



Impact Evaluation Study of Construction of Bridge on Upazila and Union Road Project (2nd Revised)



Carried out by
Evaluation Sector
Implementation Monitoring and Evaluation Division (IMED)
Ministry of Planning, Government of the People's Republic of Bangladesh

Conducted by
Research Evaluation Associates for Development Ltd. (READ)

June 2012

Impact Evaluation Study of Construction of Bridge on Upazila and Union Road Project (2nd Revised)

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FOREWORD

Local Government Engineering Department under the Ministry of LGRD and Cooperatives implemented the project titled "Construction of Bridge on Upazila and Union Road Project (2nd Revised) all over Bangladesh from July 1998-2010. The actual cost of the project was Tk. 17,020.55 Lakh.

Evaluation Sector of Implementation Monitoring and Evaluation Division (IMED) under the Ministry of Planning through open competition contracted out the evaluation of this project to M/S Research Evaluation Associates for Development Ltd (READ), a Consulting Firm. The major objectives of evaluation were to review the construction status of the bridge/culverts on upazila and union roads under the project, rapid supply of agricultural inputs, marketing of agricultural products in a better way, increase in agricultural products, expansion of agro based industries in the project areas, generation of employment opportunities under the project, both long & short term, for the local people and to identify the strengths and weaknesses of the project and suggest appropriate measures to overcome the weakness, in future similar projects.

In many respects, the project outcome has shown that the people are now having better standard quality lives and the project generated direct employment opportunity to the local people. One of the major recommendations from the findings was that depending on the size and capacity of the bridges, the future project and construction work should have the provision of heavy structure for plying heavy vehicles, if needed. The study recommended that before selecting sites for implementing any future projects river morphology study should be conducted.

I sincerely congratulate M/S READ team for conducting the evaluation study and for successful completion of the report in time. I also thank Syed Md. Haider Ali DG (Evaluation Sector) along with his professional colleagues to provide guidance and supervisory support to M/S READ team members. I would also like to appreciate LGED officials and local administration for their cooperation and spontaneous response of project beneficiaries and participation of local influential /civil society members in the local level workshop.

I am very hopeful that the recommendations of the evaluation study will be much helpful in improving implementation of similar projects more cost-effectively in future.

(Md. Mozammel Haque Khan)
Secretary
IMED, Ministry of Planning

PREFACE

During the financial year 2011-2012, Evaluation Sector, IMED conducted the impact evaluation of 10 completed GoB projects of which 7 projects have been evaluated by outsourcing research firms and the rest 3 evaluation studies have been completed by the in house professionals of the Evaluation Sector. One of the outsourcing firms- M/S Research Evaluation Associates for Development Ltd (READ) has been awarded the contract-money of taka 1,841,011.00 lakh by the Evaluation Sector of IMED, Ministry of Planning to carry out the impact evaluation on the Project titled " Construction of Bridge on Upazila and Union Road Project (2nd Revised)" which was implemented by Local Government Engineering Department under the ministry of LGRD and Co-operatives all over Bangladesh from July 1998-2010. The actual cost of the project was Tk. 17,020.55 Lakh .

The major objectives of evaluation were to review the construction status of the bridge/culverts on upazila and union roads under the project, rapid supply of agricultural inputs, marketing of agricultural products in a better way, increase in agricultural products, expansion of agro based industries in the project areas, generation of employment opportunities under the project, both long & short term, for the local people and to identify the strengths and weaknesses of the project and suggest appropriate measures to overcome the weakness, in future similar projects. To carry out the evaluation work, the consulting firm conducted field investigations in 60 villages of 30 Upazilas in 14 districts; interviewed 5400 respondents (intervention =3600; control=1800); conducted 181 intensive interviews and 30 FGDs. The study also observed the physical condition of the bridges on the spot through physical verifications of the sample infrastructures; and conducted one local level stakeholders' workshop. The study further reviewed the project documents like PCR, PP and Evaluation Report, Progress Report etc.

Some of the findings of the evaluation study are found remarkable: People are now having better standard quality lives and the project helped in generating direct employment opportunity to the local people. The farmers are now more interested to produce their goods in bulk as they have been ensured the fair price due to direct connection with the whole sale depot. This has eased the exploitative role of middle men who virtually exploited them in a monopoly way; improved communication network, the local people have better avenues of income and employment at local level, even they can explore jobs and business in the capital city Dhaka. Moreover, the improve road communication has saved local people's time, energy and efficiency and local people are becoming more efficient and able to travel between places are now becoming more convenience and comfortable. The findings of this impact evaluation are also presented in a workshop organized by the Evaluation Sector, IMED. Workshop has been attended by concerned professionals represented by the country's reputed agencies, project personnel both from the Ministry and the directorate levels and invited guests of different organizations.

I take the opportunity to congratulate M/S READ team for conducting the evaluation work and also concerned IMED professionals in making total efforts to complete the report in time. I also express my thanks to officials of LGRD and Co-operatives Ministry for their kind cooperation. Thanks are also due to all members of Technical and Steering Committee members especially to Secretary, IMED for providing us useful advice and guidance. I hope that the lesson learnt and recommendations that are made would contribute to improve the quality and effectiveness of the future project to be implemented by LGRD and Co-operatives.

(Syed Md. Haider Ali)
Director General
Evaluation Sector, IMED
Ministry of Planning

Abbreviation

BDHS	Bangladesh Demographic Health Survey
BIDS	Bangladesh Institute of Development Studies
CNG	Compressed Natural Gas
DPP	Development Project Proforma
DHQ	District Headquarter
FSU	First Stage Sampling Unit
FGD	Focus Group Discussion
GC	Growth Center
GOB	Government of Bangladesh
HSC	Higher Secondary Certificate
HYV	High Yielding Variety
IMED	Implementation Monitoring and Evaluation Division
LGED	Local Government Engineering Department
LIV	Local Improved Variety
MoP	Muriate of Potash
NGO	Non-Government Organization
NHQ	National Head Quarter
PCR	Project Completion Report
PER	Project Evaluation Report
PEP	Production and Employment Program
QCO	Quality Control Officer
READ	Research Evaluation Associates for Development Ltd.
RCC	Reinforced Cement Concrete
SPSS	Statistical Package for Social Science
SSC	Secondary School Certificate
TOR	Terms of Reference
TSP	Triple Super Phosphate
UNO	Upazila Nirbahi Officer
UP	Union Porishad

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Executive Summary

For development of agriculture and over all socio-economic development of the country, Government has placed priority for development of roads, bridge culverts and markets. The improved communication network, improved marketing facilities and ensuring fair prices to the producers enhances buying capacity of the rural poor which improve the quality of lifestyle and socio-economic condition of the rural people. Initially this project was taken up for construction of portable steel Bridge under Netherlands ORET assistance with a motto to provide 7060 m Steel Bailey Deck over the RCC substructure. But due to non-availability of steel deck such bridges could not be made functional. On the other hand, local people demanded to take appropriate measures to complete the bridge and open them. In the circumstances, it was proposed to construct RCC deck on the already completed substructures. The design of the bridge under construction was made in such a way that RCC deck could also be constructed in case of non-availability of steel decks. The objectives of the project was to improve rural communication network with the growth centers and hat/bazaars through construction of bridge/culverts and facilitate movement of agricultural produces to get fair price of the goods they produce through improved road network and thereby encourage agriculture production.

Project Profiles at a Glance

➤ Name of the Project	:	"Construction of Bridge on Upazila and Union Road Project (2nd Revised) "
➤ Sponsoring Ministry/Division	:	Ministry of Local Government, Rural Development and Co-operatives/ Local Government Division
➤ Executing Agency	:	Local Government Engineering Department (LGED)
➤ Location of the Project	:	All over Bangladesh
➤ Estimated Cost (in Lakh taka) :		
	Original	18722.00
	Actual	17,020.55
➤ Implementation Period	:	
	Original	July 1998 -- 2003
	Actual	July 1998 -- 2010

Objectives of the current Assignment as per ToR

- i) Review the construction status of the bridge/culverts on upazila and union roads under the project;
- ii) Assess the impact of the project on following major expected areas: A. Rapid supply of agricultural inputs; B. Marketing of agricultural products in a better way; C. Increase in agricultural products; D. Expansion of agro based industries in the project areas; E. Generation of employment opportunities under the project, both long & short term, for the local people; and
- iii) Identify the strengths and weaknesses of the project and suggest appropriate measures to overcome the weakness, in future similar projects.

Study Methodology: The broad objectives of the current evaluation were to review the construction works of Bridges (Portable Steel/ RCC Deck): present condition and coverage of target numbers in the project sites and to assess the impact of the project on agricultural production and income generation. The project evaluation was conducted at three levels:

- Review of DPP, PCR and allied documents to undertake comparative assessments by budgetary provisions to specify and determine the level of physical and financial progress measuring targets and achievements;

- Assessment of construction work (present condition and coverage of target numbers) of the bridge/culverts were achieved through sample checks through on-the-spot physical verifications; and
- Assessment of the impact of the project interventions on acceleration of agricultural production and income generation achieved by comparing the findings of the treatment area (intervention areas) with those of the comparison areas where the treatment is absent or at lower proportions. The specific project treatments were to improve rural access/facilitate agricultural production and establish linkages between the growth centers, union parishad, rural hats and bazaars, schools and health centers and also generate employment opportunities for the rural poor including women.

Study design included sample spots (Villages) both as Intervention/Treatment and the Control/Comparison areas. The Intervention areas referred to villages (within unions and mouzas) included in the project and where bridges/culverts constructed; and the latter (Comparison areas) referred to villages (within unions and mouzas) with either no bridge/culvert connecting rural roads or are at a lower proportion.

Data Collection Period and Procedures: Data for the study were collected between March, 2012 and April 2012. Data were collected from the 14 Districts, 30 Upazilas, 60 Union/Villages (for both Intervention and comparison areas) comprising a total sample households of 3000 from the intervention areas and an additional 1500 households from the control areas with 5400 respondents. The data collection status is as follows:

- Hundred percent sample household survey for gathering quantitative data (beneficiaries interpersonal interviews) was conducted and successfully completed: 3600 respondents were selected (males-3000, females-600) from the intervention areas and 1800 respondents (males-1500 and females-200) from the control areas.
- Reviewed the DPP and PCR of the project;
- Observation study was conducted by using a checklists and was covered all the available sample infrastructures in the sample areas (30 infrastructures: bridges);
- Out of 181, 165 (91%) Intensive interviews with the concerned project personnel and allied officials were done. Among the interviewees, 65 were LGED officials and 100 were allied official
- 30 (100%) Focus Group Discussions (FGDs) was conducted with community leaders, covering at least one in each Union;
- A Local level Workshop were conducted in Debidder Upazila, Comilla on 16 April 2012; and
- 30 (100%) investigation was carried out within the catchments areas i.e., the Union/Mouza and a profile regarding primarily development aspects were collected.

Summary Findings of PCR: Assessment of Physical and Financial Achievements

- The implementation period of the project was originally scheduled from July 1998 to June 2003. Subsequently the project period was revised and extended up to June 2009 and the actual completion time period was June 2010. The estimated cost of the project was Taka 18722.00 Lakh and the actual cost of the project is Taka 17020.55 Lakh.
- The physical progress of the project i.e. Construction of bridge was achieved by 106% and land acquisition is 100% and the financial targets achieved by nearly hundred percent (99.8%). The allied documents of the project revealed that it took one year to one and half year to complete the each scheme.
- Directly or indirectly self employment has been generated in this project through construction of infrastructure.
- The project has generated direct employment opportunities for the rural poor through construction and maintenance of the project activities.
- Employment opportunities were created for women during construction period as daily labor.

- Values of property increased and consequently revenue generation through collection and through trade license fee the amount of income was increased
- There is no significant environment pollution as a result of implementation of the Project. Moreover, with the construction of bridges, the environment has improved.

Physical Observation Findings (Assessment of Infrastructures): The study team observed and physically verified construction 30 structures on Upazila and Union Road Project (2nd Revised). The main objectives of observations were to evaluate the present operational/non operational and repair status of the bridges/culverts. The observations were done by the Consultant (Civil Engineer) and by the well trained Field Supervisors/ Investigators under his guidance.

Summary Findings of Infrastructures Assessments: Out of 30 sample bridges, 14 bridges were observed and found to be completely free of any problem or defect and fully operational. Two sample bridges are incomplete and are non-operational. The rest 14 infrastructures are currently operational but with some minor problems/defects. The problems/ defects observed for 14 structures are presented as follows: Wing walls of one bridge are faulty (3.33%); Railing of 6 (20%) bridges are defective; Approach roads are faulty in 7 bridges (23.33%); River training works are defective for 7 bridges (23.3%); Retaining wall of 6 bridges are faulty (20%); Clear opening silted for 2 bridges (6.67%); Wearing coats over the bridges found faulty (10%); and Wing walls were damaged in 2 bridges (6.67%)

Household Sample Survey Findings: Beneficiary Assessments

Sample Characteristics: Age: The mean age of the male respondents are 42 years both in the intervention areas and in the control areas, while that of the female respondents, it is 38 years in the Intervention areas and 34 years in the Control areas. Literacy Rate: in the project area the literacy rate is 55 while in control area it is 50%, slightly lower than the national literacy which is about 58%. Marital Status: Female respondents in both intervention and in the control areas are currently married, while 96% of the males in the intervention areas and 98% in the control areas are currently married. Family size: Irrespective of intervention area and control areas, the mean family size of respondent households is 5. Occupation: Majority respondents are involved in farming; other occupations include; small scale business, service, vendor, grocers, rickshaw pullers, micro and minibus drivers, helpers, mill workers, fisher men etc. Family Income: Mean monthly family income of males in the project areas is higher by (additionally) 37% over the period (previous: Tk. 8422 and current: Tk. 11581). But current mean monthly real family income (Base 2005-06) of males in the project areas is BDT 8,263 compared to previous real family income which was BDT 7,906. On the other hand, the current mean monthly family income of male respondents in control area is Tk. 9853 which is less than project area. But for control area the current real income is BDT 7030. The statistical analysis shows that, the current income of project area of male respondents significantly higher than that of the income in previous period when the project was not implemented. Here the value of $Z = 18.75$, indicates that, it is highly significant at 1% level of significance ($p < 0.01$). It was also tested the comparison of current income of male respondents in project areas and control areas. The findings highlights that the current income of the male respondents in project areas increased significantly compared to the current income of control area ($z=9.03$, $p < 0.01$)

Use and Impact of the Infrastructures: About 81% respondents said that they had to face acute water logging problem there was no bridge in the locality. But after construction of bridge, about 87% respondents of project areas said they hardly face such water logging problem any more due to construction of bridge than means water logging problem was solved after construction. Majority of the household respondents in project area (93%) opined that it is easy to control flood due to improved communication system by construction of bridges. About 89% respondents said that after Construction the bridge villagers are benefited in carrying their agro-products in terms of carrying cost and it has encouraged

them to grow more agro-products. On opinion of present condition of the infrastructures, about 55% opined that the bridge/culvert constructed is in usable condition while 53% said that it needs some kind of maintenance work. On the other hand, about 28% respondents said that the bridge is in operation and the community people using it for their own purposes. Overwhelming majority (94%) agreed that the construction of bridge would help the village people in facilitating market net work. These include marketing of agro-products, selling of local people's grown items in local bazaar, selling the produced goods in distance wholesale market etc. Among the respondents of project area about 75% acknowledged that tree plantation in project area has increased in comparison to previous period, i.e., base year. About 62% respondents opined that fish production has significantly increased after the intervention of the project.

The Status of Land Use Pattern and Cropping Intensity: A several varieties of crops were cultivated in 30 study Upazilas under 14 Districts during Kharif and Rabi seasons. It was found that rice is the most important cereal crop cultivated in terms of yield, crop value and food habits. It is evident that in the project area, Transplanted Aman HYV/Hybrid was cultivated followed by HYV/Hybrid Boro and HYV Aus. Wheat and Maize are also the other important cereal crops. The principal cash crops are jute, sugarcane, mustard, potato, vegetables, and fruits etc. It is informed by the respondents that there is a positive change in cropping pattern and intensity of crops after construction of bridge which is helpful for development of irrigation facilities. Out of 3000 sample household respondents, about 93% opined that after construction of bridges crop production has been increased, while only 7% respondents did not agree. Similarly, a majority of the respondents (82%) of the control areas informed that crop production has been increased than before in their area, whereas, only 18% of the respondents did not agree. Majority of the respondents in project areas (87%) opined that crop diversification was possible after implementation of the project. Similarly, 76% respondents in control areas opined that crop diversification was possible in their area. The result was statistically supported. In the statistical analysis, the value of chi-square is $X^2=5.53$ and $p<0.05$, means statistically significant, implies that, due to the intervention of project, the crops production has increased significantly in the project area compared to the production of crops in the control area.

The study findings indicated that the cropping intensity is increasing gradually (day to day) from 159% in the pre project condition to 200% in the project areas in the year 2012, however, is lesser than 217%, the DAE district crop intensity level productivity of year 2012. The cropping intensity of project area is 200%, higher than national average of 181% (BBS, 2011 & Krishi Diary, 2012). The result further shows that the overall cropping intensities have been changed about 40% after construction of bridges. It is clearly indicated that the farmers of project areas adopted modern production technologies and growing multiple crops instead of single crop.

Agriculture Input Supply: Crop production depends on quality seeds, fertilizers, insecticides and others inputs. It is found that construction of bridge has contributed supply of agricultural inputs and availability in the project areas. The data indicated that majority of the respondents (66% -72%) both in project and control areas opined that insufficient supply of seeds (before project) which is contributed to decline the productivity. Overwhelmingly majority of the beneficiaries (89%) in the project areas affirmed that seed supply is sufficient after introduced the project. On the other hand, about 35% respondents of control areas said that seed supplied is sufficient but about 51% respondents did not agree. Majority of the respondents (91%) of 14 districts in project areas opined that fertilizer supply was sufficient when the bridge was constructed. The data indicated that majority of the respondents both project (64%) and control (71%) areas opined that the supply of insecticides was insufficient. The data further highlighted that about 90% respondents of project areas claimed that the supply of insecticides is sufficient since the intervention of the project. On the other hand, about 57% respondents of control areas said that the supply of insecticides is not sufficient in the control area.

Expansion of Agro Based Industries in the Project Areas: After construction of bridge the scope to set-up new business enterprises including poultry farm, rice mill, animal husbandry, oil mill, whole sale seed store, fertilizer etc. have increased to a significant way. This actually helps the villagers to come forward with innovative and inventive types of business ideas.

Women Participation and Empowerment in Development Activities and Marketing: It is evident from the data that due to construction of bridge the female are getting additional and incremental opportunities in engaging in the areas of agriculture, livestock, cottage industries, construction work, and plantation of trees, cultures fisheries and fish processing activities, vegetable gardening, petty business and service sectors. In contrast, the women of control areas have less competitive advantages due to challenges they face in terms of mobility, movement and engaging in gainful economic activities. It is evident that women (62%) of project areas have better scope of engaging themselves in marketing network, whereas the women (35%) of control areas have less opportunities to be engaged in the process. The statistical analysis shows that there is a significant association ($p < 0.05$) between movement of females and improved communication out of implementation of the project.

FGD Findings with Community Leaders: Benefits Accrued for Construction of Bridge

In Agriculture Sector: Easy and smooth availability of agricultural inputs like seeds, pesticides, fertilizers, harvesting machines, power tillers and tractors, irrigation equipments has increased etc.; Improved marketing network for produced agricultural goods and products; Whole sellers directly purchase agro. products from local villages and ensure fair price of locally produced products; Products like fruits, fish, vegetable are getting marketing facilities within the shortest time, no more chances to be rotten; Crop intensity and crop productivity has been increased better and enhanced to a greater extent; The wages of agricultural labors has enhanced; Growers are encouraged to produce more agro. Products; Fruit producers are getting fair prices of their products; and Local farmers easily take their produced goods to nearby whole sell depot.

Better Health Care and family planning Service Sectors: Previously local villagers had little or restricted opportunity to avail better health care services due to backward communication and transportation. Similarly many potential married couples and spouses were unable to avail family planning and contraceptive services for control the expected children. Currently due to the construction of the bridge, as the road communication has improved, local people have got better access to all the services related to health care, family planning and pregnancy related complications..

Better Educational Attainment and Enrollment: Previously many local students were discouraged to enroll themselves to the standard educational institutes due to bad communication and security reason. Even during rainy season both girls and boys students could not attended their schools and even the guardians used to discourage them for attending schools but now they are regularly attending schools, vocational training centres, colleges, *madrasas* and even nearby universities; and The rate of drop-out has also decreased due to better economic emancipation of local people and one of the reasons is improved and better opportunity of economic production-relations.

Increased Economic, Social, Cultural and Political Emancipation and Opportunities for Females: The female labors are getting fair and enhanced wage for day laboring, helping to increase economic affordability at household level; Poor and vulnerable women are engaged in earth work with enhance wages; Women labors are engaged in agricultural work; Women are increasingly engaged in cattle rearing, vegetable planting and tree planting and management; Women labors are engaged in preparing fish meals, collecting fish fry and processing fish and selling agro. Products to nearby markets; Women are

engaged in flexi and cell phone business; and Many vulnerable, poor even educated women are engaged in jobs offered by local level NGOs and many NGOs are coming forward to open their branch at local level due to improved transportation and communication. As a consequence, apart from economic emancipation, women's social status is upgrading socially, culturally, politically both at community level, local level and family level. This process ultimately helping the process of women's empowerment.

Employment Opportunities have been Increased and Diversified: Opportunities created for small scale investment in petty business especially in trading fruits, vegetables, grocers, tea stalls, vending various products, retailing of fish, timber, bamboo etc.; Small and marginal farmers are now motivated to produce more agricultural products, they eventually employ more farm laborers from among the poor and hardcore poor; After the construction of the bridge, there is sudden spurt of using vehicles and intermediate transports like *nosimon*, *karimon*, vans, *leguna*, rickshaw and rickshaw vans, easy bike etc. As a result, poor people are getting opportunity to be employed as transport workers and at the same time, the numbers of transport owners are increasing at local level; Due to improved communication network, some local and external investors have come forward to invest in projects like poultry, fish hatchery, orchards, nursery, and fisheries, rice mill, fish feed meals, betel leaf plantation, set-up of saw mill, oil mill, flour mill, created more income and employment for local unemployed and potential labor force including females.

Impact of Improved Communication and Transportation Network: The village people easily afford to reach the Upazilla headquarters, district court, hospitals, schools/madrashas/colleges, markets and capital city; and the constructed bridge has helped in improving overall socio-economic status of village people and helped them to link with development activities in a diversified way.

Findings of Intensive Interviews: Out of 65 LGED officials, 61 (94%) affirmed that supervision and monitoring of project Implementation (Construction of Bridges) was satisfactory, while one official had different opinion about the construction work and 3 did not answer. Fifty three (82%) officials claimed that the assigned tasks were completed as per target, while 8 officials opined that it was not done accordingly and 4 are did not pass any comment.

Strength of the Project

- Previously, due to bad communication and transportation, the local farmers were compelled to sell their agricultural products such as vegetables, fruits, paddy, jute and potatoes to the middle men who offered an unfair price to the poor farmer's produced goods resulting that, they could not get fair price, But now the farmer can easily reached the whole sale markets and sell their products at a fair price/competitive price directly by themselves.
- The farmers are now more interested to produce their goods in bulk as they have been ensured the fair price due to direct connection with the whole sale depot. This has eased the exploitative role of middle men who virtually exploited them in a monopoly way.
- Due to improved communication network, the local people have better avenues of income and employment at local level. Even they can explore jobs and business in the periphery and central part of capital city Dhaka.
- Many villagers are able to earn stable income by employing themselves in different sub-sectors of agriculture such as poultry, dairy, fisheries, rice mills, oil mill, paddy depot, vegetable depot, fruit depot etc. Many of the villagers are engaged in construction work, brick fields etc.
- Currently many local people are engaged as transport workers either as driver, helper, conductor etc.
- Many local women especially the poor, vulnerable and destitute women are engaged as daily labors in paddy field, manufacturing units such as in cane furniture, preparing candle, fan making, tailoring, sewing caps and embroidery local quilt.

- Previously many poor, vulnerable and destitute people were unemployed and they were further trapped within the vicious circle of local money lenders, made them more impoverished. But now they can move to distant places and explore better jobs due to improved communication. As a result the poor people are gradually becoming self-reliant and self-sustained.
- Social network has been created and impacted positively especially for women, elderly, disabled and children
- People of the locality are increasingly involving in various social festivals and creating joyful atmosphere in the locality
- Road communication has saved local people's time, energy and efficiency and local people are becoming more efficient and able to travel between places are now becoming more comfortable
- Local people are able to maintain the kinship network and making people more cohesive and solidarity
- Many local investors invested their capital in social services especially in establishing clinics, schools like kindergarten, colleges and high school, created better opportunities for local people.
- Transportation of agro. Products like fishes, poultry, dairy, fruits, vegetables, paddy, rice, wheat, oil seeds have improved facilitating easier and quicker transportation to far distance markets and bazaars for getting fair prices.
- Improved communication and transportation network has connected the local villagers to inter-district routes and has facilitated saving of time and earning more income and engaging in better jobs.
- Price of homestead lands, farm lands, wet lands and high land (industrial plot) has gone up
- Additional employment opportunities were created for women during construction period as daily labor.
- The scope of revenue generation through collection and through trade license fee has been increased

Weaknesses of the Project:

- Delayed in the disbursement of funds interrupted the construction work.
- Lack of financial support for repairs and maintenance impacted the work negatively.
- Drawing and design framework was not prepared in due time.
- Problem created due to implementation of separate contract of sub structure and super structure, delayed in completion of work.
- Site selections in a few cases were not done properly especially the professionals were not consulted.
- In few cases, the approach roads are not constructed interrupted the smooth network of transportation and communication.
- Improvement of the communication network has contributed to dust pollution, noise pollution and river pollution to a moderate extent.
- The bridges have impacted the agricultural system negatively due to losses of farm lands and more lands are being used for business, trade and commerce, and habitat for human settlement.
- The prevalence and occurrences of accidents have been increased due to reckless driving
- In some places due to erosion, the depth of rivers' are reducing and interrupting riverine communication and transportation network.
- Communication improvements have attracted many business concerns on operating brick laying/burning, which is adversely affecting the environment and the climate

Policy Recommendation

- Repair and maintenances of the bridge along with approach road is the prime concern and this should be ascertained by the concerned management.

- Sub structure and superstructure constructions could be placed under a single contractor or under a single package
- Project should be declared completed once the approach road is done as per guideline of work order
- It is not only the constructed bridge, the road condition needs to be operational so that there is a sustainable communication and transportation network;
- Some part of the approach roads and the feeder road need to be widened for further improvement of existing road and better communication and transportation.
- Effecting monitoring mechanism needs to be ensured so that the sustainability of the bridge can be ensured.
- The maintenance work of the bridge needs to be done at regular interval including the top with its approach slopes and the bottom of the bridge.
- If there is a chance of depositing sands and silts bottom side of the bridge, needs to be re-excavated
- Depending on the size and capacity of the bridges, if needed, the future project and construction work should have the provision of heavy structure for plying heavy vehicles.
- Participatory bridge management committee to be constituted with the representatives of all segments of local people so that villagers can participate in maintenance work of the bridge with their own labor. Even a small fund can be generated by charging nominal monthly fee from the management committee.
- Needs to ensure effective and regular supervision and monitoring to the work so that work can be completed within stipulated time framework with quality as directed in the work order
- In future project, site selection can be done with prior consultation of professionals.
- Before selecting sites for implementing any future project, river morphology study should be conducted.
- Without prior approval and mobilization of financial resources, work order should not be given.

Conclusion: The farmers of project areas are now more interested to produce their goods in bulk as they have been ensured the fair price due to direct connection with the whole sale depot. This has eased the exploitative role of middle men who virtually exploited them in a monopoly way. Due to improved communication network, the local people have better avenues of income and employment at local level. Even they can explore jobs and business in the periphery of capital city Dhaka. Many villagers are able to earn stable income by employing themselves in different sub-sectors of agriculture such as poultry, dairy, fisheries, rice mills, oil mill, paddy depot, vegetable depot, fruit depot etc. Many of the villagers are engaged in construction work, brick fields etc. Currently many local people are engaged as transport workers such as driver, helper, conductor etc. Women involvement of different development sector has been increased due to implementation of the project, especially the poor, vulnerable and destitute women are engaged as daily labors in paddy field, manufacturing units such as in cane furniture, preparing candle, fan making, tailoring, sewing caps and embroidery local quilt. The project has generated direct employment opportunities for the rural poor through construction and maintenance of the project activities. Additional employment opportunities were created for women during construction period as daily labor. Values of property increased and consequently revenue generation through collection and through trade license fee the amount of income was increased. The overall condition of the constructed bridges is good except few where problems were found in approach road, river training protection work and retaining walls and both side road condition. Local people demanded to address all the identified problems.

Chapter I

Background

Background Information of the Project

Bangladesh is formed by the alluvial deposits by some of the world's largest rivers like the Padma, Brahmaputra, Meghna etc. The country is very plain and low-lying. Numerous tributaries and distributaries of these rivers have criss-crossed the country. As the country is small and surrounded by innumerable rivers, it is difficult and expensive to establish use effective sound road network system. About nine hundred people live in per square kilometer of land of which about 65 percent live in rural areas. These huge rural populations are deprived of modern social facilities. The reasons are:

- a) Most of the farmers are unable to produce more than one crop for lack of proper marketing facilities.
- b) Information and inputs of the Agricultural Extension Department fail to reach the farmers for lack of proper communication facilities. As a result, agriculture production reduces remarkably.
- c) Due to absence of communication facilities, admission into the school is less and number of dropouts is high.
- d) Huge number of population is deprived of Health/Medicare facilities due to absence of communication facilities.

Nearly 50 percent of the country's population lives below poverty line. About 70 percent of the labor force is engaged in agriculture. According to a survey, 45 percent of the population is landless or marginal farmers. In such a backdrop, country's overall development strategy was formulated by the Bangladesh Planning Commission in 1984. This strategy was proved effective so far. Main features of the strategy are:

- a) Department of physical infrastructure including roads and markets identified as growth centers.
- b) Irrigated agriculture, drainage and minor flood control works, and
- c) Production and Employment Program (PEP) for the rural poor.

For development of agriculture and over all socio-economic development of the country, Government has placed priority for development of roads, bridge culverts and markets. The improved communication network, improved marketing facilities and ensuring fair prices to the producers enhances buying capacity of the rural poor which improve the quality of lifestyle and socio-economic condition of the rural people.

The schemes which were not included in other rural development project, but address the needs of the backward areas, have been included in the project.

Initially this project was taken up for construction of portable steel Bridge under Netherlands ORET assistance with a motto to provide 7060 m steel Bailey deck over the RCC substructure. But due to non-availability of steel deck such bridges could not be made functional. On the other hand, local people demanded to take appropriate measures to complete the bridge and open them. In the circumstances, it was proposed to construct RCC deck on the already completed substructures. The design of the bridge under construction was made in such a way that RCC deck could also be constructed in case of non-availability of steel decks.

No feasibility study was done for this project. LGED officials/staffs carried out a physical inventory of the bridge/culverts from where the important bridge and culverts were proposed under this project.

Project Profiles at a Glance

1.	Name of the Project	"Construction of Bridge on Upazila and Union Road Project (2nd Revised) ".
2.	Sponsoring Ministry/Division	Ministry of Local Government, Rural Development and Co-operatives /Local Government Division.
3.	Executing Agency	Local Government Engineering Department (LGED).
4.	Location of the Project	All over Bangladesh
5.	Estimated Cost (in Lakh taka)	
	i) Original	18722.00
	ii) Actual expenditure	17,020.55
6.	Implementation Period	
	a) Original	July 1998 -- 2003.
	b) Actual	July 1998 -2010.

Objectives of the Project

The objective of the project was to improve rural communication network with the growth centers and hat/bazaars through construction of bridge/culverts and facilitate movement of agricultural produces to get fair price of the goods they produce through improved road network and thereby encourage agriculture production.

Objectives of the current Assignment

- iv) Review the construction status of the bridge/culverts on upazila and union roads under the project
- v) Assess the impact of the project on following major expected areas:
 - A. rapid supply of agricultural inputs;
 - B. marketing of agricultural products in a better way;
 - C. increase in agricultural products;
 - D. expansion of agro based industries in the project areas;
 - E. generation of employment opportunities under the project, both long & short term, for the local people.
- vi) Identify the strengths and weaknesses of the project and suggest appropriate measures to overcome the weakness, in future similar projects.

Scope of Services

The study design and plan focused on the field works considering the following components of the project. Sampling of the evaluation study was made on the basis of coverage of work and area mentioned below:

Table 1: Scope of work

Coverage of work	Area Coverage
i) Construction of Substructure - 7060 meter*	30 Upazilas in 14 districts
ii) RCC superstructure with additional pier -3406 meter*	
iii) Approach road of bridge approach of protection work of drain- 110 km	

*ToR total is 7650 but DPP estimate was considered

Chapter II

Study Methodology and Data Collection

The broad objectives of the current evaluation were to examine the construction works of Bridges/culverts (Portable Steel/ RCC Deck): quality and coverage of target numbers) in the project sites and to assess the impact of the project on agricultural production and income generation. The project evaluation was conducted at three levels:

- Review of DPP, PCR and allied documents to undertake comparative assessments by budgetary provisions to specify and determine the level of physical and financial progress measuring targets and achievements;
- Assessment of construction work (quality and coverage of target numbers) of the bridge/culverts were achieved through sample checks through on-the-spot physical verifications; and
- Assessment of the impact of the project interventions on acceleration of agricultural production and income generation achieved by comparing the findings of the treatment area (intervention areas) with those of the comparison areas where the treatment is absent or at lower proportion. The specific project treatments were to improve rural access/facilitate agricultural production and establish linkages between the growth centers, union parishad, rural hats and bazaars, schools and health centers and also generate employment opportunities for the rural poor including women.

Study design includes sample spots (Villages) both as Intervention/Treatment and the Control/Comparison areas. The Intervention areas referred to villages (within unions and mouzas) included in the project and where bridges/culverts constructed; and the latter (Comparison areas) referred to villages (within unions and mouzas) with either no bridge/culverts or are at a lower proportion. Selection of sample spots within catchments of bridges/culverts completed in the Intervention areas was ensured. In addition, in the absence of availability of baseline data; the questionnaires and all other data collection instruments (where applicable), either at the household or at the community/institution levels, inquired the status at both pre (1998 or prior) and post project (2010 and current) periods by integrating questions for the purpose. Questions were framed retroactively to obtain data from the pre project period. This arrangement ensured measurement of the net effects of the project or changes occurring due to project structures implemented.

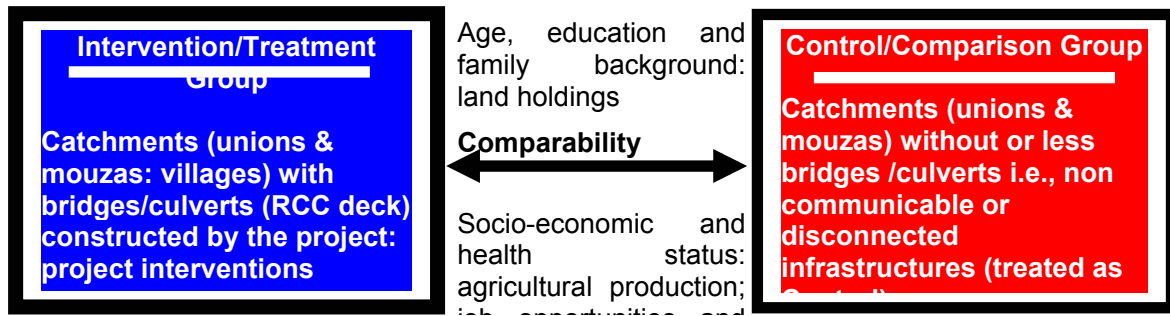
A. Methods of assessment of the physical and financial achievements vis-a vis targets were conducted through Documents' Search (DPP, PCR and allied documents such as progress reports or monitoring evaluation reports). The purpose was to identify comparability of physical progress with financial achievements.

B. Methods of assessments of Sample of structures (Portable steel and or RCC deck): quality and coverage of target numbers

One of the methods was the spot physical verifications of the bridges/culverts (Construction of Substructure-7060 metre; RCC superstructure with additional pier-3406 metre & approach road of bridge approach of protection work of drain-110 km) on the basis of normative criteria like length, diameter, breadth, condition of abutments, girders, span, cross girders, piers, railing, slab, wing walls and retaining walls and approach roads.

C. Assessment of the impact of the project interventions on acceleration of agricultural production and income generation

Methods: The Household Sample Survey was conducted with the beneficiaries in the catchments of the infrastructures selected for physical verifications. The target population included randomly selected sample households (within catchments of bridges and culverts constructed under the project). From each household, both males (preferably head of the household and a married adult female (currently married or ever married) were interviewed using structured and standardized questionnaire. The samples were taken from both the treatment (project intervention: Unions and mouzas) areas and comparison areas (from the adjacent Unions and Mouzas) having or disconnected due to absence of bridges and culverts. The objective was to identify the differences between comparison and intervention areas (overall impact due to with or without bridges connections) in connecting the local markets, growth centers, schools, health centers, union parishad and hats/bazaars and the related positive and negative outcomes.



Sample Design and Technique including Sample Size & Distribution

Study Objective: The main objective of the study was to review the construction status of the bridge/culverts on upazila and union roads under the project and assess the changes occurred due to implementation of construction of bridge (on upazila and union road) in the component such as: agricultural productivity, marketing of agriculture products, rapid supply of agricultural input and employment opportunity in the project area.

Survey design: The proposed survey was done on cross-sectional basis.

Survey Areas: 54 districts of 7 divisions in Bangladesh.

