper places*
- ❑ *help children, older people and disabled to cross the road*
- ❑ *assist project personnel to mobilize RS awareness interventions*

**Local Community Group:** For sustainability of ongoing interventions, the project has identified and mobilised a group of interested and motivated people from Betila. As part of this, a half-day learning and sharing meeting was held at project area office on 21 December 2003 with participation of local elites, heads of local institutions, local government representatives, NGOs and stakeholders and local volunteers. The participants agreed to cooperate to continue the improved RS situation even during the post-intervention



period. Besides they have become a more informed local group of people who would be able to continue the activities, take new initiative with local effort and maintain contact with traffic police, road engineers, transport authorities/associations.

**Road Safety Day at Betila:** For mass awareness and to create more enthusiasm among Betila and neighbouring people, Road Safety Day was jointly observed by local community and BRAC on 27 January 2004.

- **Visualization:** Activities and findings of community appraisals and initiatives were taken regarding RS and lessons learnt until this day were visualized at Palora school ground- a local Primary school. People coming from different segments asked the facilitators of visualization stalls different questions and their concerns with much interest.



Project activities visualized on Road Safety Day

- **Sharing session of accident victims:** At a discussion session on RS Day two, members of local accident victim households and one victim himself stated the causes and post-accident sufferings of their road accident.

*“Let accidents snatch no more sons from their mother’s lap like me”*

*Billal’s mother-a 6-year child who died in a tragic road accident said in an emotional expression, and burst into tears.*

Along with *Billal’s* mother were *Chunnu Mia* who lost his right leg and became an invalid and *Abul Khair*, son of the *Jahir Ali* who died in accidents narrated their sad plight.

- **Community feeling sharing:** Speakers from Betila community expressed their feelings and experiences regarding RS initiatives. *Dolly*, a 45 years local women said, *“from natak (theatre) I have learnt how to walk and cross the road safely. And whenever I walk by the left side of road and community traffic wardens notice it, they usually tell me to walk by the right side of road. We are very fortunate to have this RS campaign in our area. I also request the authority of BRAC to carry out similar activities in other areas”.*

Joustna-a class nine student of local high school said, *“Now I walk on the right side of road and feel safer than before. I have learnt this from BRAC’s theatre staged at our courtyard and from posters describing walking rules. I have told my friends and relatives to follow the walking rule. You please follow walking rules and tell others to do it”*.

Like Dolly and Joustna participants of different segments of Community expressed their feelings about what they have seen, learnt and want to do in the future. The discussants raised their demand for deploying traffic police at Betila Intersection-an accident black spot of the area. The Additional Traffic Police of Manikganj district assured them that their local demand will be met immediately. It is important to mention that one traffic police was deployed at Betila Intersection in response to the community demand two days later. The members present on Road Safety Day agreed on the dire consequences of road accidents and reiterated their will to make the community more aware of rules and good practices on safer use of road and road facilities.

- **Distribution of reflectors for pedestrian’s visibility at night:** Five reflectors were distributed among accident victims, local night guards and local people.
- **RS Day Procession:** At the end of the meeting, a procession with colourful RSD banner, placards, festoons and slogans were brought out. The procession started from Palora school ground and ended at Betila-Outpara intersection (about one km). Hundreds of roadside residents including women observed the procession with great enthusiasm.



Procession in observance of Road Safety Day

**Roadside messages with signboard:** Signboards with road safety messages on safe walking and crossing rules were erected at four entry points of the Betila Ward. These were observed to be very effective and attractive for the people who use the road. The signboard contents remind them of the RS messages they received earlier through different interventions.



Signboard at entry and exit of study area & contains messages on walking and crossing

The above-mentioned RSE interventions before have been carried out at Betila during the project period in a conjunctive way. To cope with the local situation, a certain amount of flexibility has been followed. Considering local constrains, demands and situation, multiple programmes have been undertaken to reach all segments of Community. All interventions were identified, designed and implemented as per desire and preferences of local people.

## CHAPTER SIX: EVALUATION

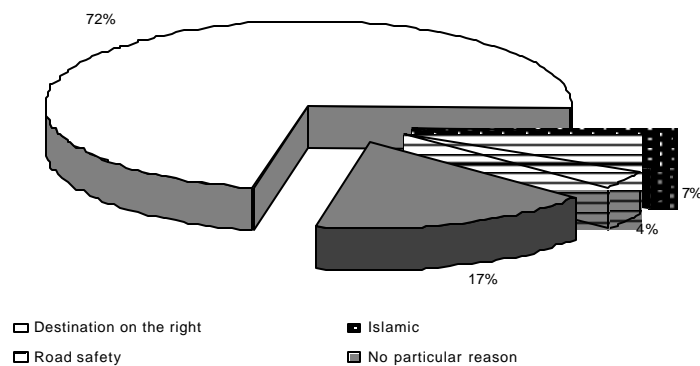
### 6.1 Findings from pedestrian observation data

In order to assess actual practice, we observed pedestrians and their road walking behaviour both before the intervention and after. The day (Thursday) place (middle place between Betila and Pallor road bend of the Dhaka-Manikgonj road), time (7 AM to 11 AM), number (365 pedestrians) and the general composition (male and female children, adolescents and adult) were kept the same to allow credible assessment of change over time.

