



Impact Evaluation Study of Expansion of Irrigation Through Utilization of Surface Water by Double Lifting (1st Phase-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 2011

**Impact Evaluation Study
of
Expansion of Irrigation Through
Utilization of Surface Water by Double Lifting
(1st Phase-Revised)**

READ Professionals

Dr. Syed Jahangeer Haider

Team Leader cum Evaluation Specialist

Dr. Md. Abdul Ghani

Irrigation Specialist

Dr. Santosh Kumer Sarker

Agriculturist

Nadira Sultana

Project Coordinator

Dr. M. Sheikh Giash Uddin

Statistician and Sampling Expert

Md. Nashir Uddin

Computer Programmer cum System Analyst

IMED Officials

Syed Md. Haider Ali

Director General

Md. Abdul Quiyum

Director

Sufia Zakariah

Deputy Director

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 2011

Abbreviation

AIS	Agriculture Information Service
BADC	Bangladesh Agricultural Development Corporation
DAE	Department of Agriculture Extension
DG	Director General
FGD	Focus Group Discussions
GOB	Government of Bangladesh
HHs	Households
HQ	Head Quarter
IMED	Implementation Monitoring and Evaluation Division
LQAS	Lot Quality Assurance System
NGO	Non-Government Organization
NHQ	National Head Quarter
PCR	Project Completion Report
PDS	Project Data Sheet
PER	Project Evaluation Report
PP	Project Proforma
PSU	Primary Sampling Unit
QCO	Quality Control Officer
READ	Research Evaluation Associates for Development Ltd.
RFP	Request For Proposal
SES	Socio Economic Status
SPSS	Statistical Package for the Social Sciences
ToR	Terms of Reference

Content

	Page #
Executive Summary	I - viii
Chapter-I: Background Information	1 – 2
Chapter-II: Study Methodology	3- 10
Chapter III: Data Collection	11- 12
Chapter-IV: Findings on Infrastructures	13- 22
Section 1: Assessment Physical Targets Review of PCR and Allied Reports Section 2: Findings of observed Irrigation Pumps and Related Irrigation Infrastructures	
Chapter-V: Findings of Qualitative In-depth Investigations	23- 30
Section 1: Training Assessments: Coverage, Performance, Institutions Section 2: Findings of Intensive Interviews with Project Engineers and Allied Stakeholders Section 3: Findings of the Focus Group Discussions (FGD) Section 4: Local level opinion sharing workshop	
Chapter-VI: Findings and Discussions of Quantitative Household Survey of Beneficiaries	31- 37
Chapter-VII: Assessments of Agriculture Sector Productions	38- 39
Chapter-VIII: Strength and Weakness: Recommendations and Sustainability	40- 47
Chapter-IX: Overall Recommendations and Conclusion	48- 49
References	50
Appendix 1: Detailed Findings of Observed Irrigation Pumps and Other irrigation infrastructures	51- 59
Appendix 2: Detailed Tables of Household Survey	60- 62
Appendix 3: Year wise Fielding Position & Irrigated Area of Sample Districts	63
Appendix 4: Data Collection Instruments (Questionnaire & Guideline in Bangla)	64- 116
Appendix 5: Pictures of Local Level Workshop, Dissemination Workshop & Double Lifting Irrigation Pumps-Discharge Box	117

Executive Summary

Background of the Project: Generally most of the sources of surface water such as canals, beels, rivers etc., adjacent to cultivable land are dried up. Water from rivers, haor, baors could be utilized for irrigation through double lifting and gravity flow. Water lifted by pumps (of 25 cusec, of 12.5 cusec, and of 5 cusec pumps) through primary lifting method needed to be supplied to the dried up khals, beels, rivers, haors, baors etc. then the said water could be utilized for irrigation through secondary lifting.

BADC procured 26 nos of floating pumps (14 nos 25-cusec & 12 nos 12.5-cusec) from Japan for utilization of surface water from the perennial rivers of Bangladesh in 1986-87. These were operated on hire basis up to 1991-92. To overcome the complexities of repair & maintenance of these floating pumps and to use the surface water to a larger extent, a project named "Development of Irrigation and Pumping out water by the use of 400 no 5-cusec pumps and 26 floating pumps" was implemented from 1992 to 1995 and for its continuation 2nd phase of the project named "Development of Irrigation and Pumping out water by the use of 600 no 5-cusec pumps and 26 floating pumps" was implemented from 1995 to 2002.

In consideration of the success of the above projects, "Project for Expansion of Irrigation through Utilization of Surface Water by Double Lifting (DLIP)" 1st Phase was implemented from 1999 to 2007 by BADC. As per decision of the evaluation report of IMED, 14 no of 25-cusec floating pumps and 11 no of 12.5-cusec floating pumps and 70 no (28 diesel engines and 42 electric motors) of 5-cusec land based pumps were shifted to this project after completion of the previous projects. Moreover 200 no of Chinese engines and 150 no of electric motors were procured for 5-cusec land based pumps.

Project Brief

- **Sponsoring Ministry/ Division:** Ministry of Agriculture
- **Executing Agency:** Bangladesh Agricultural Development Corporation (BADC)
- **Location of the Project:** 22 Districts: Manikgonj, Munshigonj, Narayangonj, Narsingdi, Lakshmipur, Comilla, Chandpur, B.Barua, Hobigonj, Sunamgonj, Chittagong, Cox'sBazar, Kishoregonj, Netrokona, Mymensingh, Jamalpur, Barisal, Bhola, Patuakhali, Madaripur, Gopalganj & Shariatpur.
- **Estimated Cost:** Tk. 8240.80 Lakh
- **Duration of the project:** July 1999 to June 2007

Objectives of the Project were to:

- (i) To produce food grain by ensuring irrigation through utilization of surface water of the largest rivers of the country such as the Padma, the Meghna, the Jamuna along with other flowing rivers by utilization of 5-cusec pumps and floating pumps through double lifting
- (ii) To produce 115125 tons of additional food grain per annum, financial value of which is Tk. 92.10 crore by providing irrigation facilities to 115125 acres of land in irrigation seasons through utilization of 34 nos. of 25 cusec, 71 nos. of 12.5 cusec floating pumps and 420 nos. of 5 cusec pumps
- (iii) To impart training to 525 managers on scheme operation and irrigation management for 5 working days, 525 drivers on operation of pumps for 15 working days and 3838 field men on irrigation canal and distribution of water for 3 working days
- (iv) To develop socio-economic conditions to the land owners, marginal farmers and working people (men & women) of the project area and thus alleviate poverty
- (v) Post flood rehabilitation for repair and reconstruction of office buildings, residential quarters, irrigation structures and repair of floating pumps & 5 cusec pumping sets.