Table 2: List of districts and scheme under ORET project as in DPP

Serial Nos	Name of District	RCC deck		RCC deck		Total	
		Upazila	Length/span of bridges/culverts as in DPP (m)	Upazila	Length/span (m)	Upazila	Length/span (m)
1	Bagerhat	1	22.036	1	48.718	2	70.754
2	Bandarban	1	27.43			1	27.43
3	Barisal	1	21.3	2	41.986	3	63.286
4	Bogra	5	354.072			5	354.072
5	B.Baria	2	53.216			2	53.216
6	Chandpur	1	33.528			1	33.528
7	Chittagong	3	82.996			3	82.996
8	Comilla	1	27.5	2	178.055	3	205.555
9	Cox's Bazar	1	30.48	2	70.104	3	100.584
10	Dhaka	1	75.202	2	89.767	3	164.969
11	Dinajpur	1	71.204	4	189.478	5	260.682
12	Faridpur	2	79.944	2	89.492	4	169.436
13	Feni	1	30.48			1	30.48
14	Gaibandha	1	63.01			1	63.01
15	Gazipur	2	68.456	2	65.108	4	133.564
16	Gopalganj	1	27.432	3	97.76	4	125.192
17	Habigonj	1	49.868	2	168.632	3	218.5
18	Jamalpur	1	49.868	1	162.422	2	212.29
19	Jessore	1	22.036	1	39.624	2	61.66
20	Jhenidah	1	102.784	1	111.928	2	214.712
21	Jhalokathi	1	79.4			1	79.4
22	Khulna	1	46.82	3	192.776	4	239.596
23	Kishorgonj	1	40.328			1	40.328
24	Kushtia	1	39.624	1	71.204	2	110.828
25	Kurigram	1	39.624			1	39.624
26	Lalmonirhat	1	39.624	1	93.64	2	133.264
27	Madaripur	1	22.036	1	164.944	2	186.98
28	Manikgonj	2	67.056	5	206.66	7	273.716
29	Meherpur	1	69.1	1	121.072	2	190.172
30	Moulovibazar	2	97.238			2	97.238
31	Munshigonj	1	49.968	1	39.624	2	89.592
32	Mymensing	1	39.624	3	168.492	4	208.116
33	Narsingdi	3	242.144			3	242.144
34	Narayangonj	1	121.072			1	121.072
35	Natore	1	34.228	3	218.558	4	252.786
36	Naogaon	1	39.624	1	102.784	2	142.408
37	Netrokona	1	40.324	1	59.012	2	99.336
38	Nababgonj	1	18.288	1	161.796	2	180.084
39	Nilphamari	2	89.492			2	89.492
40	Noakhali	2	167.893			2	167.893
41	Pabna	2	109.426	1	102.784	3	212.21
42	Patuakhali	1	39.624			1	39.624
43	Panchagor	1	30.48	1	52.916	2	83.396
44	Pirozpur	1	61.0	1	39.624	2	100.624
45	Rajbari	1	50.818			1	50.818
46	Rangamati	1	30.48			1	30.48
47	Rangpur	1	39.624	1	77.3	2	116.924
48	Satkhira	1	37.276	2	49.468	3	86.744
49	Shariatpur	2	72.854	1	102.784	3	175.638
50	Sherpur	2	71.5			2	71.5
51	Sirajgonj	1	37.276	1	80.348	2	117.624
52	Sunamgonj	1	22.036	1	40.324	2	62.36
53	Sylhet	1	37.276	2	89.492	3	126.768
54	Tangail	2	87.394	1	58.58	3	145.974
Total		73	3406.413	59	3647.256	132	7060.669

A total of 7060 meters length/span scheme work in 132 upazilas of 54 districts (average 130.57 meters per district) were implemented. The total work was constructed with RCC decks. For the study about a quarter (25%) samples of structures (1780 meters length) were physically verified visiting the selected sample spots. Total number of sample districts was 14. The sampling of the districts was done by cumulative total method without replacement by each category. Table 3 shows the name of the sample upazilas with length of constructed work by types.

Table 3: Proposed list of sample districts and scheme under ORET project

Sl. No.	Name of District	RCC Deck		RCC Deck		Total	
		Upazila	Length/span (m)	Upazila	Length/span (m)	Upazila No. of bridge	Length/ span (m)
1	Barisal	Ghournadi	21.3	Agaijhara, Babuganj	41.986	3	63.286
2	Bogra	Dhunot, Gabtolia, Sonatala, Sherpur	354.072			4	354.072
3	Comilla	Debiddor	28.28	Muradnagar	33.528	2	61.808
4	Cox's Bazar	Ukhia	30.48	Teknaf	36.756	2	67.236
5	Jamalpur	Bakshiganj	49.868	Islampur	162.422	2	212.29
6	Jessore	Sadar	22.036	Monirampur	39.624	2	61.66
7	Rajbari	Baliakandi	50.818			1	50.818
8	Khulna	Dumuria	46.82	Terokhada	49.418	2	96.238
9	Mymensing	Muktagacha	39.624	Fulbaria	37.278	2	76.902
10	Meherpur	Gangni	69.1	Mujibnagar	121.072	2	190.172
11	Naogaon	Mohadebpur	39.624	Sadar	102.784	2	142.408
12	Nababgonj	Nachole	18.288	Shibganj	161.796	2	180.084
13	Natore	Baraigram	34.228	Baghatipara	99.736	2	133.964
14	Nilphamari	Sadar, Saidpur	89.492			2	89.492
Total		18	894.03	12	886.4	30	1780.43

A household survey was conducted within the catchments area (the village/spot where the bridge/culvert has been constructed) of construction works to assess the changes occurred due to implementation of construction work in the project area. In all projects constructed 138 bridges of 7060 metres length, of which a sample of 30 bridges (22%) of 1780 metres Length was physically verified and observed with a checklist.

Quantitative Household Sampling and Sample Size

Target population: Farmer (land owners and marginal farmers)

Sampling Frame: The sampling frame included the households that comprised of catchments areas of those selected upazilas where construction works were implemented. An area (surveyed area) was selected, consisting of an average size of around 100-150 households.

Sample Design: Multistage sampling procedure with equal allocation used to select the survey unit (i.e. household). Of the 14 districts and 30 upazilas, 60 spots/villages (2 spots per upazila) were selected. A total 30 spots (50% of the beneficiary sample) were chosen purposively for comparison from poor or no construction work implemented area. This information was taken from Local Government Engineering Department (LGED) prior to data collection. Finally, the required number of households within each selected spots was selected following the systematic sampling procedure. The sample households were the catchments area (the village/spot where the bridge has been constructed) of construction works.

Sample Size: In general, the sample size depends on time and resources. Because of time and fund constraint, the sample size needed to measure a given proposition with a given degree of precision at a given level of statistical significance. The following formula was used to calculate the sample size:

Sample size of beneficiary (farmer) households

$$n = [z^2 (1-p) / \epsilon^2 p] \times \text{Design effect}$$

Where n= the desired sample size

Z= the standard normal deviate, usually set at 1.96 at 5% level which corresponds to 95% confidence level;

The target proportion is p to have a particular characteristic. If there is no reasonable estimate of p, then consider p= 50% (p=0.50)

The precision level is ϵ which is considered at 5%

The higher value of ϵ will yield lower sample size and smaller value of ϵ will yield higher sample size.

Suppose 50% of the households (beneficiaries) have increased their agricultural productivity;

z statistic is 1.96, which corresponds to the 95% confidence level.

ϵ is the relative precision that is considered 5%.

And design effect is 2.

The sample size is n= 3073; approximately 3080

The total number of beneficiary households was 3000.

A total 3000 farmer's households were selected randomly and from each household one male head of family/earning member/farmer was interviewed in the project/intervention areas of 14 districts to assess the impact of the project. A total of 3000/30=100 households were selected randomly from each intervention/project spot (District/upazila/villages). From the selected spot, beneficiaries (household) were chosen in a systematic manner. From each household one male preferably household head (farmer) was selected for interview. In the absence of them, spouse of the main earner was interviewed. For women participation and perception, from every fifth household one female respondent (600) was selected for interview. In addition, from the Control/non intervention areas 50% of the intervention sample were selected (1500 households with male respondents 1500 and 300 female respondents).

Selection of Respondent Household: A complete list of the households was constructed of the village within the catchments area. A pre-survey operation was carried out in all selected village before the main survey, and sample households were selected in systematic procedure, summarized below:

District-14; Upazila-30; Village/spot – 60: From Intervention area 30 and from Control areas 30; Households- 3000: From Intervention area: 3000 and from Control area: 1500 Respondents: From Intervention are: Men 3000 and Women: 600; and from Control area: Men 1500 and Women: 300; Total: 5400

Qualitative Investigations: Following methods were applied for Qualitative Investigations

Literature/Documents Search: Review of Project Document (DPP), PCR, Evaluation Report and Progress Reports, primarily to assess the physical progress: comparison of targets versus achievements both physical (construction of structures, their use, equipments) and financial.

Observations: Physically verified the structures (RCC Deck: 842.432 meters or 25% of the total coverage; and additional RCC Deck: 886.4 meters or 24% (instead of steel Deck of total coverage). The verification of the structures (bridges/culverts) was carried out by trained investigators using standard guidelines (pre-tested) under the guidance of the expert Civil Engineer/Consultant. The observations not only verified the quality of construction, it also investigated the status of current repairs and maintenance and the level of use and its effectiveness.

Focus Group Discussions (FGDs): A specific number of FGDs were conducted with Community influential/leaders in one randomly selected village of Unions/Mouza of Upazillas only in Interventions/Treatment Catchments. Total FGDs was 30 (one in each sample village of intervention areas). Each FGD comprised of 8 participants: males, females, and youth leaders, teachers, businessmen, religious leaders, field workers, women and poor farmers. The FGDs also inquired about the quality and use effectiveness of the structures intensively inquired about the expected outcome effectiveness of the structures, such benefits accrued in-terms of communication, agricultural productions, marketability of products, enhancing school and health center attendance, and creating job opportunities etc. (improving standard of living of the catchments population).

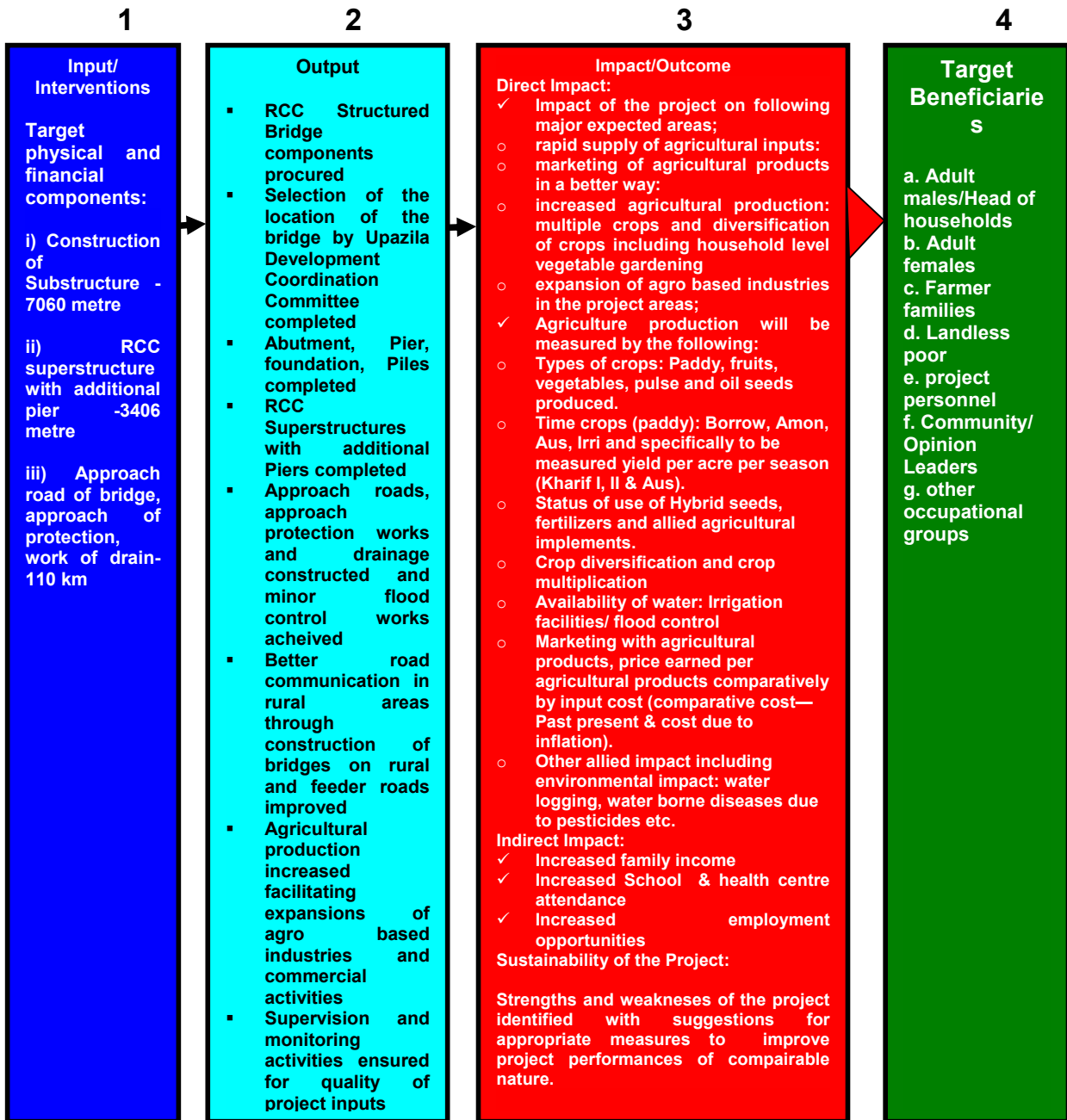
Intensive Interviews (only from treatment areas): Intensive interviews were conducted with the Upazila Chairmen & Vice Chairmen, UP Chairmen/ward members, Executive Engineers, Upazila Nirbahi Officers at Upazilla level, Upazila Agriculture Officers, Upazila Engineers at Upazila level, Assistant Engineers, Sub-assistant Engineer (LGED), Accounts Officer to assess efficiencies and effectiveness of project management and implementation

Local Level Workshop organized in one of the project areas: to obtain opinions of the stakeholders and beneficiaries regarding project effectiveness, efficiencies and constraints of implementation.

Mouza/Catchments/Community Profile: Relevant data of all the Mouzas in the context of development issues, such as number of schools, markets, communicable and non communicable rural roads, growth centers and their conditions and levels of use were also collected.

The flow chart below delineates assessment of the following input, output and outcome variables of the project in the (in 30 Upazillas of 14 districts) impacting on the: a) communication network and to facilitate the marketing of local products; b) situations of agricultural productions and the contributions of the project structures (bridges/culverts). Creation of annual and seasonal employment opportunities for the rural poor people consequential to improved income through construction activities under the project.

Flow Chart-1: Project Interventions, Achievements & Impact on Beneficiaries



The flow chart above delineates the processes of project implementation (inputs) and achievements: (outputs and outcome/impact) and the consequent impact on the target beneficiaries. Column 1 specifies the interventions (inputs); Column 2 explicates the outputs and column 3 underscores the outcome of the project as in Project documents: DPP, PCR and Evaluation Report. Column 4 reflects the population involved in the project and how they were influenced and benefited and affected by project inputs and outputs.

Data Collection: The Study was conducted by READ and was completed the task within 5 months or 20 weeks from the date of signing of Contract. The study was conducted in 14 Districts, 30 Upazilas, 60 Union/Villages (for both Intervention and Comparison areas) comprising a total sample households of 3000 from the intervention areas and an additional

1500 households from the control areas with 5400 respondents. READ implemented the study in the following steps.

Development of Questionnaires/Guidelines and Checklists: At least seven types of data collection instruments were developed for the study. The study also reviewed all instruments during training through field pre-test by the investigators and Technical Committee and Steering Committee of IMED and approved by concerned authority of IMED.

- Form 1: Household Survey Questionnaires: Intervention areas
- Form 2: Household Survey Questionnaires: Control areas
- Form 3: Intensive Interviews Questionnaires:
 - a. LGED personnel at NHQ & DHQ
 - b. LGED personnel at Upazila
- Form 4: Intensive Interviews Questionnaires: Allied officials at Upazila
- Form 5: FGD Guidelines at union level in intervention areas: Community leaders/ farmers/leaders of women and poor
- Form 6: Observation Checklist: Bridge
- Form 7: Union/Mouza Profile: Allied Projects, Schools, Health centers, markets, roads and others

Training of Survey Teams: *Relevant training of 35 survey personnel (Supervisors and Investigators) was conducted for 5 days, of which at least one day was for field practice including the pre-testing of data collection instruments: survey questionnaire and qualitative checklist. The training was conducted from 19 March 2012 to 24 March 2012 and the field pre-test was conducted at Savar Upazila, Dhaka and Debidder Upazila, Comilla in between the training period, i.e., on 21 March 2012.*

Data Collection Status: Data for the study were collected between March, 2012 and April 2012. The data collection status is as follows:

- Reviewed DPP and PCR;
- Observation study was conducted by using a Checklists and was covered all the available infrastructures in the sample areas (30 infrastructures: bridges);
- Hundred percent sample household survey for gathering quantitative data (beneficiaries interpersonal interviews) was conducted and successfully completed: 3600 respondents from the Intervention areas and 1800 respondents from the Control areas of 14 districts, 30 Upazilas, 60 village (30 in intervention and 30 in control areas) areas in the following distribution as shown in the table below page:

Table 4: Distribution of household respondents

Respondents	Intervention Areas: 3000 Households	Control Areas: 1500 households	Total Areas: 4500 households
Males respondents	3000	1500	4500
Females respondents	600	300	900
Total respondents	3600	1800	5400

- Out of 181, 165 (91%) Intensive interviews with the concerned project personnel and allied officials were completed: 65 LGED officials and 100 allied official
- 30 (100%) Focus Group Discussions (FGDs) with Community leaders were conducted (one in each Union);
- A Local level Workshop were conducted in Debidder Upazila, Comilla on 16 April 2012; and
- 30 (100%) investigation on Catchments (Union/Mouza) Profile (primarily development aspects) were collected.

Chapter-III Analyses of Findings

Section 1: Assessment of construction status of the bridges on upazila and union roads under the project

A. Assessment of Physical and Financial Achievements: Summary of PCR

Assessment of the physical and financial achievements vis-a vis targets were conducted through Documents' Search (PCR and allied documents of the project received from LGED). The purpose was to identify comparability of physical progress with financial achievements. The findings are given below.

Project Implementation Period and Project Cost: The implementation period of the project was originally scheduled from July 1998 to June 2003. Subsequently the project period was revised and extended up to June 2009 and the actual completion time period was June 2010. The estimated cost of the project was Taka 18722.00 Lakh (Original) & Taka 17055.91 (Revised) and the actual cost of the project is Taka 17020.55 Lakh.

Implementation Period as per PP		Actual Implementation Period	Time Over-run (% of original implementation period)	Estimated cost (Taka in Lakh)		Actual expenditure
Original	Latest Revised			Original	Latest revised	
1997-1998 to 2002-2003	1998-1999 to 2008-2009	1998-1999 to 2009-2010	7 years 140%	18722.00	17055.91	17020.55

The Causes of Project Revision with reasons for Delayed in Implementation: Initially this project was taken up for construction of Portable Steel Bridge (PSB) with a motto to construct 7650m Steel Bailey Decks over the RCC substructures. Steel decking materials could not be procured as the grant/ loan agreement with the donor could not be signed as per decision of "Hard Term Loan Standing Committee" Meeting held on 09.07.2003. The project is in the ADP since 1998-1999 and constructions of 7060 meter substructures of bridges have been undertaken and most of which are already completed. But due to non-availability of steel deck such bridges could not be made functional. On the other hand local people were demanding to take appropriate measures to complete the bridges and open those to the traffic. As such it has been proposed to construct RCC deck on the substructures already completed.

2535m Substructures of bridges have been constructed under DFID Bailey Bridge Project, but those could not be made functional as DFID bailey materials were not available. Therefore, a proposal was made to construct RCC deck slab to open those to traffic. It may be mentioned here that "Construction of bailey bridges under DFID assistance" was included in the ADP during 1998-99 to 2003-04. Under the project, 3750 (65 nos.) of Sub- structures were constructed. But only 1215 of Bailey materials were received from DFID on grant.

Construction of 9595 m of incomplete superstructure has been proposed as per decision of the meeting held on 05.06.2005 in Local Govt. Division, extension of the implementation period by 2 year i.e. up to June 2009.

Component wise progress (As per latest approved PP): Physical and Financial Targets and Achievements: The physical progress of the project i.e. Construction of bridge was achieved by 106% (Target: 9595m and Achievement: 10150m) and land acquisition is 100% and the financial targets achieved by nearly hundred percent (99.8%). The allied

documents of the project revealed that it took 1 year to 1½ year to complete the each scheme.

Items of Work (as per PP)	Unit	Physical Quantity			Financial (Taka in Lakh)		
		Target (as per PP)	Actual Progress	% achieved	Target (as per PP)	Actual Progress	% achieved
Construction of bridge	m	9595 m	10150 m	*106%	16681.45	16671.98	99.9%
Supplies and services	LS				120.00	119.25	99%
Manpower	Nos.				113.96	113.60	99.7%
Land acquisition	Hac.	7.50	7.50	100%	30.00	30.00	100%
Consultancy	LS				100.00	77.29	77.29%
Acquisition of asset	LS				10.50	8.43	80%
Total					17055.91	17020.55	99.8%

* RCC girder has been introduced due to the change of design Steel Deck to RCC Deck. Some additional piers were constructed as per design. Due to RCC Deck and girder design pier and abutment height had been adjusted by increasing their height. Due to the adjustment of the heights the length of the most bridges have been increased. Therefore, the span length was constructed 10150m in place of 9595m though the actual number of constructed bridges was decreased.

In ORET project Scheduled bridges were 138 nos, with 7060m length but executed bridges were 136 nos and the span length was 7560m. On the other hand, in DFID Project, total scheduled bridges were 35 nos. but executed nos. of bridges was 34.

Cost/Benefit: This is a service sector project, so cost/benefit ratio was not calculated but the project improved and extended the coverage of basic infrastructure services to a large number of people. The environmental improvement directly or indirectly benefited the population of the project Area. Improved basic infrastructure services has lead to an improved living environment, better public health and sustained population and employment growth.

Project Identification: The Bridge have been identified considering the following criteria

- Traffic volume on the road
- The road should be Upazila roads, Union roads and some important Village roads which will connect the National/Regional Road Network, water transport terminal on a priority basis.
- The roads with single gap would get priority in which the proposed bridge will facilitate easy access to the road users. Roads with two gaps may also be considered in special cases.
- The road connecting GC or rural Hat/Bazar, Educational Institution, Health Complex etc. have been got priority
- The bridge length more than 20.0 meter have been taken under this project

With the above background, to create uninterrupted road, network and improve connectivity, this project was prepared. So, the proposed project would establish well communication network and socio-economic development without disturbing environment.

Possibility & Women employment opportunity

- Directly or indirectly self employment has been generated in this project through construction of infrastructure.
- Employment opportunities were created for women during the construction period as daily labour.

Possible Impact on Socio-economic Activity

- The project has generated direct employment opportunities for the rural poor through construction and maintenance of the project activities.

- Additional employment opportunities were created for women during construction period as daily labor.
- Values of property increased and consequently revenue generation through collection and through trade license fee the amount of income was increased

Impact on environment: There is no significant environment pollution as a result of implementation of the Project. Moreover, with the construction of bridges, the environment has improved. In addition, direct and indirect employment was created through various activities under the project. In addition, conservation of biodiversity and improvements of environment has done due to introduction of forestry/plantation scheme on the road side. This has also enhanced the beauty of landscape, ecology and environment of the study area.

B. Assessment of Infrastructures: Physical Observation

The study team observed and physically verified construction 30 structures on Upazila and Union Road Project (2nd Revised). The main objectives of observations were to evaluate the present operational/non operational and repair status of the bridges/culverts. The observations were done by the Consultant (Civil Engineer) and by the well trained Field Supervisors/ Investigators under his guidance. The steps and method for direct observations were:

- Collecting data from the project areas
- Collecting information from the project officials of LGED
- Direct observation by the consultant and Field Investigators

Table below shows the location and number of observed sample bridges.

Table 5: Location and number of observed sample bridges

Division	District	Upazila	No. of Bridges observed
Rangpur	Nilphamari	Saidpur	1
		Sadar	1
Rajshahi	Nababgonj	Nachlole	1
		Shibgonj	1
	Natore	Baghatipara	1
		Baraigram	1
	Bogra	Dhunot	1
		Sherpur	1
		Gabtoli	1
		Sonatala,	1
	Naogaon	Sadar	1
		Mohadebpur	1
Khulna	Meherpur	Gangni	1
		Mujibnagar	1
	Jessore	Sadarr	1
		Monirampur	1
	Khulna	Dumuria	1
		Terokhada	1
Dhaka	Jamalpur	Bakshiganj	1
		Islampur	1
	Mymensingh	Fulbaria	1
		Muktagacha	1
	Rajbari	Baliakandi	1
Chittagong	Comilla	Muradnagar	1
		Debider	1
	Cox's Bazar	Teknaf	1
		Ukhia	1
Barisal	Barisal	Ghouranadi	1
		Agailjhara	1
		Babuganj	1
6 divisions	14 districts	30 upazilas	30 bridges

Findings on the current operational and the repair status of the bridges are presented in the table below.

Table 6: Current operational and the repair status of the bridges

Name of Observation Site	Location of the bridge	Size & Year of construction	Condition of the bridge and overall comment
1. Construction of bridge on Saidpur-Dinajpur to Botlagari - Paraghat Road over Khorkhoria River.	Union: Botolagari Upazila: Saidpur District: Nilphamari Division: Rangpur	Length – 71.03m Width – 3.66 m No .of Span-4 Height- 6.42 m Year of construction: 2002-2004	<ul style="list-style-type: none"> Abutments are in good condition Girders are in good condition 3 nos. piers are in good condition Cross beam are in good condition Slab condition is good Wearing coat condition is good Both side railings are in good condition Retaining wall and wing wall are in good condition Clear opening is sufficient Approach roads are in good conditions. River training protection work is not in good condition (mostly damaged) The road is directly connected the upazila road, Saidpur hat, hospital and other important places. The most benefited unions are Botolagari – Bridge site, Sarkarpara and Kandal para, Bosunia para
			<ul style="list-style-type: none"> Major vehicles can move over this road e.g. Microbus, van, rickshaws, mini-truck, Motor cycle etc. Most agricultural products are marketing through this road e.g. paddy, wheat, corn, mastered oil, jute, sugarcane, vegetable & fruits etc. Comments: Overall condition of the bridge is good except river training works. Both side road of the bridge is katcha for this reason in the rainy season communication problem arises. Proper attention is to be required about flowing of water during rainy season. Transportation cost reduced and growth of local crops increased remarkably and connected schools and market.
2. Construction of bridge on PTI Masterpara – Bamandanga Road over Bamandanga River.	Union: Etakhola Upazila: Sadar District: Nilphamari Division: Rangpur	Length – 12.16m Width – 3.66 m No. of Span-1 Hight-2.42 m Year of construction: 2004-2006	<ul style="list-style-type: none"> Abutments are in good condition. Slab is in good condition, Wearing coat condition is good Both sided railings are in good condition Approach roads are not good condition and there is erosion of earth work with semi pucca & katcha. River training protection work is not constructed Retaining wall and wing wall is not constructed Clear opening is Sufficient- water is flowing easily At least overall condition of the bridge is good except approach road. Both side road of the bridge is semi pucca and kacha . The road is directly connected with Zila Sadar (Nilphamari) and other important places, The most benefited unions are Etakhola – Bridge site, mastarpara, Ukil para Microbus, van, rickshaws, cycle can move in this road. Food growth areas are not connected as this bridge connected nearby undeveloped area of the district. <p>Comments: Overall condition of the bridge is good except approach road. Transportation cost reduced and connected schools and market and Zila Sadar.</p>

Name of Observation Site	Location of the bridge	Size & Year of construction	Condition of the bridge and overall comment
3. Construction of bridge on Kharibari-Dogachi road over Dogachi khal	Union: Nijampur Upazila: Nachlol District: Nababgonj Division: Rajshahi	Length – 18.90m Width – 4.72 m No.of Span-1 Hight-6 m Year of construction: 1999-2005	<ul style="list-style-type: none"> Abutments are in good condition. Girders are in good condition Cross beams are in good condition Slab is in good condition, Wearing coat condition is good Both sided railings are in good condition River training protection work is not constructed Retaining wall and wing wall is not constructed Clear opening is sufficient The road is directly connected the areas like Nababgonj, Nachlol hat, Dogachi Bazar, School, and other important places. The most benefited unions are Dogachi and Khoribari. Approach roads slope is very steep and condition is not good for this reason all types of vehicles can not move easily in this road so, needed immediate repair. Van, cycle can move in this Most agricultural products are marketing and trading through this road e.g. paddy, wheat, corn, mastered oil, vegetable & fruits etc road. <p>Comments: Overall condition of the bridge is good except approach road whose slope is very steep. Transportation cost reduced and connected growth centre, school & upazila. Cost of local crops increased remarkably and connected schools and market.</p>
4. Construction of Bridge on Tartipur-Ujirpur Road	Union: Ujirpur Upazila: Shibganj District: Nababgonj Division: Rajshahi	Length – 161.79m Width – m Year of construction: Not completed	<ul style="list-style-type: none"> The construction of the bridge is not completed till now. 2 times tender was called but substructure is done partly. Now the bridge is abandoned after completing piling works. No abutment and pier is constructed. Contractors payment is made Tk 18,92,307.00 of contract amount Tk 39,61,289.00. After completion of piling the bridge is abandoned by raising an issue of river erosion. If the bridge could be completed communication would be better with Ugirpur Union to Taritpur Upazilla and 70,000 people will get the benefit of communication.
5. Construction of bridge on Bajitpur - Salainagar Road over Boral River.	Union: Paka Upazila: Baghatipara District: Natore Division: Rajshahi	Length – 99.92m Width – 3.66 m No.of Span- 5 nos. Hight-5.83 Year of construction: 2008-2010	<ul style="list-style-type: none"> 2 nos. abutments are in good condition. Girders are in good condition 4 nos. pier are in good condition & Cross beams are in good condition Slab is in good condition, Wearing coat is good condition Both side railing are in good condition Both side approach roads are good condition. River training protection work is moderately good condition. Retaining wall and wing walls are in good condition The clear opening is almost sufficient, but a little maintenance works is needed. The road is directly connected with Districtj, paka hat, Bazar, jamtola baza School, college and other important places. The most benefited unions are Baghatipara – Bridge site, Selainagar, Bajitpur. Major vehicles can move in this road e.g. tractor, trac, microbus, baby taxi, van, rickshaws, cycle, cart etc. Most agricultural products are marketing in this road e.g. paddy, wheat, jute, sugarcane, vegetable and fruits etc. Overall condition of the bridge is good. The road where the bridge was constructed is pucca .The road condition is good. <p>Comments: Overall condition of the bridge is good except river training works. Both side road of the bridge is pucca so, no problem arises in the rainy season. Proper attention is to be required about flowing of water during rainy season. Transportation cost reduced and growth of local crops increased remarkably and connected schools, college and market.</p>

Name of Observation Site	Location of the bridge	Size & Year of construction	Condition of the bridge and overall comment
6. Construction of bridge on Bonpara R & H Bagdob Hat Road over Bagdob River	Union: Baraigram Upazila: Baraigram District: Natore Division: Rajshahi	Length –34.22 Width – 3.66 m No.of Span-3 Hight-6m Year of construction: 2004-2008	<ul style="list-style-type: none"> • Abutments are good condition. • Girders are in good condition. • 2 nos. Piers are in good condition. • Cross beams are in good condition. • Slab is in good condition, • Wearing coat is good condition • Both side railing are in good condition. • Approach roads are not good condition and it is kutcha. • No river training protection work is done • Retaining wall and wing wall is moderately good condition. • The clear opening is sufficient. • The road is directly connected Baraigram Upazila with Bagdob, Rolva bazar, jonayelhat School, college, hospital and other important places. • Major vehicles can move through this road e.g. tractor, microbus, baby taxi, van, rickshaws and cycle etc. • Most agricultural products are marketing through this road e.g. paddy, wheat, jute, sugarcane, mastered vegetables and fruits etc. • Overall condition of the bridge is good except river training protection work and the approach road is kutcha. Bridge upgraded social, economical, health, environmental and communication.
7. Construction of bridge on Dhankhola - Koshba bazar via Vatpara Road over Chewtia River	Union: Dhankhola Upazila: Gangni District: Meherpur Division: Khulna	Length – 68.80m Width – 3.60m No.of Span-4 Hight-5.90m Year of construction: 2001-2005	<ul style="list-style-type: none"> • Abutments are good condition. • Girders are in good condition. • 3 nos. piers are in good condition • Slab is in good condition, • Wearing coat is good condition • Both side railing are in good condition. • Approach roads are good condition. • No river training protection work. • Retaining wall and wing walls are not constructed. • The clear opening is sufficient. • The road with bridge directly connected with Upazila bazaar, dankhola, vatpara, bazar, kasba hat, School, and other important places. • Major vehicles can move through this road e.g. tractor, baby taxi, van, rickshaws, motorcycle, etc. • Most agricultural products are marketing in this road e.g. paddy, wheat, jute, sugarcane, mastered vegetable and fruits etc. • Overall condition of the bridge is good. After completing the bridge one sided approach road has been damaged within 6 months and then repaired. For better communication development repaired approach road needed carpeting as early as possible. The most benefited unions are Dhankhola – Bridge site, vatpara, kharampur.
8. Construction of bridge on Babupur Ghat on Mohajanpur - Poranpur Road over Bhairab River.	Union: Majanpur Upazila: Mujibnagar District: Meherpur Division: Khulna	Length – 120.80m Width – 3.60 m No.of Span-6 Hight- 4.70m Year of construction: 2003-2006	<ul style="list-style-type: none"> • Abutments are good condition. • Girders are good condition. • 5nos. Piers are good condition. • Cross beams are in good condition. • Slab is in good condition, • Wearing coat is good condition • Both sided railing are in good condition. • The clear opening is sufficient. • Approach roads are moderately good condition and the road constructed by brick. • No river training protection work. • Retaining wall and wing walls are not constructed. • The clear opening is sufficient but partially filled up by soil. • The road with bridge directly connected with Majanpur bazaar, Jagonnathpur, komorpur, bazar, School, and other important places. • Major vehicles can move in this road e.g. van, rickshaws, motorcycle, cycle etc. • Most agricultural products are marketing through this road e.g. paddy, wheat, jute, mastered, vegetable & fruits etc. • Overall condition of the bridge is good. For better communication development approach road needed carpeting as early as possible. The most benefited unions are Majanpur – Bridge site, Babupur

Name of Observation Site	Location of the bridge	Size & Year of construction	Condition of the bridge and overall comment
9. Construction of bridge on Jhumjhampur R&H Road to Barandi Nath para Road over Bharab River	Union: Fatahapur Upazila: Sadar District: Jessore Division: Khulna	Length – 19.85m Width – 3.70 m No.of Span-1 Hight-6.10 Year of construction: 2002-2006	<ul style="list-style-type: none"> Abutments are good condition. Girders are good condition. Cross girders are in good condition. Slab is in good condition, Wearing coat is good condition Both side railing are in good condition. Approach roads are not good condition and the road is katcha. No river training protection work has constructed. Retaining wall and wing wall was not constructed. The clear opening is sufficient. The bridge has been connected with, jagonnathpur, komorpur, chatimtola bazaar, School, hospital and other important places. Major vehicles can move in this road e.g. microbus, van, rickshaws, motorcycle and cycle etc. Most Agricultural products are marketing in this road e.g. paddy, jute, sugarcane, mastered, vegetables and fruits etc. Overall condition of the bridge is good except approach road. Both side road of the bridge is katcha. For this reason in the rainy season communication problem arises. The most benefited unions are Fatahapur – Bridge site, Borondinathpur jagonnathpur, Connected growth centre and communication developed. Agricultural crops production increases and marketing facility improved.
10. Construction of bridge on Sundolpur-cholimpur Road over Harihar river	Union: Munsikhanpur Upazila: Monirampur District: Jessore Division: Khulna	Length – 41.84m Width – 3.72m No.of Span-3 Hight- 5.60m Year of construction: 2010	<ul style="list-style-type: none"> Abutments are in good condition. Girders are in good condition. Piers are in good condition. Cross girders are in good condition. Slab is in good condition, Wearing coat is good condition Both side railing are in good condition. Approach roads are not good condition and the road is semi pucca and katcha. No river training protection work. Retaining wall and wing wall are not constructed. The clear opening is sufficient. The bridge has been connected with, upazila, district, sundolpur, chiniatola khamarbari, School, college market and other important places. Major vehicles can move in this road e.g. microbus, truck van, rickshaws, motorcycle, cycle, engine van etc. Most agricultural products are marketing in this road e.g. paddy, jute, sugarcane, mastered, vegetable and fruits etc. Overall condition of the bridge is good except approach road. Both side approach road are down from the bridge and partly damaged, spot whole in approach road for this reason communication problem arises. The most benefited unions are Munsikhanpur – Bridge site, sundolpur, chiniatola, khamarbari
11. Construction of bridge on Sujanagar - Sadhurpara UP Office Road over A Datch	Union: Sadhurpara Upazila: Bakshiganj District: Jamalpur Division: Dhaka	Length–50.3m Width– 3.8m No.of Span-4 Hight-5.7 Year of construction: 2002	<ul style="list-style-type: none"> Abutments are in good condition. Girders are in good condition. Cross girders are in good condition. Slab is in good condition, Wearing coat is good condition Both side railing are in good condition. Piers are in good condition. Approach roads are not good condition and the road is katcha. No river training protection work. Retaining wall and wing walls are not constructed. The clear opening is sufficient. The bridge directly connected with, upazila, namia bazar, Bakshigan high School, college and other important places. Major vehicles can move in this road e.g. van, rickshaws and cycle, etc. Most agricultural products are marketing in this road e.g. paddy, jute, corn, mastered, Pulse, vegetable, fruits etc. At least overall condition of the bridge is good except approach road. The road where the bridge was constructed is kacha. The road condition is not good. In many places there are spot wholes. The most benefited unions are Sadhurpara – Bridge site, Sujanagar, utor dhatuakanda