#### Walking on the right side of the road

Total percentage of people walking on the right side of the road during baseline observation was 45%. We asked those walking on the right side of the road during the baseline observation the reasons. We get the following distribution (Figure 8.0) suggesting that the most predominant reason was because the destination towards which they were walking happened to be on the right side of the road. Only 4% of the respondents said that they were walking on the right side because it was safer to do so, while another 7% did so because it was Islamic to walk on the right side. 17% did not have any particular reason. All of those observed to be walking on the right side of the road during the post intervention, said that they did so because of road safety reasons.

Figure 8:0 Reasons for walking on the right side of the road at baseline

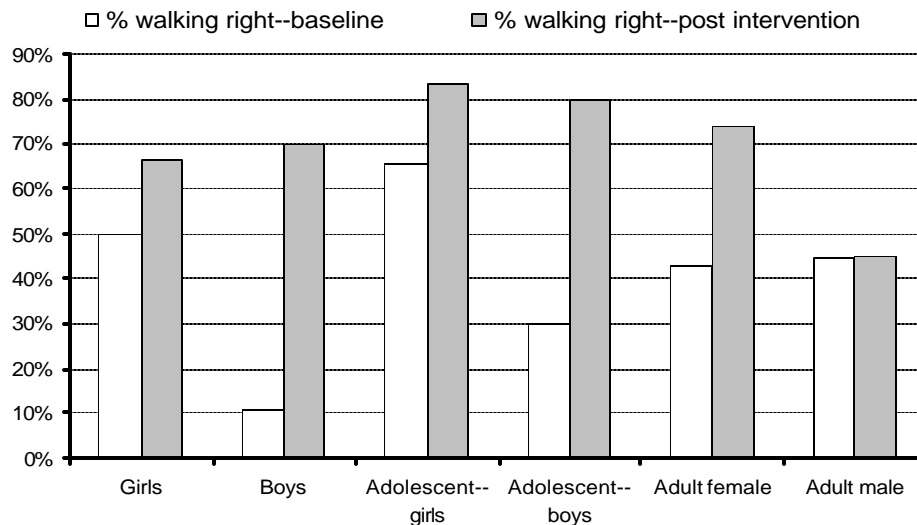


The percentage of pedestrians walking on the right side of the road increased to 66% during the post intervention observation. However, the increase between the baseline and the post intervention observation period was not uniform across age and sex. The following figure (Figure 9.0) gives an age and sex specific breakdown of the change in walking behaviour between the two periods.

The baseline incidence of walking on the right side for female children and adolescents were much higher than that of male children and adolescents. The baseline difference was particularly sharp between male and female children. For adult male and female the baseline incidence of walking on the right side of the road was pretty similar.

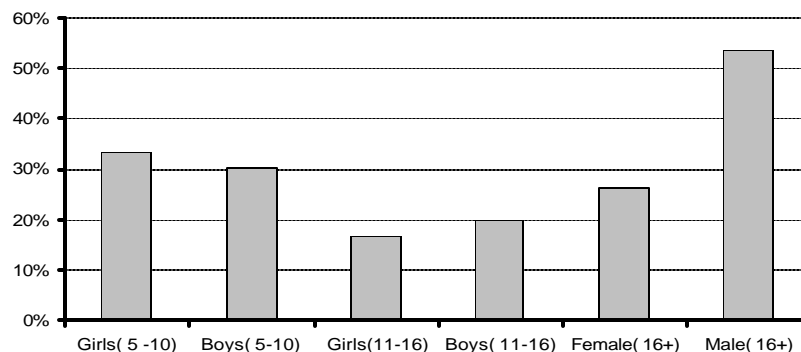
However, the change between the baseline and post-intervention observation suggests that except for the difference between adult male and female, the sex gap that was observed during the baseline was almost closed for the other two age groups, i.e. children and adolescents. There was almost no difference in the incidence of walking on the right side of the road between the two periods for the adult male. Given that this is the population group that is likely to be the most predominant as pedestrians<sup>1</sup>, the lack of change in walking behaviour that we observe for this group is a matter of concern and requires further exploration.