Objectives of the Assignment

- (i) To see the implementation status of major objectives of the project such as:
- Increased food grain production by utilizing the surface water of the largest rivers of the country by using land based and floating pumps through double lifting;
 - additional food grain production by providing irrigation facilities by using 25 cusec, 12.5 cusec floating pump and 5 cusec land based pumps;
 - training imparted on scheme operation and irrigation;
 - training imparted on operation of pumps;
 - Training imparted, on irrigation canal and distribution of water,
- (ii) To assess the impact of the project on:
- Socio-economic conditions of the land owners and marginal farmers;
 - Socio-economic conditions of working people (men & women) after creating employment opportunities for them;
 - Alleviation of poverty by increasing national productivity;
 - Maintaining health hazard free environment
- (iii) To identify the major successes & weaknesses of the project implementation and suggest appropriate measures.

Study Methodology: Survey was conducted through both Quantitative Household level surveys at the beneficiary level to assess Socio-economic conditions of the land owners and marginal farmers and In-depth Qualitative Investigations through Physical verifications of infrastructures, Intensive interviews with program personnel and FGDs with opinion leaders; and review of documents and reports. Study design included sample spots (Unions/Villages) both as Intervention/Treatment and the Control/Comparison areas. The main focus of the outcome comparison was in terms of the volume of agricultural productions between Intervention areas and Comparison areas. In addition, the questionnaires and all other data collection instruments, inquired the status at both pre (1999 or prior) and post project (2007 and current) periods.

Sample Design for Quantitative Household: Stratified multi-stage sampling methodology was applied to select the survey units, i.e. districts, upazilas, unions and villages and households. The households were selected with systematic sampling procedure using an appropriate sampling interval. Equal allocation were applied for sampling of households per village, while for selection of the sample size of village or Upazilas within districts are allocated proportionate to the number of schemes per district. Sample size was determined scientifically and the estimates were computed at 95% confidence level, 2% precision and design effect 1. The total number of beneficiary households estimated were 2640 from the Intervention areas and the number of cluster or village was $2640 \div 120 = 22$. Distribution of sample is as follows:

Table 1: Sample Size (Households & Respondents) by Gender & Sample Areas

Sample areas	Sample Units: Upazilas/ Unions/Villages	Households	Respondents		
			Men	Women	Total
Intervention	22	2640	2640	880	3520
Control	11	880	880	297	1177
Total	33	3520	3520	1177	4697

Per Upazila/Union/Village, the number of Households were 120 in the Intervention areas, while for the Control areas, the number of Households were 80. From each selected household main earner or household head, a farmer and from every third household, one adult married female was interviewed.

Sample for Qualitative Investigations: Qualitative investigations were conducted applying Literatures/Documents Search; Observations: Physically verified the structures; Focus Group Discussions (FGDs: 22) and Intensive Interviews (347) only in the intervention areas; and prepared profiles of 33 Unions.

Data Collection: The study was implemented in 11 Districts, 33 Upazilas, 33 unions and villages covering 4697 respondents in 3520 households. Data for the study were collected from 18 January to 16 February 2011. Hundred percent of both quantitative household level and qualitative in depth investigations have been completed.

Assessment Physical Targets Review of PCR and Allied Reports: The project was funded by the Government of Bangladesh. The implementation period of the project was originally scheduled from July 1999 to June 2004. Subsequently the project period was revised and extended up to June 2007. Activities of the project were implemented according to the Annual Development Programme and at the end of June/2007 the overall physical progress of the project was 95% and financial targets achieved was 97%.

Findings of observed Irrigation Pumps and Infrastructures: Out of a total available 167 pumps (8 are of 25 cusec, 26 of 12.5 cusec and 133 are of 5 cusec capacities), 33 (20%) sample pumps (6 were of 25, 6 were of 12.5 and 21 were of 5 cusec capacities), each representing a scheme area, were selected randomly. Of the 33 pumps, 23 pumps (70%) are functioning well. About 30% of the pumps are not functioning well due to mechanical problems such as; weak nozzle and plunger, cracks in pipes, self starter do not work, switch of fuel pump out of service, damage of magnet of fuel pump and overall condition of engine is weak (old). Malfunctioning of auto circuit causes shut down of the machine. These problems cause insufficient water delivery. Out of 33 pumps, 15 can not deliver designed level discharge of water.

Discharge Box: In the catchments of 33 pumps surveyed, 28 discharge boxes were identified, of which 8 (29%) are not in good condition and the remaining 20 are in good operating condition. Even base of some of the boxes are not lined, thereby get damaged due to falling water from the discharge pipe. Discharge boxes frequently get overtopped as box size (s) is/are not appropriate.

Irrigation Channels: There are both unlined (kacha) and lined (pucca) channels linked with the 33 pumps. Of these, 23 pumps are linked with both pucca and kacha channels and 10 pumps are linked with only kacha channels. All the pumps (33) are maintained, but such maintenance is not under a regular routine system, instead it is on ad-hoc basis, i.e., as and when need basis. Scheme committee is responsible for maintenance of other infrastructures and BADC takes responsibility of pumps and accessories. Out of 33 surface pumps, people from 27 (88%) schemes mentioned that BADC supervise the pumps. But the field men and pump operators often face problems. The problems are of different nature such as holes/cracks/damaged irrigation channels (70%), shortage or no pucca irrigation channels (42%), channels are not constructed according to the design (9%), lack of training of pump operators (6%), disruptions of electricity (27%), and insufficient water supply (6%).