Name of Observation Site	Location of the bridge	Size & Year of construction	Condition of the bridge and overall comment
12. Construction of bridge on Islampur - Benuarchar via Durmuthat Growth Centre connecting Road over Doshani River	Union: Charputemari Upazila: Islampur District: Jamalpur Division: Dhaka	Length- 162.50m Width- 3.70m No.of Span-4 Hight-7.10m Year of construction: 2002-2004	<ul style="list-style-type: none"> Abutments are good condition. Girders are good condition. Cross girders are in good condition. Slab is in good condition. Wearing coat is not in good condition and pot holes in some places Both side railing are in good condition. Piers are in good condition. Approach roads are good condition. No river training protection work. Retaining wall and wing walls are not constructed. The clear opening is sufficient. The bridge directly connected with, upazila, islampur, Benuarchar, anandopur, jhgrarchar bazar, Islampur school and college and other important places. Major vehicles can move in this road e.g. bus microbus, truck, van, rickshaws, motorcycle, cycle, etc. Most agricultural products are marketing in this road e.g. paddy, wheat, jute, mastered, vegetable, fruits etc. Overall condition of the bridge is good except river training protection work. The road where the bridge was constructed is kacha but now it is pucca .The road condition is good . The most benefited unions are Charputemari – Bridge site, sajalerchar, kandarchar
13. Construction of bridge on Sonahata-Bagbari GCC Road over Jhordaha Khal	Union: Nimgasi Upazila: Dhunot District: Bogra Division: Rajshahi	Length- 63.81m Width- 3.70m No.of Span-4 Hight-6m Year of construction: 2006	<ul style="list-style-type: none"> Abutments are in good condition. Girders are in good condition. Cross beams are in good condition. Bridge slab is not in good condition, in few places pot holes been observed and stone chips could be found. Western side railing is partly damaged and other side railing is good condition. Approach roads are not in good condition (partly damaged) No river training protection work. Retaining wall and wing wall is good condition. The clear opening is sufficient. Wearing coat is partly damage, The bridge directly connected with, school and college, hospital, bazar, and other important places. All types of vehicles can move in this road e.g. bus, microbus, truck, van, rickshaws, motorcycle, cycle, CNG and private car etc. Most agricultural products are marketing in this road e.g. paddy, wheat, jute, vegetable and fruits etc. Overall condition of the bridge is good except Western side railing and wearing coat of slab. The most benefited unions are Nimgasi – Bridge site, Kalerpara, Gosaybari , Berbarbari.
14. Construction of bridge on Mirzapur - Shughat Road over Bangali River.	Union: Sughat Upazila: Sherpur District: Bogra Division: Rajshahi	Length- 152.652m Width- 3.66m No.of Span-8 Hight-8m Year of construction: 2006	<ul style="list-style-type: none"> Abutments are good condition. Girders are good condition. Cross beams are good condition. Bridge slab is in good condition. Wearing coat is good condition. Both side railing are in good condition. Both side approaches are partly damaged. River training protection work is not done. The southern side of retaining wall and wing wall is good condition but northern side is bad condition. The clear opening is sufficient. The bridge directly connected with, Belghasi, Sughat Mir jazaar bazar, school and college and hospital, jazaar, and Upazila road and other important places. Major vehicles can move in this road e.g. microbus, truck, van, rickshaws, motorcycle, cycle and engine van etc. Most agricultural products are marketing in this road e.g. paddy, wheat, jute and mastered etc. Overall condition of the bridge is good except river training protection work and approach road. The most benefited unions are Sughat – Bridge site, Jorghasa & Belghasi

Name of Observation Site	Location of the bridge	Size & Year of construction	Condition of the bridge and overall comment
15. Construction of bridge on Shildabari - Baithabhanga Road over WAPDA Khal.	Union: Durgahat Upazila: Gabtolia District: Bogra Division: Rajshahi	Length- 69.01m Width- 3.75m No.of Span-3 Hight-6.66m Year of construction: - 2007	<ul style="list-style-type: none"> • Abutments are in good condition. • Girders are in good condition. • Cross beams are in good condition. • Bridge slab is in good condition. • Wearing coat is in good condition. • Both sided railings are in good condition. • Both side approach roads are not in good condition and these are katcha & steep slope. • River training protection work is not done. • Wing wall is good condition but retaining wall is damage. Needed immediate repair • The clear opening is sufficient. • The bridge directly connected with, Durgahat School and college, hospital, bazaar, Upazila road and other important places. • Major vehicles can move in this road e. g microbus, truck, van, rickshaws, motorcycle, cycle and engine van etc. • Most agricultural products are marketing in this road e.g. paddy, wheat, jute, corn and sugarcane etc. • Overall condition of the bridge is good except approach road and retaining wall. Both side road of the bridge is katcha and the approach road slope is steep & down from the bridge for this reason in the rainy season communication problem arises. The most benefited unions are Durgahat – Bridge site, Gabtolia , Ghospara and, Kulupara etc.
16. Construction of bridge on Charpara Collage Stn. - Koromjahat Road over Sukhdaha Khal.	Union: Jorghasa Upazila: Sonatala, District: Bogra Division: Rajshahi	Length- 40.20m Width- 3.7m No.of Span-2 Hight-6m Year of construction: - 2007	<ul style="list-style-type: none"> • Abutments are in good condition. • Piers are in good condition • Girders are in good condition. • Cross beams are in good condition. • Bridge slab is in good condition. • Both side railing are in good condition . • Both side approach roads are good condition, • River training protection work is not done. • Retaining wall and Wing walls are in good condition. • The clear opening is sufficient. • Wearing coat is in good condition. • The bridge has been connected the areas land institutions like chorpara, college station, hospital, bazaar, school and other important places. • Major vehicles can move in this road e.g. bus, microbus, truck , van, rickshaws, motorcycle, cycle , engine van & CNG etc. • Most agricultural products are marketing in this road e.g. paddy, wheat, jute, sugarcane, potato & vegetable etc. • Overall condition of the bridge is good. Both side road of the bridge is fully pucca and the road condition is good. The most benefited unions are Jorghasa – Bridge site, Karamcha, Nowdabada etc.
17. Construction of Bridge on Mokterpara-Trimohani Road over Choto Jamuna River.	Union: Tiluppur Upazila: Sadar District: Naogaon Division: Rajshahi	Length- 102.78m Width- 3.65m No.of Span-6 Hight-10m Year of construction: 2002-2006	<ul style="list-style-type: none"> • Abutments are in good condition. • Piers are in good condition • Girders are in good condition. • Cross beams are in good condition. • Bridge slab is in good condition. • Both sided railing are in good condition . • Both side approach roads are not good condition, It is kacha and damage. • River training protection work is not done. . • Retaining wall and Wing wall is good condition. • The clear opening is sufficient. • Wearing coat is in good condition . • The bridge has been connected with School, college, hospital, growth center, bazaar and other important places. • Major vehicles can move in this road e.g. microbus, truck, van, rickshaws, motorcycle, cycle, engine van, baby taxi etc. • Most agricultural products are marketing in this road e.g. paddy, wheat, jute, corn, mastered & vegetable etc. • Overall condition of the bridge is good except approach road. Both side approach road of the bridge is kacha and the road condition is not good. Public demanded pucca road for better communication, The most benefited unions are Tiluppur – Bridge site, Mokterpar, Tajnagar, kitipur etc.

Name of Observation Site	Location of the bridge	Size & Year of construction	Condition of the bridge and overall comment
18. Construction of bridge on Joypur - Alideula Road over Pungikhari Khal.	Union: Hatur Upazila: Mahadebpur District: Naogaon Division: Rajshahi	Length- 39.62m Year of construction: Not completed	<ul style="list-style-type: none"> The construction work is under progress not completed during the original project period. On the basis of collection of report LGED Naogaon it was informed that no contractor was found during allotted period. Now the construction of bridge is on going by separate contract. Only piers are constructed .Under this project the construction of bridge was started but not fully completed. It is reported by the concerned assistant Engineer of LGED Naogaon. If the bridge could be completed and communication will be developed with Mohadebpur School college, hospital, growth center, bazaar, and other important places.
19. Construction of bridge on Chanderbazar - Dhamor Road over Akhiela River	Union: Fulbaria Upazila: Fulbaria District: Mymensingh Division: Dhaka	Length-31m Width- 3 m No.of Span-3 Hight-6m Year of construction: 2004-2006	<ul style="list-style-type: none"> Abutments are in good condition. Piers are in good condition Girders are in good condition. Bridge slab is in good condition. Both sided railings are in good condition . Both side approach roads are in good condition, River training protection work is not done Retaining wall and Wing wall is not done. Needed immediately construction. The clear opening is sufficient. Wearing coat is good condition . The bridge directly connected with upazila road, School college, hospital, growth center, bazaar, and other important places. Major vehicles can move in this road e.g microbus, truck, van, rickshaws, motorcycle, cycle, engine van & baby taxi etc. Major agricultural products are marketing in this road e.g. paddy, wheat, jute, corn, sugarcane, mastered, Pulse vegetable & fruits etc. Overall condition of the bridge is good except retaining wall and Wing wall. The most benefited unions are Fulbaria – Bridge site, kushamiel, bakta etc.
20. Construction of bridge on Ghoshbaria Eidgha Chatrashia - Begunbari Road over Katakhal Khal.	Union: kumerghata Upazila: Muktagacha District: Mymensingh Division: Dhaka	Length- 33.84m Width- 3.65 m No.of Span-2 Hight-7m Year of construction: 2005-2006	<ul style="list-style-type: none"> Abutments are in good condition. Piers are in good condition Girders are in good condition. cross beams are in good condition Bridge slab is in good condition. Both sided railing are in good condition . Both side approach roads are not good condition, immediately repair to be needed. River training protection work is not done Wing wall is good condition but retaining wall is partly damaged. Needed immediately repair. The clear opening is sufficient. Wearing coat is in good condition .
20. Construction of bridge on Ghoshbaria Eidgha Chatrashia - Begunbari Road over Katakhal Khal.			<ul style="list-style-type: none"> The bridge has been connected with School, college, health center, growth center, bazaar, and other important places. Major vehicles can move in this road e.g. microbus, truck, van, rickshaws, motorcycle, cycle, engine van, baby taxi etc. Most agricultural products are marketing in this road e.g. paddy, wheat, corn, vegetable &, fruits etc. Overall condition of the bridge is good except approach road and retaining wall. The most benefited unions are kumerghata- Bridge site, Bagunbari, garoy kuthi etc.
21. Construction of bridge on Srikail - Boachala Road	Union: Srikail Upazila: Muradnagar District: Commilla Division: Chittagong	Length- 33.53m Width- 3.048 m No.of Span-3 Hight-7.7m Year of construction: 2008	<ul style="list-style-type: none"> Abutments are in good condition. Piers are in good condition Girders are in good condition. Bridge slab is in good condition. Both sided railing are in good condition . Both sided approach roads are not good condition, immediately carpeting and repair to be needed. River training protection work is not done. Wing wall and retaining walls are in good condition. The clear opening is sufficient. Wearing coat is in good condition . The bridge has been connected with School, growth center, bazaar, and other important places. Major vehicles can move in this road e. g microbus, van, rickshaws, motorcycle, cycle & baby taxi etc. Most agricultural products are marketing in this road e.g. paddy, corn, vegetable & fruits etc. Overall condition of the bridge is good except approach road. The most benefited unions are Srikail – Bridge site, Boyachal etc.

Name of Observation Site	Location of the bridge	Size & Year of construction	Condition of the bridge and overall comment
22. Construction of bridge on Boro Alampur Ferry ghat - Fatehpur Bazar Road over Buripar Ramprasad canal	Union: Fathabad Upazila: Debiddor District: Comilla Division: Chittagong	Length-29m Width- 3.73 m No. of Span-3 Hight-6m Year of construction: 2002-2006	<ul style="list-style-type: none"> Abutments are good condition. Girders are good condition. Piers are in good condition Cross beams are in good condition. Bridge slab is in good condition. Both side railing are in good condition . Both side approach roads are not good condition, the road is constructed by brick and damage, down from the bridge. Needed immediately carpeting and repair. River training protection work is not done. Wing wall is good condition but retaining walls are parley damage. The clear opening is sufficient. Wearing coat is in good condition . The bridge has been connected with upazila road, District road, School, health center, growth center, bazaar, and other important places. Major vehicles can move in this road e. g microbus, van, rickshaws, motorcycle, cycle&, baby taxi etc. Most agricultural products are marketing in this road e.g. paddy, wheat, corn, Pulse & vegetable, etc. Overall condition of the bridge is good except approach road, River training protection work and retaining walls. Both side road conditions is not good. Public demanded pucca road for better communication. The most benefited unions are Fathabad I- Bridge site, Subil, Buripar etc.
23. Construction of bridge on Teknaf Bus-stand - Shamlapur Road over Faezali Chara	Union: Baharchora Upazila: Teknaf District: Cox's Bazar Division: Chittagong	Length-32m Width- 3.5 m No.of Span-3 Hight-18m Year of construction: 2002-2007	<ul style="list-style-type: none"> Abutments are in good condition. Girders are good condition. Piers are in good condition Cross beams are in good condition. Bridge slab is in good condition. Both side railing are good condition. Both side approach roads are good condition. River training protection work is not required Wing walls and retaining walls are good condition. The clear opening is sufficient. Wearing coat is good condition . The bridge directly connected with upazila road, , School health center, growth center, bazaar, and other important places. Major vehicles can move in this road e. g microbus, van, rickshaws, motorcycle, cycle & baby taxi etc. Most agricultural products are marketing in this road e.g. paddy, vegetable & fruits etc. Overall condition of the bridge is good. Both side approach roads are good condition, both side road condition is not good. The most benefited unions are Baharchora – Bridge site, Noakhali etc.
24. Construction of bridge on Sonapara-Monikhali Road	Union: Jalia palang Upazila: Ukhia District: Cox's Bazar Division: Chittagong	Length-31m Width- 3. m No.of Span-3 Hight-9m Year of construction: 2006	<ul style="list-style-type: none"> Abutments are in good condition. Piers are in good condition Girders are in good condition. Bridge slab is in good condition. Both side railing are in good condition . Both side approach roads are good condition. River training protection work is not required Wing walls and retaining walls are good condition. The clear opening is sufficient. Wearing coat is in good condition. The bridge directly connected with upazila road, district road, School health center, growth center, kotbazaar, ukhia ha and other important places. Major vehicles can move in this road e. g microbus, van, rickshaws, motorcycle, cycle, baby taxi etc. Most agricultural products are marketing in this road e.g. paddy, betel and betel -nut vegetable, fruits etc. Overall condition of the bridge is good. Both side approach roads are good condition, both side road condition is not good. The most benefited unions are Jalia palang – Bridge site, Holudia etc.

Name of Observation Site	Location of the bridge	Size & Year of construction	Condition of the bridge and overall comment
25. Construction of bridge on Padamdi - Guchcchagram Road over Chanddua River	Union: Bharpur Upazila: Baliakandi District: Rajbari Division: Dhaka	Length – 50.60m Width – 5.05m No.of Span-3 Height- 6.20m Year of construction: 2005	<ul style="list-style-type: none"> Abutments are good condition. Girders are in good condition Piers are in good condition. Cross beams are in condition is good Slab condition is good, Railings conditions are not so good Approach roads are reasonably good. River training protection work is in good condition Retaining wall and wing wall is good condition Clear opening is not enough Wearing coat is damaged in different places. Overall condition of the bridge is good except connecting road. Pavement of connecting road of the bridge is pucca for this reason less problem arises in the rainy. The road is directly connected with Upazilla Major vehicles can move by using this bridge e.g. Microbus, Private car, van, rickshaws, cycle etc. Most agricultural products are marketing by this road e.g. paddy, jute, wheat, sugarcane and vegetables Comments: Overall condition of the bridge is good. Wearing coat partially damaged. Railing repair is needed. Proper attention is to be required about flowing of water during rainy season. Transportation cost reduced and growth of local crops increased remarkably and connected schools and market.
26. Construction of bridge on Ghournodi-Sharical GCC Road over Mohonganj Khal.	Union: Sarikal Upazila: Gouranadi District: Barisal Division: Barisal	Length – 20.25 m Width – 7.0 m No of Span-1 Height- 6.0 m Year of construction: 2002	<ul style="list-style-type: none"> Abutments are in good condition. Girders are in good condition Cross beams are in good condition Slab condition is good, Railings conditions are not so good Approach roads are partially damaged. River training protection work is not constructed Retaining wall is not good and wing wall is good Clear opening is enough Wearing coat is good. Overall condition of the bridge is good except approach road. Pavement of connecting road of the bridge is pucca but not so good. Major vehicles can move by using this bridge e.g. Microbus, Private car, van, rickshaws, cycle etc. Most agricultural products are marketing by this road e.g. paddy, All types of Agricultural products are marketing by this road e.g. paddy, jute, wheat, sugarcane, vegetables & varieties fruits. Comments: Overall condition of the bridge is good. Wearing coat partially damaged. Railing repair is to be needed. Transportation cost reduced and growth of local crops increased remarkably. So, income and life style upgraded.
27. Construction of bridge on Gheala RHD-Sheaber Hat Road.	Union: Gaila Upazila: Agailjhara District: Barisal Division: Barisal	Length – 19.92 m Width – 7.0 m No .of Span-1 Height- 6.5 m Year of construction: 20 02	<ul style="list-style-type: none"> Abutments are in good condition. Girders are in good condition Cross beams are in good condition Slab condition is good, Railings are partially damaged Approach roads are in good condition. River training protection work is not so good Retaining walls are not in good condition and wing wall is good Clear opening is enough Wearing coat is good. Overall condition of the bridge is good except approach road. Major vehicles can move by using this bridge e.g. Microbus, Private car/ jeep, van, rickshaws, cycle & truck etc. Most agricultural products are marketing by this road e.g. paddy, jute, wheat, vegetables & varieties fruits. Comments: Overall condition of the bridge is good. Wearing coat partially damaged. Railing repair is needed. Transportation cost reduced and growth of local crops increased remarkably. So, income and life style upgraded.

Name of Observation Site	Location of the bridge	Size & Year of construction	Condition of the bridge and overall comment
28. Construction of bridge on Babuganj - Mohanganj Road	Union: Chadpasa Upazila: Babuganj District: Barisal Division: Barisal	Length – 21.30 m Width – 4.95 m No .of Span-1 Height- 5.0 m Year of construction: 2001-2005	<ul style="list-style-type: none"> • Abutments are in good condition. • Girders are in good condition • Cross beams condition is good • Slab condition is good, • Railings conditions are in good condition • Approach roads condition is bad. • River training protection work is not constructed • Retaining wall is not in good condition and wing wall is good • Clear opening is partially filled up • Wearing coat is good. • Overall condition of the bridge is good except approach road. • Connecting road of the bridge is katcha. • Major vehicles can move by using this bridge because of katcha road. e.g. Van, rickshaws, cycle, auto rickshaws & etc. • Most agricultural products are marketing by this road e.g. paddy, jute, wheat, sugar cane, vegetables & varieties fruits. <p>Comments: Overall condition of the bridge is good. Easy communication & transportation cost reduced and growth of local crops increased remarkably. So, income and life style upgraded.</p>
29. Construction of bridge on Badurgacha-Alaipur bridge over Badurghacha Adbar Khal	Union: Gutudia Upazila: Dumuria District: Khulna Division: Khulna	Length – 47.4 m Width – 5.0 m No .of Span-3 Height- 5.22 m Year of construction: 2011-2012	<ul style="list-style-type: none"> • Abutments are in good condition. • Girders are in good condition • Piers are in good condition • Cross beams are in good condition • Slab condition is good, • Railings are in good condition • Approach roads not yet completed • River training protection work is not constructed • Retaining wall is under construction • Clear opening is enough • Wearing coat is good. • Overall condition of the bridge is good. • Major vehicles can move by using this bridge e.g. Microbus, Private car/ jeep, van, rickshaws, cycle & truck etc. • Most agricultural products for marketing will be moved by this road e.g. paddy, jute, wheat, vegetables & varieties fruits. <p>Comments: Overall condition of the bridge is good. Transportation cost will be reduced and growth of local crops will be increased remarkably after opening of the bridge. So income and life style will be upgraded.</p>
30. Construction of Terokhada bridge on-Patlahat Road over Chita River	Union: Sachiada Upazila: Tarokhada District: Khulna Division: Khulna	Length – 50.3 m Width – 5.0 m No .of Span-4 Height- 8.00 m Year of construction: 2002-2006	<ul style="list-style-type: none"> • Abutments are in good condition. • Girders are in good condition • Piers are in good condition • Cross beams are in good condition • Slab condition is good, • Railings are not in good condition • Approach roads are in good condition • River training protection work is done but partially damaged • Retaining wall is okay. • Clear opening is not enough • Wearing coat is good. • Overall condition of the bridge is good. • Major vehicles can move by using this bridge e.g. Microbus, Private car/ jeep, van, rickshaws, cycle & truck etc. • Most agricultural products are passing over the bridge for marketing e.g. paddy, jute, wheat & vegetables. <p>Comments: Overall condition of the bridge is good. Transportation cost has reduced and growth of local crops will be increased remarkably after construction of the bridge. So income and life style upgraded.</p>

Summary of Infrastructures Assessments:

Out of 30 sample bridges, 14 bridges were completely free of any problem or defect and fully operational. Two sample bridges are incomplete and are non-operational. One bridge of length 39.62 meter at Mohadebpur, Naogaon district is under construction and other bridge of length 161.79 meter at Shibgonj, Nababgonj district is abandoned due to river erosion.

The rest 14 infrastructures are currently operational but with some minor problems/defects. The problems/defects observed for 14 structures are presented as follows:

- Wing walls of one bridge are faulty (3.33%).
- Railing of 6 (20%) bridges are defective
- Approach roads are faulty in 7 bridges (23.33%)
- River training works are defective for 7 bridges (23.3%)
- Retaining wall of 6 bridges are faulty (20%)
- Clear opening silted for 2 bridges (6.67%)
- Wearing coats over the bridges for 3 bridges (10%)
- Wing walls were damaged in 2 bridges (6.67%)

Sample photographs of defective bridges:



Bridge on Gheala RHD – Sheaber Hat Road of Agailjhara Upazila under Barisal District



Bridge on Jorhdighi khal, of Dhunot Upazila, under Bogra District

During observation of the bridges while discussing with community people, who gathered on the spot and somewhere after communication with local leaders/ selected people

- Communication has improved in all project area by connecting schools, colleges, growth centers, hat, bazaar, upazilla, district, hospitals and health centers in different directions.
- Irrigation facilities has been improved and agricultural productions has been improved and marketing facilities has been improved.
- Production of different crops has been increased and varieties of crops have been produced on the basis of market requirement
- Employment has been generated for the rural poor including woman and landless people
- Development in business have been achieved such as fish culture, poultry farming, tree plantation and rice mills
- Education facility improved. Therefore, school attainment and enrollment of the students have increased since the construction of bridge.

Recommendations:

- Construction of approach roads to be wide and mild slope to be required at the entry point of the bridge.
- Monitoring system to be improved and prompt action to be taken by the local LGED officials.
- Ensure river protection work by placing CC block or other protection work on the basis of site condition
- Repair and maintenance group to be formed with the combination of local community & local allies for the road repairing and to clear the eroded soil where sited up.
- Tree plantation on the both sides of the roads to be taken with the encouragement of landless poor and woman.
- Fund allocation to be ensured before tendering of the project
- Periodical reporting system to be introduced on the basis of condition of bridges with the type of type maintenance to be needed and to be submitted with priority.
- Adequate fund to be allocated for the repair and maintenance of the bridge along maintenance of approaches.

Conclusion: Out of 30 bridges 14 bridges are fully operational without any hazards and without any repair. It was also observed that qualified contractors were engaged in the projects and close supervision ensured quality. Two bridges were not completed. In 14 bridges minor repair to needed. LGED may take intensive monitoring activities so that department is of the need of repairs. However the project has served the targets of impacts on social and allied development. So, findings suggested that due to the construction of the bridges local and neighbor area tremendously benefited. As a result social, economical, educational, environmental and agricultural developments were increased geometrically.

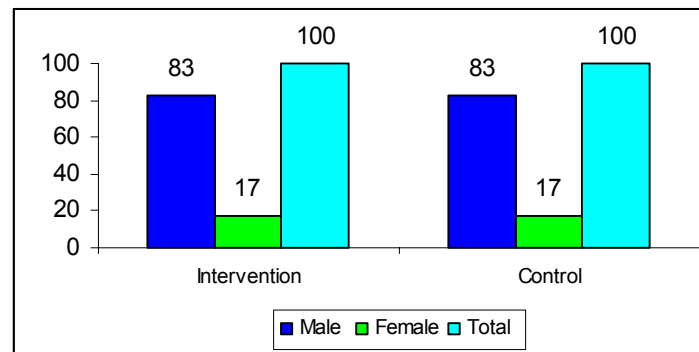
Section 2: Household Beneficiary Assessments

This section reports the survey findings collected and analyzed on the basis of the responses furnished by 5400 (Intervention areas: 3600 and Control areas: 1800) respondents.

A. Sample Characteristics: Socio-economic and Demographic

Gender: It is evident from the graph 1 that irrespective of intervention and control area, about 83 per cent respondents are males whereas 17 per cent respondents are females.

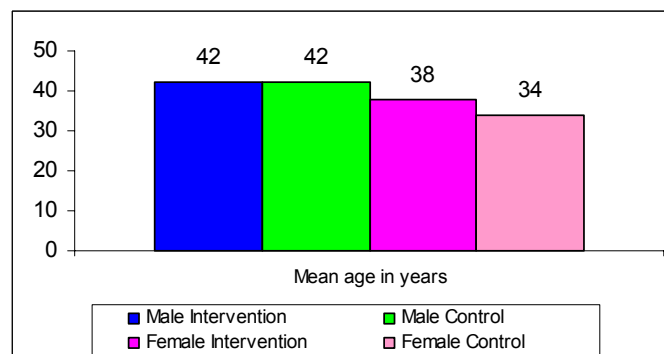
Graph 1: Percentage Distribution of Respondents by Gender



Source: Field Survey, 2012

Age: The data of Graph 2 Present the mean age of the respondents. The data indicate that the mean age of male respondents are 42 years both in the Intervention area and control areas, while that of the female respondents, it is 38 years for intervention areas and 34 years in the control areas.

Graph 2: Percentage Distribution of Respondents by Mean Age



Education: The data of Table 7 indicate that about 46% males and 38% females are either illiterate and or can sign only in the intervention areas while 51% males and 48% females are illiterate and or can sign only in control areas. Moreover, about 28% females and 22% males of project areas and 25% female and 23% males of control areas attained the primary school while 17% males and 15% females of project areas and 24% females and 22% males of control areas attained secondary school. Moreover, about 15% males and 19% females of project area attained either S.S.C or H.S.C or graduation degree. On the other hand about

4% male and 3% female respondents of control area have attained the S.S.C./H.S.C/ graduation.

When the data were compared to national figure, it is evident that in the project area the literacy rate was found 55 while in control area it is 50%, slight lower national literacy is about 58%).

Table 7: Percentage Distribution of Respondents by Educational Status

Education of respondent	Intervention (n=3600)		Control (n=1800)		Project literacy rate (both sex)	Control literacy rate (both sex)	National literacy rate (both sex)
	Male	Female	Male	Female			
Illiterate or Can sign only	46	38	51	48	55	50	58.3*
Primary (I-V)	22	28	23	25			
Secondary (VI-X)	17	15	22	24			
SSC/HSC/Graduate/Masters	15	19	4	3			
Total	100	100	100	100			

* BBS 2010, Statistical Pocket Book, Bangladesh 2010

Marital status: It is evident from data of Table 8 that hundred percent female respondents in both intervention and control areas are currently married, while 96% males in intervention area and 98 per cent in the control areas are currently married whereas irrespective of project area and intervention area, very insignificant per cent are unmarried and widower.

Table 8: Percentage Distribution of Respondents by Marital Status

Marital status	Intervention (n=3600)		Control (n=1800)	
	Male	Female	Male	Female
Unmarried	2	0	1	0
Married	96	100	98	100
Widower	2	0	1	0
Total	100	100	100	100

Family size: It is evident from the data of Table 9 that irrespective of intervention area and control areas, the mean family size of respondent households is 5 with a range of minimum two members and maximum 14 to 16 members.

Table 9: Mean Family Size of Respondents

Mean family size	Intervention	Control
Mean	5	5
Minimum	2	2
Maximum	14	16

Occupation: It is evident from the Table 10 that about 5% differences are observed to the current occupations, especially there is a difference for the male respondents especially in the project areas. For example, about 5% differences are observed to the current occupations of farming and some respondents have got the opportunity to engage themselves in the profession of business, service, rickshaw pulling etc. On the other hand little or no changes in profession were noticed in the control areas.

The percentage of previous unemployment rate of male respondents was 6% and current is 4% in intervention area, whereas, 5% in control area. The current unemployment rate of the respondents is below the national level (4.5), which implies that the employment opportunity increased due to the implementation of the project.

Table 10: Percentage Distribution of Male and Female Respondents by previous and current occupations both in Project and Control Areas

Occupation	Male			Female			
	Intervention (n=3000)		Control (n=1500)	Intervention (n=600)		Control (n=300)	
	Previous	Current	Current	Previous	Current	Previous	Current
Farming including farm labor	62	57	73	1	3	1	1
Business	15	20	11				
Service	8	9	7	1	2	1	1
Day labour	7	7	1	1	1	2	3
Factory Labor	1	1	2				
Rickshaw puller/Driver	1	2	1				
Housewife				96	94	95	95
Student				1	0	1	0
Unemployed	6	4	5				
Total	100	100	100	100	100	100	100

The data of Table 10 also show slight differences in changing the profession of female after construction of bridge in the project areas. But hardly any changes of women's profession noticed in the control area.

Monthly Family Income: Table 11 presents the mean monthly family income of male respondents. It is evident that the mean monthly family income of males in the project areas is higher by (additionally) 38% over the period (Previous: Tk. 8422 and Current: Tk. 11581). But current mean monthly real family income (Base 2005-06) of males in the project areas is BDT 8,263 compared to previous real family income which was BDT 7,906. On the other hand, current mean monthly family income of male respondents in control area is Tk. 9853 which is less than project area. But for control area the current real income is BDT 7030.

The statistical analysis^a shows that, the current income of project area of male respondents significantly higher than that of the income in previous period when the project was not implemented. Here (Table 11) the value of $Z = 18.75$ which indicates that, it is highly significant at 1% level of significance ($p < 0.01$). It was also tested (with the help of the above procedure), the comparison of current income of male respondents in project areas and control areas. The findings (Table 11) highlights that the current income of the male respondents in project areas increased significantly compared to the current income of control area ($z=9.03$, $p < 0.01$)

Table 11: Average Monthly Family Income (in Taka) of male respondents in the intervention and control area

Monthly family income in taka	Intervention(n=3000)			Value of Z	Real Income in taka Base 2005-06 ¹		Current income in taka	Real income in taka	Value of Z
	Previous	Current	Additional Increase (%)		Project Area Previous	Current			
Mean in Taka	8422	11581	38%	18.75***	7906	8263	9853	7030	9.03***
Minimum in Taka	1000	2000			937	1427	1900	1356	
Maximum in Taka	87200	110000			81663	78487	62000	44238	

* $p < 0.10$ ** $p < 0.05$ *** $p < 0, 01$

a. see test of hypothesis section at page no 44.

1. See list of Deflator which implicit GDP, Page no 155, Monthly Statistical Bulletin, 2011, Bureau of Statistics Bangladesh.

B. Use and Impact of Infrastructures

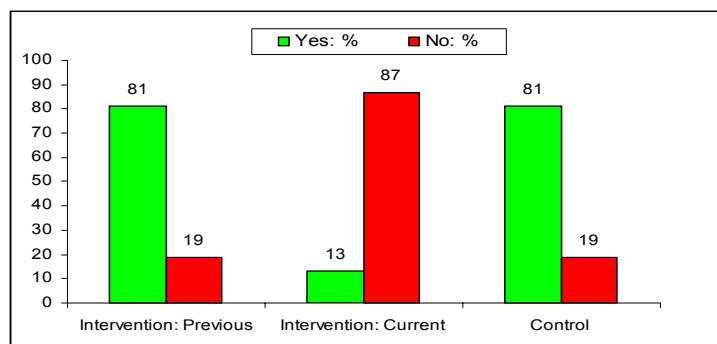
The data of Table 12 indicate that about 64% bridge's construction work was completed in the year of 2006, 2007 and 2008, while the rest were constructed within the range of year 1999 and 2010.

Table 12: Distribution of the male respondents by their experience on time period took to complete the infrastructures (bridges) in Intervention area: in %

Time of start to use the infrastructures	Intervention (n=3000)
1999	3
2000	2
2002	7
2003	4
2004	3
2005	5
2006	23
2007	21
2008	20
2009	7
2010	5
Total	100

The data of Graph 3 indicate that in intervention area, about 81% respondents said that they had to face acute water logging problem as there was no bridge in the locality. But after construction of bridge, about 87% respondents of project areas said they hardly face such water logging problem any more due to construction of bridge than means water logging problem was solved after construction. On the contrary, 81% respondents of control areas said they are faced water logging and water congestion problem in their locality.

Graph 3: Perception of male respondents by their experience regarding the status of water logging problem faced by the villagers: in %



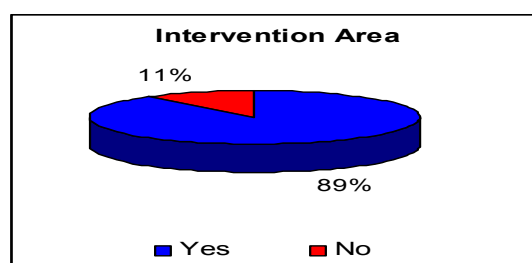
It is evident from Table 13 that irrespective of little differences respondents of both project areas and control areas used more or less similar means of transportation before construction of bridge in the project area. But after construction of bridge, the respondents of project area have better means of transportation and communication in comparison to control areas.

Table 13: Percentage Distribution of Male Respondents by mode of Transports used both in Intervention and Control Areas

Mode of transports used	Intervention (n=3000)		Control (n=1500)
	Previous	Current	Current
Bicycle/ Motor cycle	98	97	82
Rickshaw	21	64	21
Van	36	95	54
Bus	1	19	3
Truck	2	70	0
Tempo	2	32	9
Nosimon/votvoti (Engine Van)	3	58	18
CNG	4	5	0
Boat			1
Bullock cart			2

It is evident from the data of Pie chart 1 that about 89% respondents said that after Construction the bridge villagers are benefited in carrying their agro-products in terms of carrying cost and it has encouraged them to grow more agro-products.

Pie Chart 1: Percentage Distribution of Male Respondents by their experience on the status of reducing agro-product's transport cost due to construction of bridge



It is evident from the survey data that better communication network has helped the children of respondent households to attain their respective educational institute. This means that impact is there, but it would take more time for the expected impact to be observable at average rate (Table 14).

Table 14: Percentage Distribution of Male Respondents of the Project areas by opportunities created to the children going to school/college/madrasha due to construction of bridge and better communication network

Status	Intervention (n=3000)
Yes	98
No	2
Total	100

On the contrary, overwhelming majority (99%) of the respondents of the control areas said that the children of control areas face challenges in commuting their academic institutions due to lack of better transportation and communication network.

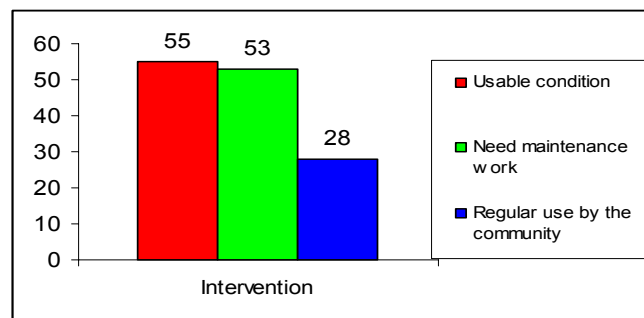
Table 15 presents the data on the environmental assessment of respondents. The data indicate that irrespective of some insignificant negative impacts such as air pollution, sound pollution, prevalence of crime and criminal activities, pollution of river and canal water, at least 58% respondents said that there would be no negative impacts and implications in terms of ecology, environment, biodiversity and eco-system.

Table 15: Opinion of male respondents on negative environmental hazards created due to implementation of project

Responses	Intervention (n=3000)
Create air and sound pollution	27
Increase road accident	9
River/khal become dry	2
Increase dacoity/terrorism/theft	4
No negative impact/hazards	58
Total	100

The data of graph 4 indicate that irrespective of different segment of respondents, about 55% opined that the bridge/culvert constructed is in usable condition while 53% said that it needs some kind of maintenance work. On the other hand, about 28% respondents said that the bridge is in operation and the community people using it for their own purposes.

Graph 4: Percentage Distribution of Respondents by their opinion regarding the quality of construction work of bridges/culvert



It is evident from the table below that, employment opportunities have been increased for the implementation of the project. About 93% of the male respondents of project area opined with the acceleration of employment opportunities due to project implementation. Due to construction of bridge male respondents are getting additional and incremental opportunities in engaging in the area of agriculture, daily labour (soil digging and construction works), mills and factories, cottage industries, tree plantation, fisheries, rickshaw/van pullers, CNG drivers etc.