Figure 9:0 Walking on the right side of the road: Change from Baseline



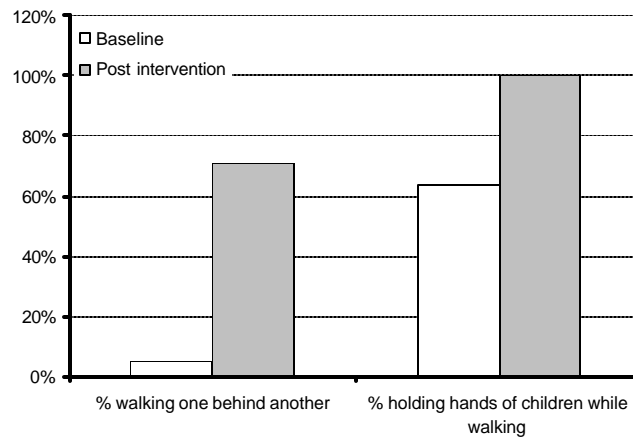
We asked all the pedestrians, irrespective of the side of the road they were walking on, if they knew of the importance of walking on the right side to minimize accident possibilities. All of the respondents said that they did, suggesting that the intervention had been successful in terms of disseminating the knowledge of safe road walking. However, as the Figure 9.0 above indicates, not all were practicing the knowledge—34% of the pedestrians observed during the post intervention were not walking on the right side of the road. This gap between knowledge and practice was again not uniform across the various pedestrian groups observed—it was the highest for the adult male group and the lowest for adolescent girls. Generally, the knowledge-practice gap was lower for female than male across the various age groups (Figure 10.0).

Figure 10:0 Knowledge-Practice Gap



<sup>1</sup> The adult male group constituted over 40% of the observed pedestrians.

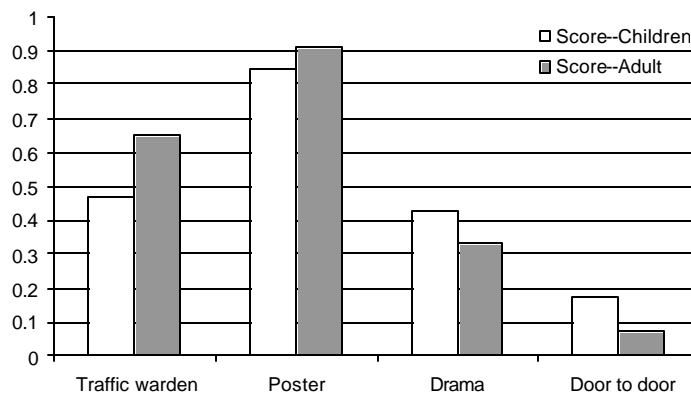
Figure 11:0 Other good walking behaviour



As the sample size is low (13 in baseline and 48 in post intervention observation), we pool the data to assess the changes that have taken place with respect to two other variables—walking behind one another rather than side by side, and holding the hand of children while walking. We find that there has been significant improvement in both of these since the baseline situation.

**6.2 Method preferences:** The pilot programme used a range of methods derived through action research to increase knowledge, change attitude and influence practice of pedestrian behaviour. In the post assessment phase, we asked a sample of 40 individuals, (20 pedestrians, and 20 children) on the methods they found most effective. These methods were progressively developed and sequenced to ensure the maximum effectiveness. While interpreting the following results it is thus important to note the sequential nature of the methods used by the intervention.

Figure 12:0 Scoring of method preferences



The sample respondents were asked to rank their preferences among the various methods used by the programme. We developed a scoring out of these responses by assigning a weight of 3 for the most preferred method, 2 for the second preferred, and 1 for the third preferred one. Then we standardized the actual raw scores we obtained for each of the methods by dividing it by the maximum possible score, which is when all the respondents ranked an option as the most preferred. That allowed us to have a standardized score for each of the methods ranging from 0 to 1.