Training Assessments: Coverage, Performance, Institutions: The targets set for the training were for 4888 persons: managers (525), pump drivers (525) and field man (3838). Since the training was already completed, the assessment of the training was obtained through recollection of selected trainee samples (338). Due to non availability of the targeted numbers, a total sample of 240 (all males: 71% of the targeted sample of 338) were interviewed. Of the 240 interviewed, only 60% (144 trainees) received training on scheme operation and irrigation management, pump operation and irrigation and distribution of water. Remaining 96 persons (40%) did not receive any training. More than half (58%) of the trainee respondents opined that they did not face any problem during performance of their duties, while 42% of the respondents opined that they faced problems. Of the trainees interviewed, 45% (64) received training on jobs and functions as a field man, followed by 37% (54) as manager/president/secretary of the scheme committee, 18% (26) as pump operators.

Findings of the study suggest that the training programs were hardly effective, except the areas of 'Distribution of water', 'Operation of pumps' and 'Scheme operation and maintenance', in which cases, training was partly effective. May be very gloomy situations of frequent disorder of the pump machines and their lack of repair and maintenance in the

absence skilled mechanics reflect the gross failure of the training programs imparted by the project.

Intensive Interviews with Project Engineers and Allied Stakeholders: In total 107 persons were interviewed, 30% were Project Engineers; 36% were Elected officials of local Government; and 34% were Allied Officers at Upazila level. The functions of routine supervision were only performed by 19% of the Engineers. Majority (53%) of the Engineers; 18% of the Elected officials of local Government and 31% of the Allied Officers at Upazila level ascertained that the activities were completed as per target. The Project Engineers mentioned about four important factors which obstructed completion of project activities as per targets and these are: shortages in the supply of electricity (75%); delays in the procurement of the pumps (50%); Low quality pumps (50%) and silting of rivers resulting to severe shortages in the flow of water (25%). Shortages of pucca channels and defective discharge boxes have been mentioned by the Engineers (47%), Elected Officials (49%) and the Allied Officers (69%) as the primary factor causing problem in the supply of irrigated water.

Findings of the Focus Group Discussions (FGD): FGDs (22) were conducted in the catchments of the Intervention unions of the Project with a total of 240 participants. Most of the participants' occupations were farming (86%). Perceptions of FGD participants about project inputs and interventions were quite detailed and they perceived that the project developed drainage system; installed 25 cusec, 12.5 cusec, 5 cusec pumps; developed Pucca irrigation channels; set up discharge boxes, developed piped culverts, turn out, sluice gates and irrigation canals. Participants also could specify the project implementation periods approximately from 2000 to 2007. FGD participants remarked that the involvement of the women in the project was very meager; some of the participants perceived that women were needed to be involved, while others thought women are not available or are not interested. Such mind set particularly reflects BADC's weaknesses in launching social and gender based mobilization to create community support for the project interventions irrespective of gender or SES.

Local level opinion sharing workshop: The workshop was held in Ramu Cox'sbazar on 9th March 2011. The workshop was organized and conducted jointly by IMED and READ. Secretary, IMED graced the workshop as the Chief Guest and the DG IMED presided over the workshop. The workshop was participated by local stakeholders of Ramu and also representatives from IMED, READ: Total Participants—62. Major points raised and concerns expressed:

- BADC prior to project inception, used to apply 2 cusec low lift pump when coverage of irrigated plots were extremely limited;
- Since 2002 under the Double Lifting Project, one 5 cusec pump was used and in addition 1 discharge box was established; the local people on their own expenses created irrigation channels (mud built). But after sometime the discharge box was damaged, as the bottom part of the box was not constructed with cement.
- Majority of the participants however complained that while the engine of the pump comprise of 36 horse power, the battery is of 28 plate capacity; consequently battery of the engine is unworkable and the pump does not function properly.
- Whenever the pump is out of order, it is repaired with funding from the local sources; BADC does not support such expenses. BADC Claims that the local office has no supply of equipment needed for repairs. Moreover there is severe shortage of Mechanic for repairs.
- Since ground level is not plain, and since the pucca channels are built in a zig-zag course resulting to huge wastage of irrigated water and quite a portion of the farm lands remain un irrigated.
- Besides, the kaccha channels over time have grown with shrubs and bushes resulting to water logging in many sections, which hamper growth of crops.

- Within the same project, the charges for irrigated water vary widely. Per forty decimals of land Tk. 900 is charged for the plots where rubber dam provides for irrigation; and Tk. 1800 to Tk. 2000 is charged for the plots served by pumps.
- Only 35 persons were trained for the area and many of them are now not available. Besides, the training hardly focused on maintenance and repairs, resulting to serious shortages of manpower needed to meet the local demands for repairs.

Secretary, IMED Underscored that:

- The workshop participants have clearly highlighted their problems about the defective pump machines and about shortages of mechanics;
- Future Irrigation project may consider irrigation system evolved through Gravity Flow;
- Local communities need to focus their endeavors to diversify crop production;
- Following the Barind example, establishing underground pipes for distribution irrigation of water is probably a better idea; and
- Lastly, Bangladesh is predominantly an agriculture based country, hence expanded irrigation system is an imperative to accelerate agricultural productions.

Findings Household Survey of Beneficiaries: Beneficiary level perceptions of the project interventions and its outcome were assessed through a quantitative household level survey both in the Intervention (Males: 2640; Females: 880) and in the Control (Males: 880; Females: 297) areas. In the Intervention areas, majority of the males mentioned that they use irrigation pumps: 5 cusec irrigation pumps—55%; 12.5 cusec irrigation pumps—27%; and 25 cusec irrigation pumps—22%. In the Control areas, on the contrary, they use: Low lift irrigation pumps—28%; Shallow Tube well—51%; and Deep Tube well—30%. About two thirds of the males in the intervention areas (65%) and less than a majority in the Control areas (44%) claimed that land covered by the irrigation system increased compared to the past. Majority of the males (78%) and females (63%) claimed that they were aware of the project interventions, but only 7% of the males and 2% of the females participated directly in the implementation of the project.

On a query on male perceptions on the availability and in functional status of project equipment (pumps by varying capacities in cusecs) and allied infrastructures in maximum possible number per cluster, following data were obtained.

- Both the pumps of 25 cusecs and 12.5 cusecs are available in any cluster to a maximum extent of two to three respectively; and these pumps are in full use and in functional status.
- Pumps of 5 cusec capacity are available to maximum of 16 numbers, out of which, at least 2 would be out of order or not in functional status.
- Almost 50% of the discharge boxes and of the pucca channels are dysfunctional (16) out of a total maximum availability of 30 in a cluster.
- Culverts are in good usable conditions.
- Some of the turn outs and cross dams remain out of order.