Table 16: Opinion on status of increase employment opportunities for males due to project implementation: %

Responses	Intervention area
Yes	93
No	7
Total	100
Sector of work	
Agriculture	93
Soil digging	31
Road/bridge construction work	46
Live stocks rearing (duck/ chicken/ cow/ goat)	66
Mills and Factory	23
Cottage industry	12
Tree plantation	34
Vegetable gardening	32
Petty business	42
Fisheries	15
Transportation sector (rickshaw/ van pulling, driving)	16

The data of Table 17 indicates that the respondents suggested some measures to be taken for the sustainability of projects. These include the approach road to be pucca, both side of approach road should have proper earth work, maintenance works to be done at regular interval, the approach road to be widened, carpeting work to be done in proper way, the walls of both sides of bridge to be well constructed and the bottom side of bridge to be excavated in proper way.

Table 17: Percentage Distribution of Respondents by their suggestions how to make effective and sustainable the project in future

Responses	Intervention (n=3600)
Approach road should be pucca	34
Both side of the bridges should be filling up with soil	14
Ensured regular maintenance work	50
Road should be more widen	34
Carpeting should be done on the bridges	7
Both side walls of bridges should be well constructed (heavy)	4
Khal should be digging up	9

Multiple responses

C. Impact on Marketing and Supply of Agricultural Products

The multiple response data of Table 18 indicate that overwhelming majority (94%) agreed that the construction of bridge would help the village people in facilitating market net work. These include marketing of agro-products, selling of local people's grown items in local bazaar, selling the produced goods in distance wholesale market etc.

Table 18: Perception of male respondents on types of marketing facilities created in the project areas in terms of communication development

Responses	Intervention (n=3000)
Yes	94
No	6
Total	100
Types of facilities created for marketing	Intervention (n=2820)
Easy marketing in the locality	92
Market/Bazar is very nearest now	64
Take less time for marketing agri products in the locality	67
Can market the products in the locality in any time	19
Created opportunity for wholesale through Mahajan	8
Local middle man (Faria) are now involved in buying and selling	1

Multiple responses

On the contrary, overwhelming majority (96%) of the respondents of control areas agreed that the non-availability of bridge would negatively impact the village people in facilitating market net work. The major challenges include marketing of agro-products, fair prices of grown products, selling of local people's grown items to the wholesale market etc. (Table 19).

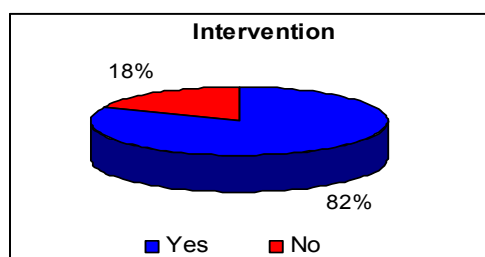
Table 19: Percentage Distribution of Male Respondents of Control areas by types of problem faced in marketing

Responses	Control (n=1500)
Yes	96
No	4
Total	100
Types of facilities created for marketing	n=1440
Can not market product easily	94
Do not get fair price	73
Take more time for marketing agri products	75
Can not market the products in any time	56
Created opportunity for wholesale through Mahajan	1

Multiple responses

It is evident from the Pie Chart 2 that due to construction of bridge and culvert, the villagers of intervention areas (about 82%) are able to get in the inputs like fertilizer, high yield seeds, chemical fertilizer, irrigation equipments, and grocers including fish meals, raw materials for small scale industries etc. This incidence of increased supply of different in puts also cost less transportation fee due to improved network of communication. Moreover, more local people have got better scope to engage into these gainful activities, ultimately help to ensure quality life due to better income and employment opportunities.

Pie Chart 2: Percentage Distribution of Respondents (males) by their experience on status of increase of supply of goods from outside the locality



It is evident from data that before construction of bridge, the respondents along with the villagers used to carry their produced goods through traditional and less speedy transports like bicycle, bullock cart, van, and on foot. But after construction of bridge, local growers carry their goods through engine operated vans, motor cycle, tempo, *nosimon*, mini-truck, mini-bus etc. This not only saves their time, ensure fair price of their products. Before construction of bridge, most of the growers used to get low price of their products due to presence of middle men but now they are no more exploited by the middle men rather able to sale their grown products directly to the whole sale. On the other hand, the growers of control areas are dependent on traditional means of transport, cost more time and conveyance and unable to get the fair price due to forced sale of their products to the middle men (Table 20).

Table 20: Percentage Distribution of Male Respondents regarding their experience on use of transportation for carrying produced goods to the market place

Responses	Intervention (n=3000)		Control (n=1800)
	Previous	Current	Current
On foot	88	74	87
Bicycle	74	77	78
Bullock cart	17	24	18
Van	39	90	57
Rickshaw	9	54	19
Motor cycle	1	47	9
Mini-Bus	0	21	2
Mini-Truck	0	48	3
Tempo	3	40	12
Nosimon/votvti	0	39	17

Multiple responses

D. Assessment of beneficiaries in terms of increased agricultural production and expansion of agro based industries

It was observed that the construction of bridge within the project area helped in developing a better communication net work, increased access to agricultural inputs, raised the level crop production, expanded of agro based industries and the marketing facilities for the beneficiaries as well as for other peoples. In this study, an attempt was made to quantify the impact of bridge on the supply of agricultural inputs, crop production, and development of agro based industries in the project areas by examining the pre and post project status in 14 Districts and 30 Upazilas.

The Status of Land Use Pattern and Cropping Intensity: The land use and agricultural production related information were collected from 3000 respondents (household heads) of project area and 1500 respondents of control areas under 14 districts such as Barisal, Bogra, Comilla, Cox's Bazar, Jamalpur, Jessore, Rajbari, Khulna, Mymensingh, Meherpur. Naogaon, Nababgonj, Natore and Nilphamari.

A several varieties of crops were cultivated in 30 study upazilas under 14 Districts during Kharif and Rabi seasons. It was found that rice is the most important cereal crop cultivated in terms of yield, crop value and food habits. It is evident that in the project area, T.A HYV/Hybrid was cultivated followed by HYV/Hybrid Boro and HYV Aus. Wheat and maize are also the other important cereal crops. The principal cash crops are jute, sugarcane, mustard, potato, vegetables, and fruits etc. It is informed by the respondents that there is a positive change in cropping pattern and intensity of crops after construction of bridge which is helpful for development of irrigation facilities. Out of 3000 sample household respondents, about 93% opined that after construction of bridges crop production has been increased, while only 7% respondents did not agree. Similarly, a majority of the respondents (82%) of the control areas informed that crop production has been increased, whereas, only 18% of the respondents did not agree (Table 21). In the statistical analysis^a, the value of chi-square is $X^2=5.53$ (table 21) and $p<0.05$, means statistically significant implies that, for the intervention of project, the crops production has increased significantly in the project area compared to production of crops in the control area.

Majority of the respondents in project areas (87%) opined that the crop diversification was possible after the implementation of the project. Similarly, a majority of the respondents (76%) in control areas opined that crop diversification was possible in their area (Table 22).

Table 21: Status of increased crop production between project and control area: in %

Opinion	Project areas (n=3000)	Control areas (n=1500)	Value of Chi square
Yes	93	82	5.53**
No	7	18	
Total	100	100	

* $p<0.10$ ** $p<0.05$ *** $p<0.01$

a. see test of hypothesis section at page 44

Table 22: Status of crop diversification between project and control area: in %

Opinion	Project areas (n=3000)	Control areas (n=1500)
Yes	87	76
No	13	24
Total	100	100

The extent of Upazila wise cropping intensities (before and after project) is shown in Table 23. The study findings indicate that the cropping intensity is increasing gradually (day to day) from 159% in the pre project condition to 200% in the project areas in the year 2012, however, is lesser than 217%, the DAE district crop intensity level productivity of year 2012. The cropping intensity of project area i.e., 200% is higher than national average of 181% (BBS, 2011 & Krishi Diary, 2012). The result shows that the overall cropping intensities have been changed about 40% after construction of bridges. It is clearly indicated that the farmers of project areas adopted modern production technologies and growing multiple crops instead of single crop.

Table 23: Upazila wise Extent of changes of cropping intensity before and after project

Name of District	Name of Upazilas	Before	After	% Change	% Cropping Intensity (DAE District Report 2012)	% Average National cropping intensity (BBS, 2011 & Krishi Diary, 2012)
Barisal	Ghournadi	120	153	33	190	181
	Agailjhara	122	148	26		
	Babuganj	120	152	32		
Bogra	Dhunot	160	216	56	250	
	Gabtolli	170	230	50		
	Sonatala	180	220	40		
	Sherpur	195	246	51		
Comilla	Debider	120	175	45	223	
	Muradnagar	132	187	55		
Cox's Bazar	Ukhia	90	130	40	194	
	Teknaf	110	125	25		
Jamalpur	Bakshigonj	185	215	30	217	
	Islampur	175	210	35		
Jessore	Sadar	155	214	59	247	
	Monirampur	170	215	45		
Rajbari	Baliakandi	135	162	27	235	
Khulna	Dumuria	165	193	28	197	
	Terokhada	140	173	33		
Mymensingh	Muktagacha	160	190	30	212	
	Fulbaria	110	160	50		
Meherpur	Gangni	195	246	51	240	
	Mujibnagar	190	238	48		
Naogaon	Mohadebpur	195	262	67	212	
	Sadar	185	211	26		
Nababgonj	Nachole	170	212	42	204	
	Shibganj	175	220	45		
Natore	Baraigram	190	226	36	200	
	Baghatipara	170	219	49		
Nilphamari	Sadar	195	235	40	220	
	Saidpur	190	219	29		
Overall		159.13	200.03	39.63	217.21	

Production of Major crops: Yield advantage of High Yielding Varieties (HYV) compared to the local varieties is well established among the farmers of Bangladesh. It was found that, there is more increase in the crop production level after the intervention of the project. Overall, major crops per ha production before and after project area and their yield different are shown in Table 24. The data indicate that farmers did not cultivate hybrid crops before intervention of the project. They cultivated only HYV and local variety crops. Now, respondents are cultivating Hybrid, HYV and Local improved Variety (LIV) after inception of the project. As results respondents are getting about 2-3 metric tons additional yield from their land (Table 24). This finding clearly indicates the positive impact of construction of the bridges. The farmers of both project and control areas are cultivating Hybrid, HYV and LIV crops. Major crop production both project and control areas is shown in Table 25. It is evident from the data that there is no significant yield difference among the cultivated crop varieties between project area and control area.

Table 24: Crop variety wise per ha. Mean production and yield increase before and after project: m. ton

Name of crops	Intervention						Variety wise per ha Yield increase (m.ton)		
	Previous			Current			Hybrid*	HYV	LIV
	Hybrid	HYV	LIV	Hybrid	HYV	LIV			
Paddy									
Aush	-	-	1.25.	3.60	2.50	1.75	2.35	1.25	0.50
Aman	-	2.31	1.50	4.18	3.80	2.25	1.87	1.49	0.75
Boro	-	3.06.	2.20	5.70	4.25	2.54	2.14	1.19	0.34
Wheat	-	4.50	1.0	-	4.40	-	-	0.10	-
Maize	-	4.33	-	11.50	7.17	-	7.17	2.84	-
Jute	-	1.50	1.0	-	2.50	-	-	1.0	-
Oil seeds (mustered)	-	-	0.80	-	1.60	1.25	-	0.80	0.45
Pulse	-	-	0.92	-	1.56	1.29	-	0.64	0.37
Vegetables (potato)	-	10.00	5.50	-	20.67	7.00	-	10.67	1.19

* Not comparable because hybrid crops were not introduced before project period.

Table 25: Per ha. Crop Production within the project area and control areas (in metric ton)

Name of crops	Per ha. crop production in m.ton						Variety wise per ha Yield difference between project and control (m.ton)		
	Project areas (m.ton)			Control Areas (m.ton)			Hybrid*	HYV	LIV
	Hybrid	HYV	LIV	Hybrid	HYV	LIV			
Paddy									
Aush	3.60	2.50	1.75	3.45	2.36	1.50	0.15	0.14	0.25
Aman	4.18	3.80	2.25	4.05	3.60	2.12	0.13	0.20	0.13
Boro	5.70	4.25	2.54	5.45	3.90	2.27	0.25	0.35	0.27
Wheat	-	4.50	-	-	4.35	-	0.15	-	-
Maize	11.50	7.17	-	10.50	7.50	-	1.00	0.33	-
Jute	-	2.50	-	-	2.25	-	-	0.25	-
Oil seeds (mustered)	-	1.60	1.25	-	1.45	1.23	-	0.15	0.02
Pulse	-	1.56	1.29	-	1.35	1.25	-	0.21	0.04
Vegetables (potato)	-	20.67	7.00	-	18.50	6.80	-	2.17	0.20

Status of Agricultural Input Supply: Crop production depends on quality seeds, fertilizers, insecticides and others inputs. It is found that construction of bridge has contributed supplying agricultural inputs and availability in the project areas. The supply status of seeds, fertilizers and insecticides (before and after project) is shown in Table 26. The data indicate that majority of the respondents (66-72%) both in project and control areas opined that insufficient supply of seed (before project), contributed to decline the productivity. Overwhelming majority of the beneficiaries (89%) in the project areas affirmed that seed supply is sufficient after introducing the project. On the other hand, about 35% respondents of control areas said that seed supplied is sufficient but about 51% respondents did not agree. Majority of the respondents (91%) of 14 districts in project areas opined that fertilizer supply was sufficient once the bridge was constructed. The data indicate that majority of the respondents both project (64%) and control (71%) areas opined that the supply of insecticides was previously insufficient. The data further highlight that about 90% respondents of project areas claimed that the supply of insecticides is sufficient since the intervention of the project. On the other hand, about 57% respondents of control areas said that the supply of insecticides is not sufficient in the control area.

Table 26: Supply status of agricultural inputs (seeds, fertilizers and insecticides) before and after project; in %

Inputs and supply status	Project areas (n=3000)		Control area (n=1500)	
	Before	After	Before	After
Seeds				
Not available	10	0	25	14
Insufficient supply	72	11	66	51
Sufficient supply	18	89	09	35
Total	100	100	100	100
Fertilizers				
Not available	15	4	35	20
Insufficient supply	68	5	45	50
Sufficient supply	17	91	20	30
Total	100	100	100	100
Insecticides				
Not available	17	3	23	16
Insufficient supply	64	7	71	57
Sufficient supply	19	90	06	27
Total	100	100	100	100

Application of Fertilizers: Now-a-days among the factors that affect crop yield, fertilizer is the single most important factor which plays key role in the increase of crop production, provided other factors are not too limiting. From the field data it is evident that the respondent farmers use different kinds of essential fertilizers both in project and control areas. Table 27 specifically highlights the nature of using chemical fertilizers such as urea, TSP, MP, mixed fertilizer and organic fertilizers such as compost, green manures, cow dung etc. The data of Table 27 clearly indicate that increasing trend of use of urea fertilizer (in project area about 35% to 91% and in control area about 25% to 82%). Similarly the prevalence of using fertilizers like TSP, MP and mixed fertilizers have also increased after intervention of the project. But the data show the decreasing trend of using organic fertilizers (manure) both in project and control areas. As a result, soil nutritional health is affected adversely which in turn affect the future crop yield. The present study findings clearly indicate the need for more attention on use of organic manure by the farmers, who may be trained to develop the needed skills of using balanced fertilizer application. There is a need for strengthening motivational work for changing farmer's attitude as well as creating awareness. There is also a need for strengthening soil testing program in farmers' level.

Table 27: Status of use of different types of fertilizers (before and after project situation): in %

Name of fertilizers and their status of use	Project area (n=3000)		Control area (n=1500)	
	Before	After	Before	Current
Urea				
Didn't use	15	0	18	0
Less use	50	9	57	28
Sufficient use	35	91	25	82
Total	100	100	100	100
TSP				
Didn't use	16	0	26	3
Less use	65	13	62	45
Sufficient use	19	87	12	52
Total	100	100	100	100
MP				
Didn't use	10	13	27	05
Less use	60	27	58	35
Sufficient use	30	60	32	60
Total	100	100	100	100
Mixed fertilizer				
Didn't use	28	12	38	15
Less use	60	32	50	25
Sufficient use	12	56	12	60
Total	100	100	100	100
Organic fertilizer				
Didn't use	69	85	60	91
Less use	26	12	30	06
Sufficient use	05	03	10	03
Total	100	100	100	100

Status of Flood Situation: Flood causes sometimes severe damage to field crops. Table 28 presents data of project and control areas where the respondents opined on flood situation. It is evident from data that majority of the respondents (46-51%) both from project and control areas opined that before project intervention, there was severe flooding in the locality. But after constructing the bridges the situation has improved to a significant extent.

Table 28: Opinion on status of flood situation by before and after between project and control area: in %

Status	Project Area (n=3000)		Control Area (n=1500)	
	Before	After	Before	After
No flood	12	42	16	26
Less flood	37	53	38	63
Over flood	51	5	46	11
Total	100	100	100	100

Flood Control: Majority of the household respondents in project area (93%) opined that it is easy to control flood due to improved communication system by constructing bridges.

Table 29: Opinion on control of flood due to improved communication system

Opinion	Project areas (n=3000)	Control area	Value of Chi square
Yes	93	72	15.27***
No	7	28	
Total	100	100	

*p<0.10 **p<0.05 ***p<0.01

Status Tree plantation: Tree creates and increases the natural beauty, favorable habitat for nesting, sheltering and food for the birds and protective for canal and embankment erosion as well. The present study investigates the status of tree plantation after construction of bridge. Majority of the respondents in the project area (86%) acknowledged that tree plantation has increased in comparison to previous period (base year) (Table 30).

Statistical analysis of Table 30 shows that the nature of association between tree plantation implementation of project. The data show the nature of association is statistically significant (p<0.05, means tree plantation is now increasing significant compared to that of previous period of the project.

Table 30: Opinion on increased tree plantation

Responses	Project area (n=3000)	Control area (n=1800)	Value of Chi square
Yes	86	75	3.85**
No	14	25	
Total	100	100	

*p<0.10 **p<0.05 ***p<0.01

Analysis data in the Table 31 shows that the highest tree plantation occurred on homestead land (67 - 80%), road side (16 - 30 %) and fallow land (3 - 4 %) in both the project and the control areas than before.

Table 31: Opinion on area of tree plantation between Project and Control area

Area of Tree plantation	Project area (n=3000)	Control area (n=1800)
Homestead	67	80
Road side	30	16
Fallow land	3	4
Total	100	100

Status of Fish Production: It is predicted that more ponds within the project area will be free from seasonal flooding and water logging, which will ultimately increase the fish cultivation opportunity in different ponds, lake, low-lying depressions and rice fields (Table 32).

Table 32: Status of fish production

Responses	Project area (n=3000)	Control area (n=1500)	Value of Chi square
Yes	62	44	6.50**
No	38	56	
Total	100	100	

*p<0.10 **p<0.05 ***p<0.01

An attempt was made to quantify the impact of bridges on fish production under the Project, as well as Control areas. Out of 3000 respondents, about 62% opined that fish production has significantly increased after the intervention of the project, while, 38% respondents did not agree. In the Control areas, out of a sample of 1500 respondents 44% respondents perceived an increase in fish production than before, whereas, 56% farmers did not agree with that opinion. There was 18% difference in response regarding the increase in fish production between the Project and the Control areas. Statistical analysis shows that the relation between increased fish production and implementation of the project is statistically significant i.e., p<0.05 table 32) which implies that, the fish production have been increased in the project than that of control area.

Status of Poultry Farming (duck-chicken rearing): Out of a sample 3000 respondents, about 70% said that duck-chicken production has increased after the intervention of the project, while only 30% did not agree with that opinion. On the other hand, out of a sample of 1500 respondents in the control areas, about 61% said that duck-chicken production has increased than before. There is a difference of 9% regarding increases in duck-chicken production between project and the control areas. However, the statistical test did not find any significant association among the variables (Table 33)

Table 33: Opinion on increase duck-chicken (poultry farming) production between Project and Control areas: in %

Responses	Intervention (n=3000)	Control (n=1800)	Value of Chi square
Yes	70	61	1.79
No	30	39	
Total	100	100	

*p<0.10 **p<0.05 ***p<0.01

E. Expansion of agro based industries in the project areas

The data of Table 34 indicate that after construction of bridge the scope to set-up new business enterprises including poultry farm, rice mill, animal husbandry, oil mill, whole sale depot of seeds, fertilizer etc. have increased to a significant way. This actually helps the villagers to come forward with innovative and inventive types of business ideas. Moreover, local people are becoming more interested in investing small scale business, trade and commerce rather than sitting idle at home.

Table 34: Percentage Distribution of Male Respondents by types of agro industries set-up before and after construction of bridges

Responses	Intervention(n=3000)	
	Previous	Current
No industries	66	0
Poultry farm	2	32
Agro seeds shop	0	5
Rice mill	31	89
Oil mill	0	3
Cottage industry	1	1
Shop of agricultural instruments/materials	0	1
Cow/goat rearing	0	5
Dairy farm	0	1

Multiple responses

F. Generation of employment opportunities and scope of movement of women folk

It is evident from the Table 35 that on the issues of female movement within the community, a significant improvement has been achieved in the project areas in respect of visiting market places (additionally by 15%), health care units (additionally 41%), relative's houses (additionally 35%) etc. In contrasts, the respondents of control area do not enjoy the additional facilities of movement due to absence of better communication and transportation facilities.

Table 35: Percentage Distribution of Female Respondents by their nature of movement

Responses	Intervention (n=600)		Control (n=300)	Value of Chi square
	Previous	Current		
Can visit market/growth centers	42	57	37	8.03 ***
Can visit health centers/hospitals	45	86	49	
Can move or visit relatives' house without help of anyone	33	68	46	

Multiple responses *p<0.10 **p<0.05 ***p<0.01

The statistical analysis shows that there is an significant association (p<0.05) between movement of females and improved communication out of implementation of the project.

The data of Table 36 indicate the benefit accrued by the children due to improved network of communication and transportation. It is evident that due to construction of bridge, children of project areas gets better facilities in terms of going to school, able to move independently, avail speedy transport to move. In contrast, the children of control area are unable to avail such facilities.

Table 36: Percentage Distribution of Female Respondents in project areas in terms of Benefit Accrued to the Children due to improved Communication and Development Net Work

Responses	Intervention (n=600)
Yes	94
No	6
Total	100
Types of benefit accrued for the children	(n=564)
Easy to go to school/college/ madrasa	93
Can go everywhere alone	65
Take less time than before	86
Children can visit to relatives house without help of anybody	63
Easy to go to market/growth centers	3

Multiple responses

The data of Table 37 indicate the socio-economic condition of female respondents' has been changed due to construction of bridges. The data reflect that in respect of economic development, social emancipation, educational attainment of children, getting better health care services, increased living standard and better empowerment, improved communication and transportation network have positive impacts and implications. In contrast, the women of control areas have relative disadvantage in achieving all mentioned socio-economic goals due to bad communication and transportation net work.

Table 37: Percentage distribution of female respondent by status and types of development accrued due to implementation of project

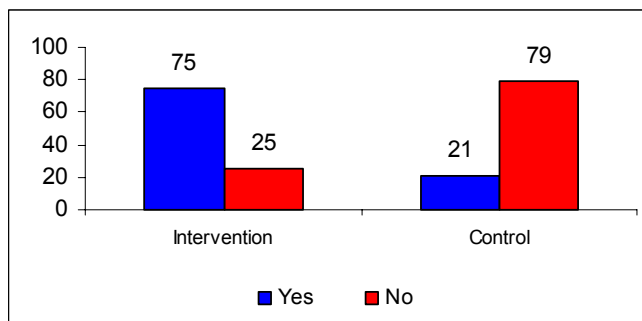
Responses	Intervention (n=600)
Yes	87
No	13
Total	100
Types of benefit accrued	Intervention (n=523)
Economical development	58
Social development	47
Educational development	82
Development of health and health service	33
Increase living standard	24
Increase women empowerment	3

Multiple responses

Women participation in various development activities

It is evident from the graph 5 that women of project areas (75%) have better scope to participate in development activities in comparison to the women (21%) of control area.

Graph 5: Percentage Distribution of Female Respondents of project and Control area by their scope in participation to development work



The data of multi-response Table 38 indicate the nature of participation of women of both project areas and control areas in different gainful activities. It is evident from the data that due to construction of bridge the female are getting additional and incremental opportunities in engaging in the areas of agriculture, livestock, cottage industries, construction work, plantation of trees, cultures fisheries and fish processing activities, vegetable gardening, petty business and service sectors. In contrast, the women of control areas have less competitive advantages due to challenges they face in terms of mobility, movement and engaging in gainful economic activities.

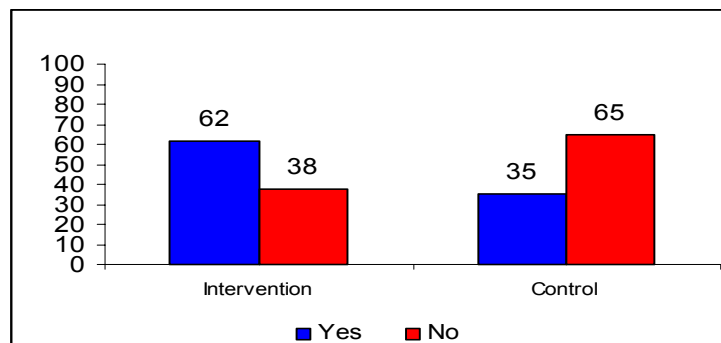
Table 38: Percentage Distribution of Female Respondents of Project area and Control area in participation to various development activities

Responses	Intervention (n=600)		Control (n=300)	
	Before	Present	Before	Present
Yes		75		21
No		24		79
Total		100		100
Sector of work of women participation		n=424		n=63
Agriculture	9	27	19	26
Live stocks rearing (duck/ chicken/ cow/ goat)	91	93	79	89
Cottage industry	27	30	4	19
Soil digging	10	14	3	6
Road/bridge construction work	8	23	5	19
Tree plantation	10	31	4	14
Fisheries	4	18	6	9
Vegetable gardening	29	68	25	30
Petty business	0	15	0	6
Service	13	17	9	13

Multiple responses

Graph 6 indicates the nature of involvement of women in marketing activities. It is evident that women (62%) of project areas have better scope of engaging themselves in marketing network whereas the women (35%) of control areas have less opportunity to be engaged in the process.

Graph 6: Percentage Distribution of Female Respondents by their scope to participation in Marketing



G. Test of hypothesis of the study population against some variables both in the project area and control area

We conducted two statistical test to justify whether some important variable such as family income, crops production, flood situation, tree plantation, fisheries and poultry for which data have been collected in the study have increased due to implementation of project compared to previous time and that of control area. The significant test was done with the help of Z-test and Chi-square test.

To test the hypothesis from the table 11, the null hypothesis is that,

$H_0: \mu_1 = \mu_2$; There is no change of income between the income of the male respondents in previous and current time. And the alternative hypothesis is that,

$H_1: \mu_1 \neq \mu_2$; There exist significant increase of income of male respondents of project areas in current time than that of previous time. Since the samples were large, so we have taken Z-test for this context as follows:

The test statistics, $Z = \mu_1 - \mu_2 / \sqrt{s_1^2/n_1 + s_2^2/n_2}$

Income	Mean	Sd	Number of Respondents	Value of Z
Previous income (Project area)	8442.47	6159.36	3600	18.75***
Current income (Project area)	11581.39	7936.26	3600	
Current income (Project area)	11581.39	7936.26	3600	9.03***
Current income (Control area)	9853.00	6847.92	600	

*p<0.10 **p<0.05 ***p<0.01

The result noted that, the current income of project area of male respondents show significantly higher than that of the income of them in previous period when the project was not implemented. Here (table 11) the value of Z =18.75 which indicate that, it is highly significant at 1% level of significance (p< 0.01).

We also tested (with the help of the above procedure), the comparison of current income of male respondents in project areas and control areas. The result (Table 11) revealed that, the current income of the male respondents in project areas increased highly compare to the current income of control area. It is shown highly significant (z=9.03, p<0.01)

We used another test statistics named chi-square test, which test the association between two variables. To test the relation between the increase of crops production, flood control, tree plantation, fish production and poultry with the implementation of the project. We used the test statistics as follows:

The test statistics $X^2 = N(ad-bc)^2/(a+b)(c+d)(a+c)(b+d)$; with (r-1)(c-1) degrees of freedom

Opinion of increase crop production	Project Area (n=3000)	Control Area (n=1500)	Total	Value of Chi-square
Yes	a=93	b=82	a+b=175	5.53**
No	c=7	d=18	c+d=25	
Total	a+c=100	b+d=100	200	
Opinion of the status of flood control due to improve communication system				
Yes	a=93	b=72	a+b=165	15.27***
No	c=7	d=28	c+d=35	
Total	a+c=100	b+d=100	200	
Opinion of increase tree plantation				
Yes	a=86	b=75	a+b=161	3.85**
No	c=14	d=25	c+d=39	
Total	a+c=100	b+d=100	200	
Opinion of the status of fish production				
Yes	a=62	b=44	a+b=106	6.50**
No	c=38	d=56	c+d=94	
Total	a+c=100	b+d=100	200	
Opinion of the status of duck-chicken production				
Yes	a=70	b=61	a+b=131	1.79
No	c=30	d=39	c+d=69	
Total	a+c=100	b+d=100	200	

*p<0.10 **p<0.05 ***p<0.01

The value of chi-square $X^2=5.53$ (table 21) and p<0.05, it is shown statistically significant which implies that, due to the intervention of project the crops production was significantly increased in the project area compared to production of crops in the control area. It is evident that, for flood control the value of chi-square is 15.27. Since the p-value of chi-square is less than 0.01(p<0.01) so it is indicate that there exist a strong relation between improved flood situation and implementation of the project which implies that, the flood

situation is now more better condition in project area compare to control area. Similarly we tested the change of tree plantation, fish, and duck-chicken production. The result highlights that, tree plantation and fish production had been increased significantly due to construction of bridge in project area compare to control area except duck-chicken production.

Finally, we conclude that, the income of the peoples of catchments' area, flood control, crops production, tree plantation and fisheries are reasonably increased by the implementation of the construction of bridge project. Apparently the income from poultry farm should have been increased significantly, but the result of the study did not support the proposition.

Section 3: FGD Findings with Community Leaders

At least 30 FGDs were conducted with community leaders in different project areas in Bangladesh. Total participants were 240 and each FGD comprised of eight participants comprises of males and females including the representatives of farmers, businessman, teacher, religious leaders, service holders and other occupational group.

Of the total FGD participants, 8% were females and the rest are males; 34% are farmers, 30% businessmen, 8% are teachers, 4% are religious leaders, 6% are youth leaders, and about 12% are social workers/village influential. Among the farmers, social workers and businessmen, many are representative of local government at union level, Influential, and community leaders.

➤ Date of Completion of Construction of Bridge

- About 32% participants said that the bridge was completed in the year 2006.
- On the other hand, about 28% respondents said that the bridge was constructed in between the year of 2008 and 2010.
- About 34% participants said that the bridge was constructed between the year of 1999 and 2005.
- The rest of the respondents said that the bridge was completed between year 2002 and 2007.

➤ Perceived Reasons for Construction of the Bridge

- For improvement of communication network at upazila, union and district level
- For improvement of water logging situation
- For mobility and movement of local people in a better and convenient way
- For facilitating better market network for produced agricultural goods and products
- For better flow of water caused by flash flood and high tide
- For flood control and better irrigation
- For facilitating movements of the male and female students to attend school
- For better navigability, improved means of transportation and communication

➤ Benefits Accrued for Construction of Bridge

In Agriculture Sector

- Easy and smooth availability of agricultural inputs like seeds, pesticides, fertilizers, harvesting machines, power tillers and tractors, irrigation equipments etc.
- Improved marketing network for produced agricultural goods and products
- Whole sellers directly purchase agro. products from local villages and ensure fair price of locally produced products
- Products like fruits, fish, vegetable are getting marketing facilities within the shortest time, no more chances to be rotten.
- Crop intensity and crop productivity has been increased better and enhanced to a greater extent.
- The wages of agricultural labors has enhanced
- Growers are encouraged to produce more agro. Products
- Fruit producers are getting fair prices of their products
- Local farmers easily take their produced goods to nearby whole sell depot.

Better Health Care and family planning Service Sectors

- Previously local villagers had restricted opportunity to avail better heal care services due to backward communication and transportation. Similarly many potential married couples and spouses were unable to avail family planning and contraceptive services for control the expected children. At the same time the pregnant mothers despite

their willingness to consult a doctor during their pregnancy could not do so, consequently many pregnant mothers used to die without availing proper maternal care treatment and safe delivery services. Currently due to the construction of the bridge, as the road communication has improved, local people have got better access to all the services related to health care, family planning and pregnancy related complications..

Better Educational Attainment and Enrollment

- Previously many local students were discouraged to enroll themselves to the standard educational institutes due to bad communication and security reason. Even during rainy season both girls and boys students could not attend their schools and even the guardians used to discourage them from attending schools but now they are regularly attending schools, vocational training centres, colleges, *madradas* and even nearby universities.
- The rate of drop-out has also decreased due to better economic emancipation of local people and one of the reasons is improved and better opportunity of economic production-relations.

Increased Economic, Social, Cultural and Political Emancipation and Opportunities for Females

- The female labors are getting fair and enhanced wage for day laboring, helping to increase economic affordability at household level
- Poor and vulnerable women are engaged in earth work with enhance wages
- Women labors are engaged in agricultural work
- Women are increasingly engaged in cattle rearing, vegetable planting and tree planting and management
- Women labors are engaged in preparing fish meals, collecting fish fry and processing fish and selling agro. Products to nearby markets
- Women are engaged in flexi and cell phone business
- Many vulnerable, poor even educated women are engaged in jobs offered by local level NGOs and many NGOs are coming forward to open their branch at local level due to improved transportation and communication. As a consequence, apart from economic emancipation, women's social status is upgrading socially, culturally, politically both at community level, local level and family level. This ultimately helping to the process of women's empowerment.

➤ Employment Opportunities have been Increased and Diversified

- Opportunities created for small scale investment in petty business especially in trading fruits, vegetables, grocers, tea stalls, vending various products, retailing of fish, timber, bamboo etc.
- Small and marginal farmers are now motivated to produce more agricultural products, they eventually employ more farm laborers from among the poor and hardcore poor.
- After the construction of the bridge, there is sudden spurt of using vehicles and intermediate transports like *nosimon*, *karimon*, vans, *leguna*, rickshaw and rickshaw vans, easy bike etc. As a result, poor people are getting opportunity to be employed as transport workers and at the same time, the numbers of transport owners are increasing at local level.
- Before the construction of the bridge, the poor people were employed at local level with nominal wages and their mobility and movement was greatly restricted, but after the construction of the bridge, as the road communication and network has improved substantially, they can move freely move beyond their locality and pursue higher wages and varied kinds of employment.
- As the local villagers especially the large and middle farmers are now motivated to

produce more agricultural products including fruits and vegetables, the local landless and marginal poor are able to be part of more farm employment. Moreover, an opportunity has been created for female labor force to be employed in this sector.

- Due to improved communication network, some local and external investors have come forward to invest in projects like poultry, fish hatchery, orchards, nursery, and fisheries, rice mill, fish feed meals, betel leaf plantation, set-up of saw mill, oil mill, flour mill, created more income and employment for local unemployed and potential labor force including females.

➤ **Impact of Improved Communication and Transportation Network**

- The village people easily afford to reach the Upazilla headquarters, district court, hospitals, schools/madrashas/colleges, markets and capital city.
- The constructed bridge has helped in improving overall socio-economic status of village people and helped them to link with development activities in a diversified way. For example, when there was no bridge people did not have idea about local level investment and linked to the markets. But now a days, local producers got the right idea how to carry marketable products to the nearby whole sale depot and get fair prize of their produced products. Moreover, as the communication and transportation network has improved due to construction of the bridge more motorized vehicles are running on the roads and as a result the whole sellers are now reaching with their transport right to the door steps of the farmers and the farmers are now getting more ideas about investment at local level.

➤ **Positive Impact on the Environment**

- As the road communication improved in the locality, local people got relieve of flooding and water stagnation for which the physical environment has improved greatly.
- With the improvement of the road communication, the local people are inspired to develop nursery for producing more saplings and seeds.
- The local villagers with the help of GO and NGOs, planting various trees including fruit trees, timber trees, medicinal trees that ultimately helping to sustain the local ecology, biodiversity and eco system to a greater extent.
- The local rivers have become more navigable due to construction of bridges.

➤ **Negative Impact on the Environment**

- Improvement of the communication network is creating dust pollution, noise pollution and river pollution to a moderate extent.
- Have impacted negatively due to losses of farm lands and more lands are being used for business, trade and commerce, and habitat for human settlement. Of some untrained drivers.
- Due to improved communication some criminal activities like rubbery, drug trafficking, trafficking of women and children has been increased.
- The prevalence and occurrences of accidents have been increased due to reckless driving
- In some places due to erosion, the depth of Rivers' are reducing and interrupting riverine communication and transportation net work.
- Communication improvements have attracted many business concerns on operating brick laying/burning, which is adversely affecting the environment and the climate
- Some participants opined that there is no negative impact on the environment

➤ **Social Benefits Accrued due to Construction of the Project**

- Social network has been created and impacted positively especially for women, elderly, disabled and children
- People of the locality are increasingly involving in various social festivals and creating joyful atmosphere in the locality

- Road communication has saved local people's time, energy and efficiency and local people are becoming more efficient and able to travel between places are now becoming more comfortable
- Local people are able to maintain the kinship network and making people more cohesive and solidarity
- Many local investors invested their capital in social services especially in establishing clinics, schools like kindergarten, colleges and high school, created better opportunities for local people.
- Women are now becoming more enterprising in income earning opportunities
- Transportation of agro. products like fishes, poultry, dairy, fruits, vegetables, paddy, rice, wheat, oil seeds has improved facilitating easier and quicker transportation to far distance hats and bazaars for getting fair prices.
- Improved communication and transportation network has connected the local villagers to inter-district routes and has facilitated saving of time and earning more income and engaging in better jobs.
- Price of homestead lands, farm lands, wet lands and high land (industrial plot) has gone up
- People are now having better standard and quality lives and afford to offer better clothing, food, education and security to their family and community members.