## CHAPTER SEVEN: DISCUSSIONS AND CONCLUSIONS

- This paper presents a community action research in which the people of Betila Ward-a typical rural area of Bangladesh played the key role in identifying local road safety problems, then participated in designing and implementing possible countermeasures. The research is based on empirical observation, investigation (questionnaire survey) and FGD exercises with different segments of the community and accident casualty records. The project cycle was divided into four phases like preparatory, development, implementation and dissemination. A 'before and after intervention' evaluation process has been applied to see the impact of interventions in improving local road users' knowledge and behaviour. Triangulation was made among observation, investigation and existing accident information. It is to be mentioned that no significant differences were found between quantitative (questionnaire survey) and qualitative tools (FGD & case studies) applied during community appraisal.
- During community appraisal, it was observed that only 5% of the pedestrians walked by the right side or knew proper traffic rules. This picture revealed the vulnerability of pedestrians on road. The accident data reveals that road traffic accidents are increasing alarmingly. During 2001-2003 one incident of accident (out of 125 accidents) were reported to the police. The findings show that more than half of the accidents (51%) occurred on local road junctions and the human behaviour was the first and foremost cause of accidents (92%). Problems of underreporting of accidents were observed to be very high among surveyed people. Only one fatal accident out of the 38 serious accidents was reported to the local police station. Majority of these serious accident incidents were settled through compensations.
- The foremost problem as visualized by the respondents is to do with the design and regular maintenance of road and bridge and absence of pedestrian facilities. Discussants spontaneously uttered that by educating people and drivers' accident can be reduced considerably. Further, drivers strongly opined that driving licenses should be issued after physical fitness test and interview and they also suggested making the license process easier.
- The community preferred pedestrians focused RSE campaign. A multiple interventions like homestead or neighbourhood based meeting, school based RSE campaign, television and radio-based programs, disseminating RS messages through multimedia, staging theatre locally and deploying traffic police were recommended from the local community. Respondents have expressed their preference to make people aware through pictorial demonstrations, using microphone and folk songs.



- *Today about 100% people of Betila Ward have correct knowledge of safe walking and crossing rules. Now Majority of local residence can be found walking through right side of road facing on coming traffic, which is the universally accepted safe way of walking. The local students are hardly observed walking on the left side of road. What were the reasons behind this dramatic improvement in knowledge, as well as, behaviour of Betila pedestrians within four months of interventions?*



A recent picture of pedestrian walking on right side

- The community was involved in activities during appraisal of local RS situation and their needs. And following the preference of Betila people and existing resources of the project, a set of multiple programmes like RSE demonstration at courtyard, forums of local NGOs meeting, classroom discussion and demonstration, staging RS theatre and deploying Community Traffic Warden were selected initially. Further to meet community demand and for rapid mobilization, programmes like door-to-door counselling and pedestrians reminder roadside messages through signboards were also initiated. To make the interventions more effective, Pedestrians' focussed on two posters and a Flip Chart that were used during RSE campaign. A certain amount of flexibility was followed throughout the project cycle for coping with the local culture, people's choice and demand and existing constrains. *Conjunctive approach* is followed so that all segments of population come under the umbrella of RS awareness interventions. Accordingly, whoever found absent in theatre show due to cultural or religious restrictions, were provided with counselling on RS issues with demonstration at their respective house or courtyard.
  - Further the project followed no structured time and place for conducting courtyard meeting at Betila. Considering the conveniences of local people especially for the women, courtyard and monthly meeting of NGOs were organized and a total of three theatres were staged one after another at courtyard and local school ground from mid-September to December 2003.
  - Among interventions, theatres, courtyard and door-to-door counselling, school campaign and deploying of CTW were observed to be very effective and attractive to local people.
- The project interventions have already ended in February 2003. CTW are still motivating and assisting local road users as demand has come from Betila people to continue their activities for a few more months. Lot of interest is being noticed among the local elites, heads of local institutions, local government representatives, NGOs and stakeholders and local volunteers in this area. Strong requests have come from local Upazilla RS Committee for replicating similar campaign in other areas of Manikganj Upazilla.

Based on the observation, experiences and lessons learnt from community based action research initiatives carried out at Betila, the project appears to be very successful in making pedestrians aware of safe walking rules and crossing of road. If local people are involved in identifying their road safety problems and possible remedies, and participate in interventions according to their preferences, it is certainly possible to bring changes in knowledge and behaviour of road users. However, there needs to be strong commitment to mobilize and bring people of different segments under one umbrella to fight road accidents.

## **LESSONS LEARNT**

Betila is a successful road safety education campaign, which has focused mainly on pedestrians. The key leanings of this project are:

- Road safety campaign becomes effective if community is involved in identification of the problems and designing of countermeasures.
- Adopting locally preferred and appropriate programmes render rapid mobilization of community for road safety campaign.
- Road engineering facilities are important towards a successful to reduce pedestrian fatalities caused by road accident
- Provision of pedestrian facilities through road engineering measures is generally viewed as not feasible by road authorities
- The local accident-incidents revealed human behaviour as the major factor behind accidents (92%) so road safety awareness campaign needs to be conducted for improving road users' knowledge, attitude and subsequent behaviour.
- Interventions should not be structured and predetermined, keeping it flexible to suit local conditions help make awareness campaign effective.
- Emphasis should be given on local knowledge, skills and capacity of local people.
- Community's commitment to improve road safety is important for a successful campaign.
- It is easy to bring notable change in the knowledge and subsequent behaviour among children than that of adults.

There was almost no difference in the incidence of walking on the right side of the road between the two periods for the adult male. Given that this is the population group that is likely to be the most predominant as pedestrians<sup>2</sup>, the lack of change in walking behaviour is a matter of concern and requires further research

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