Most of the males mentioned that the pumps (70%) and channels (61%) are good and functioning. But regarding the status of timely repairs of the facilities, 34% of the males claimed that these are not done properly and in time. Most of the males (73%) claimed that the maintenance work is discharged by the Scheme Committee and costs are also borne by the Scheme Committee and their performance is satisfactory. Very rarely both men (8%) and women (6%) claimed that the women are involved in the irrigation functions.

The income from the agricultural sub sector show that the additional income earned during the post project period in the intervention areas is much higher than those in the control areas (a gap of 18%). Income from the agri business comparatively between the intervention and the control areas is the highest: Intervention area shows an additional increase of 54%, while that of the control areas is only 17% and the next achieved higher income is from 'Poultry and Livestock'.

Overall monthly income in the Intervention area increased additionally by 58% during then post project period over the pre project period that of the Control area income only rose

additionally by 39%. Increment in the monthly income was primarily contributed by the Agricultural sector in the Intervention areas. This obviously reflects the effective outcome of the irrigation interventions through double lifting and distribution of the surface water. We have conducted statistical significance test (Pair sample test) to assess the impact of Intervention on average monthly family income. The analysis shows that overall average monthly family income increased additionally by Tk. 4506 and Tk. 3034 in the Intervention and Control areas respectively. Pair sample test (Pre-post) shows that average monthly family income in Intervention areas increased significantly after the implementation of project ($d=50$; $p<.01$). It is also found that in the Control area, the monthly family income also increased significantly ($d=28.0$; $p<.01$). But the value of d-statistic indicates that intervention area is more highly significant than control area in terms of increasing average monthly income. The results show that percentage of additional income in the intervention area is higher than control area. The P-value shows that there are significant differences in increasing monthly family income between two areas (control and intervention).

The number of children going to schools also increased comparatively in a more accelerated manner in the Intervention areas (an increase by 0.58 unit during post project period) than in the control areas (an increase by 0.16 unit during post project period). The Pair sample test showing there are significant improvements in average number of school going children. Comparing with the intervention and control area, the result shows that significant difference in increasing in number of school going children ($P<0.01$). Findings indicate that intervention area is more highly significant than control area.

About a third of the respondents in the intervention (34%) and about a quarter in the Control areas (27%) ascertained prevalence of negative environmental impact. Severity of water borne diseases increased almost equally in both control and in the Intervention areas: from 13/14 to 39%.

Assessments of Agriculture Sector Productions

- In respect of Boro crop, in the intervention areas, the additional increase during post over the pre project period is 65% compared to 42% in the control areas; and
- In respect of Aman crop, in the intervention areas, the additional increase during post over the pre project period is 36% compared to 32% in the control areas;
- In the Intervention areas, prior to project, 99% of the respondents were producing single crop, while during the post project period, production of single crop has been reported only by 23%, but production of double crops (previously 0) is reported by 77% respondents; and
- In the Control areas, prior to project, 99% of the respondents were producing single crop, while during the post project period, production of single crop has been reported only by 48%, and production of double crops (previously 0) is reported by only 52% of the respondents.

Findings indicate that significant increase of productions of Boro and Aman crops during post project period both in the intervention and control areas in respect of all crops ($p<0.01$). However, statistical analysis shows that in the intervention areas, production of Boro and Aman crops increase more significantly ($p<0.01$) than in the control areas.

Cropping Intensity: The study results show that the cropping intensity has increased additionally by 59% (from 137% to 196%) in the project area.

Perceived Overall Benefits of the Project: About a tenth (12%) of the respondents perceived that the project did not have any impact as benefits for them, while the rest 88% ascertained any or combination of benefits directly accelerating crop productions and crop diversifications (84%) followed by substantial impact on enhancing quality of life (52%). Specific benefits accrued are:

- Increased crop production and benefits of crop diversification (84%);
- Improved quality of life: increased income, education, employment & reduced poverty (52%);
- Increased poultry raising, cattle rearing and fisheries (35%);

- Extended coverage of farm land for irrigation (25%);
- Reduced cost of irrigation water and water availability (21%);
- Profits from paddy business (12%); and
- Limited earning opportunities for women (8%).

Perceived Overall Weakness of the Project: About a quarter of the respondents (28%) perceived that the project currently is experiencing following problems:

- Shortage of electricity (52%);
- Shortage of surface water: rivers are silted and khals are dried (41%);
- Pumps are weak and old obstructing smooth supply of water to land (35%);
- Shortages of trained manpower: mechanics particularly (30%);
- Supervisory and monitoring weaknesses: by BADC and lack of involvement of Local government (29%);
- Inadequacies of repair and maintenance of Pump/irrigation infrastructures (26%);
- Management problems of Scheme Committee in distributing water: interferences by influential (23%);
- Shortages of pump and pucca irrigation channels (21%); and
- Availability of kacha Irrigation channels leading to wastage of water (15%).

Recommendations for Sustainability

Strengthen training

- Ensure wider coverage of training: Train every farmer of the village and prioritize training of mechanics, field men and water distributors so that experiences of severe shortages of this manpower under the current project do not recur at the field level in future;
- Emphasize more on practical training at the field level in order to encourage growth of skills commensurate to the practice problems encountered during implementation;
- Engender quality and adequacy of training by increasing duration of training from 5 days to 14 days with provisions for refreshers (repeat) training and also provisions of after training follow-up of the trainees and supplies to trainees necessary training kits including manuals and tools etc.
- Train the Engineers on approaches and techniques of local level supervision and monitoring
- Launch social mobilization on involvement of women and the all the stakeholders locally

Improving Irrigation system and allied infrastructure

- Ensure increased Irrigation infrastructures: construct more pucca irrigation channels and modern drainage systems; construct culvert; construct cross/rubber dam; dig irrigation canals/khals; construct quality discharge boxes and sluice gates; construct more culverts, embankments and developed communication system
- Undertake river and canal dredging of rivers to remove silts
- Procure and increase supply of quality modern pump machines
- Ensure regular supply of electricity
- Need to construct alternative cross dams for reservation of water;
- Consider introducing underground pipes for irrigation of water and under this system wastage of water can be prevented;
- Need to consider construction of more bridges and culverts creating improved communication facilities for the farmers to carry their products to the markets.
- Ensure timely water distribution: equal water distribution for all people (poor-non poor); increase number of water distributors and water distribution should be modern method and standardize charges for water