➤ **Steps to be taken in future to keep the bridge/culvert unaffected through proper utilization and protection**

- In case of some constructed bridges, the approach roads to the bridge get unusable, and due to further soil erosion during rainy season, the situation can be more aggravated. Therefore it is the local and community people who can on their own repair the approach roads by giving their own labors for earth work. And this can only been done through voluntarism spirit and unity for self-help.
- Needs frequent monitoring by both villagers and appropriate authority. Heavy transports may be restricted from using the bridge
- The local people should have every vigilance so that earth beneath the bridge can be protected by watching and prohibiting people from taking away earth from there, so that the bridge remains intact
- Local level 'operational and maintenance committee' may be formed for continuous monitoring of the bridges/culverts and the connecting roads. Most of the water board sponsored projects have embankment management committee. Therefore, the LGED can introduce the same model in protecting and maintaining the newly constructed bridges and culverts.

➤ **Steps to be taken in future to keep the bridge operational and effective**

- There is a need of constant monitoring from LGED in collaboration of local users.
- After rainy season, the approach roads on both the sides of the bridge need to be repaired and protected
- The newly constructed bridges needs to have a regular allocation of financial resources
- A local committee should be constituted with the representatives of local government and local elites and users for effective monitoring of overall condition of the bridges/culverts.
- Local people and affluent people should have philanthropic attitude in protecting the bridge/culvert
- Sometimes the approach roads are severely damaged/eroded due to heavy rains and landslides for which the roads may be repaired with bitumen

Section 4: Intensive Interviews Findings

Intensive Interviews were conducted with the following stakeholders.

Category of Personnel	Designations and Number
LGED Official: District and Upazila levels: n = 65	<ul style="list-style-type: none"> District level LGED Officials – 23 (Executive Engineer, Sr. Assistant Engineer, Assistant Engineers, Sub Assistant Engineers, Accounts Officers) Upazila level LGED Officials – 42 (Upazila Engineers, Assistant Engineers, Sub Assistant Engineers)
Allied agency/program personnel/officers: n = 100	<ul style="list-style-type: none"> Allied agency/program personnel/officers – 100 (Upazila Chairmen, Upazila Vice Chairmen, Union Parishad Chairmen, Union Parishad Members, UNO, Upazila Agriculture Officer)

Supervision and Monitoring of Project Implementation (Construction of Bridges):

Of 65 LGED officials, 61 (94%) affirmed that supervision and monitoring of project Implementation (Construction of Bridges) was satisfactory, while one official ignored such function and 3 did not answer. The processes of supervision and monitoring of project were:

- Physically visit to the project sites
- Verified the structural layout by the team including Executive Engineer
- Verified quality of the stock of materials at project site
- Checked the nature of bridge casting works as per design
- Discussed with the contractors to know the mechanisms followed to ensure the quality of work
- The project sites were visited by Upazila Engineer, Sub Asstt. Engineer at regular interval.
- The progress of work was measured whether it was going on as per designed schedule and plan
- Undertook random visits without prior knowledge to workers and contractor.

Fifty three (82%) officials claimed that the assigned tasks were completed as per target, while 8 officials opined that it was not as per target and 4 are did not pass any comment. The reasons for non compliance are related to:

- The bridge was handed over to another project after a few days of initial work
- Construction work is still on going (during data collection of the current study)
- Work was delayed due to non selection of contractor in time for which work is still going on
- The construction work is hampered (stopped) due to flood and river erosion

About 89% of LGED officials confirmed that local people especially the representatives of poor men and women were engaged as construction laborers. Hundred percent of LGED officials and 87% of allied departmental officials opined that there was no serious environmental consequence due to construction of the bridge. Rather it helped minimizing the water logging situation in the locality. Overwhelming majority (92%) of LGED officials and 55% of allied departmental officials mentioned that the repair and maintenance works were done in time, which means that only 8% LGED officials and 45% of allied departmental officials had negative remarks related to the construction work in time. Overwhelming majority of the LGED officials (94%) and allied departmental officials (89%) observed that the local people are using the bridge regularly. However, some of the observers said that the bridge is not being used smoothly due to incomplete construction work; lack of proper development of approach road and broken/damaged some parts of bridge either the carpeting or slopes.

Strength of the project: (from the user's perspective)

- Easy and smooth communication network: physical communications network has been improved and travel time between places has been shortened.
- Trade and commerce flourished, particularly marketing facilities of agricultural products have widened
- Communication and transportation network with schools/colleges, health centers and markets/growth centers have improved
- Improved communication and transportation network helped in increasing farmer's and local people's income by linking them with trade, business and commerce
- Employment opportunities for both men and women has been increased
- Increased income due to better marketing of agriculture products boosted productions
- Law and order situation has improved
- Farmers are getting fair prices
- Decreased water logging situation
- Expanded various types of businesses: Rice mill/flour mill/agro mill/salt factory; hatchery/fisheries; rice *chatal*; poultry farm/dairy farm; cold storage; brick laying factory; set-up of new shops in the market place; increased petty business and establishment of poultry farm; cow/goat rearing; set-up of dairy farm and agro seeds business; oil mill; cottage industries helped the local villagers to empowered in terms of income, employment and quality life.

Weaknesses of the project:

- Delayed in the disbursement of funds interrupted the construction work
- Lack of financial support for repairs and maintenance impacted the work negatively
- DPP was not completed in due time
- Drawing and design framework was not prepared in due time
- Problem created due to implementation of separate contract of sub structure and super structure, delayed in completion of work
- Site selections in a few cases were not done properly especially the local people were not consulted
- In few cases, the approach roads are not constructed, interrupted the smooth network of transportation and communication.

Recommendations:

- Sub structure and superstructure constructions could be placed under a single contractor or under a single package
- Project should be declared completed once the approach road is done as per guideline of work order
- All specimen work of project should be implemented as per design/plan
- Provision of adequate allocation of financial resources to be ensure for proper and regular repairs and maintenance
- Needs to enforce the monitoring mechanism to deal with the contractor to complete the work in due time
- Timely payment against the work done by the contractor to be ensured
- Needs to ensure effective and regular supervision and monitoring to the work so that work can be completed within stipulated time framework with quality as directed in the work order
- Depending on the size and capacity of the bridges, if needed restrictions on movements of heavy vehicles may be imposed
- Roads and culverts should be constructed connecting the bridges where needed, avoiding all kinds of influence and political implications
- Ensure regular maintenance of infrastructures by forming local management committees
- Increase awareness among the people regarding proper use of bridges and also encourage them to oversee and report to the appropriate authority on any problem in using the bridge
- Approach road of the bridges should be carpeted (either concrete or bitumen) and special protective measure to be taken of the sides and the connecting roads
- Provision of timely release of financial resources should be given importance

Section 5: Local Level Workshop with the Beneficiaries of the Project

A local level workshop was held as part of the evaluation of project titled 'Construction of Bridge on Upazila and Union Road Project (2nd Revised)' on 16th April, 2012 in the Upazila Convention Hall of Debiddar Upazila Parishad, Comilla. The workshop was started at 10.30 a.m. and concluded at 2.00 p.m. This workshop was jointly organized by Implementation Monitoring and Evaluation Division (IMED) of Planning Commission and Research Evaluation Associates for Development Ltd (READ) with the active support of Upazila Engineer Office of Local Government and Engineering Department (LGED), Debiddar, Comilla.

The workshop was effectively moderated by Engineer Farid Uddin, in presence of Dr. Mokaddem Hossain, the Team Leader of the Evaluation Project and with Md. Abdul Qayum, the Director of IMED, as chief guest. The workshop was presided over by Mr. Shah Alam, Upazilla Engineer, LGED, Debiddar. Other guest participants were Mr. Mosarrof Hossain, Assistant Director of IMED, Consultants of READ, Mst. Shaharia Khanam, Deputy Director, READ and Mr. Nazrul Islam, Deputy Director READ.

The participants represented in the workshop from the local level were the Chairman and Members of Union Parishads under debiddar Upazila and beneficiaries of the project such as religious leaders, businessmen, farmers, local Influential, college students etc. Those who participated in the workshop are shown in the chart below:

Participants Identity	Total No.	Male	Female
Union Chairman and Members	7	5	2
Imams, teacher, Farmers Business men, Local influential and Students	23	21	2
Upazila Agriculture officer	1	1	0
LGED Engineer(District/Upazilla level)	3	3	0
IMED Director, Assistant Director	2	2	0
READ Consultant, Additional Director ,Deputy Director	4	3	1
Total	40	35	5

Inaugural Session: The welcome address was delivered by Dr. Mokaddem Hossain, the Consultant and Team leader of READ. He explained the objectives of the workshop and also shared the objectives of the project evaluation. Engineer Farid Uddin explained and elaborated how they conducted the evaluation work especially he explained how his team examined the construction work of the bridge and how they collected information related to approach road, water logging situation, the nature of erosion of soil on the slopes and other constraints and defects. He further explained how the project has helped in facilitating the smooth communication and transportation of local people along with their produced goods and services, as reported by some of the beneficiaries during their spot visit and inspection. He then invited the local participants to share their experiences and views regarding the merits and demerits of the project.

In the open discussion, one of the UP Chairman shared the impact of 27.5 meter bridge that has connected the Bara Alampur ferryghat with Fatehpur Bazar. He categorically mentioned that since the successful implementation of the project, water logging problems have been solved to a greater extent. Moreover, the bridge has contributed an uninterrupted communication network for the local people of Kalikapur, Chanpur, Fateyabad, Sultangange, Egarogram, Moheshnagar and Shubil. The local people can easily carry their produced agricultural goods such as potatoes, paddy, jutes and vegetable to the nearby market within shortest span of time i.e., with in 15 to 20 minutes and able to get the fair price of their products. But before construction of the bridge, it would take at least two to three hours to take their products to the nearby market. Moreover, due to bad communication network, they had to pay high amount of transport cost but unable to get the fair price of their produced

goods. Even sometimes they had to use a country boat as the means of communication that would cost more time, money but little Retaining . The bridge not only made smooth communication and transportation network within the local level situation, has linked Dhaka-Chittagong Highway and Comilla-Sylhet highway. He however observed that the approach road is not done according to the expected standard and there is severe soil erosion both side slopes of the bridge. Moreover, the road is yet to be carpeted by bitumen emulsion, and currently local people facing difficulties with the approach road due to its dilapidated brick soling and eroded slopes. Apart from the problems of approach road, the road has been using for multi- purpose activities such as:

- Peoples of the locality can easily pass through either on foot, or by rickshaw, CNG, cart, minibus and tempo, *nosimon*, engine van etc. save the time, cost, constraints and hassles.
- Students can easily avail the speedy vehicles to reach their school, colleges and madrasahs;
- Various types of transports such as car, Jeep, CNG, rickshaw and tractor, power tiller, mini bus, tempo, engine van etc. are now plying on the road and the local people can afford to avail those transport in a economy way.
- In the past, the local people had to carry their produced good for selling to nearby market either by head or by boats, now they can carry these items through speedy modern transports such as CNG, mini truck, mini-bus, tempo, *nosimoon*, engine van, rickshaw etc. resulting that they are getting a competitive price of their goods.e;
- Other advantages include better access to health care services, employment, income, better investment opportunity in small scale business, better attainment of educational institution etc.

The specific benefits accrued due to construction of the bridge are:

- Previously, due to bad communication and transportation, the local farmers were compelled to sell their agricultural products such as vegetables, fruits, paddy, jute and potatoes to the middle men who offered an unfair price to the poor farmer's produced goods resulting that, they could not get fair price, But now the farmer can easily reach the whole sale markets and sell their products at a fair price/competitive price directly by themselves.
- The farmers are now more interested to produce their goods in bulk as they have been ensured the fair price due to direct connection with the whole sale depot. Thia has eased the exploitative role of middle men who virtually exploited them in a monopoly way.
- Due to improved communication network, the local people have better avenues of income and employment at local level. Even they can explore jobs and business in the periphery of Comilla and capital city Dhaka.
- Many villagers are able to earn stable income by employing themselves in different sub-sectors of agriculture such as poultry, dairy, fisheries, rice mills, oil mill, paddy depot, vegetable depot, fruit depot etc. Many of the villagers are engaged in construction work, brick fields etc.
- Currently many local people are engaged as transport workers either as driver, helper, conductor etc.
- Many local women especially the poor, vulnerable and destitute women are engaged as daily labors in paddy field, manufacturing units such as in cane furniture, preparing candle, fan making, tailoring, sewing caps and embroidery local quilt.
- Previously many poor, vulnerable ad destitute people were unemployed and they were further trapped within the vicious circle of local money lenders, made them more impoverished. But now they can move to distant places and explore better jobs due to improve communication. As a result the poor peoples are gradually becoming self reliant and self-sustained.

Future Implications and the sustainability of the project:

- Repair and maintenances of the bridge along with approach road is the prime concern and this should be ascertained by the concerned management.
- It is not only the constructed bridge, the road condition needs to be operational so that there is a sustainable communication and transportation network;
- Some part of the approach roads and the feeder road need to be widened for further improved and better communication and transportation.
- Effecting monitoring mechanism needs to be ensured so that the sustainability of the bridge can be ensured.
- The bridge needs to be maintained at regular interval including the top with its approach slopes and the bottom of the bridge.
- If there is a chance of depositing sands and silts bottom side of the bridge, needs to be re-excavated
- Participatory bridge management committee to be constituted with the representatives of all segment of local people so that villagers can maintain the bride with their own labor. Even a small fun can be generated by charging nominal monthly fee from the management committee.

Chapter IV

Summary Findings

Assessment of Physical and Financial Achievement (Summary of PCR): The physical progress of the project i.e. Construction of bridge was achieved by 106% (Target: 9595m and Achievement: 10150m) and land acquisition is 100% and the financial targets achieved by nearly hundred percent (99.8%). The allied documents of the project revealed that it took 1 year to 1½ year to complete the each scheme.

Summary Findings of Infrastructures Assessments: Physical Observation: Out of 30 sample bridges 14 are currently operational but with some minor problems/defects. The problems/ defects observed are presented as follows:

- Wing walls of one bridge are faulty (3.33%).
- Railing of 6 (20%) bridges are defective
- Approach roads are faulty in 7 bridges (23.33%)
- River training works are defective for 7 bridges (23.3%)
- Retaining wall of 6 bridges are faulty (20%)
- Clear opening silted for 2 bridges (6.67%)
- Wearing coats over the bridges for 3 bridges (10%)
- Wing walls were damaged in 2 bridges (6.67%)

Household Level Findings:

Gender: It is evident from the study findings that both in intervention area and control area, about 83 per cent respondents are males whereas 17 per cent respondents are females.

Age: The mean age of male respondents is 42 years both in the Intervention area and control areas, while that of the female respondents, it is 38 years for intervention areas and 34 years in the control areas.

Education: About 46% males and 38% females are either illiterate and or can sign only in the intervention areas while 51% males and 22% females are illiterate or can sign only in control areas.

Family size: Irrespective of intervention area and control areas, the mean family size of respondent households is 5.

Occupation: It is evident from the study findings that about 5% differences are observed to the current occupations, especially there is a difference for the male respondents especially in the project areas. For example, about 5% differences are observed to the current occupations of farming and some respondents have got the opportunity to engage themselves in the profession of business, service, rickshaw pulling etc. On the other hand little or no changes in profession was noticed in the control areas.

It is evident from the findings that there is a slight difference in changing the profession of female after construction of bridge in the project areas. But hardly any changes of women's profession noticed in the control area.

Monthly Family Income: The mean monthly family income of male respondents. It is evident that the mean monthly family income of males in the project areas is higher by (additionally) 38% over the period (Previous: Tk. 8422 and Current: Tk. 11581). But current mean monthly real family income (Base 2005-06) of males in the project areas is BDT 8,263 compared to previous real family income which was BDT 7,906. On the other hand, the mean monthly family income of male respondents in control area is Tk. 9853 which is less than project area. But for control area the current real income is BDT 7030.

The Status of Land Use Pattern and Cropping Intensity: The land use and agricultural production related information was collected from 3000 respondents (household heads) of project area and 1500 respondents of control areas under 14 districts such as Barisal, Bogra, Comilla, Cox's Bazar, Jamalpur, Jessore, Rajbari, Khulna, Mymensingh, Meherpur, Naogaon, Nababgonj, Natore and Nilphamari.

A several varieties of crops were cultivated in 30 study upazilas under 14 Districts during Kharif and Rabi seasons. It was found that rice is the most important cereal crop cultivated in terms of yield, crop value and food habits. It is evident that in the project area, The T.A HYV/Hybrid was cultivated followed by HYV/Hybrid Boro and HYV Aus. Wheat and maize are also the other important cereal crops. The principal cash crops are jute, sugarcane, mustard, potato, vegetables, and fruits etc. It is informed by the respondents that there is a positive change in cropping pattern and intensity of crops after construction of bridge which is helpful for development of irrigation facilities. Out of 3000 sample household respondents, about 93% opined that after construction of bridges crop production has been increased, while only 7% respondents did not agree. Similarly, a majority of the respondents (82%) of the control areas informed that crop production has been increased than before, whereas, only 18% of the respondents did not agree. Majority of the respondents both in project areas (87%) and in control areas (76%) opined that crop diversification was possible in their area.

Upazila wise cropping intensities (before and after project) was analyzed. The study findings show that the cropping intensity gradually (day to day) increased from 159% in the pre project condition to 200% in the project areas in the year 2012, but which is lesser than 217%, the DAE district crop intensity level of year 2012. The result shows that the overall cropping intensities have changed (about 40%) after construction of bridge in 30 Upazilas in project areas. From the findings it is clearly evident that the farmers of project areas adopted modern production technologies and grown multiple crops instead of single crop.

Expansion of agro based industries in the project areas: After construction of bridge the scope to set-up new business enterprises including poultry farm, rice mill, animal husbandry, oil mill, whole sale depot of seeds, fertilizer etc. have increased to a significant way.

FGD Findings:

➤ **Date of Completion of Construction of Bridge**

- About 32% participants said that the bridge was completed in the year 2006.
- On the other hand, about 28% respondents said that the bridge was constructed in between the year of 2008 and 2010.
- About 34% participants said that the bridge was constructed between the year of 1999 and 2005.
- The rest of the respondents said that the bridge was completed between year 2002 and 2007.

➤ **Perceived Reasons for Construction of the Bridge**

- For improvement of communication network at upazila, union and district level
- For improvement of water logging situation
- For mobility and movement of local people in a better and convenient way
- For facilitating better market network for produced agricultural goods and products
- For better flow of water caused by flash flood and high tide
- For flood control and better irrigation
- For facilitating movements of the male and female students to attend school
- For better navigability, improved means of transportation and communication

➤ **Benefits Accrued for Construction of Bridge**

In Agriculture Sector

- Easy and smooth availability of agricultural inputs like seeds, pesticides, fertilizers, harvesting machines, power tillers and tractors, irrigation equipments etc.
- Improved marketing network for produced agricultural goods and products
- Whole sellers directly purchase agro. products from local villages and ensure fair price of locally produced products
- Products like fruits, fish, vegetable are getting marketing facilities within the shortest time, no more chances to be rotten.
- Crop intensity and crop productivity has been increased better and enhanced to a greater extent.
- The wages of agricultural labors has enhanced
- Growers are encouraged to produce more agro. Products
- Fruit producers are getting fair prices of their products
- Local farmers easily take their produced goods to nearby whole sell depot.

Better Health Care and family planning Service Sectors

- Previously local villagers had little or restricted opportunity to avail better health care services due to backward communication and transportation. Similarly many potential married couples and spouses were unable to avail family planning and contraceptive services for control the expected children. At the same time the pregnant mothers despite their willingness to consult a doctor during their pregnancy could not do so, consequently many pregnant mothers used to die without availing proper maternal care treatment and safe delivery services. Currently due to the construction of the bridge, as the road communication has improved, local people have got better access to all the services related to health care, family planning and pregnancy related complications.

Better Educational Attainment and Enrollment

- Previously many local students were discouraged to enroll themselves to the standard educational institutes due to bad communication and security reason. Even during rainy season both girls and boys students could not attend their schools and even the guardians used to discourage them from attending schools but now they are regularly attending schools, vocational training centres, colleges, *madrasas* and even nearby universities.
- The rate of drop-out has also decreased due to better economic emancipation of local people and one of the reasons is improved and better opportunity of economic production-relations.

Increased Economic, Social, Cultural and Political Emancipation and Opportunities for Females

- The female labors are getting fair and enhanced wage for day laboring, helping to increase economic affordability at household level
- Poor and vulnerable women are engaged in earth work with enhance wages
- Women labors are engaged in agricultural work
- Women are increasingly engaged in cattle rearing, vegetable planting and tree planting and management
- Women labors are engaged in preparing fish meals, collecting fish fry and processing fish and selling agro. Products to nearby markets
- Women are engaged in flexi and cell phone business
- Many vulnerable, poor even educated women are engaged in jobs offered by local level NGOs and many NGOs are coming forward to open their branch at local level due to improved transportation and communication. As a consequence, apart from economic emancipation, women's social status is upgrading socially, culturally, politically both at community level, local level and family level. This ultimately helping to the process of women's empowerment.

➤ **Employment Opportunities have been Increased and Diversified**

- Opportunities created for small scale investment in petty business especially in trading fruits, vegetables, grocers, tea stalls, vending various products, retailing of fish, timber, bamboo etc.
- Small and marginal farmers are now motivated to produce more agricultural products, they eventually employ more farm laborers from among the poor and hardcore poor.
- After the construction of the bridge, there is sudden spurt of using vehicles and intermediate transports like *nosimon*, *karimon*, vans, *leguna*, rickshaw and rickshaw vans, easy bike etc. As a result, poor people are getting opportunity to be employed as transport workers and at the same time, the numbers of transport owners are increasing at local level.
- Before the construction of the bridge, the poor people were employed at local level with nominal wages and their mobility and movement was greatly restricted, but after the construction of the bridge, as the road communication and network has improved substantially, they can move freely move beyond their locality and pursue higher wages and varied kinds of employment.
- As the local villagers especially the large and middle farmers are now motivated to produce more agricultural products including fruits and vegetables, the local landless and marginal poor are able to be part of more farm employment. Moreover, an opportunity has been created for female labor fore to be employed in this sector.
- Due to improved communication network, some local and external investors have come forward to invest in projects like poultry, fish hatchery, orchards, nursery, and fisheries, rice mill, fish feed meals, betel leaf plantation, set-up of saw mill, oil mill, flour mill, created more income and employment for local unemployed and potential labor force including females.

➤ **Impact of Improved Communication and Transportation Network**

- The village people easily afford to reach the Upazilla headquarters, district court, hospitals, schools/madrashas/colleges, markets and capital city.
- The constructed bridge has helped in improving overall socio-economic status of village people and helped them to link with development activities in a diversified way. For example, when there was no bridge people did not have idea about local level investment and linked to the markets. But now a days, local producers got the right idea how to carry marketable products to the nearby whole sale depot and get fair prize of their produced products. Moreover, as the communication and transportation network has improved due to construction of the bridge more motorized vehicles are running on the roads and as a result the whole sellers are now reaching with their transport right to the door steps of the farmers and the farmers are now getting more ideas about investment at local level.

Findings of Intensive Interviews: Out of 65 LGED officials, 61 (94%) affirmed that supervision and monitoring of project Implementation (Construction of Bridges) was satisfactory, while one official had different opinion about the construction work and 3 did not answer. According to the respondents, the processes of monitoring mechanism was as follows:

- Physically visited the project sites
- Verified the structural layout by the team including Executive Engineer
- Verified quality of the stock of materials at project site
- Checked the nature of bridge casting works whether it is done as per design
- Discussed with the contractors to know the mechanisms followed to ensure the quality of work
- The project sites were visited by Upazila Engineer and Sub Asstt. Engineer at regular interval.

- The progress of work was measured whether it was going on as per designed schedule and plan
- Undertook random visits without prior knowledge to workers and contractor.

Fifty three (82%) officials claimed that the assigned tasks were completed as per target, while 8 officials opined that it was not done accordingly and 4 are did not pass any comment. According to the respondents, the reasons for non compliance are related to:

- The bridge was handed over to another project after a few days of initial work
- Construction work is still going on for some of the projects (during data collection of the current study)
- Work was delayed due to non selection of contractor in time.
- The construction work is hampered (stopped) due to flood and river erosion

Findings of Local Level Workshop with the Beneficiaries of the Project: Debiddar Upazila

- Peoples of the locality can easily pass through either on foot, or by rickshaw, CNG, cart, minibus and tempo, *nosimon*, engine van etc. save the time, cost, constraints and hassles.
- Students can easily avail the speedy vehicles to reach their school, colleges and madrashas;
- Various types of transports such as car, Jeep, CNG, rickshaw and tractor, power tiller, mini bus, tempo, engine van etc. are now plying on the road and the local people can afford to avail those transport in a economy way.
- In the past, the local people had to carry their produced good for selling to nearby market either by head or by boats, now they can carry these items through speedy modern transports such as CNG, mini truck, mini-bus, tempo, *nosimoon*, engine van, rickshaw etc. resulting that they are getting a competitive price of their goods.
- Other advantages include better access to health care services, employment, income, better investment opportunity in small scale business, better attainment of educational institution etc.

Chapter V

Strengths, Weakness and Recommendations

Strengths of the project

- Previously, due to bad communication and transportation, the local farmers were compelled to sell their agricultural products such as vegetables, fruits, paddy, jute and potatoes to the middle men who offered an unfair price to the poor farmer's produced goods resulting that, they could not get fair price. But now the farmer can easily reach the whole sale markets and sell their products at a fair price/competitive price directly by themselves.
- The farmers are now more interested to produce their goods in bulk as they have been ensured the fair price due to direct connection with the whole sale depot. This has eased the exploitative role of middle men who virtually exploited them in a monopoly way.
- Due to improved communication network, the local people have better avenues of income and employment at local level. Even they can explore jobs and business in the capital city Dhaka.
- Many villagers are able to earn stable income by employing themselves in different sub-sectors of agriculture such as poultry, dairy, fisheries, rice mills, oil mill, paddy depot, vegetable depot, fruit depot etc. Many of the villagers are engaged in construction work, brick fields etc.
- Currently many local people are engaged as transport workers either as driver, helper, conductor etc.
- Many local women especially the poor, vulnerable and destitute women are engaged as daily labors in paddy field, manufacturing units such as in cane furniture, preparing candle, fan making, tailoring, sewing caps and embroidery local quilt.
- Previously many poor, vulnerable and destitute people were unemployed and they were further trapped within the vicious circle of local money lenders, made them more impoverished. But now they can move to distant places and explore better jobs due to improve communication. As a result the poor peoples are gradually becoming self reliant and self-sustained.
- Social network has been created and impacted positively especially for women, elderly, disabled and children
- People of the locality are increasingly involving in various social festivals and creating joyful atmosphere in the locality
- Road communication has saved local people's time, energy and efficiency and local people are becoming more efficient and able to travel between places are now becoming more comfortable
- Local people are able to maintain the kinship network and making people more cohesive and solidarity
- Many local investors invested their capital in social services especially in establishing clinics, schools like kindergarten, colleges and high school, created better opportunities for local people.
- Transportation of agro. Products like fishes, poultry, dairy, fruits, vegetables, paddy, rice, wheat, oil seeds has improved facilitating easier and quicker transportation to far distance hats and bazaars for getting fair prices.
- Improved communication and transportation network has connected the local villagers to inter-district routes and has facilitated saving of time and earning more income and engaging in better jobs.
- Price of homestead lands, farm lands, wet lands and high land (industrial plot) has gone up
- People are now having better standard and quality lives and afford to offer better clothing, food, education and security to their family and community members.

- The project has generated direct employment opportunities for the rural poor through construction and maintenance of the project activities.
- Additional employment opportunities were created for women during construction period as daily labor.
- The scope of additional revenue generation has increased through collection of tax and trade license fee.

Weaknesses of the project

- Delayed in the disbursement of funds interrupted the construction work
- Lack of financial support for repairs and maintenance impacted the work negatively
- Drawing and design framework was not prepared in due time
- Problem created due to implementation of separate contract of sub structure and super structure, delayed in completion of work
- Site selections in a few cases were not done properly especially the professionals and technical personnel were not consulted
- In few cases, the approach roads are not constructed, interrupted the smooth network of transportation and communication
- Improvement of the communication network has contributed to dust pollution, noise pollution and river pollution to a moderate extent.
- The bridges have impacted the agricultural system negatively due to losses of farm lands and more lands are being used for business, trade and commerce, and habitat for human settlement.
- The prevalence and occurrences of accidents have been increased due to reckless driving
- In some places due to erosion, the depth of Rivers' are reducing and interrupting riverine communication and transportation net work.
- Improved communication network has attracted many business concerns on operating brick laying/burning, which is adversely affecting the environment and the climate

Policy Recommendation

- Repair and maintenances of the bridge along with approach road is the prime concern and this should be ascertained by the concerned management;
- It is not only the constructed bridge, the road condition needs to be operational so that there is a sustainable communication and transportation network;
- Some part of the approach roads and the feeder road need to be widened for further improvement of existing road and better communication and transportation;
- Effecting monitoring mechanism needs to be ensured so that the sustainability of the bridge can be ensured;
- The maintenance work of the bridge needs to be done at regular interval including the top with its approach slopes and the bottom of the bridge.
- If there is a chance of depositing sands and silts bottom side of the bridge, needs to be re-excavated
- Depending on the demand and need of movements of heavy vehicles, in future projects should keep provision of constructing heavy structure with sound technical and physical capacity.
- Participatory bridge management committee to be constituted with the representatives of all segments of local people so that villagers can maintain the bridge with their own labor. Even a small fund can be generated by charging nominal monthly fee from the management committee.
- Needs to ensure effective and regular supervision and monitoring to the work so that work can be completed within stipulated time framework with quality as directed in the work order
- In future project, site selection can be done with prior consultation of professionals.

- Before selecting sites for implementing any future project, river morphology study should be conducted.
- Without prior approval and mobilization of financial resources, work order should not be given.

Conclusion: The farmers of project areas are now more interested to produce their goods in bulk as they have been ensured the fair price due to direct connection with the whole sale depot. This has eased the exploitative role of middle men who virtually exploited them in a monopoly way. Due to improved communication network, the local people have better avenues of income and employment at local level. Even they can explore jobs and business in the periphery of capital city Dhaka. Many villagers are able to earn stable income by employing themselves in different sub-sectors of agriculture such as poultry, dairy, fisheries, rice mills, oil mill, paddy depot, vegetable depot, fruit depot etc. Many of the villagers are engaged in construction work, brick fields etc. Currently many local people are engaged as transport workers such as driver, helper, conductor etc. Women involvement of different development sector has been increased due to implementation of the project, especially the poor, vulnerable and destitute women are engaged as daily labors in paddy field, manufacturing units such as in cane furniture, preparing candle, fan making, tailoring, sewing caps and embroidery local quilt. The project has generated direct employment opportunities for the rural poor through construction and maintenance of the project activities. Additional employment opportunities were created for women during construction period as daily labor. Values of property increased and consequently revenue generation through collection and through trade license fee the amount of income was increased. The overall condition of the constructed bridges is good except few where problems were found in approach road, river training protection work and retaining walls and both side road condition. Local people demanded to address all the identified problems.

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Appendix 1: Pictures of Infrastructures, Dissemination Workshop & Local Level Workshop



Bbridge on Saidpur-Dinajpur to Botlagari-Paraghat Road over Khorkhoria River, Upazila: Saidpur, District : Nilphamari



Bridge on PTI Masterpara –Bamandanga Road over Bamandanga River, Upazila: Sadar, District: Nilphamari,



Bridge on Bajitpur-Salainagar Road over Boral River, Upazila: Bghatipara, District: Natore



Bridge on Mirzapur-Shughat Road over Bangali River, Upazila: Sherpur, District: Bogra



Bridge over Jorhdighi khal, Upazila: Dhunot, District: Bogra



Bridge on Shildabari-Baithabhanga Road Over WAPDA Khal, Upazila: Gabtolia, District: Bogra



Dissemination Workshop, Evaluation Sector, IMED, Ministry of planning



Local Level Workshop, Debider, Comilla

Appendix 2:
Data Collection Instruments
(QUESTIONNAIRE IN BANGLA)

4. **ukvMZ thvM'Zv:**

1. ubi qji
2. ^qji Avb
3. cU_gK (cU_g-cAg tkYx)
4. gra'ngK (lô - `kg tkYx)
5. GmGmm/GBP Gm um/WMM/gv÷vm©

5. **%eennK Ae~v:**

1. AweennZ
2. weennZ
3. weaev/tecZik
4. Avj v`v/cui Z`³
5. Zvj vKclB

6. **tkrt**

1. Kul
2. Mjnbx
3. u`bgRj
4. ui·vPvj K/gmS
5. Pvkix
6. eo/gvSvix e'emv
7. qjz`e'emv
8. n`Tukf Kwim
9. tekvi
10. QvT/QvTx
11. Ab'vb':

7. **cui erfi i tgvU m`m`msL'v----- Rb**

tmKkb-2: DcRjv l BDnbqb moTK tmZubgP (2q mstkwaZ) cKtf i Avl Zvq ubgZ etR/Kvj fivUmeumkZ Z`

8. **Avrb Rvbb uK, `vbrq mi Kvi cKSkj Awa`Bi KZK (DcRjv l BDnbqb moTK tmZubgP (2q mstkwaZ) cKtf i Avl Evq (iv`T'vq bvg Dvj L-Kti uRAvmv Ki'b) tkvb etR/Kvj fivUbgP Kiv nqtqQ uKbv?**

1. n'u
 2. bv
- K. n'u ntj KZmfb L. Rvbbv

9. **tkvb AeKvrtgv ubgPb Kiv nqtqQ, etR bmk Kvj fivU? 1. etR 2. Kvj fivU©**

10. **etR/ Kvj fivUu uKtmi Dci ubgP Kiv nqtqQ? 1. b`xi Dci 2. Lvj i Dci 3. Ab'vb" (ubv`e Ki'b).....**

11. **etR/ Kvj fivUui eZgvb tWK uKi Kg? 1. Avi um um tWK 2. voj tWK 3. Ab'vb" (ubv`e Ki'b).....**

K. **cU_g %Zix Kivi mgq tWK uKi Kg uQj? 1. Avi um um tWK 2. voj tWK 3. Ab'vb" (ubv`e Ki'b).....**

L. **etR/Kvj fivUu Amuub© (c'ivcpi ^Zix nqb) Gifc Ae~vq KZv b uQj? u`b.....gm..... eQi**

M. **h` cU_tgv voj tWK u`tq %Zix Kiv nq Ges eZgvb Avi um um tWK nq Zte (uRAvmv Ki'b) voj tWK tK Avi um um tWK cui eZv Kivq tkvb mgm'v nqtqQ uK? 1. n'u 2. bv**

N. **n'u ntj uK ai tbi mgm'v**

12. tKvb eQi ntZ Arcab/Arcbiv etR/Kvj fVU@ e`envi KiZ i i' KtiQb?mtb

13. etR/Kvj fVU@ bog@Yi mgq KZ@q Arcbvt` i mt_ tKvb Avj vc Avtj vPbv ev ugUs KtiQj nK?
1. nu 2. bv

14. etR/Kvj fVU@ bog@Yi mgq `vbxq tKvb KguU MVb Kiv ntqQj nK? 1. nu 2. bv 3. Rnbv

15. etR/Kvj fVU@ bog@Yi mgq tKvb eo ai tbi mgn`v ntqQj nK? 1. nu 2. bv 3. Rnbv

K. nu ntj , nK ai tbi mgn`v ntqQj ?

1. fig AvAMhY e`ZxZ fig ntZ gnu Dtevj b
2. Dtevj Z gnu cKZ gj` cni tkva bv Kiv
3. dmtj i qmZ Kti bog@Y Kiv m`uv`b
4. `vbxq MY`gvb`i i gZvgZ bv vbtq chZombK qigZvetj bog@Y Kiv m`uv`b
5. `xNp b ati bog@Y Kiv Pj vq hvZvqtZI Amjeav
6. etR/Kvj fVU@ `xNp b AmgvB uQj
7. Ab`vb` (abv`@ Ki`b)

16. etR/Kvj fVU@ bog@Yi mgq Arcbvi / Arcbvi cni etj i tKvb Rig AvAMhY Kiv ntqQj nK?
1. nu, KZUK?kZisk 2. bv

K. nu ntj , AvAMhYKZ Rig i Rb` h_vh_ gj` cni tkva Kiv ntqQj nK?

1. ch@B gj` t`qv ntqQj
2. ch@B gj` t`qv nqv
3. tKvb gj` t`qv nq bvB
4. Ab`vb` (abv`@ Ki`b)

17. etR/Kvj fVU@ bog@bi tKvb KtR Arcab AskMhY KtiQj b nK? 1. nu 2. bv

K. nu ntj , tKvbKtRi mt_ Arcab RtoZ uQj b?

- | | |
|------------------|------------------------------|
| 1. bog@Y KtR | 5. er`erqb KguUtZ |
| 2. gnu Lbtbi KtR | 6. e`e`icbv i i qiyteqiy KtR |
| 3. ktg`vb/kgK`vb | 7. `j MVtb |
| 4. Rig`vb | 8. Ab`vb` (abv`@ Ki`b) |

L. KZr`b KtR KtiQj b?r`bgmeQi

19. etR/Kvj fVU@Zixi KtR AskMhY Kti Arcab nK tKvb fvZv ev gRjx tctqtQb? 1. nu 2. bv

K. nu ntj , fvZv ev gRjxi cni gvB KZ? %nbK:UvKv

20. Arcbvi cni etj i Ab` tKvb m`m` etR/Kvj fVU@ bog@Yi tKvb KtR AskMhY KtiQb nK? 1. nu 2. bv

21. Arcbvi Gj`Kvq etR/Kvj fVU@ bog@bi dtj Arcbvt` i Kgms`vtbi mthM tetotQ nK? 1. nu 2. bv

K. nu ntj , tKvb tKvb LvZ Kgms`vtbi mthM tetotQ ?

- | | |
|------------------------------|------------------------------|
| 1. Kul KtR | 7. eqit`ivcY (ebvqb) Gi KtR |
| 2. gnu Lbb KtR | 8. kvkmevri evMvb |
| 3. iv`vWU/tmZnbog@Y KtR | 9. qit`e`emv |
| 4. Mi`/QvMj /nvn/gj Mx cij b | 10. grm` Pvl |
| 5. Kj Kiv Lvbi KtR | 11. Ab`vb` (abv`@ Ki`b)----- |
| 6. Kul nktf i KtR | |

22. etR/Kyj fU⁹bg⁹Yi c⁹e⁹Rj vexZv mgn^vv uQj ⁹K? 1. ni^v 2. bv
 K. ni^v ntj mgyarb ntq⁹Q ⁹K? 1. ni^v 2. bv

23. etR/Kyj fU⁹bg⁹Yi dtj c⁹e⁹P Zj brq AvZ ep⁹i Kvi tY dmtj i ⁹q⁹uZi cui gvY Ktq⁹Q ⁹K? 1. ni^v 2. bv
 24. etR/Kyj fU⁹h⁹l q⁹tZ iv^vv⁹vt⁹Ui Dbq⁹b ev hvZvq⁹tZi mgyar tet⁹Q ⁹K? 1. ni^v 2. bv

25. etR/Kyj fU⁹h⁹l q⁹ri c⁹e⁹ c⁹i hvbemb Pj vP⁹tj i ai b: ⁹K ⁹K hvbemb Pj vPj Ki Z Ges eZ⁹rb Ki t⁹Q
 hvbemb⁹ aiY hvbemb Pj vP⁹tj i aiY hvbemb Pj vP⁹tj i mSL^v (c⁹z N⁹Evq)
 c⁹e⁹ eZ⁹rb c⁹e⁹ eZ⁹rb

1. evBm^vB⁹t⁹Kj /gUi m^vB⁹t⁹Kj
2. ni^v · v
3. f^vvb
4. em
5. UK
6. tU^vu⁹y
7. b^vmg⁹b/fU⁹fU
8. Ab^vvb⁹ (Ab^v t⁹ Ki^vb)

26. etR/Kyj fU⁹bg⁹Yi K⁹l c⁹t⁹Y^v i cui enb LiP Ktq⁹Q ⁹K? 1. ni^v 2. bv
 K. ni^v, ntj cui ext⁹ i g⁹m⁹K Avq tet⁹Q ⁹K? 1. ni^v 2. bv

tmKkb 3: (etR/Kyj fU⁹bg⁹Z ni q⁹ri) ce⁹ eZ⁹rb Av⁹mg⁹m⁹RK Ae^v

27. Avcbri tckv

tckv etR Kyj fU⁹bg⁹Z ni q⁹ri c⁹e⁹ eZ⁹rb
 c⁹vb tckv Ab^vvb⁹ tckv c⁹vb tckv Ab^vvb⁹ tckv

1. K⁹l K^vR
2. K⁹l g⁹Rj
3. K⁹j -K^vi Lv^vri k⁹g⁹K
4. ⁹q⁹t⁹ e^vemv
5. g⁹vS^vi x e^vemv
6. eo e^vemv
7. P⁹iK⁹i x
8. M⁹vb⁹x
9. t⁹eK⁹vi
10. Ab^vvb⁹ (Ab^v t⁹ Ki^vb)-----

28. Avcbri cui ext⁹ i t⁹g⁹U Avtqi Drm I cui gvY

Avtqi Drm etR/Kyj fU⁹bg⁹Z eZ⁹rb
 ni q⁹ri c⁹e⁹Mo g⁹m⁹K Avq Mo g⁹m⁹K Avq (UvKvq)
 (UvKvq)

1. K⁹l LvZ t⁹ t⁹K
 2. c⁹i c⁹ij b t⁹ t⁹K
 3. Ab^v vb⁹ t⁹ t⁹K t⁹cl⁹i Z (t⁹i ng⁹t⁹U⁹Y)
 4. Ab^vvb⁹ Drm t⁹ t⁹K
 5. e⁹UK⁹ m⁹u⁹ t⁹ t⁹K
 6. FY t⁹ l q⁹ t⁹ t⁹K
 7. Ab^vvb⁹ (Ab^v t⁹ Ki^vb)
- t⁹g⁹U g⁹m⁹K Avq

29. Avcvri cniert'i i tgvU gvmK e"q

e"tqi LvZ

eiR/Kvj fivUqbgZ
ni qvi cteMo gvmK
e"q (UvKvq)

eZgvtb
Mo gvmK e"q (UvKvq)

1. Lv"
 2. dmj Pvl ver`
 3. mPKrmv
 4. tcvkvK
 5. `g /Ktj R/gv`tmv
 6. cni enb
 7. Rvj vbx LiP (te`jr/M'vm/tKt'vmb)
 8. Drme
 9. Ab`vb" (tbr`0 Ki`b)
- tgvU gvmK e"q

30. Rvgi aib l cni gvb

Rvgi aib

eiR/Kvj fivUqbgZ ni qvi cte(kZistk)

eZgvtb (kZistk)

1. emZ vfu
2. tbr`^Pvl thvM" Rvg
- K. tmPKZ Pvl thvM" Rvg
- L. tmP Qrov Pvl thvM" Rvg
3. emPRvg (t`qv/tbvq)
4. caZZ Rvg
5. cKj
6. emMb evox
7. Ab`vb" Rvg (tbr`0 Ki`b)

.....

tgvU Rvgi cni gvY

31. eiR/Kvj fivUqbgYi cteP Lv`rfim Ges eZgvtb Lv`rfim tKgb mQj |

Lv`i bvg

eiR/Kvj fivUqbgYi cte(mvZ r`tb
KZeri)

eZgvtb : (mvZ r`tb KZeri)

mKvj

`pj

ivZ

mKvj

`pj

ivZ

1. fvZ
2. i`u
3. Wvj
4. gvQ
5. gvsm
6. mVg
7. `p/^pRvZ`e"
8. kvK-mevR
9. dj
10. Ab`vb" (tbr`0 Ki`b) ...

32. Avcvri cniert'i emMn, cmbi Drm, cqtub`vkb, Avtjvi e`envi l gj`evb`e`vr` BZ`vr` m`mKZ Z`vej x

vel q

eiR/Kvj fivUqbgYi
cte

eZgvtb

K. emMni aiY: (DEti i Nti bxtPi tKvW emvb)

- | | |
|------------------------|---------------------------------------|
| 1. cvkv evox | 2. tmvg cvkv (BtU i t`qvj l utbi Qv`) |
| 3. KvPv tev i utbi Qv` | 4. m`uY`ub |
| 5. KvPv tev i Ltvi Qv` | 6. Ab`vb" (tbr`0 Ki`b) |

L. tgvU Nti i msL`v

.....uu

M. Lrevi cmbi Drm: (DEti i Nti bxtPi tKvW emvb)

1. Kyv 2. uJDetqj 3. U'vc 4. Ab'vb" (ubir' 0 Ki'b)

N. cirqLvbv (DEti i Nti bxtPi tKw emb)

1. KuPv/Sj š- 2. uU j "uJb/cvKv
3. "f"m=SZ cirqLvbv (m"vbUwi) 4. tLvj v RvqMv

O. Avtj vi Dm: (DEti i Nti bxtPi tKw emb)

1. tKti vmb 2. M'vm 3. %e`juZK

P. gj`erb AmerecT uK uK AvtQ: (DEti i Nti bxtPi tKw emb)

1. uJrF 2. ti uWl 3. dxR
4. tUj tdrv (tgvBj) 5. gUi mvBtKj /erB-mvBtKj
6. tmj vb tgnkb 7. LvU/tP'uK 8. tPqvi /tUej
9. Ab'vb" (ubir' 0 Ki'b)

33. etR/Kvj fvU°Zix nl qvq Gj vKvi tQtj tqtqt` i `g /Ktj R/gr`tmvq hvZvqvZ mjev nttqtQ uK? 1. niu
2. bv

K. niu ntj , uK ai tbi mjev nttqtQ?

1. cte°nU `dj thtZ nZ eZgvtb nuUz nq bv
2. eZgvtb hmsK emtbi Kvi tY `Z `dj hvl qv hvq
3. mgq Kg j vlvq kviml K cui ktg Kg nq
4. Ab'vb" (ubir' 0 Ki'b)

34. etR/Kvj fvU°bgfY nl qvi ci Kviv GB iv`vtekr e`envi Kti?

1. e`emvqx 5. BDmbqb cui l` i tj vKRb
2. QvT-QvTx 6. Dbqb Kgvfv
3. gmvj viv 7. me°#i i RbMY
4. KJK 8. Ab'vb" (ubir' 0 Ki'b)

tmKkb 4: Kul I cui tek mel qK Z`

35. etR/Kvj fvU°bgfYi dtj AvtMi Zj bmq km` Drcr`b tetotQ uK? 1. niu 2. bv

36. etR/Kvj fvU°bgfYi dtj Kul tqtT ktm`i eogtKib (GKB RvgtZ GKvAK dmj Drcr`b) nt`Q uK? 1. niu
2. bv

K. niu ntj , K 1. cte°KqU dmj Drcr`Z nZ? 1. GKU 2. `βU 3. uZbU 4. PviU I Zvi tekr

K 2. eZgvtb KqU dmj Drcr`Z nq? 1. `βU 2. uZbU 3. PviU I Zvi tekr

37. etR/Kvj fvU°bgfYi cte° eZgvtb Drcr`Z ktm`i big, RvZ Ges dj tbi cui gvb

Rvji cui gvb RvZ: cizmeNvdj b (gtY)
(kZstK) tKw: 1. nvBeW

dmjtj i big

2. D°PdJ bkaj
3. `vbxq RvZ

cte° eZgvtb cte° eZgvtb 1. nvBeW 2. 3. `vbxq RvZ
D°PdJ bkaj
cte° eZgvtb cte° eZgvtb cte° eZgvtb

K. avb:

AvDk

Avgb

tevtiv

L. Mg

M. fjev

N. ciU

O. AvL

- P. mii l v
- Q. Wj RvZiq (gM/gmj / Kj vB)
- R. kvK-meR
- cj s kvK, Wlv
- Avj y
- Utgtlv/te_b
- dj Kic/evavKic/I j Kic/ mg
- gmi P/abqv
- ngv Kgov/Pij Kgov/kkv
- S. dj (Avq, Kj v, tctc, Avbvi m, Zi gR BZ'v)
- T. Ab'vb" (vbr' t Ki'b)



38. K.Avcbri Gj vKvq etR/Kvj fivU'bgfYi cte°Ges cti exR, mvi, ej vBvkkKi tmP hšcviZi mi eivn tKgb?

DcKi tbi big	cte°: tKw: 1. cvl qv thZ br 2. AchfB 3. chfB	eZg'rb : tKw: 1. 2. 3.
1. exR		
2. mvi		
3. ej vBvkkK		

L.Avcbri Gj vKvq etR/Kvj fivU'bgfYi cte°Ges cti mti i e'envi tKgb?

mti i big	cte°: tKw: 1. nZ br 2. Kg 3. tek	eZg'rb : tKw: 1. nq br 2. Kg 3. tek
1. BDvi qv		
2. vJGmic		
3. Ggic		
4. vjK'mvi		
5. 'Re mvi		
6. Ab'vb" (vbr' t Ki'b)		
.....		

39. Avcbri Gj vKvq etR/Kvj fivU'bgfYi cte°Ges cti dmtj tcvKivKo l ti vMerj vB Avpvgb vKfite `gb Kti b?

- K. cte° : 1. ej vBvkkK Qrov 2. ej vBvkkK v' tq 3. Ab'fite
- L. eZg'rb : 1. ej vBvkkK Qrov 2. ej vBvkkK v' tq 3. Ab'fite

40. Avcbr' i Mtg etR/Kvj fivU'bgfYi cte°Ges cti i eb'v cni v'vZ tKgb?

- K. cte° : 1. nqb 2. Kg 3. tek
- L. eZg'rb : 1. nqb 2. Kg 3. tek

41. Avcab vK gtb Kti b, Dbz thMthvM e'e'vi gra'tg eb'v cni v'vZ tgvKitej v mnR ntqtQ? 1. niv 2. bv

42. Avcbri Gj vKvq etR/Kvj fivU'bgfYi dtj cte° Zj bvq eZg'rb e'f'it'vcY tetotQ vK? 1. niv 2. bv

K. niv ntj, tKv_vq e'f'it'vcY tekv nt'Q? 1. iv'vi avti 2. emZ evoxi Avtk cvtk 3. cvZZ RvgtZ 4. Ab'vb" (vbr' t Ki'b).....

43. Avcbri Gj vKvq etR/Kvj fivU'bgfYi dtj cte° Zj bvq eZg'rb g'vQi Drcv`b tetotQ vK? 1. niv 2. bv

K. niv ntj, tKv_vq g'vQi Drcv`b tetotQ? 1. ckt' 2. v'etj/Lvtj 3. b'v'Z 4. Ab'vb" (vbr' t Ki'b).....

44. Արժեքի Գյուրգյուրի/Կյանքի փոփոխությունը դեռևս չի եղել նման-ցիկային տեղում: 1. ուր 2. երբ
 K. ուր ոչ, ինչպես չեղավ: 1. օրինակ 2. օրինակ 3. Ընդհանուր

45. Արժեքի Գյուրգյուրի/Կյանքի փոփոխությունը դեռևս չի եղել ինչպես տեղում: 1. ուր 2. երբ
 K. ուր ոչ, ինչպես չեղավ ինչպես տեղում:

1. Օրինակ 2. Միջին 3. Միջին 4. Արժեք (օրինակ).....

46. Արժեքի Գյուրգյուրի/Կյանքի փոփոխությունը առաջին և երկրորդ կարգի և երրորդ կարգի և չորրորդ կարգի և հինգերորդ կարգի և յոթերորդ կարգի և ութերորդ կարգի և աստուծոց:

ժամ	Երբ
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.

47. Կյանքի փոփոխությունը դեռևս չի եղել Ընդհանուր և Կյանքի փոփոխությունը:

- K. Կյանքի փոփոխությունը L. Կյանքի փոփոխությունը (Կյանքի փոփոխությունը)

1. 1.
 2. 2.
 3. 3.
 4. 4.
 5. 5.
 6. 6.

Կարգի 5: Կյանքի փոփոխությունը

48. Կյանքի փոփոխությունը (Կյանքի փոփոխությունը) չի եղել Կյանքի փոփոխությունը: 1. ուր 2. երբ

K. ուր ոչ, առաջին փոփոխությունը:

1. Ընդհանուր փոփոխությունը Կյանքի փոփոխությունը
 2. Կյանքի փոփոխությունը
 3. Կյանքի փոփոխությունը Կյանքի փոփոխությունը
 4. Կյանքի փոփոխությունը Կյանքի փոփոխությունը
 5. Կյանքի փոփոխությունը Կյանքի փոփոխությունը
 6. Կյանքի փոփոխությունը Կյանքի փոփոխությունը
 7. Արժեք (օրինակ)

49. Կյանքի փոփոխությունը (Կյանքի փոփոխությունը) դեռևս չի եղել Կյանքի փոփոխությունը և Կյանքի փոփոխությունը:

1. Կյանքի փոփոխությունը
 2. Կյանքի փոփոխությունը
 3. Կյանքի փոփոխությունը
 4. Կյանքի փոփոխությունը
 5. Արժեք (օրինակ)

50. Կյանքի փոփոխությունը (Կյանքի փոփոխությունը) դեռևս չի եղել Կյանքի փոփոխությունը և Կյանքի փոփոխությունը:

Կյանքի փոփոխությունը (7 փոփոխություն)	Երբ (7 փոփոխություն)
.....երբ	.....երբ

51. Ինչպես է ձևավորվում (ե/ր/կյ) ֆուզիոնը՝ ընդհանուր դեպքում 1. ոչ 2. ե

Կ. ուր ընդհանուր, ի՞նչ է ձևավորվում ֆուզիոնը? -----

52. Երևի Ռիզիկոս էստիմացիան

Երևի էստիմացիան

1. Երևի էստիմացիան
2. մեթոդ
3. Միջին
4. Բնական
5. միջին
6. ընդհանուր մեթոդ
7. ընդհանուր
8. Մեթոդ
9. Դասակարգում
10. բնական
11. Արևի (ձևավորում)

Երևի էստիմացիան

1. Երևի էստիմացիան
2. մեթոդ
3. Միջին
4. Բնական
5. միջին
6. ընդհանուր մեթոդ
7. ընդհանուր
8. Մեթոդ
9. Դասակարգում
10. բնական
11. Արևի (ձևավորում)

53. Ինչպես է ձևավորվում (ե/ր/կյ) ֆուզիոնը՝ ընդհանուր դեպքում 1. ոչ 2. ե

Կ. ուր ընդհանուր, ի՞նչ է ձևավորվում ֆուզիոնը? -----

54. Ինչպես է ձևավորվում (ե/ր/կյ) ֆուզիոնը՝ ընդհանուր դեպքում 1. ոչ 2. ե

55. Ե/ր/կյ ֆուզիոնը ընդհանուր է ի՞նչպես Երևի էստիմացիանը

56. Ե/ր/կյ ֆուզիոնը ընդհանուր է ի՞նչպես Երևի էստիմացիանը 1. ոչ 2. ե

Կ. ուր ընդհանուր, ի՞նչ է ձևավորվում ֆուզիոնը? -----

57. Ե/ր/կյ ֆուզիոնը ընդհանուր է ի՞նչպես Երևի էստիմացիանը -----

Ինչպես է ձևավորվում (ե/ր/կյ) ֆուզիոնը՝ ընդհանուր դեպքում 1. ոչ 2. ե

58. Երևի էստիմացիանը: ----- Կ. Երևի էստիմացիանը: -----

Լ. Երևի էստիմացիանը: -----

Կ. Երևի էստիմացիանը: ----- Երևի էստիմացիանը: -----

59. Երևի էստիմացիանը ընդհանուր է ի՞նչպես Երևի էստիմացիանը

1. Ե/ր/կյ ֆուզիոնը ընդհանուր է ի՞նչպես Երևի էստիմացիանը
2. Ե/ր/կյ ֆուզիոնը ընդհանուր է ի՞նչպես Երևի էստիմացիանը
3. Ե/ր/կյ ֆուզիոնը ընդհանուր է ի՞նչպես Երևի էստիմացիանը
4. Արևի (ձևավորում) -----

60. Երևի էստիմացիանը ընդհանուր է ի՞նչպես Երևի էստիմացիանը

Երևի էստիմացիանը

1. մեթոդի ընդհանուր էստիմացիանը
2. Երևի էստիմացիանը /մեթոդի էստիմացիանը
3. մեթոդի էստիմացիանը /մեթոդի էստիմացիանը
4. Երևի էստիմացիանը Երևի էստիմացիանը-Երևի էստիմացիանը
5. Արևի (ձևավորում) -----

Երևի էստիմացիանը

1. մեթոդի ընդհանուր էստիմացիանը
2. մեթոդի էստիմացիանը /մեթոդի էստիմացիանը
3. մեթոդի էստիմացիանը /մեթոդի էստիմացիանը
4. Երևի էստիմացիանը Երևի էստիմացիանը-Երևի էստիմացիանը
5. Արևի (ձևավորում) -----

61. Avcvri GjvKvq hvZvqZ e"e"vi DbzZi (eR/Kvj fVU"nl qvq) dtj tQtj tqtqt" i tKvb mjevav ntqtQ nK? 1. n"u 2. bv
 K. niiv ntj , nK nK mjevav cvt"Q?

- | | |
|---|--------------------------------------|
| c"e" | eZ"vrb |
| 1. "g /Ktj R/gv"tmvq thtZ Kó nZ | 1. mntRB "g /Ktj R/gv"tmvq thtZ cvti |
| 2. GKv GKv th tKvb RvqMvq thtZ cvi Z bv | 2. GKv GKv th tKvb RvqMvq thtZ cvti |
| 2. mgq tek j vMz | 3. mgq Kg j vM |
| 3. evRvi /tM" tmUvti thtZ cvi Z bv | 4. LiP KtqtQ |
| 4. Ab"vb" (tbr" " K i "b) ----- | 5. mntRB evRvi /tM" tmUvti thtZ cvti |
| | 6. Ab"vb" (tbr" " K i "b) ----- |

62. Avcvri GjvKvq thvMvthvM e"e"vi DbzZi dtj (eR/Kvj fVU"nl qvq) AvtMi Zj bqv gvnj vt" i Av"mvgvRK tKvb DbzZ ntqtQ nK?

1. n"u 2. bv

K. niiv ntj , nK ai tbi DbzZ ntqtQ ?

- | | |
|------------------------|------------------------------|
| 1. A"ZK DbzZ ntqtQ | 5. Rieb hv"vi gvb tetotQ |
| 2. mvgvRK DbzZ ntqtQ | 6. gvnj vt" i "lgZvqb tetotQ |
| 3. nK"vi DbzZ ntqtQ | 7. Ab"vb" (tbr" " K i "b) |
| 4. "v"tmevi DbzZ ntqtQ | |

L. A"ZK DbzZ ntqtQ ej tj (vRtAm Ki"b), A"ZK DbzZi dtj Avcvri (gvnj vi) vbtRi tKvb cvi eZ" ntqtQ nK?

1. n"u 2. bv

M. niiv ntj , Avcvri nK ai tbi cvi eZ" er DbzZ ntqtQ ?

- | | |
|-----------------------------|--|
| 1. num-gj Mv/ci" cvj b Ki"Q | 4. "jz" e"emv Ki"Q |
| 2. kvK-me"Ri evMvb Ki"Q | 5. vevfbrDbqbgj K KgRvtEi c"K"Y tctqtQ |
| 3. K"li nKt"i Kvr Ki"Q | 6. Ab"vb" (tbr" " K i "b) ----- |
| | 7. nq bwb |

63. Avcvri GjvKvq eR/Kvj fVU"bg"Yi mgq tKvb ai tbi KtR Avcvri AskMhY nQj nK? 1. n"u 2. bv

K. niiv ntj , Avcvri nK ai tbi Kvr KtR nQj b?-----

64. D" cKt"i i KtR AskMhY Kt"i Avcvri tKvb fVZv er gRjx tctqtQb nK? 1. n"u 2. bv

K. niiv ntj , fVZv er gRjxi cvi gvb: "nK:-----UvKv

L. cvj"t"i i Zj bqv gRjx Kg t" i qv ntqtQ nK? 1. niiv : KZ?: UvKv 2. bv

65. Avcvri GjvKvq eR/Kvj fVU"bg"Yi dtj gvnj vi v AvtMi Zj bqv vevfbrDbqbgj K KtR tekx AskMhY Ki"Q nK?

1. n"u 2. bv

K. niiv ntj , eR/Kvj fVU"bg"Yi nevi c"e"gvnj vi v nK ai tbi KtR tekx AskMhY KiZ i eZ"vrb nK ai tbi KtR tekx AskMhY Ki"Q?

- | | | |
|----------------------------------|------|--------|
| KvRi t"t | c"e" | eZ"vrb |
| 1. K"l | | |
| 2. num/ gj Mv/Mi" /QvMj cvj b | | |
| 3. K"li nKt" | | |
| 4. gvU Lbb | | |
| 5. iv"v-NvU/ tmZvubg"b | | |
| 6. e"t"i vcb | | |
| 7. grm" | | |
| 8. kvKme"Ri evMvb | | |
| 9. "jz" e"emv (tbr" " K i "b) | | |
| 10. PvKi"x | | |
| 11. Ab"vb" (tbr" " K i "b) ----- | | |

66. Avcvri Gj vKvq thmMthM e'e-vi Dbq̄tbi dtj (eiR/Kvj fivU^oni qvq) eZq̄tb gvnj viv cY^o evRvi RvZ Kti _vtK nK?

1. n'u 2. bv

K. niiv ntj , Avcab mbR KLbi tKvb cY^o e' mbtq evRvti mltqtQb nK?

1. n'u 2. bv

67. bxtPi LvZ ,tj v Li tPi mel tq cte^o K m^xvš-ibZ Ges eZq̄tb tK m^xvš-ibq?

LvZ

cte^o

eZq̄tb

tKvWt 1. mbR, 2. t^ogx, 3. tKvWt 1. mbR, 2. t^ogx, DfqB 4. Ab'vb'-----

3. DfqB 4. Ab'vb'-----

- 1. ^ b^o b evRvi /Lv^o mvgM^o μq
- 2. eroxi eo ai tbi tKbvKvU/erovNi ^Ziv/ieem
- 3. mbR^o tmev
- 4. ev'Pvt^o i t^o tmev
- 5. ev'Pvt^o i tj Lvcov

68. Avcvri Gj vKvq hvZvqvZ e'e-vi DbzI (eiR/Kvj fivU^oni qvq) dtj AvtMi Zj bqv tQtj tqtq^o i t^og /Ktj R/gv^otmvq nK^ovi m^othm tetqtQ nK?

1. n'u 2. bv

K. Avcvri Gj vKvq hvZvqvZ e'e-vi DbzI (eiR/Kvj fivU^oni qvq) dtj nK^ovi nvi tetqtQ nK?

1. n'u 2. bv

69. Avcvri Gj vKvq hvZvqvZ e'e-vi DbzI (eiR/Kvj fivU^oni qvq) dtj AvtMi Zj bqv tQtj tqtq^o i t^og /Ktj R/gv^otmvq Sto cov KtqtQ nK?

1. n'u 2. bv

70. Avcvri Gj vKvq tKvb GbnRI /Dbq̄bgj K cizovb KvR Kti nK?

1. niiv 2. bv 3. Rmbbv

K. niiv ntj , tKvb tKvb LtZ KvR Kti?.....

71. Avcab tKvb GbnRI /Dbq̄bgj K cizovtbi m^o m^o nK?

1. n'u 2. bv

72. Avcab ev Avcvri cni erfi i tKD tKvb ms^o v ntZ FY mbtqtQb nK?

1. n'u 2. bv

K. niiv ntj , ms^o vi bvg:

L. nK KvRi Rb^o FY mbtqtQb?

73. Avcvri Gj vKvq th eiR/Kvj fivU^ongZ ntqtQ, Zvi KvRi _YMZ gvb tKgb?

- 1. eiR/Kvj fivU^o e'envi i Dch^o AvtQ
- 2. eiR/Kvj fivU^o tgi vZ Kiv c^oqvRb
- 3. Gj vKvi tj vKRb mbq̄gZ GB eiR/Kvj fivU^oe'envi Kti
- 4. eiR/Kvj fivU^onvb
- 5. Ab'vb' (mb^o Ki^o b) -----

74. Avcvri Gj vKvq th eiR/Kvj fivU^o ngZ ntqtQ, Zvi Dbq̄tbi Rb^o Avi nK nK Kiv c^oqvRb ?.....

ab'ev^o w^o tq mv^ovrKvi MhY tkl Ki^o b

Impact Evaluation Study of “Construction of Bridge on Upazila and Union Road Project (2nd Revised)”

Lvbv Rwi c cKgvj v

(KbUlj Gwi qvi Rb: th BDubqtb cKf i Avl Zvq iv`vq tKvb etR/Kvj fvU`bvgZ nqub ev
tKvb etR/Kvj fvU`bvB ev `f mSL`K etR/Kvj fvU`AvfQ)

fvqKv: Avmivj vgyAvj vBKg | Avgiv i wv bvqK Mtel Yv cizovb Ges cwi Kf br gS/yj tqi AvBGgBw (IMED) Gi cfl t_k gwv chf`q gj `vq Ri`ci Df`ik` GtmQ | Avcbv iv Rrbb `vbq mi Kvi cKskj Aa` Bi (Local Government Engineering Department) KZR eivj v`iki vefb` i`Zcy` moK i Dci DcRj v | BDubqb moK tmZrbgfy (2q mstkwaz) cKf i Avl Zvq tmZ/Kvj fvU`bvgZ ntqtQ | GB Ri`ci Df`ik` n`Q, cKf Uj bbgfy Kvr gj `vq Ges Gi dtj thvMthw e`v, Kml Drc`b l m`eatf`vM` i Avq l Kgfis`vbi t`f`i` m`K m`cui eZB ntqtQ tm v`el`q Z` m`Mh Kiv | Avgiv G m`ut`K`Avcbvi gj `evb gZvgZ m`Mni Rb` GtmQ |

G chf` Avcb Avcbvi gj `evb e`e` c`vbi gva`tg GB Mtel Yv Ae`vb ivLiz c`i b | Avcbvi gZvgZ `yagr` Mtel Yvi Kvr e`euz nte hv Avcbvi Gvjvvi Dbqtb m`vqK n`Z c`i | Avcbvi t`q Z` m`u`v`m`cb ivLv nte | Avcbvi AbgvZ t`ctj Avg m`f`v`Kvi `i` Ki`Z cwi |

D`i`vZvi aibt 1. c`B eq`c`j`l 2. c`B eq`c` gmj v

tKm bst

--	--	--	--

vefM :	tKw bs :
fRj v :	tKw bs :
DcRj v :	tKw bs :
BDubqb:.....	tKw bs :
tgSRv/l qW`bs :	tKw bs :
Mig :	tKw bs :

m`f`v`Kvi MhYKvixi bvg : m`f`v`Kvi Mh`Yi Zwi L:

m`cvi fvBRv`i i bvg : Zwi L:

m`f`v`Kvi MhY: `i`i mgq : tkl mgq:

3. mKk-1: Lvbi mavi Y _'vej x

1. DEi`vZvi bvg (Lvbi c4vb):

2. cni exi i tgvU m`m` mSL`v:Rb

K. Lvbi Z_'vej x

bs	bvg (4vb Lvbi c4vb Zvi bvg c4vg 4j Lp -Lvbi c4vb cj`l ei gmjv ntZ cfi)	4j 1/2 1. cj`l 2. gmjv 3	eqm (cY`eQ4i) 1 eQ4i i bitP ntj 0004j Lp 4	4j`M4Z thM`Zv 5	%eemK Ae`v (4K4W-2) 6	4ckv (4K4W-3) 7
1	2	3	4	5	6	7
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						

Kj vg 6: %eemK Ae`vi 4K4W: 1. A4eemZ; 2. 4eemZ; 3. 4eae/4ecZ4K; 4. Avjv`v/cni Z`3; 5. ZvjvKc4B
Kj vg 7: 4ckvi 4K4W: 1. Kul KvR; 2. Kul gRj; 3. Kj -Kvi Lvbi 44gK; 4. 44z`e`emv; 5. gvSvi x e`emv; 6. eo e`emv; 7. P4K4x; 8. M4nbx; 9. 4eKvi; 10. Ab`vb` (4bv`4 Ki`b):

3. mKk 2: thM`thM e`e`v m4u4K4avi Yv

3. Avcbvi G4vKvi iv`v-N44UI aiY 4K iK4g?

- | | |
|---|--------------------------------------|
| 1. e4R/Kvj f4U4rov`i ay4vKv iv`v` | 4. e4R/Kvj f4U4rov`iv`v-N4U 4K4B bvB |
| 2. e4R/Kvj f4U4rov`i ayAv4r-cvKv iv`v` | 5. Ab`vb` (4bv`4 Ki`b) |
| 3. e4R/Kvj f4U4rov`i ayKvPv/g44UI iv`v` | ..... |

4. Avcbvi G4vKvi iv`vq 4K4v e4R/Kvj f4U4rov`ivKvi Rb` 4K4v m4m`v nt`Q 4K? 1. niiv 2. bv

K. niiv ntj , 4K ai4bi m4m`v nt`Q?

- | | |
|---|---|
| 1. e4R/Kvj f4U4rov`ivK4v m44R hvZ4qvZ Ki4Z cv44Q bv | 5. Kul RvZ cY` eiRvi RvZKi4Y m4m`v nt`Q |
| 2. `4j /K4j R/gv`4mv, eiR44i th4Z m4m`v nt`Q | 6. RjvexZvi Rb` d4m4j i 44z nt`Q |
| 3. `4r` 4K4b`4th4Z m4m`v nt`Q | 7. eb`vi Rb` d4m4j i 44z nt`Q |
| 4. Kul RvZ cY` cni ent4b m4m`v nt`Q | 8. Ab`vb` (4bv`4 Ki`b) |

5. Avcbvi G4vKv ntZ (iv`vi bvg D4j4- K4i 4R444m Ki`b) iv`vq 4b4gZ e4R/Kvj f4U4rov`KZ `4i?4K.4g.

6. Avcbvi c44ki G4vK4v e4R/Kvj f4U4rov`4qtZ Avcbvi 4K4v DcKvi nt44Q 4K? 1. niiv 2. bv

K. niiv ntj , 4K ai44i DcKvi nt44Q?.....

7. Avcvri GjvKvq iv~vi Dci etR/Kvj fivUqbgZ ntj Kgnst~tbi uK uK mthvM eroZ?

- | | |
|-----------------------------|------------------------------|
| 1. Kul KvR | 7. e~t~i vCY (ebvqb) Gi KvR |
| 2. gvU Lbb KvR | 8. kvK-memRi evMvb |
| 3. iv~vWU/tmZzibgPY KvR | 9. t~i~e~emv |
| 4. Mi~/QMJ /nwm/gj Mx cvj b | 10. grm~ Pvl |
| 5. KJ Kvi Lvbi KvR | 11. Ab~vb~ (tbr~t Ki~b)----- |
| 6. KulI uk~t~i KvR | |

8. Avcvri GjvKvq RjvexZri mgn~v i tqfQ uK? 1. niiv 2. bv

K. niiv ntj , tkv_vq RjvexZri mjo nq?

- | | | |
|---------------------|-------------------|------------------------------|
| 1. dmtj i b~t~RigtZ | 2. hvZvqfZi iv~vq | 3. Ab~vb~ (tbr~t Ki~b) |
|---------------------|-------------------|------------------------------|

9. Avcvri GjvKvq AvZ epdi Kvi~t dmtj i t~z nt~Q uK? 1. niiv 2. bv

10. Avcvri GjvKvq hvZvqfZi Rb~ tjvKRb uK uK ai~tbi hvbernb e~envi Kti?

- | | |
|--------------------------|------------------------------|
| 1. cvtq tnU | 5. em |
| 2. evBmvBtKj /gUi mvBtKj | 6. tU~uy |
| 3. vi~v | 7. bimgb/fUfU |
| 4. f~vb | 8. Ab~vb~ (tbr~t Ki~b) |

11. thvMthvM e~e~v fij bv_vKvq (etR/Kvj fivUq~vKvi dtj) cY~ evRvi RvZKi tY tkvb Amjeav nt~Q uK? 1. niiv 2. bv

K. niiv ntj , uK ai~tbi Amjeav nt~Q?

1. mn~t~RB cY~ evRvi RvZ Ki~tZ cmi bv
2. c~t~Y~ b~v~h~ gj~ cvB bv
3. cY~ evRvi RvZ Ki~tZ mgq tekx j v~t~M
4. th tkvb mgq cY~ evRvi RvZ Ki~tZ cmi bv
5. Ab~vb~ (tbr~t Ki~b)

12. eZ~t~b Kul cY~ m~p~x i c~c~Zvq tkvb~ai~tbi evRvi etm?

1. cvBKvi~v evRvi
2. c~t~Z~K~i~ b evRvi etm
3. mvBmvK evRvi
4. c~t~e~P gZB AvtQ
5. Ab~vb~ (tbr~t Ki~b)

13. eZ~t~b Avcvri v mZ v~t~b KZeri cY~ evRvi RvZ Kti b?evi

14. thvMthvM e~e~v Dbz bv ni qvq (etR/Kvj fivUq~vKvi dtj) GjvKvq c~t~Y~i thvMvb c~t~qvRb Abjvqx cvb uK? 1. niiv 2. bv

K. niiv ntj , KZUKzcvb? 1. tgvUvgU 2. v~f~meK/ c~t~qvRb Abjvqx cvB 3. ch~t~t

15. cY~ evRvi RvZKi tY eZ~t~b uK uK hvbernb e~envi Kti b?