Monitoring and Local Participation

- Increase quality supervision and monitoring of project implementation by the Project Engineers
- Activate local scheme committees and engage them for monitoring functions
- Improved supervision, monitoring and Accountability
 - ✓ BADC must intensify its technical support for the field personnel

- ✓ Ensure adequate allocations of funds and allied government support
- ✓ All time supervision by both BADC and the Scheme Committees

Strengthen Repair and Maintenance

- Ensure Repairs and Maintenance work: Timely repair and maintenance
- Ensure that the pump machines are always in operational condition
- BADC need to strengthen supervisory and follow up services in order to ensure timely repair and maintenance of the irrigation facilities;
- To ensure regular, effective and quality repair maintenance services BADC may be allowed to obtain increased allocations to procure and distribute at the field level adequate spare parts and needed equipment;
- The local personnel of BADC should be more alert in providing supportive technical services;
- The scheme committee should be more efficient and effective to ensure improved management and support services on irrigation and allied activities;

Conclusion

Double lifting project implemented by BADC certainly accrued expected benefits of accelerated agricultural productions and extended coverage of farm lands under surface water irrigation system. Such acceleration of agricultural productions in turn ensured improvements in the quality of life of the people living in the catchments of the project, which is evidenced by comparative analyses of the survey data collected from the control areas and also through comparisons of pre and post project status. But the project suffers from several technical and management problems, like inadequate supervision by project engineers; lack of timely repairs and maintenance of the pumps and the allied irrigation infrastructures. The serious shortages of trained and experienced manpower were due to discontinuation of many BADC personnel from services at one point through golden handshake, which probably was not an appropriate action. Data also underscore inadequacies of the training programs conducted to strengthen the field operations. Above all findings also suggest that pre and during project deficiencies in launching social mobilization campaigns to generate community support, particularly from the poor and the women.

Research findings suggest that in future expansion the programs (projects and functions) of BADC need to be considered strongly with a vision on coverage of increased areas of farm lands under surface water irrigation system to obviate the threats of acute shortages of underground water supply. Irrigation and agricultural development is integrally interlinked and BADC can and will play a pivotal role in this regard. We also recommend that BADC may be given the opportunities to design and implement the second project revising the first project based on the findings of the current evaluation on use of surface water for irrigation through double lifting.

Chapter-I

Background Information

Background of the Project

Generally most of the sources of surface water such as canals, beels, rivers etc., adjacent top cultivable land are dried up during the dry season or irrigation season resulting in shortage of water for irrigation. At that time there is no means to provide irrigation directly from the flowing rivers to the adjacent areas. In these cases water of those flowing rivers, haor, baors in the project area where water is available through out the year (perennial sources) could be utilized for irrigation through double lifting (primary and secondary) and gravity flow. Water lifted by pumps (of 25 cusec, of 12.5 cusec, and of 5 cusec pumps) through primary lifting method needed to be supplied to the dried up Khals, beels, rivers, haors, baors etc. then the said water could be utilized for irrigation through secondary lifting. Through implementation of this project an increased production (approximately 1,60,500 tons of food grain) was expected for which additional labor force was supposed to be required for post harvest, processing, preservation etc. It was expected that rural people both men and women, would have opportunities of getting employments which would enhance their income and help reduce rural poverty (ToR).

BADC procured 26 nos of floating pumps (14 nos 25-cusec & 12 nos 12.5-cusec) from Japan for utilization of surface water from the perennial rivers of Bangladesh in 1986-87. These were operated on hire basis up to 1991-92. To overcome the complexities of repair & maintenance of these floating pumps and to use the surface water to a larger extent, a project named "Development of Irrigation and Pumping out water by the use of 400 no 5-cusec pumps and 26 floating pumps" was implemented from 1992 to 1995 and for its continuation 2nd phase of the project named "Development of Irrigation and Pumping out water by the use of 600 no 5-cusec pumps and 26 floating pumps" was implemented from 1995 to 2002.

In consideration of the success of the above projects, "Project for Expansion of Irrigation through Utilization of Surface Water by Double Lifting (DLIP)" 1st Phase was implemented from 1999 to 2007 by BADC. As per decision of the evaluation report of IMED, 14 no of 25-cusec floating pumps and 11 no of 12.5-cusec floating pumps and 70 no (28 diesel engines and 42 electric motors) of 5-cusec land based pumps were shifted to this project after completion of the previous projects. Moreover 200 no of Chinese engines and 150 no of electric motors were procured for 5-cusec land based pumps.

Project Brief

- **Sponsoring Ministry/ Division:** Ministry of Agriculture
- **Executing Agency:** Bangladesh Agricultural Development Corporation (BADC)
- **Location of the Project:** 22 Districts (Manikgonj, Munshigonj, Narayangonj, Narsingdi, Lakshmipur, Comilla, Chandpur, B.Barua, Hobigonj, Sunamgonj, Chittagong, Cox'sBazar, Kishoregonj, Netrokona, Mymensingh, Jamalpur, Barisal, Bhola, Patuakhali, Madaripur, Gopalganj & Shariatpur).
- **Estimated Cost:** Tk. 8240.80 Lakh
- **Duration of the project:** July 1999 to June 2007

Objectives of the Project were to:

- (i) To produce food grain by ensuring irrigation through utilization of surface water of the largest rivers of the country such as the Padma, the Meghna, the Jamuna along with other flowing rivers by utilization of 5-cusec pumps and floating pumps through double lifting
- (ii) To produce 115125 tons of additional food grain per annum, financial value of which is Tk. 92.10 crore by providing irrigation facilities to 115125 acres of land in irrigation seasons through utilization of 34 nos. of 25 cusec, 71 nos. of 12.5 cusec floating pumps and 420 nos. of 5 cusec pumps

(iii) To impart training to 525 managers on scheme operation and irrigation management for 5 working days, 525 drivers on operation of pumps for 15 working days and 3838 field men on irrigation canal and distribution of water for 3 working days

(iv) To develop socio-economic conditions to the land owners, marginal farmers and working people (men & women) of the project area and thus alleviate poverty

(v) Post flood rehabilitation for repair and reconstruction of office buildings, residential quarters, irrigation structures and repair of floating pumps & 5 cusec pumping sets.

Objectives of the Assignment

(i) To see the implementation status of major objectives of the project such as:

- Increased food grain production by utilizing the surface water of the largest rivers of the country by using land based and floating pumps through double lifting;
- additional food grain production by providing irrigation facilities by using 25 cusec, 12.5 cusec floating pump and 5 cusec land based pumps;
- training imparted on scheme operation and irrigation;
- training imparted on operation of pumps;
- Training imparted, on irrigation canal and distribution of water,

(ii) To assess the impact of the project on:

- Socio-economic conditions of the land owners and marginal farmers;
- Socio-economic conditions of working people (men & women) after creating employment opportunities for them;
- Alleviation of poverty by increasing national productivity;
- Maintaining health hazard free environment

(iii) To identify the major successes & weaknesses of the project implementation and suggest appropriate measures.

Scope of services and Coverage of work of the Project:

- Procurement of 20 sets 25 cusec and 60 sets 12.5 cusec floating pumps;
- Procurement of 420 sets of land based 5 cusec pumps;
- Provision of irrigation facility in total 25,460 hectares of land;
- Production of food grains of 88,041 tons;
- Training imparted to 497 scheme president/secretary, 521 pump drivers & and 3036 field men;
- Poverty alleviation of land owners, marginal farmers and working male & females in projects areas.

Chapter-II Study Methodology

Considering the objectives of study, methodologies were designed and these included both **Quantitative Household level surveys and In-depth Qualitative Investigations**

➤ **Quantitative Household level surveys:**

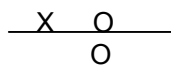
- Investigation of the beneficiary level impact in terms of measuring Socio-economic conditions of the land owners and marginal farmers, working people (men & women) after creating employment opportunities for them; alleviation of poverty by increasing national productivity; and maintaining health hazard free environment; and

➤ **In-depth Qualitative Investigations:**

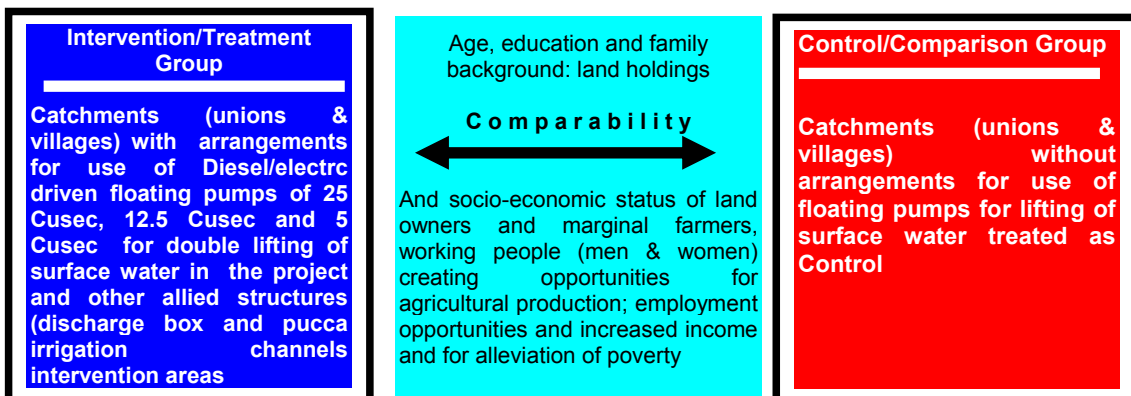
- Physical verifications of installations and operations of infrastructures, such as double lifting (primary and secondary) and gravity flow using 25 cusec, 12.5 cusec floating pumps (barge mounted) and 5 cusec pumps driven by diesel and by electricity and other allied structures (discharge box, pucca irrigation channels);
- Intensive interviews with program personnel and
- FGDs with opinion leaders; and
- Review of documents and reports for collection of data from the secondary sources particularly data on volume of agricultural productions within a given time frame.

Study design includes sample spots (Unions/Villages) both as Intervention/Treatment and the Control/Comparison areas. The former (Intervention areas) refers to unions and villages included in the project and where double lifting (primary and secondary) 25 cusec, 12.5 cusec floating pumps (barge mounted) and 5 cusec pumps has been used; and the latter (Comparison areas) refers to unions and villages where pumps for lifting surface water has not been used. And the main focus of the outcome comparison would be in terms of the volume of agricultural productions (cropping pattern and intensity) between the two areas (Intervention areas and Comparison areas). 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 (1999 or prior) and post project (2007 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/components implemented.

The conceptual framework of the comparison (Posttest--only Control Group Design) is as follows:



X = Interventions: Catchments (Unions & Villages) with arrangements for double lifting of surface water; and O = Control: Catchments (Unions & Villages) without arrangements for double lifting of surface water (treated as Control):



Sample Design and Technique including Sample Size & Distribution

Sampling was done for both quantitative household level and also for qualitative in depth investigations. The former is for beneficiary level assessment of benefits accrued due to project interventions (increased agricultural productions) and the latter is to assess the status of completion and operations of the physical structures (installations, operations and maintenance of surface water double lifting pumps) also elicit opinions and perceptions of influential (Presidents and Secretaries of Committees) and those of the project personnel.

For Quantitative Household Sampling and sample size

A stratified multi-stage sampling methodology was applied to select the survey units (i.e. household). Of the 11 districts (Manikganj, Munshiganj, Chandpur, B. baria, Hobiganj, Cox's Bazar, Kishoreganj, Netrakona, Barisal, Bhola and Madaripur), upazilas, unions and villages (where irrigation works were implemented utilizing surface water by double lifting pumps) were selected as the first stage sampling unit (fsu), second stage (ssu) and third stage sampling unit respectively. Finally, required number of households was selected within each selected village.

The households were selected with systematic sampling procedure using an appropriate sampling interval. Equal allocation were applied for sampling of households per village, while for selection of the sample size of village or Upazilas within districts are allocated proportionate to the number of schemes per district. List of sampling units was based on those upazilas where irrigation works were implemented. Clusters of sample households per village comprised 120 households. Sample households were the catchments of irrigation works utilizing surface water by double lifting pumps.