- | | |
|---------------|------------------------------|
| 1. cvtq tnU | 7. em |
| 2. mvBtKj | 8. UuK |
| 3. Mi~i Mrox | 9. tU~uy |
| 4. f~vb | 10. bimgb |
| 5. vi~v | 11. Ab~vb~ (tbr~t Ki~b)..... |
| 6. gUi mvBtKj | |

16. eZətb Avcbrı Gı vKıv gıj vıv Kıl cY" evRtı ıbıq hvq ıK?
 17. Avcbrı Gı vKıv ətR/Kvj fıUıtj ıK ai tıbi mıear nte?
 1. tıtj ıgtıv mıtRB ıg /Ktj R/gr ımvq tıtZ cvı te
 2. tj vKRb GKv GKv ıt tKvb RıvıMıv tıtZ cvı te
 3. hvZıvıtZ mgq Kg j vMte
 4. cvı enb LıP Kgte

1. n"ı 2. bv

5. mıtRB evRtı tıtZ cvı te
 6. cY" cvı enb LıP Kg nte
 7. Drıvı Z kıl "ı b"ıh" ıvg cvı qv hvte
 8. Ab"vb" (ıbr ıt Kı"b)

ımKkb 3: Lıvı eZətb Ae"ı

18. eZətb Avcbrı cıvb tckı l Ab"vb" tckı

- tckı cıvb tckı
 1. Kıl Kır
 2. Kıl gRj
 3. Kj -Kı Lıvı klgK
 4. ıtj "e"emı
 5. grSıx e"emı
 6. eo e"emı
 7. PıKıx
 8. Mıbx
 9. teKı
 10. Ab"vb" (ıbr ıt Kı"b)----

Ab"vb" tckı (GKıaK DEı ntZ cıtı)

19. Avcbrı cvı ertı l tıvU gıvıK Avıqı Drı l cvı grıY

Avıqı Drı

Mo gıvıK Avı (UıKıvı)

1. Kıl LıZ tıtK
 2. Mıcvıj Z cı tıtK
 3. Ab" vb tıtK tclı Z (tııgıtıY)
 4. Ab"vb" tckı tıtK
 5. eÜKı mıı" tıtK
 6. FY tı l qv tıtK
 7. Ab"vb" (ıbr ıt Kı"b)

tıvU gıvıK Avı

20. eZətb Avcbrı cvı ertı l tıvU gıvıK e"q:

e"tı LıZ

Mo gıvıK e"q (UıKıvı)

1. Lı"
 2. dmj Pıı ver"
 3. PıKımv
 4. tıvıK
 5. ıg /Ktj R/gr ımv
 6. cvı enb
 7. ıej (ıe" ııı/Mııv/tKtı vıvb)
 8. Drıe
 9. Ab"vb" (ıbr ıt Kı"b)

tıvU gıvıK e"q

21. eZətb Avcbrı ıK cvı grıY Rıg AvıQ?

Rıgı aıY

Rıgı cvı grıY (kZıstık)

1. emZ ıfUı
 2. ıbr "Pıı tıvı" Rıg
 K. ımPKZ Pıı tıvı" Rıg
 L. ımP Qıv Pıı tıvı" Rıg
 3. emP Rıg (tı qv/tıvı)
 4. cıZZ Rıg
 5. cKı
 6. evıMıb ıııı
 7. Ab"vb" Rıg (ıbr ıt Kı"b)

tıvU Rıgı cvı grıY

22. eZ@tb Arcbriv K ai tbi Lv` MAb Kti _vtKb?

- | | |
|---|--|
| 1. fvZ
2. i`U
3. Wj
4. gvQ
5. gism
6. mVg
7. `p/`pRvZ `e`
8. kvK-meR
9. dj
10. Ab`vb` (lv` @ Ki`b) | Lv` i bvg
mKvj
mVZ v` tb KZevi
`cj
ivZ |
|---|--|

23. Arcbvi cni exi i emMn, cmbi Drm, cqtub`vkb, Artj vi e`envi I gj`evb `e`m` BZ`m` m`u`KZ Z`vej x
mel q eZ@tb

K. emMni aiY: (DEti i Nti bxtPi tKvW emvb)

1. cvKv evox 2. tmvg cvKv (BtU i `qj I utbi Or`)
 3. KvPv teor I utbi Or`
 4. m`u`Y`Uj 5. KvPv teor I Ltai Or` 6. Ab`vb` (lv` @ Ki`b)

L. tgvU Nti i msL`v

.....U

M. Lvevi cmbi Drm: (DEti i Nti bxtPi tKvW emvb)

1. Kqv 2. uDetqj 3. U`vc 4. Ab`vb` (lv` @ Ki`b)

N. cvqLvb (DEti i Nti bxtPi tKvW emvb)

1. KvPv/tLvj 2. uUj `uJb/cvKv 3. `f`m`SZ cvqLvb (m`vbUmi) 4. cvqLvb tbB

O. Artj vi e`envi: (DEti i Nti bxtPi tKvW emvb)

1. tKti vmb 2. M`vm 3. `e`jvZK

P. gj`evb Armere cT` K K ArtQ: (DEti i Nti bxtPi tKvW emvb)

1. uJf 2. ti uWl 3. clR
 4. tUj tdiv (tgvvBj) 5. gUi mvBtKj/evB-mvBtKj
 6. tmj vb tgvkb 7. LvU/tP`K 8. tPqv/tUej 9. Ab`vb` (lv` @ Ki`b)

24. eLR/Kvj fv`br _vKv Gj vKvi tQtj tqtq` i `j /Ktj R/gv`tmv hvZvqtZ Amjeav nt`Q K? 1. niv 2. bv

25. eZ@tb Arcbvi cni exi i KZRb m`m` K`v`v cZ@tb hvl qvi Dc`hvMx Ges KZRb K`v`v cZ@tb hvq?

K`v`v cZ@tb hvl qvi Dc`hvMx m`tm`i msL`v

KZRb hvq

.....Rb

.....Rb

tmKkb 4: Kul mel qK Z`

26. Arcbvt` i Gj vKvq ArtMi Zj bvg eZ@tb km` Drcv` b tetoQ K? 1. niv 2. bv

27. eZ@tb Kul t`t` ktm`i eugLKi b (GKB RgtZ GKwaK dmj Drcv` b) nt`Q K? 1. niv 2. bv

K. niv ntj , GKB RgtZ KqvU dmj Drcv` Z nq? 1. `BtU 2. uZbtU 3. PviU I Zvi teku

28. eZ@rb Drcw`Z ktm`i bvg, RvZ Ges dj tbi cni gvb

	Rigi cni gvb (kZrstk)	RvZ: tKW: 1. nvBeW 2. D`PdJ bkxj 3. `vbxq RvZ	dj b (gtY)		
dm`j i bvg			1. nvBeW	2. D`PdJ bkxj	3. `vbxq RvZ

K. avb:
 AvDk
 Avgb
 t`xtiv
 L. Mg
 M. f`jv
 N. ciU
 O. AvL
 P. mmi lv
 Q. Wj RvZiq (gM/gmj /Kj vB)
 R. kvK-meR
 cyj s kvK, WUv
 Avj y
 UtgUv/te_b
 dj Kic/eravKic/I j Kic/mg
 gni P/ambq
 wno Kgov/Pj Kgov/kkv
 S. dj (Arg, Kjv, tctc,
 Avbim, Zi gR BZ`v`)
 T. Ab`vb` (nb`@ Ki`b)

29. Avcbvi Gj vKvq eZ@rb mrti i e`envi tKgb?

mrti i bvg	tKW: 1. nq bv	2. Kg	3. teik
1. BDni qv			
2. nUGmic			
3. Ggic			
4. wqk`mvi			
5. `Re mvi			
6. Ab`vb` (nb`@ Ki`b)			

30. eZ@rb Avcbvi Gj vKvq dm`j tcvKvKo I ti vMerj vBtqi Avp`gb tKgb?

1. t`bB 2. AvtMi tPtq Kg 3. AvtMi tPtq teik

31. eZ@rb Avcbv` i Gj vKvq eb`v cni n`vZ tKgb?

1. nqvb 2. Kg 3. teik

K. eb`v cni n`vZ tgvKvtej vi Rb` nK ai tbi c` t`lc tbi qv
 nq?.....

32. Avcbvi Gj vKvq eZ@rb e`ttivcy tetotQ nK?

1. niu 2. bv

K. niu ntj , tKv_vq e`ttivcy tekx nt`Q?

1. iv`vi artj 2. emZ eioxi Avfk c`fk 3. caZZ RigtZ 4. Ab`vb` (nb`@ Ki`b)...

33. Avcbvi Gj vKvq eZ@rb gvtQi Drcv`b tetotQ nK?

1. niu 2. bv

K. niu ntj , tKv_vq gvtQi Drcv`b tetotQ?

1. cKti 2. w`tj /Lv`j 3. b`xtZ
 4. avb t`ttZ gvtQi Pvl 5. Ab`vb` (nb`@ Ki`b)

42. Avcbri Gj vKvq AvtMi Zj brq gnj viv KvR tek AskMhb Ki tQ uK? 1. n'u 2. bv
 K. niu ntj , AvtM l eZgvtb gnj viv uK ai tbi KvR tek AskMhb Ki Z Ges Ki tQ?

- KvRi tqt
 cte° eZgvtb
1. Ktl
 2. num/ gj Mv/Mi /QMJ cvj b
 3. KUl uKt
 4. gnu Lbb
 5. iv v-NvU/ tmZubgfb
 6. e,tj t vcb
 7. grm
 8. kvKineRi evMvb
 9. tj e'emv (bu t Ki b)
 10. PvKix
 11. Ab'vb" (bu t Ki b) -----

43. Avcbri Gj vKvq eZgvtb gnj viv cY" evRvi RvZ Kti vK uK? 1. n'u 2. bv
 K. niu ntj , Avcub btR KLBi tKvb cY" e" btq evRvi vMttqOb uK? 1. n'u 2. bv

44. Avcbri cui exi bxtPi LvZ ,tj vtZ Li tPi nel tq tK mrvS-btq vK?

- LvZ tKvWt 1-ubR,2- tgr,3-Dfqb 4. Ab'vb"-----
1. b b`b evRvi /Lv" mvgMl uq
 2. exoi eo ai tbi tKbrKvUv/exoiNi
 3. Zix/eevn
 3. ubR`^`t" tmev
 4. evPt` i t" tmev
 5. evPt` i tj Lvcov

45. Avcbri Gj vKvq eZgvtb t0tj tqt i g /Ktj R/gr tmvq uKvivi mthvM tetotQ uK? 1. n'u 2. bv
 K. eZgvtb Avcbri cui exi i KZRb m`m" uKvivi cizvtb hvl qvi DcthvMx Ges KZRb uKvivi cizvtb hvq?

- uKvivi cizvtb hvl qvi DcthvMx m`m"i msL"v KZRb hvq
-RbRb

L. Avcbri Gj vKvi uKvivi nvi etR Kyj fivU°Gj vKvi tPtq tKgb? : 1. Kg 2. GKB iKg 3. tek

46. Avcbri Gj vKvq hvZiqvZ e`e`vi DbvZ (etR/Kyj fivU°htj) ntj t0tj tqt i uK ai tbi mjeav nte?

1. mntrB g /Ktj R/gr tmvq thtZ
 2. GKv GKv th tKvb RvqMvq thtZ cvi te
 3. mgq Kg j vMte
 4. LiP Kgte
 5. mntrB evRvi /tM_ tmvUti thtZ cvi te
 6. Ab'vb" (bu t Ki b)
-

47. Avcbri Gj vKvq tKvb GbuRI /cizvtb KvR Kti uK? 1. niu 2. bv 3. Rmbv

48. Avcub tKvb GbuRI /cizvtb m`m" uK? 1. n'u 2. bv

49. Avcub ev Avcbri cui exi i tKD tKvb ms`v ntZ FY btqtOb uK? 1. n'u 2. bv

K. niu ntj , ms`vi big:

L. uK KvRi Rb` FY btqtOb?

ab`ev` v` tq mvvrvKvi MbY tkl Ki`b

4. DcRjv l BDibqb moK tmZrbgP (2q mstkmaZ) cKf i Avl Zvq tmZrKj fU^obgZ kxl R cKf i KvR Avcab RnoZ nQtj b nK? 1. niu 2. bv

K. niu ntj, D³ cKf Avcbri figKv/Ae`vb nK nQj?.....

5. cKf i KvR Pj vKj xb mgta cKf i KvR mti Rugtb cui`kB/Z`vi nK Kiv nZ nK? 1. niu 2. bv

K. niu ntj, nKfite Kiv nZ?.....

6. Avcab Rvbb nK, DcRjv l BDibqb moK tmZrbgP (2q mstkmaZ) cKf i Avl Zvq KZ_{uj} eR/Kj fU^obgZ nQtj? 1. niu 2. bv

K. niu ntj, KZ_{uj} eR/Kj fU^obgZ nQtj?

L. eR/Kj fU^ouj i gta` KZ_{uj} Avl m m fWK Ges KZ_{uj} nQj fWK n`tq %Zix Kiv nQtj?

Avl m m fWK..... mSL`v nQj fWK..... mSL`v

M. Gt`i gta` KZ_{uj} nQj fWK, Avl m m fWK cui eZB Kiv nQtj?

7. j`f`grv Abhvq D³ cKf i mKj KvR ev`emqZ nQtj nK? 1. niu 2. bv

K. bv ntj, fKb ev`emqZ nqb?.....

8. cKf i KvR eivl KZ At_{9m}ubentqj nK? 1. niu 2. bv

K. bv ntj, fKb fkl nqb?

9. cKf nK nK hšpMZ,hibemb l DcKiY fKbv nQtj?.....

10. cKf e`euZ gvj gvj μq Ges e`envti i f`f`f` fKvb mgm`v nQtj nK? 1. niu 2. bv

K. niu ntj, nK ai fbi mgm`v nQtj?.....

L. nKfite Zvi mgvrb Kiv nQtj?.....

11. cKf ev`erqbKrtj Gj vKvi `n`^l gvnj v` i tj eri ev klgK nmte ubtqm f` l qv nQtj nKbv? 1. niu 2. bv

12. cKf ev`erqbKj xb mgta fKvb mgm`v f` Lv n`tq nK? 1. niu 2. bv

K. niu ntj, nK nK mgm`v f` Lv n`tq nK?.....

L. nKfite Zvi mgvrb Kiv nQtj?.....

13. cKf ev`erqbKrtj `vbxq RbMfYi mμq AskMhY nQj nK? 1. niu 2. bv

K. niu ntj, nK ai fbi AskMhY nQj?

14. cKf ev`erqbKrtj ev`erqbKrtR gvW chf`q gvnj v` i AskMhY nQj nK? 1. niu 2. bv

K. niu ntj, nK nK KvR AskMhY Kti nQj?

L. bv ntj, fKb?

15. cKf _tj v ev`erqtb i dtj cui tekMZ fKvb mgm`v mμ nQtj nK? 1. niu 2. bv

K. niu ntj, nK nK mgm`v nQtj?

16. cKf i AeKvWgr_{tj} v mW/fite KvR Kl tQ nK? 1. niu 2. bv

K. bv ntj, fKb mW/fite KvR Kl tQ bv?

17. ev`emqZ cKf _tj v mW/fite i fYtefY Kiv nq nK? 1. niu 2. bv

- K. niiv nuj, uKfrte i qYvteqY Kiv nq?.....
 L. Kiv i qYvteqY KvRi `vqfZi i tqtOb?
 M. bv nuj, tkb i qYvteqY Kiv nq ub?.....

18. Avcbri KgEj vKvq GB cktf i Avl Zvq KZuI etR/Kvj fvUP KvR ntqtO?.....u

K. KZuI iv`vq G hver i qYvteqY ev ms`vti i KvR Kiv ntqtO?----- u

19. etR/Kvj fvUqI qvq Gj vKvq uK uK Dbqb ntqtO?

- K. thvMthvM mjeav ep` tctqtO uK? 1. niiv 2. bv
 L. Kai DcKi b tctZ Kl.Kf` i mjeav ntqtO uK? 1. niiv 2. bv
 M. Kai RzZ cY` erRi RzZ Ki tb mjeav ntqtO uK? 1. niiv 2. bv
 N. `j Ktj trI QvT QvT` i hvZvqtZi mjeav ntqtO uK? 1. niiv 2. bv
 O. Kgms`vb ep` tctqtO uK? 1. niiv 2. bv
 P. Kl.tKiv Drcv`Z dmtj i b`v` gj` cvt`Ob uK? 1. niiv 2. bv
 Q. kvKmeR avbmn vevfbvdmj i Drcv` b tetqtO uK? 1. niiv 2. bv

20. Avcbri Gj vKvq dmtj i mbvovZv KZ?

cje°	eZgvb

21. cktf ev`v` evqfbi dtj KlvrvE k uK uK ktf Kiv Lvrv Mto DvvtO? -----

22. etR/Kvj fvUqI qvI dtj Gj vKvq e`emv-emvtr`i uK uK ai tbi cbvi NivvO m`vvi Z ej p?.....

23. cktf i Avl Zvq ev`emqZ AeKvtrgv,tj v (iv`vWU, etR/Kvj fvU°, tM_ tmUvi) eZgvb Gj vKvi tj vKRb mnRfvt e`envi Kitz cvitO uK? 1. mnRfvt e`envi Kitz cvitO 2. e`envi mgv`v AvtO

K. e`envi mgv`v vKtj uK ai tbi mgv`v nt`O?

L. uKfrte Zvi mgyvb Kiv nt`O?.....

24. cktf i mdj Zv ,tj v ev kv`kvj x v K ,tj v uK uK?

25. cktf i `p` v K ,tj v uK uK?

26. fivel`iz GKB ai tbi cktf ev`evqfbi t`v`v hvZ Dctiv`v `p`Zv,tj v bv`vK tmRb` uK Kiv DvZ etj Avcb gtb Kti b?

27. ev`emqZ cktf uI fivel`iz Avl i KvhRi ivLvi Rb` Avcbri gZigZ ev mcvl k uK?

(ab`ev` v` tq mvqvrvKvi MbY tkl Ki`b)

Impact Evaluation Study of “Construction of Bridge on Upazila and Union Road Project (2nd Revised)”

ব্রীজের আর্জি উপরিত্বের প্রকল্প
(উপজেলা এবং ইউনিয়ন রাস্তার সেতু নির্মাণের প্রকল্পের ২^{য়} সংশোধিত সংস্করণ)

ফরম: আর্থিক পরিকল্পনা/আর্থিক/১/১৫/১৬। আর্থিক মন্ত্রণালয় কর্তৃক গঠিত জাতীয় গবেষণা পরিষদ (IMED) এর আর্থিক প্রকল্পের আর্থিক পরিকল্পনা/আর্থিক/১/১৫/১৬। আর্থিক মন্ত্রণালয় কর্তৃক গঠিত জাতীয় গবেষণা পরিষদ (IMED) এর আর্থিক প্রকল্পের আর্থিক পরিকল্পনা/আর্থিক/১/১৫/১৬।

গণিতের আর্থিক পরিকল্পনা/আর্থিক/১/১৫/১৬। আর্থিক মন্ত্রণালয় কর্তৃক গঠিত জাতীয় গবেষণা পরিষদ (IMED) এর আর্থিক প্রকল্পের আর্থিক পরিকল্পনা/আর্থিক/১/১৫/১৬।

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নাম : পদ : উর্ধ্বতন :	ফোন : ফোন : ফোন :
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মুদ্রিত নাম : মুদ্রিত নাম :

মুদ্রিত নাম : নাম :

মুদ্রিত নাম : ফোন :

-
1. Upazila Engineer 2. Assistant Engineer 3. Sub-assistant Engineer
4. Others (Specify)
-
1. বর্গ :
2. উদাহরণ: 1. Upazilla Engineer 2. Assistant Engineer 3. Sub-assistant Engineer
4. Others (Specify)

3. DcɔRj v l BDɔbqɔ mɔɔK ɔmZɔɔɔɔɔ (2q mstkwɔZ) cKɔɔɔ i Avl Zvq ɔmZɔɔɔɔɔ fɔUɔɔɔɔɔ cKɔɔɔ i KɔɔR Avɔɔɔ RɔɔZ ɔɔɔɔɔ b ɔKɔ?

- 1. niiv 2. bv

K. niiv nɔɔj , Dɔɔ cKɔɔɔ Avɔɔɔvɔɔ fɔɔɔKv/Ae`vɔɔ ɔK ɔɔɔj ?.....

4. cKɔɔɔ i KɔɔR Pj vKjɔɔ ɔb mgɔq cKɔɔɔ i KɔɔR mɔɔɔ Rɔɔɔɔɔ cɔɔ`kɔɔ/Z`vɔɔ ɔK ɔɔɔ nZ ɔK? 1. niiv 2. bv

K. niiv nɔɔj , ɔK fɔɔɔ Kiv nZ?.....

5. Avɔɔɔ Rvɔɔɔ ɔK, DcɔɔRj v l BDɔbqɔɔ mɔɔK ɔmZɔɔɔɔɔ (2q mstkwɔZ) cKɔɔɔ i Avl Zvq KZ,ɔɔj eɔɔR/Kjɔɔ fɔUɔɔɔɔɔ nɔɔɔɔɔ?

- 1. niiv 2. bv

K. niiv nɔɔj , KZ,ɔɔj eɔɔR/Kjɔɔ fɔUɔɔɔɔɔ nɔɔɔɔɔ?

L. eɔɔR/Kjɔɔ fɔUɔɔ,ɔɔj i gɔɔ` KZ,ɔɔj Avl ɔm ɔm ɔmK Ges KZ,ɔɔj ɔɔj ɔmK ɔ`ɔq ɔZix Kiv nɔɔɔɔɔ?

Avl ɔm ɔm ɔmK..... mSL`v ɔɔj ɔmK..... mSL`v

M. Gɔɔ` i gɔɔ` KZ,ɔɔj ɔɔj ɔmK, Avl ɔm ɔm ɔmK cɔɔ eZɔɔ Kiv nɔɔɔɔɔ?

6. j ɔ`ɔvɔɔv Abɔvɔɔ Dɔɔ cKɔɔɔ i KɔɔR mɔɔK fɔɔɔ e`eɔqZ nɔɔɔɔɔ ɔK?

- 1. niiv 2. bv

K. bv nɔɔj , ɔK e`eɔqZ nɔɔɔɔɔ?

7. cKɔɔɔ i KɔɔR eivɔ KZ Aɔ, ɔm=ɔbɔɔɔɔɔ ɔK?

- 1. niiv 2. bv

K. bv nɔɔj , ɔK b ɔK nɔɔɔɔɔ?

8. cKɔɔ` ɔj ɔj ɔbɔɔɔ Z mKj eɔR l Ab`vɔ` th me KɔɔR thLɔɔɔ thLɔɔɔ nevl K_v ɔɔj ɔm, ɔj v GB cKɔɔɔ i Avl Zvq e`eɔqZ nɔɔɔɔɔ ɔK?

- 1. niiv 2. bv

K. bv nɔɔj , ɔK b?

9. cKɔɔ` ɔj ɔj Dɔj ɔZ KɔɔRi eɔɔɔ ɔKɔ eɔR e`v Ab`vɔ` AeKvɔɔɔv GB cKɔɔɔ i Avl Zvq e`eɔqZ e`v ɔbɔɔɔ nɔɔɔɔɔ ɔK?

- 1. niiv 2. bv

K. niiv nɔɔj , ɔK b?

10. cKɔɔ e`eɔqɔKjɔɔ ɔb mgɔq ɔKɔɔ mgm`v ɔ`Lv ɔ`ɔqɔɔ ɔK?

- 1. niiv 2. bv

K. niiv nɔɔj , ɔK ɔK mgm`v ɔ`Lv ɔ`ɔqɔɔ ?.....

11. cKɔɔ e`eɔqɔKjɔɔ ɔvɔɔ RbMɔɔYI mɔɔɔq AskMɔɔY ɔɔj ɔK?

- 1. niiv 2. bv

K. niiv nɔɔj , ɔK aɔ ɔbɔ AskMɔɔY ɔɔj ?

12. cKɔɔ e`eɔqɔKjɔɔ ɔvɔɔ RbMɔɔYI Zi d ɔ`ɔK ɔKɔ cɔɔZeUkZv Gɔmɔɔj ɔK?

- 1. niiv 2. bv

13. cKɔɔ e`eɔqɔKjɔɔ gɔmɔɔ v` i AskMɔɔY ɔɔj ɔK?

- 1. niiv 2. bv

K. niiv nɔɔj , ɔK fɔɔɔ?.....

14. cKɔɔ, ɔj v e`eɔqɔɔɔ cɔj cɔɔ ɔekMZ ɔKɔ mgm`v mɔɔ nɔɔɔɔɔ ɔK?

- 1. niiv 2. bv

K. niiv nɔɔj , ɔK ɔK mɔɔ mgm`v nɔɔɔɔɔ?

15. cKɔɔɔ i AeKvɔɔɔv, ɔj v mɔɔK fɔɔɔ KɔR Kɔɔ ɔK?

- 1. niiv 2. bv

K. bv nɔɔj , ɔK b mɔɔK fɔɔɔ KɔR Kɔɔ ɔK?

16. cKɔɔɔ i AeKvɔɔɔv, ɔj v i ɔj v ɔeɔɔ ɔb` ɔvɔɔ cɔɔɔ ɔKɔ KɔɔU Avɔɔ ɔK?

- 1. niiv 2. bv

K. GB KɔɔU ɔK ɔK KɔR Kɔɔ ɔK?

17. KZ ր՝ b ci ci cկի i AeKwդցւ, tյ v i ղYրեղիYi I tցivgZ Kivi Kւ?

18. er`emqZ cկի tյ v mւKfիe i ղYրեղY Kiv nq ւK? 1. niւ 2. bv
K. niւ nտյ, ւKfիe i ղYրեղY Kiv nq?
L. Kiv i ղYրեղY KւRi `ւզիZ i տիOb?.....
M. bv nտյ, տKb i ղYրեղY Kiv nq bv?.....
N. ւKfիe i ղYրեղY Kiv hւզ?.....

19. Avcbri KgՅյւKւզ GB cկի i Avl Zւզ KZււ etR/Kյj fիւթ KւR nտիQ?.....ւ

K. KZււ iv`ւզ G hver i ղYրեղY er ms`ւի i KւR Kiv nտիQ? ----- ւ

20. etR/Kյj fիւթի զւզ Gյ Kւզ ւKւK Dbւզ nտիQ?

- K. իււիւիւ mբար ep` tտիQ ւK? 1. niւ 2. bv
- L. Kււ DcKib tտիZ KւKի i mբար nտիQ ւK? 1. niւ 2. bv
- M. Kււ RւZ cY` erRi RւZ Kի tբ mբար nտիQ ւK? 1. niւ 2. bv
- N. `յ Kի տիRi ՕւՒՕւի i hւZւզիZ mբար nտիQ ւK? 1. niւ 2. bv
- O. Kgիս`ւb ep` tտիQ ւK? 1. niւ 2. bv
- P. KւիKiv Drcւ`Z dտիj i b`ւի` gյ` cի`Ob ւK? 1. niւ 2. bv
- Q. ւKւեR arbm յարբադտիj i Drc`b tտիQ ւK? 1. niւ 2. bv

21. cկի i Avl Zւզ er`emqZ AeKwդցւ, tյ v (iv`ւււ, etR/Kյj fիւթ, իմ_ իմւի) eZտիb Gյ vKvi tյ vKRB mnRfիe e`envi KիZ cւիQ ւK? 1. mnRfիe e`envi KիZ cւիQ 2. e`envi mցմ`v AvիQ

K. e`envi mցմ`v_ւKիj ւK aiտի mցմ`v nտիQ?

L. ւKfիe Zvi mցարb Kiv nտիQ?

22. cկի i mdj Zւ, tյ v er kւՅ kյj xւ Kւ, tյ v ւK ւK?
.....
.....
.....

23. cկի i `թթ ւ Kւ, tյ v ւK ւK?
.....
.....
.....

24. fիւլիZ GKB aiտի cկի er`erտիb իղիտի hւիZ DctիvՅ `թթ Zւ, tյ v bv_ւիK իմRb` ւK Kiv DւիZ etj Avcub գիտ Kիb?
.....
.....
.....

25. er`emqZ cկի i AeKwդցւ, tյ v hւիZ fիւլիZ e`envi Dctիււ_ւիK (Avl KւիRi ivLvi Rb`) իմRb` Avcbri gZիgZ er mցմի k ւK?
.....
.....
.....

(ab`er` ւ իզ mւղյւրKvi MիY իկi Kի`b)

5. cKtí i KvR Arcab RnoZ nQtj b nK? 1.niv 2. bv
 K. niv ntj , D³ cKtí Arcab nKfite RnoZ nQtj b er Arcbvi fngKv/Ae`vb nK nQj ?.....
 6. Arcab Rrtbb nK, DctRj v l BDnqbq moKtK tmZnbgP (2q mstkwaz) cKtí i Avl Zvq KZ,uj etR/Kyj fVU`bngZ nQtjQ?

K. niv ntj , KZ,uj etR/Kyj fVU`bngZ nQtjQ? 1. niv 2. bv

L. etR/Kyj fVU`uj i gta` KZ,uj Avl m m tWK Ges KZ,uj nQj tWK n`tq %Zix Kiv nQtjQ?

Avl m m tWK..... mSL`v nQj tWK..... mSL`v
 M. Gt` i gta` KZ,uj nQj tWK, Avl m m tWK cni eZB Kiv nQtjQ?

7. cKtí c`lq b l er`erqtb Arcbvi er Arcbvi c`Zvrtbi tKvb gZvqZ MbY Kiv nQtjQj nK? 1. n`u 2. bv
 8. Arcbvi Gj vKvq GB cKtí i nK ai`tbi KvR er`emqZ nQtjQ?

1. bZb etR/Kyj fVU`bngP
2. eb`v t`mZM`-etR/Kyj fVU`c`ptbngP/cpefmb
3. eb`v t`mZM`-etR/Kyj fVU`c`ptbngP/cpefmb
4. DctRj v ti vW
5. BDnqbq ti vW
6. tM`_ tm`lvi
7. Ab`vb` (bn` t` Ki`b)

K. Dctiv³ KvR, tj v Qrovl Avl l tKvb KrtRi c`lqvRb nQj nK? 1. n`u 2. bv

L. niv ntj , nK ai`tbi KrtRi c`lqvRb nQj ?.....

9. A` cKtí i cni Kí b gvndK Arcbvi Gj vKvi meKvR, tj v c`jivcpi er`emqZ nQtjQ nK? 1. n`u 2. bv 3. Rnbbv

K. bv ntj , tKb nqb?

10. cKtí er`emqZ AeKvrtgv, tj v eZvrtb m`WKfite KvR Kí tQ nK? 1. n`u 2. bv

K. bv ntj , nK ai`tbi mgm`v AvtQ?

11. er`emqZ cKtí , tj v m`WKfite l tYte`Y Kiv nq nK? 1.n`u 2. bv

K. niv ntj , KZ mgq ci ci Kiv nq?

1. gmnK	5. nKQB Kiv nq bv
2. 6 gm Ašt	6. c`lqvRb Abjvqx Kiv nq
3. K eQi Ašt	7. Ab`vb` (bn` t` Ki`b)
4. gvS gvS Kiv nq	

12. D³ i tYte`Y KvR Arcbvi er Arcbvi c`Zvrtbi tKvb fngKv AvtQ nK? 1.n`u 2.bv

K. niv ntj , nK fngKv cyj b Ktí b?

13. cKtí , tj v er`erqtbí dtj cni tekMZ nK nK mgm`v m`p n`Q etj Arcab gtb Ktí b?

1. iv`v`bngPbi dtj Rj vexZv m`p nQtjQ
2. m`gvb` e`stZ eb`vi m`p nq
3. iv`v` `pvti M`Qcyj v tKtU tdj vq cni tetki fvi mvg` nebó nQtjQ
4. iv`v` avti e`tj`ivcb bv Kivq cni tetki fvi mvg` bó n`Q
5. tM`_ tm`lvi /gvKt` , tj vZ RbmgvMg tefo hvl qvq SMov eer` ep` tctjQ
6. tKvb mgm`v m`p nqb
7. Ab`vb` (bn` t` Ki`b)

14. etR/Kyj fivUqhl qvq Gj vKvq uKuk Dbqub ntqtQ?

- K. thvMthvM mjeav ep× tctqtQ uK? 1. niiv 2. bv
- L.Kul DcKib tctZ K.LKt` i mjeav ntqtQ uK? 1. niiv 2. bv
- M. Kul Riv cY` evRi Riv Ki tb mjeav ntqtQ uK? 1. niiv 2. bv
- N. `g Ktj tRi QvTQvTt` i hvZvqtZi mjeav ntqtQ uK? 1. niiv 2. bv
- O. Kgms`vb ep× tctqtQ uK? 1. niiv 2. bv
- P. Kl.tKiv Drcm`Z dmtj i b`vh` gj` cvt`Ob uK? 1. niiv 2. bv
- Q. kvKmeR avbmn nevfbcadmtj i Drcr`b tetqtQ uK? 1. niiv 2. bv

15. Avcbvi Gj vKvq dmtj i mbeoZv KZ?

cfe°	eZqtb

16. etR/Kyj fivUqhl qvq dtj Kul rfeK uK uK uKf Kvi Lvrv Mto DtvQ?

.....
.....

17. etR/Kyj fivUqhl qvq dtj Gj vKvq e`emv-emvtr`i uK uK al tbi chvi NiuQ ne`vi Z ej p?

.....
.....

18. cktf i Avl Zvq ev`emqZ AeKvWgv,tjv (iv`vWU, etR/Kyj fivUqhlM_ tmdvi) eZqtb Gj vKvi tj vKRb mnRfite e`envi Kitz cvtQ uK? 1. mnRfite e`envi Kitz cvtQ 2. e`envi mgm`v AvtQ

K. e`envi mgm`v_vKtj uK al tbi mgm`v ntQ?

.....
.....

L. uKfite Zvi mgrarb Kiv ntQ?

.....
.....

19. cktf i mdj Zv ev kr³kvjv r`K_s,tjv uK uK?

.....
.....

20. cktf i `p` r`K_s,tjv uK uK?

.....
.....

21. ev`emqZ cktf u fivel`iz Avl i KvhRI ivLvi Rb` Avcbvi gZigZ ev mpcvilk uK?

.....
.....
.....

(ab`ev` w`tq mvqjvrvKvi Mby tkl Ki`b)

Impact Evaluation Study of “Construction of Bridge on Upazila and Union Road Project (2nd Revised)”

`j xq Avtj vPbvi vbt` Kkv: BDvbq chq (FGD Guideline at Union Level)

AskMhYKvi x : (cj`l, gmj v, hftbZv, kqK, e`emvqx , agqtbZv, gvKgp
`vi t`i cZvra I K.I.K)
[cZ FGD-tZ AskMhYKvi x Kgctq] 8 Rb]

tRj v :	tKW bs :
DctRj v :	tKW bs :
BDvbq :	tKW bs :

GdRW mgšqKvi xi bvg mnvZvKvi xi bvg

`j xq Avtj vPbvi vbt Zvi L:

`j xq Avtj vPbvq AskMhYKvi x` i Z`it

µgK bs	big	ij ½ (cj`l / gmj v)	eqm	kqK	tckv	c`ex (m`m`)
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						

Research Evaluation Associates for Development (READ) Ltd.
House # 404, Road # 29 ,New DOHS Mohakhali, Dhaka-1206

For Project Area

1. K. DcRjv I BDibqb motK tmZubgP (2q mstkwaz) cKt i Avl Zvq iv`vq tmZ/Kvj fVUqKte ubgP Kiv ntqtQ?
L. Avcbri Gj vKvq uK Kvi tY etR/Kvj fVUqbgP Kiv ntqtQ?
M. Avcbri v tKvb mjj t`tK etR/Kvj fVUq`tK mjeav (eb`v ubqSj/hvZvqvZ/Rj veXZvi t`tZ`i i` Kti tQb?
N. Avcbri` i Gj vKvq cteP eZgvtb tKv`vq, uK ai tbi Rj veXZv, hvZvqvZ I eb`v mgm`v i tqtQ?
2. etR/Kvj fVUqZix ni qvq Avcbri v Kul t`tZ`i uK ai tbi mjeav tctqtQb ev uK fite j v fevb ntqtQb?
3. K. etR/Kvj fVUqZix ni qvq Mltgi `ni` RbtMoxi Kgms`v tbi uK ai tbi mjeav tetotQ?
L. Gi gra`tg gnnj v kltKt Ki Kgms`v tbi uK ai tbi mjeav tetotQ?
4. etR/Kvj fVUqZix ni qvq cni t`tki Dci uK ai tbi cfive ctotQ?
5. etR/Kvj fVUqZix ni qvq hvZvqvZi t`tZ`i (u`tki Kti `g, Ktj R, gv`tmv, `v`tk`?; tM` tmUvi gvtKt, tjtZ hvZvqvZi t`tZ`i) uK uK mjeav ntqtQ?
6. etR/Kvj fVUqZix ni qvq Gj vKvi tj vKRb hvZvqvZi Rb` etR uJ tKgbfite e`enri Ki tQ?
7. K. etR/Kvj fVUqZix ni qvq Kul Drcv` tbi Dci uK ai tbi cfive ctotQ?
L. etR/Kvj fVUqZix ni qvq Kul cY` evRvi RivZKi tbi Dci uK ai tbi cfive ctotQ?
M. etR/Kvj fVUqZix ni qvq Avq I Kgms`v tbi Dci uK ai tbi cfive ctotQ?
8. Kul DcKi Y thgb-mvi, exR, KuUvbkK, tmPhScmZ mi ei vni cteP Zj bvq tetotQ uKbv?
9. cKt ev`evqtbi dtj uK uK mjeav (dmj Drcv` b, gvQ Pvl, nrm-gj Mx I ci` cvj b, e, t] tivcb, Kul BZ`ni t`tZ`i) ntqtQ?
10. cKt ev`evqtbi dtj uK uK Amjeavi (Ddmx dmtj i Pvl ev`, i vmvqubK mvi, KuUvbkK, cni t`tki `tY, t`kx RivZi gvtQi Drcv` b nrm BZ`ni t`tZ`i) mjo ntqtQ?
11. K. etR/Kvj fVUqP t`fSZ AeKvWtgv, tjt v uK fite i tYvte tY Kiv hvq?
L. GB i tYvte tY KvtR Avcbri v uK fvgKv ivL tZ cxti b?
12. etR/Kvj fVUqP Rb` Avcbri Gj vKvq uK uK Kul RivZ uKt Mto Dtv tQ?
13. etR/Kvj fVUqP Rb` Avcbri Gj vKvq `v` t`tZ`i uK uK DbwZ ntqtQ?
14. etR/Kvj fVUqP Rb` cteP Zj bvq uK tYvi nvi tetotQ uKbv?
15. fivel` tZ etR/Kvj fVUqP Dbqtb uK Kiv DvPZ etj Avcbri v gtb Kti b?

ab`ev` ni tqt tkl Ki`b|

Impact Evaluation Study of "Construction of Bridge on Upazila and Union Road Project (2nd Revised)"

AerVi t fkb tPKuj ÷ etR

weFwM :.....	tKW bs:.....	tRj v:.....	tKW bs:.....
DctRj v:.....	tKW bs:.....	BDtobq:.....	tKW bs:.....
etRi `β crtKi Mltgi big: 1	2		
tKW bs:.....			

che tYKvixi big: Zmi L:

Z_c`ubKvixi big, c`ex l wKvbr:

mfi Rqtb cni `kθ Kti Ges cKf mske-e`e`tK mRÁmv Kti bxtPi Z_` ,tj v msMh Kti wj uce× Kitz nte|
cni `kZ etRi big.....