Sample size

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. Estimates computed at 95% confidence level, 2% precision and design effect 1.10 for $p=0.50$ i.e. 50% of the households (beneficiaries) have increased production or wages and improved their socioeconomic status and standard of living by the formula given below. Also sample sizes should be sufficiently large to accommodate the statistical power requirements for test to detect differences between survey rounds with independently chosen sample.

$$n = \frac{z^2 pq}{d^2} \times \text{Design effect}$$

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. The degree accuracy or precision level is d ; the higher value of d will yield lower sample size and smaller value of d will yield higher sample size.

Using the above formula we got, $n = 2641$; so, the total number of beneficiary households were 2640 from the Intervention areas and the number of cluster or village was $2640 \div 120 = 22$.

Table 1: Sample Size (Households & Respondents) by Gender & Sample Areas

Sample areas	Sample Units: Upazilas/ Unions/Villages	Households	Respondents		
			Men	Women	Total
Intervention	22	2640	2640	880	3520
Control	11	880	880	297	1177
Total	33	3520	3520	1177	4697

Selection Procedure

At first, a total of 11 districts (50% of the total coverage) out of 22 districts were selected randomly taking every alternate or odd numbered district (See Table 2). A total of 22 intervention villages/unions/upazilas (i.e. one cluster from one upazila) were selected from 11 selected districts. From each selected district, the numbers of Intervention Upazilas were proposed proportional to the number of schemes implemented in the district and see table 2, while the Upazilas in the Control areas were proposed at the rate of 1 Upazila per district. Irrespective of Intervention or Control areas, for each Upazila, one union and for each Union, one village was selected randomly (see Table 2 next page).

Initially, selections of Upazilas by Intervention and Control areas were done from the sample districts. Taking those Upazilas where project Scheme was implemented as Intervention Upazilas. Those Upazilas, where project scheme were not implemented as Control areas; only exception (Tongibari) was in case of the district of Munshiganj where all the Upazilas were covered by the project, for which the least intensive (per scheme implementation) Upazila has been selected.

Table 2: Distribution of Study Sample areas for Intervention and Control Areas

Sl. No	Universe Districts	Intervention samples						Control Samples		
		Districts	Number of schemes per district		Upazilas	Unions	Villages	Upazilas	Unions	Villages
			Nos	%						
1	Manikganj	Manikganj	11	6%	Sadar	1	1	Ghior	1	1
2	Narayanganj									
3	Munshiganj	Munshiganj	5	3%	Gazaria	1	1	Tongibari	1	1
4	Narsingdi									
5	Chandpur	Chandpur	23	13%	Hajganj Sharasti Kachua Matlab	4	4	Sadar	1	1
6	Comilla									
7	B.baria	B.baria	8	4%	Nabinagar	1	1	Akhaura	1	1
8	Lashipur									
9	Hobiganj	Hobiganj	16	9%	Lakhai Azmeriganj	2	2	Bahubal	1	1
10	Sunamganj									
11	Cox's Bazar	Cox's Bazar	5	3%	Ramu	1	1	Ukhia	1	1
12	Chittagong									
13	Kishoreganj	Kishoreganj	70	38%	Nikli Ashtagram Itna Mithamoin Bazitpur	5	5	Bhairab	1	1
14	Mymensing									
15	Netrakona	Netrakona	4	2%	Atpara	1	1	Kendua	1	1
16	Jamalpur									
17	Barisal	Barisal	13	7%	Muladi Gournadi	2	2	Agoljhora	1	1
18	Patuakhali									
19	Bhola	Bhola	19	10%	Lalmahan Charfashion Sadar	3	3	Dawlatkhan	1	1
20	Shariatpur									
21	Madaripur	Madaripur	9	5%	Kalkini	1	1	Sadar	1	1
22	Gopalganj									
	Total	11	183	100%	22	22	22	11	11	11

*In the circumstance of non availability adequate number of project spots, we kept Barisal as a sample district even though the Technical Committee suggested (Decision no. 5 chha) inclusion of Patuakhali instead of Barisal. In this regard, we consulted relevant project authority.

Per Upazila/Union/Village, the number of Households were selected per sample unit (Upazila/Union/Village) was 120 in the Intervention areas, while from the Control areas, the number of Households were selected per sample unit (Upazila/Union/Village) was 80. Table 3 next page shows the distribution of households and respondents (Men and Women) for both Intervention and Control areas. From each selected household main earner or household head, a farmer (holding farming land and or working as farmer), was interviewed and from every third household, one adult married female (preferably wife the head of household) was interviewed. In addition, from the Control/comparison areas, 880 households (per village the number of household was 80) drawn in the same proportional distribution of men and women.

Table 3: Proposed distribution of sample allocation of the total households (HHs) and Respondents

Sample Districts	Intervention Sample				Control Samples				Total			
	Nos of Upazilas/ Unions/ Villages	House holds	Respondents		Nos of Upazilas / Unions/ Villages	House holds	Respondents		Nos of Upazilas / Unions/ Villages	House holds	Respondents	
			Men	Women			Men	Women			Men	Women
Manikganj	1	120	120	40	1	80	80	27	2	200	200	67
Munshiganj	1	120	120	40	1	80	80	27	2	200	200	67
Chandpur	4	480	480	160	1	80	80	27	5	560	560	187
B. baria	1	120	120	40	1	80	80	27	2	200	200	67
Hobiganj	2	240	240	80	1	80	80	27	3	320	320	107
Cox's Bazar	1	120	120	40	1	80	80	27	2	200	200	67
Kishoreganj	5	600	600	200	1	80	80	27	6	680	680	227
Netrakona	1	120	120	40	1	80	80	27	2	200	200	67
Barisal	2	240	240	80	1	80	80	27	3	320	320	107
Bhola	3	360	360	120	1	80	80	27	4	440	440	147
Madaripur	1	120	120	40	1	80	80	27	2	200	200	67
Total	22	2640	2640	880	11	880	880	297	33	3520	3520	1177

In Summary,

District-11

Upazila/Union/Village-22 for Intervention and 11 For Control areas

Households: For Intervention: 2640 and For Control: 880

Households per village for Intervention: 120 and for Control: 80

Respondents: For Intervention: Men 2640 and Women: 880; and for Control: Men 880 and Women: 297; Total: 4697

Sample for Qualitative Investigations

Qualitative investigations were conducted applying following methods:

- **Literatures/Documents Search:** Project Document (PP), PCR, Evaluation Report, IMED Reports, and Progress Reports were reviewed, primarily to assess the physical progress: comparison of targets versus achievements both physical (construction of structures, their use, equipment) and financial.
- **Observations:** Physically verified the structures, i.e., installations operations and maintenance of surface water lifting pumps of various types and capacities (25, 12.5 and 5 cusec both diesel and electric driven); and construction and use of pucca discharge boxes, cross dams, culverts, turnouts and pucca channels were carried out by trained investigators using standard guidelines (pre-tested) under the guidance of the expert of Irrigation Engineer/Consultant. Table 4 below specifies the distribution of irrigation pumps by types which were physically verified.