A. (er`erqbkvix ms`vi KvQ t`tK Z_` msMh Kitz nte)

- 1. cKtí i big l AvBw bs (th b`xi/Lvtj i Dci etR ubgZ ntqtQ Zvi big):
- 2. th RvqMvq etRiU ubgZ ntqtQ tmlUi `β crtKi Mltg/BDtobqbi big wKk:

3. etR ul tKvb tKvb BDtobqbi tj vKRb etR teak e`envi Kti _vtK):

4. etR ul wK wj tWK m`tq %Zix Kiv ntqtQ bmk Avi m m tWK m`tq %Zix Kiv ntqtQ ?

.....
.....

1. wj tWK	2. Avi m m tWK
-----------	----------------

5. etR ul wK wj tWK t`tK Avi m m tWtK cni eZθ Kiv ntqtQ:

1. niiv	2. bv
---------	-------

6. wj tWtKi etR tK Avi m m tWtK c`Z Kivi Rb` tKvb Ampear ntqtQ wKbv ?
K. ntj wK wK :

1. niiv	2. bv
---------	-------

L. Avi m m mn AeKwvtgvi Dcti wj tWtKi Rb` th KvR Kiv ntqtQj tmlv cieZθZ Avi m m tWtK ifcstí m Z Kitz mltq mgšq Kiv mltqtQ wKbv :

.....
1. niiv 2. bv

M. Avi m m mn AeKwvtgvi Dcti wj tWtKi Rb` th KvR Kiv ntqtQj tmlv cieZθZ Avi m m tWtK ifcstí m Z Kitz mltq tKvb Ampear ntqtQ wKbv ?

1. niiv 2. bv

N. ntj wK ai tbi Ampear ?

.....

7. etR ubgθbi Rb` wj vi %Zixi KZi` b ci tWK/`ve ubgZ ntqtQ:

.....
Yi` : (gvm l eQi)
tkl/mgvB: (gvm l eQi)
1. bZb ubgZ 2. ms`vi Kiv ntqtQ

8. etRiU wK bZb ubgZ bmk eb`vq tYzMW`-etR ms`vi Kiv ntqtQ

9. hLb cKf ul er`emqZ nq ZLb iv`vi aiY l iv`vi Ae`v wK l Kg wQj ?

10. cKtí i Avl Zvq D³ iv`vq KZiU etR ubgZ ntqtQ?

11. cKf uli KvR Yi` l tkl/mgvB m gq

K. etR ubgZ ntqtQ:..... ul
Yi` : (gvm l eQi)
tkl/mgvB: (gvm l eQi)

12. abgP/KZ etR ,tj vi tgiVZ I i qYteqY cUqv Kfite nt"Q
 13. Kv` i Uvi GB tgiVZ I i qYteqYi KvR Kivbv ntq _vK

1. mi Kvix Znej t_tK
2. tCšimfv/BDabqb cui I t` i Znej ntZ
3. `vbxqfite Piv mSMh I t`^Qvktgi gva`tg
4. Ab`vb` (Uv` @ Ki`b)

14. GB i qYteqYi KvR Kviv AskMhY Kti Ges Kfite GB i qYteqYi KvR m`ubakti : (tKvb e`v³, cIZvrb er Aua`Bi)

15. etRiU abgZ nevi ci G hver KZeri tgiVZ I i qYteqYi KvR Kiv ntqtQ

16. hv` G hver GKeri ms`vi Kiv bv ntq _vK, Zvtj tKb tgiVZ I i qYteqYi Kiv nqib

17. iv`v-NvU I etR tgiVZ I i qYteqYi KvRi Rb` `vbxqfite tKvb Kigul 1. niiv 2. bv
 (tj evi KbUvKulS tmvmvBul) AvtQ Kbv:

18 K. Kviv GB KigulI m`m`

18 L. hv` KigulZ cj`I I gmjv DfqB _vK, Zvtj - kZKiv KZfVM cj`I I 1.cj`I-----% 2. gmjv-----%
 KZfVM gmjv

18 M. GB Kigul K K KvR Kti _vK

18 N. Kv` i gva`tg (tKvb KZetqI gva`tg) GB Kigul KvR Kti _vK

18 O. etRiU abgP/Yi ci Gj mRBalW-i tKvb KgPvix mKsev KgRZP gvtS gvtS 1. n`u 2. bv
 cui`kB Kti etR KigulK (i qYteqYi KigulK) tKvb ci vKv` b Kbv

19. chfeqYi mgq ubaŋi Z etRi Dci v`tq K K hibeinb cvi nt"Q / hv`"Q Zvi Zvj Kv:
 hibeinbi aiY : Zvi L..... evi

ubaŋi Z v`tb etRi Avtkcrtk tKvb nvU ev evRvi emtQ Kbv Dtj L-Ki`b:

1. n`u	2. bv	
mKvj (6.0-t_tK 11.50)	`cj (12.00 t_tK 3.50)	meKvj 4.00 t_tK
msL`v	msL`v	-----msL`v

1. em
2. gvBt`vrem
3. `Uvi /teU U`v
4. Kul cY` enbKvix f`vb
4. f`vb
5. ni`v
6. ctBt`fUKvi /Rix
7. mvBt`Kj
8. Mi`Mox/tVj vMvox
10. Ab`vb`

20. etRiU e`envi Kti tKvb tKvb nvU, evRvti hvI qv nq:

21. etRiU Dci v`tq tKvb tKvb Kul cY` enb Kiv nq:

Kul ctY`i bvg:

1. avb
2. Mg
3. f`v
4. cvU
5. AvL
6. mmi Iv
7. Wj (gM, gmj ,Kj vB)
8. meR(cj s kvK, WvUv, Avj y UtgtUv, te`b, dj Kuc, evavKuc, I j Kuc, img, gvi P, avbqv, vgnvKgov, Pj Kgov, kvv
9. dj gj
10. Ab`vb`.....

22. etRiU mbgZ nevi dtj Kil cY'i cni enb LiP (kZKiv %) tetotQ br KigtQ: K. tetotQ.....% L. KigtQ.....%

23. etR mbgYi cteKil cY' Avbr tbi qvi Rb" Mto KZ mgq j vMtZr Ges etR mbgYi cti eZgvtb KZ mgq j vM: cte(ubKU'nvU,evRvi , tM_ tmUvi) eZgvtb (ubKU'nvU,evRvi , tM_ tmUvi)

B. etR m=úKZ ne~wi Z Z_"

cárb cárb WVRvBb Abmvti (cKf `Bi t_tK Z_" mbtZ nte) (mti Rgtb chfY Kti vj uceX Ki tZ nte)
Ask

1. ~ú'vb mSL'v

.....UJUJ

2. etR Gi cni gvc

%N°gUvi %N°gUvi

cT':gUvi cT':gUvi

D°PZr:gUvi D°PZr:gUvi

3. cmbi D°PZr

----- gUvi
gUvi

etR m=úKZ ne~wi Z Z_": (chfYKvix mti Rgtb f` tL ne~wi Z vj uceX Ki 'b)
cárb cárb Ask gŠe"

1. GeútgU Gi eZgvtb Ae~v tKgb

2. MWR Gi eZgvtb Ae~v tKgb

3. um exg Gi eZgvtb Ae~v tKgb

4. ucqvi (~ú'vb Gi LjU) Gi eZgvtb Ae~v tKgb

5. etR Gi ~ve Gi eZgvtb Ae~v tKgb

6. etR Gi t'ij's Gi eZgvtb Ae~v tKgb

7. etR Gi G'vtcP ~ve/tiW Gi eZgvtb Ae~v tKgb

8. etR Gi t'gtSi eZgvtb Ae~v tKgb

9. etR Gi Dfq c'rkP G'vtcP tiW (msthW iv~vi) Gi eZgvtb Ae~v tKgb

10. etR Gi DRvb I f'vUtZ cZi vjK (ni fvi tUbs I qvK) KvR Gi eZgvtb Ae~v tKgb

11. etR Gi DBs I qj I viUv° I qj mgfni eZgvtb Ae~v tKgb

12. etR Gi b'xPi vKqvi I t'cubs v' t'q b`x/Lvj Gi cmb c'v'ni t'Kvb mgm'v ev erav AvtQ vKbr

13. etR Gi b'xPi vKqvi I t'cubs

eZgṛtb enj /cnj gwU ṛṭq fivU
 ntq AvtQ ṁKbv
 14. etR Gi Iqṁis tKvUᶜ Gi
 eZgṛb Aeṽ tKgb ?
 15. ṭh ivṽq etR ṁbgZ ntqtQ ṭm
 ivṽ Kṛtcᶜs Gi eZgṛb Aeṽ
 tKgb

C. (Gj vKvi RbMYtK ṁRÁmv Kṭi Z_” msMḥ Ki”b)

1. etRi ṽḅ cṛtki msthM ivṽ-(GṽtcᶜP tiw) ṁWKfṭe ṁbgṔ Kiv ntqᶜQj ṁK : 1. nṽ 2. bv
2. eZgṛtb etRṁJi msthM ivṽ-(GṽtcᶜP tiw) ṁWK AvtQ, ṭfṭṭṭ bᶜ ntq AvtQ ṁKbv er tgiṽZ ṭhM” ṁKbv?
 1. ṁWK AvtQ
 2. ṭfṭṭṭ bᶜ ntq AvtQ
 3. fṽṽ ṁKSṽ tgiṽZ ṭhM”
 4. DfᶜB
 5. Abṽb” :
3. K. tKvb Ask_ṭjv ṭfṭṭṭ bᶜ ntq AvtQ Zvi bṽg Dṭj Ḍ-Ki”b:
 L. fṽṽ Ask_ṭjv er tgiṽZṭhM” Ask_ṭjv ṁK ṁK Zvi bṽg Dṭj Ḍ-Ki”b:
4. etRṁJ %Zix Kivi Rb” ṭh ṁbgᶜᶜ mṽgMḥ (evj yBU,ṁṭṭᶜU,iw) e”envi Kiv ntqᶜQj Zvi gṽb tKgb ᶜQj :
 (RbMṭYi avi Yv)
 ṁbgṔ mṽgMḥi gṽb gṂe”
 1. fṽj : tKb?
 2. tṽUṽᶜU: tKb?
 3. Lvṽc: tKb?
5. etRṁJi tKvb Ask ṁbgṔYi ci ṭfṭṭṭ bᶜ ntqᶜQj ṁKbv : 1. nṽ 2. bv
 K. ntj , ṁbgṔYi KZṽṽ b ci ṭfṭṭṭ ṁṭṭᶜQj er bᶜ ntqᶜQj :
 L. fṽṽ Ask KZṽṽ b ci tṽUṽZ Kiv ntqᶜQj : 1.ṽṽ b ci 2. GLbi tṽUṽZ Kiv nᶜᶜᶜ
 M. tṽUṽZ Kiv ntj , tKvb cᶜZᶜᶜᶜ/Amṽṽ Bi tṽUṽZ KṭiᶜQj :
6. etR ṁbgṔbi ci ntZ G chṂ-hṽZṽᶜᶜZi ṭṽṭṭ tKvb cKvi Amṽᶜᶜᶜ ntqtQ ṁKbv : 1. nṽ 2. bv
 K. ntj , ṁK ṁK Amṽᶜᶜᶜ:.....
7. etR ṁbgṔbi ci ṁbgṔ KṽRi ṭṽṽ Kivi tKvb moK`Nᶜᶜᶜᶜ ntqᶜQj ṁKbv: 1. nṽ 2. bv
8. etR ṁbgṔYi AvṭM hṽZṽᶜᶜZ e”eṽ tKgb ᶜQj :
 1. fṽj 2. tṽUṽᶜU/Pj vPj ṭhM” 3. Lvṽc 4. GṭKerṭi B Pj vPṭj i AṭhM”
 5. Abṽb” (ṁᶜᶜ ᶜ Ki”b)
9. K. etR ṁbgṔYi AvṭM ivṽq ṁK ṁK hṽbernb Pj vPj Ki Z:
 L. evZgṛtb ivṽṁṭṭZ ṁK ṁK hṽbernb Pj vPj Kṭi :
10. etR ṁbgṔYi ci cᶜᶜj elṔY Gj vKṽq Rj vᶜxZv ṁᶜᶜᶜ nᶜᶜ ṁKbv: 1. nṽ 2. bv
 1. ntj ṁK aiṭbi :

11. etR ubgZ ni qvq Gj vKvq eb'v ubqŠjb fngKv ti tLto Kbv : 1. n'u 2. bv

K. ntj Kfite:

12. etRuj ubgZ ni qvq Drcw Z km' b6 ni qv KtgtQ Kbv : 1. n'u 2. bv

13. etRuj th iv'vq ubgZ ntqtQ tmU Gj vKvi 'g , Ktj R, grtKØ I tM_ tmUvti i mvt_ Kfite mshP :.....

14. etRuj e'envi Kti tKrb tKrb nU,erRti hvi qv nq:.....

15. etRuj Dci 'tq tKrb tKrb Kul cY' enb Kiv nq:

Kul cY'i bvg:

1.avb

2.Mg

3.fjv

4.cvU

5.AvL

6.mai Iv

7. Wj (gM,gmj ,Kj vB)

8. meR(cj s kvK, WUv, Avj y UtgtUv, te_b,dj Kic, erarKic,I j Kic,mg, gvi P, aubqv, ugn6Kgov, Pj Kgov, kkv

9. Ab'vb"

16. etRuj ubgZ nevi dtj Kul cY'i cui enb LIP tetotQ bv KtgtQ: K. tetotQ.....% L. KtgtQ.....%

17. etR ubgYi cteKul cY' Avbv tbi qvi Rb" Mto KZ mgq j vMizv Ges etR ubgYi cti eZgvtb KZ mgq j vM:

cteKul cY' nU,erRvi , tM_ tmUvi)

eZgvtb (ubKU' nU,erRvi , tM_ tmUvi)

18. etRuj ubgZ ni qvq Gj vKvi tj vKRb K K mthM mjeav tfvM Ki to:

.....

19. etRuj ubgZ ni qvq Gj vKvi tj vKRb K K Amjeav tfvM Ki to:.....

D. (ch'eYKvi x ubtR mti Rgtb t' tL Z_ 'nj nce x Ki "b)

1.eZgvtb etRuj tKrb Ask tftz b6 ntq AvtQ Kbv er tgi vgz thM" Kbv?

1. tftz b6 ntq AvtQ

2. fvzv KŠ' tgi vgz thM"

3. Dfqb

4. Ab'vb" :

2. fvzv Ask_tj v er tgi vgz thM" Ask_tj v K K Zvi bvg Dtj L-Ki "b:

3. th iv'vq etR ubgZ ntqtQ tmU eZgvtb Pj vPtj i DcthmK Kbv : 1. n'u 2. bv

4. etR ubgvtb tKrb T'u AvQ Kbv: 1. n'u 2. bv

5. etR ubgvtb KrtRi gvb (ch'eYKvi xi gSe")

KrtRi gvb

gSe"

1. fjj : tKb:

2. tgvUvgU: tKb:

3. Lvvc: tKb:

6. iv`v-I etR uJi eZgVb Ae`v tKgb? (etR uJi m`u:K`ch`e`vYKvi xi mmeR gše`)

1. iv`vU:tZ etR ubg`bi , YMZgVb c`k`e m`g`ub
2. etR cui Kf bv gwdK mgqgZ mgvB bv Kivq Pj vPtj i t`q:t`T mgm`v m`p` nq
3. meMZ eb`v Ges AnZep:tZ iv`vU t`f:t`0 hvi qvq Pj vPtj i t`q:t`T mgm`vi m`p` n:t`q:t`0
4. iv`vU tgi vqZ/i`vYrte`vY bv ni qvq Pj vPtj i t`q:t`T mgm`vi m`p` n:t`q:t`0
5. iv`vU clqvR:t`bi Zj bvq c`k`-Kg ni qvq hvišK/AhvišK hrbemb Pj vPtj mgm`vi m`p` n:t`q:t`0
6. iv`vU RbeuJ / , i`Zc`Y`Gj vKvq bv ni qvq Pj vPj LpB Kg
7. t`ij s Gi eZgVb Ae`v fvtj v bq
8. dUcvZ Gi eZgVb Ae`v fvtj v bq
9. G`vt`c`P t`i`v`Wi eZgVb Ae`v fvtj v bq
10. Rj v`e`x`Zv m`p` n:t`q:t`0
11. c`v`b Pj vPtj i c`v`n n`m t`c`t`q:t`0
11. Ab`vb` (ub`v` K`i`b):

ab`ev` w` t`q` m`v`v`r`Kvi M`b`Y t`k`l` K`i`b

Impact Evaluation Study of “Construction of Bridge on Upazila and Union Road Project (2nd Revised)”

BDwbqb Dbwb tPKvj ÷
(GB Z_ ,tj v m d i m p c v i f i B R v i m s M h K i t e)

BDwbqb : Dc t R j v :
t R j v : Z _ m s M h K v i x i b y g :
Z m i L :

Z _ c l v b K v i x i b y g , c ` e x l w K v b r :

	c k r e r t e r q t b i c e (1998)	c k r e r t e r q t b i c t i (1998 - 2010)
1. t g v U A v q Z b :	..... e M K t j w g U v i	..... e M K t j w g U v i
2. t g v U t j v K m s L v t	..... R b ` n i ` a : % ` n i ` a b q : ..... %	..... R b ` n i ` a : % ` n i ` a b q : %
3. c v K v i v r e :	..... w K t j w g U v i	..... w K t j w g U v i
4. A v a c v K v i v r e :	..... w K t j w g U v i	..... w K t j w g U v i
5. K u P v i v r e :	..... w K t j w g U v i	..... w K t j w g U v i
6. i v r i a r t i e j t i v c b K i v A v t Q w K	1. n i u 2. b v	1. n i u 2. b v
7. K j f i U G i m s L v	..... u J K. K i h R i x K q u : u J	..... u J K. K i h R i x K q u : u J
8. e t R G i m s L v	..... u J K. K i h R i x K q u : u J	..... u J K. K i h R i x K q u : u J
9. G j v K v i w K a i t b i h v b e m b P j v P j K t i :	..... .....	..... .....
10. w K j v c h Z o r t b i m s L v : (c b G v i x g , n v B g , g v m v , K t j R m e m n)	1. m i K v i x : u J 2. G b R I K Z R c v i P v j Z : u J	1. m i K v i x : u J 2. G b R I K Z R c v i P v j Z : u J
11. e v R v i / g r t K u i m s L v : K. e v R v i / g r t K u i a i Y l m s L v	..... u J 1. c v B K v i x e v R v i ----- - u J 2. % n b K e v R v i ----- u J 3. m v B m n K e v R v i (e t m) : ----- v b	..... u J 4. c v B K v i x e v R v i ----- u J 5. % n b K e v R v i ----- u J 6. m v B m n K e v R v i (e t m) : ----- v b
12. e m ÷ v O / t u = u y ÷ v O / U i K ÷ v O A v t Q w K b r ?	1. n i u 2. b v	1. n i u 2. b v
13. t M l t m s U v i A v t Q w K ?	1. n i v : u J 2. b v	1. n i v : u J 2. b v
14. K Z u G b R I K v R K t i ?	..... u J	..... u J
15. G b R I t j v i b y g t	.....	.....
16. G b R I t j v i c a v b K v R w K w K G e s K v t i n b t q K v R K t i t	.....	.....
17. t r t K n m c i Z v j / w K u b K	..... u J	..... u J
18. G j v K v i R b M t Y I c a v b t c k v w K		
19. G j v K v i R b M t Y I w Z x q t c k v w K		

20. Gji vKvi RbMtiYi cãvb e'emv uK				
21. Gji vKvi/BDibqtb i cãvb cãvb Drcw`Z dmj uK uK				
22. Kuli rFUEK uK uK uK i Kvi Lvbr AvtQ				
23. BDibqtb t_ik DcRj v hvevi mi vmi msthvM iv+AvtQ uKbv	1. n'u	2. bv	1. n'u	2. bv
24. GB cKf Qrov D ³ BDibqtb Avi uK uK Dbqbgj K cKf er'emqZ ntqtQ Ges tKvb cãZovb er gSij q Ktiqt? 2002-2011 mtj i gta") cKf i big I KtRi aiY (uK uK KvR Ktiqt)	er'erqbKvix big	cãZovb/gSij qti	Kte er'emqZ ntqtQ (tKvb eQi er eZgjb mgq t_ik KZ eQi AvtM)	

Impact Evaluation Study of "Construction of Bridge on Upazila and Union Road Project (2nd Revised)"

†gŠRv Dbq̄b †PKvj ÷

(GB Z_ ,†j v mđi mcyi fivBRvi msMh Kite)

†gŠRvi bvg:..... BDubq̄b :

Dc†Rj v:..... †Rj v :.....

Z_ msMhKvixi bvg:..... Zwi L:.....

Z_ cŃ vbKvixi bvg, c`ex l wKvbr:

1. †gŠRvi tgvU AvqZb:eM†K†j vglvvi
2. †gŠRvi tgvU †j vKmsL`vtRb
K. nZ`ni`^ :% L.`ni`^ :% M.ga`neE:% N. abx:%
3. cvKv iv`v: †K†j vglvvi
el†K†j cvKv iv`vi Ae`v: 1. cwb†Z Wje hvq 2. MZ`nq 3. Ab`vb` ubi`Ń Ki`b:
4. AravcvKv iv`v: †K†j vglvvi
K. el†K†j AravcvKv iv`vi Ae`v: 1. cwb†Z Wje hvq 2. MZ`nq 3. Ab`vb` ubi`Ń Ki`b:
5. KvPv iv`v: †K†j vglvvi
K. el†K†j KvPv iv`vi Ae`v: 1. cwb†Z Wje hvq 2. MZ`nq 3. Ab`vb` ubi`Ń Ki`b:
6. Gj vKvq †K ai†bi hvbemb Pj vPj K†i:
7. c†Bgvi x`g : 1. mi Kvix:Ń 2. Gb†RI KZ†R c†i Pvj Z:Ń
8. nvB`g /gv`tmv:Ń
9. K†j R:Ń
10. evRvi /g†K†Ń:Ń
11. evRvi /g†K†Ń ai b l msL`v t
evRvi /g†K†Ń ai b evRvi /g†K†Ń msL`v
1. eo----- Ń 1. cvBKvix evRvi -----Ń
2. gvSvi ----- Ń 2. %nbK evRvi -----Ń
3. †QvU----- Ń 3. mvBw†K evRvi (e†m): -----Ń b
4. Ab`vb`-----Ń

12. evm ÷ `vŃ /†U=†y ÷ `vŃ /†IK ÷ `vŃ Av†Q †Kb? 1. n`v 2. bv
13. K. †bŠ e` i Av†Q †K? 1. niivŃ 2. bv L. †ij †÷kb Av†Q †K? 1. niivŃ 2. bv
14. †MŃ `tmvUvi Av†Q †K? 1. niiv :Ń 2. bv
15. KZ†Ń Gb†RI KvR K†i? -----Ń
16. Gb†RI ,†j vi b†gt-----Ń
17. Gb†RI ,†j vi c†vb KvR -----Ń
18. mvgn†RK msN/Kv-----Ń
19. n†mcyZ†j /†K†bK----- Ń
20. `†`†K†b`† ai b-----Ń
21. W†v†v ----- Rb (Gg†e†Gm)
22. K†eivR/n†Z†o W†v†v ----- Rb
23. Kv† f†U†-----Ń Kv††ix K††Ń-----Ń
24. †eR -----Ń Kv††ix K††Ń-----Ń
25. bj K†ci msL`v-----Ń Kv††ix K††Ń-----Ń
1. n`-Pvj Z:Ń 2. Z†v cv†ú:Ń 3. m`†j v/AM†xi :Ń
4. M†xi :Ń 5. Av†m†K†g†:Ń 6. Ab`vb` (ubi`Ń Ki`b)
26. †K††††Z†vb K††Ń
1. c†Bgvi x`g ----- Ń 2. nvB`g -----Ń 3. K†j R-----Ń 4. gv`tmv----- Ń

Appendix- 3

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
Implementation Monitoring and Evaluation Division, MINISTRY OF
PLANNING

DISSEMINATION WORKSHOP ON IMPACT EVALUATION FINDINGS

WORKSHOP REPORT PRESENTATION – No 7 On Impact Evaluation Study of Project Construction of Bridge on Upazilla and Union Road Project (2nd Revised) BY: PROFESSOR MASUDA M. RASHID CHOWDHURY, Department of Sociology, University of Dhaka, & Chief Rapporteur

SEMINAR DATE: Wednesday, 6th June, 2012

SESSION: THIRD WORKING SESSION, THIRD DAY

TIME: 02.00 pm – 04.00 pm

PLACE: NEC Conference Room, Planning Commission, Sher-e-Bangla Nagar, Dhaka.

CHAIRPERSON: Begum Nasima Begum, Director General, Industry and Power Sector, IMED

CHIEF RAPPORTEUR: Professor Masuda M. Rashid Chowdhury, Department of Sociology University of Dhaka

STUDY REPORT: Impact Evaluation Study of Project, "Construction of Bridge on Upazilla and Union Road Project (2nd Revised)

PROJECT IMPLEMENTED BY: Department of Local Government

EVALUATION REPORT PRESENTATION: Dr. Khondoker Mokaddem Hossain, Evaluation Team Leader (READ), and Professor of Sociology, University of Dhaka

DESIGNATED DISCUSSANT: Mr. Swapan Kumar Sarker, Director General and Additional Secretary, Local Government Division, Ministry of Local Government, Rural Development & Co-operatives

OPEN FLOOR DISCUSSION: 1) Enamul Huq, Senior Assistant Chief, ERD 2) Saif Hussain Shikdar, Deputy Chief, Agriculture Division, Planning Commission 3) Sharmina Nasrin, Senior Assistant Secretary, ERD 4) Mr. Mohammad Amjad Hussain, Director, IMED 5) Mr Saifur rahman, Assistant Director, IMED 6) PD 7) Mr. Zahid Hossain, Director General, IMED 8) Dr. Shantosh Sarker

CHAIRPERSON'S WELCOME ADDRESS: The Chairperson welcomed the participants and requested Team Leader to present his report.

PRESENTATION OF STUDY TEAM LEADER:

Dr. Khondoker Mokaddem Hossain presented his findings on the Impact Evaluation Study of Project "Construction of Bridge on Upazilla and Union Road Project (2nd Revised) implemented by the Department of Local Government. along with his Team of Consultants from READ.

He began the presentation with the background information of the Project which included the development of roads, bridge culverts and markets, prioritized to accelerate agricultural productions by LGRD & Co-operatives.

He said that initially the project was designed to provide:

7060 m steel Bailey deck over the RCC substructure; due to non-availability of steel deck, the bridges were completed with RCC substructures.

He informed that the Objective of the project was:

1. to improve rural communication network with the growth centres and hat/bazaars through construction of bridge/culverts and
2. facilitate movement of agricultural produces to get fair price of the goods they produce through improved road network and thereby encourage agriculture production

He then focused on the Project Profiles which included the following:

1. Name of the Project
2. Sponsoring Ministry
3. Executing Agency
4. Location of the Project
5. Estimated cost
6. Implementation period

He provided the Objectives of Current Impact Evaluation (as in TOR):

1. To review the construction status of the bridge/culverts on Upazilla and Union roads under the project
2. To assess the impact of the project on following major expected areas:
 - A. rapid supply of agricultural inputs
 - B. marketing of agricultural products in a better way
 - C. Increase in agricultural products
 - D. Expansion of agro-based industries in the project areas
 - E. Generation of employment opportunities under the project, both long & short term, for the local people
3. To identify the Strengths and Weaknesses of the project and suggest appropriate measures to overcome the weakness, in future similar projects

He explained the Study Methodology with the discussion on the following:

1. Review of DPP, PCR and allied documents
2. Assessment of construction work of the bridge/culverts through sample checks: on – the-spot physical verifications
3. Assessment of the impact of the project on acceleration of agricultural production and income generation achieved

He spoke of the sample design and the sample size with sample households and respondents.

Dr. Khondker Mokaddem Hossain then explained the following:

1. Study Methodology with the Qualitative Investigations,
2. Data collection multiple methods through both Quantitative and Qualitative Investigations

He showed sample photographs of defective bridges

He then went on to concentrate on the Findings of physical observations including assessment of Infrastructure and Beneficiary Assessment including Households sample survey findings.

The Beneficiary Assessments focused on Impacts which included the following:

1. Occupations
2. Mean monthly family income
3. Increase in income opportunities
4. Status of Land use pattern

5. Supply of agricultural inputs
6. Expansion of agro-based industries in project areas

While discussing on women's participation in development activities and marketing it was observed that 75% women in project area are getting better scope to participate in development activities in comparison to 21% women of control area.

The Team Leader then showed the Findings of Intensive Interviews

Dr. Khondker Mokaddem Hossain then focused his presentation on the Strengths and Weaknesses of the project. There were 24 issues which were identified as the strengths of the project. There were 10 issues which were focused as the Weaknesses of the project, dealing mainly on the repair, maintenance and other matters related with the bridges.

The Team Leader presented the problems related to the Negative impact of the project and finally ended with the Recommendations. He provided 15 recommendations which were focused on future activities related to the maintenance, repair, of the bridges, future projects and associated activities.

DESIGNATED DISCUSSANT: Mr. Swapan Kumar Sarker, Director General and Additional Secretary, Local Government Division, Ministry of Local Government, Rural Development & Co-operatives, presented his observations as Designated Discussant of the Working Session. He said that the project was about construction of bridges in Upazilla level. He said that it was through Donors that these bridges are renovated.

Here the existing status of bridges is not related with the previous situation of bridges.

He observed that the sum total of income earned may be for various other reasons other than the construction of bridges. Mr. Swapan Kumar Sarker talked of various matters of the presentation. Among these were that Controlled Data was half of Intervention data. He said that In Slide 10, It was said that some bridges were in bad condition. It was uncertain whether the life of the bridges had expired or the condition caused was through faulty construction is not mentioned. In Slide 12 it is said that all female respondents in both intervention and in control areas are currently married, while 96% males in the intervention areas and 98% in control areas are currently married. The issue of 96% currently married is not explained. Slide 14 contains clerical mistakes on income issues. In Slide 15, whether total bridge or some part of the bridge construction is not mentioned. Impact of bridge on market approach is not clear. Slide 17 showed information on crop intensity. But what was the national figure—these must be verified. He said that communication was not the main cause of supply in the area. If there are more dealers in the locality then the issues are different, since then supply is more. About safe selling centers for women, he said that if women corners are set, then they sell better. But these are not the impact of the bridge. Regarding whether projects and schemes are properly, he said these should be seen through DPP. Some monitoring reports of LGED and mid-level report of IMED should have been consulted, he commented. The issue of bridge entering and going down areas must be identified, he observed. On the issue of price increase of land, it must be understood whether it was for the bridge or for urbanization must be mentioned. He asked why the matter of repair came up. There were experts in the team who should have been consulted said the designated discussant. The bridges were made of RCC, he confirmed. The weaknesses were because of national economy, he commented. Regarding the negative impact, the lone reason was for river erosion. He said that the 4 others are not the cause of the bridge, but the environment. He observed that the approach road was part of the project. We must see why the bridge was constructed. The site selection may be of fault, but not the construction. Regarding toll collection – he said that no meal should be free meal and no lunch free lunch. Whether the toll will provide the payment of the toll collectors, waits to be seen.

He thanked the Report presenter for a good Report. We must have a better result in future for developed Bangladesh, he said.

OPEN FLOOR DISCUSSION:

Mr. Enamul Huq, Senior Assistant Chief, ERD commented that the Designated Discussant had dealt in details of the lapses in the Report of the Impact Evaluation and nothing leaves to be said. He said that the project was 7 years after schedule – time was over-run but not the budget. If the number of bridges remain the same then quality construction can remain same. Project life was not mentioned. The gaps, whether these were due to cost over-run must be mentioned. It was mentioned that fisheries had increased in the area. The negative impact on environment was not necessary as was the issue of criminals, he said. All these were contradictory.

Mr. Saif Hussain Shikdar, Deputy Chief, Agriculture Division, Planning Commission asked how many bridges had to be constructed, should have been written. In page 10, it was shown that initially DFID said 2535m sub-structures were to be constructed, but later 1215m was made. He said that reporting and Executive Summary has to be corrected. He also said that the number of construction was not correctly identified in Page 11. The number of bridges was not mentioned in the Executive Summary. He said that sub-structure issues have to be verified. The information has to be corrected in the Report. Socio-economic analysis was quite good.

Ms .Sharmina Nasrin, Senior Assistant Secretary, ERD informed that heavy vehicles run over lighter bridges. She said that LGED roads must be strong. Recommendations must be given on this issue. Government projects are controlled by political personalities rather than listen to citizens demands – These issues must be in the Report she commented.

Mr. Mohammad Amjad Hussain, Director, IMED

Mr. Mohammad Amjad Hussain informed that in Page 7, the beneficiaries were shown as 3000 while the total population was also shown as 3000. The Income is compared with previous and the present. How did they get the previous income, he asked.

Mr Saifur Rahman, Assistant Director, IMED said that the Deputy Chief had spoken of the length and not the number. He wanted explanation on the point that the number of metre increase was to 106, but the number of bridges is below 100%. All impact is shown through project impact, he said, but other issues were related. In Recommended e few photographs were only shown, on why this happened. In future how can these be corrected, he asked. In 14 years why this condition he asked, Answers for future project should be there.

REPLY BY TEAM LEADER

Dr. Khondoker Mokaddem Hossain, Evaluation Team Leader, READ explained that the Designated Discussant brought in many important issues but as they dealt according to ToR, there were problems, he said. Baseline data was absent –if it was there then the issues could have been different, he said. He informed that the national level data would be corrected. Printing mistakes will certainly be corrected, he confirmed. Repair and maintenance issue will be provided, he said. Feedback and checklist if given before could be corrected, especially at the time of Steering committee and Technical committee meetings, especially with related questions. Construction material price – was different as it was the time of the Caretaker Government. This was a sensitive issue. How the pricing difference could be accommodated could be provided in the discussions. He said that the issues would be addressed as desired. He said that the project profile has to be adjusted. The question of Sharmina Nasrin regarding political implications as mentioned was a sensitive issue, he said. But it would again be considered. Due to lack of Baseline Survey many information were un-available. He said that of the 2 incomplete bridges, one was abandoned and the other on-going, but in another project. Regarding RC bridge—non-functional and incomplete bridge , the Project Director would answer.

Project Director He said that the sub-structure in the initial stage was complete but the super-structure was left.

Mr. Zahid Hossain, Director General, IMED

said that 9595 metre was in the initial
10,150 metre was completed.

Project Director informed that design adjustment created increase in length.

DD said that in the form of dollars – the exchange rates change—the costs increase but can be adjusted. Design can change but not sub-structure. Sub-structure can remain with a few alterations. He said that 50 yards can be increased to 60 yards within the same cost.

Mr. Saif Hussain Shikdar, Deputy Chief, Agriculture Division, Planning Commission

talked in the last part of the discussions where he said that it is not a road, it is a bridge. Target of bridge and the number of bridges should have been supplied, he said. Since reporting is in metres, the curve changes the length he said. This is a usual case. Length of bridge is not an indicator but number of bridge is the factor. Reporting if properly given could make the Report well and perfect. Project summary should be provided by LGED to the Team, he commented. He talked of Induced Demand. He said that the car is there because the road is there. LGED is giving assistance to better life. He commented that Bitumin lasts 3 years in Bangladesh, while it lasts over 5 years in other countries. He said that where cars run – later loaded trucks run on the same road, destroying the road surface and the longevity. He said that LGED cannot forecast for bridges because of type of transport.

Dr. Santosh Kumar Sarker said that the Cropping intensity data was compared with the National data.

CLOSING REMARKS OF CHAIRPERSON:

The Chairperson was extremely satisfied with the presentation of the Report by the Team Leader, who had provided a convincing report and had complied with all the requirements needed for evaluation studies. He however said that there were duplication in the Executive Summary. It had to be more concise he suggested. Regarding spelling mistakes he said that these had to be corrected. On Feasibility Study he said that it was done and should be in the recommendation. Executive Summary should contain in details he said of the number of bridges, design and target. Regarding the production of crops, he wanted to know whether these were Project or not should have been mentioned, he informed. On use of bridge for proper vehicles these must be emphasized in the project, he observed. Construction, design and site selection should be focused in Recommendations. Retaining walls must also be focused in the Recommendations he commented.

The Chairperson thanked the participants for their innumerable suggestions and information provided

Finally he thanked the Chief Rapporteur Professor Masuda M. Rashid Chowdhury, for her brilliant presentations which he felt was excellent as according to him nothing had been left out from the deliberations of the participants. He felt such excellent and superb rapporteuring was unusual and outstanding.



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