Samples for Observations of Physical Infrastructures

Distribution of sample pumps of the project for observations through physical check-up:

Table 4: Upazila wise distribution of observe surface water irrigation pumps by types

Districts	Sample Upazilas	Sample Coverage for physical verifications: 20% of total coverage (selected randomly)							
		Target				Physically Observed			
		25 cusec	12.5 cusec	5 cusec	Total	25 cusec	12.5 cusec	5 cusec	Total
Manikganj	Sadar	0	0	2	2	0	0	3	3
Munshiganj	Gazaria	0	0	1	1	0	0	1	1
Kishoreganj	Nikli	1	1	0	2	1	1	1	3
	Ashtagram	0	1	2	3	0	1	2	3
	Itna	0	0	1	1	0	1	0	1
	Mithamoin	1	1	2	4	1	1	2	4
Netrakona	Bazitpur	0	1	0	1	0	1	0	1
	Atpara	0	0	1	1	0	0	1	1
	Kalkini	0	0	1	1	1	0	0	1
	Hajiganj	1	1	0	2	1	0	0	1
Chandpur	Sharasti	1	1	0	2	1	0	0	1
	Chandpur Sadar	0	0	1	1	0	0	2	2
	Matlab	0	0	1	1	0	1	0	1
	Nabinagar	1	1	0	2	1	0	0	1
B.baria	Nabinagar	1	1	0	2	1	0	0	1
Cox's Bazar	Ramu	0	0	1	1	0	0	1	1
Hobiganj	Lakhai	0	0	1	1	0	0	1	1
	Azmeriganj	1	0	0	1	0	0	1	1
Barisal	Muladi	0	0	1	1	0	0	1	1
	Gournadi	0	0	1	1	0	0	1	1
Bhola	Lalmahan	0	0	1	1	0	0	1	1
	Charfashion	0	0	1	1	0	0	1	1
	Sadar	0	0	2	2	0	0	2	2
11 Districts	22 Upazilas	6	7	20	33	6	6	21	33

Table 5: Sample Upazila wise distribution of surface water irrigation pumps by types and coverage of farm land in acres

Districts	Sample Upazilas	Number of pumps used by types				Total coverage		Sample Coverage for physical verifications: 20% of total coverage (selected randomly)	
		25 cusec	12.5 cusec	5 cusec		Total no of pumps used	Area coverage (acres) per Upazila	Number of surface pumps	Irrigation area coverage (acres) per observed Pump
				Diesel	Electric				
Manikganj	Sadar	0	0	0	10	10	700	3	210
Munshiganj	Gazaria	0	0	3	0	3	180	1	60
Kishoreganj	Nikli	1	5	2	1	9	3150	3	1256
	Ashtagram	1	5	3	5	14	3500	3	1550
	Itna	0	1	4	1	6	1250	1	500
	Mithamoin	1	5	18	12	36	9300	4	1752
	Bazitpur	0	1	0	4	5	800	1	350
Netrakona	Atpara	0	0	0	2	2	140	1	70
Madaripur	Kalkini	0	0	0	9	9	1080	1	120
Chandpur	Hajiganj	1	4	1	3	9	3500	1	1750
	Sharasti	1	4	3	2	10	3600	1	1500
	Sadar	0	0	1	2	3	150	2	300
	Matlab	0	0	0	1	1	90	1	350
B.baria	Nabinagar	1	1	1	3	6	2000	1	900
Cox's Bazar	Ramu	0	0	5	0	5	525	1	105
Hobiganj	Lakhai	0	0	4	0	4	720	1	150
	Azmeriganj	2	0	0	5	7	2750	1	200
Barisal	Muladi	0	0	2	2	4	240	1	150
	Gournadi	0	0	0	6	6	540	1	120
Bhola	Lalmahan	0	0	1	1	2	100	1	50
	Charfashion	0	0	2	1	3	525	1	175
	Sadar	0	0	0	13	13	1170	2	220
11	22	8	26	50	83	167	36010	33 pumps: 5% 25Cusec; 16% 12.5 Cusec & 79% of 5 Cusec capacities	11628

The verifications of the pumps (by types) and the allied structures (discharge Boxes and pucca irrigation channels) were undertaken by the following criteria:

- ✓ Number of pumps actually used & status of duration of use
- ✓ Operational status of the pumps
- ✓ Operational status of irrigation channels: leakages or cracks
- ✓ Status of maintenance and repair of the pumps; and
- ✓ Efficiencies and effectiveness of coverage of acres of land by surface water through double lifting irrigation

22 Focus Group Discussions (FGDs) only in the intervention areas: FGDs with President & Secretaries of Irrigation Committees, Pump operators, Field men and Community influential/leaders was conducted in the selected Unions only for Interventions/Treatment areas. Each FGD comprised 12 participants ensuring proportional distribution of the above categories of persons per FGD.

Intensive Interviews: 347 intensive interviews were conducted with the following: only from Intervention/Treatment areas. Intensive interviews were also focused on the effectiveness of the training imparted to the community level field personnel of the project and the areas of training assessed are:

- training imparted on scheme operation and irrigation;
- training imparted on operation of pumps;
- training imparted, on irrigation canal and distribution of water

Agriculture/BADC personnel HQ (272): Project Director—1 at NHQ; Superintendent Engineer—2; Executive Engineer—3; Assistant Engineers—9; Senior Sub- Assistant Engineers—7; Sub- Assistant Engineers—10; With Managers on Training on Scheme Operations & Irrigation Management; President/Manager of Irrigation Committees—52; Secretaries of irrigation committees—19; Pump operators—49; Field men—120

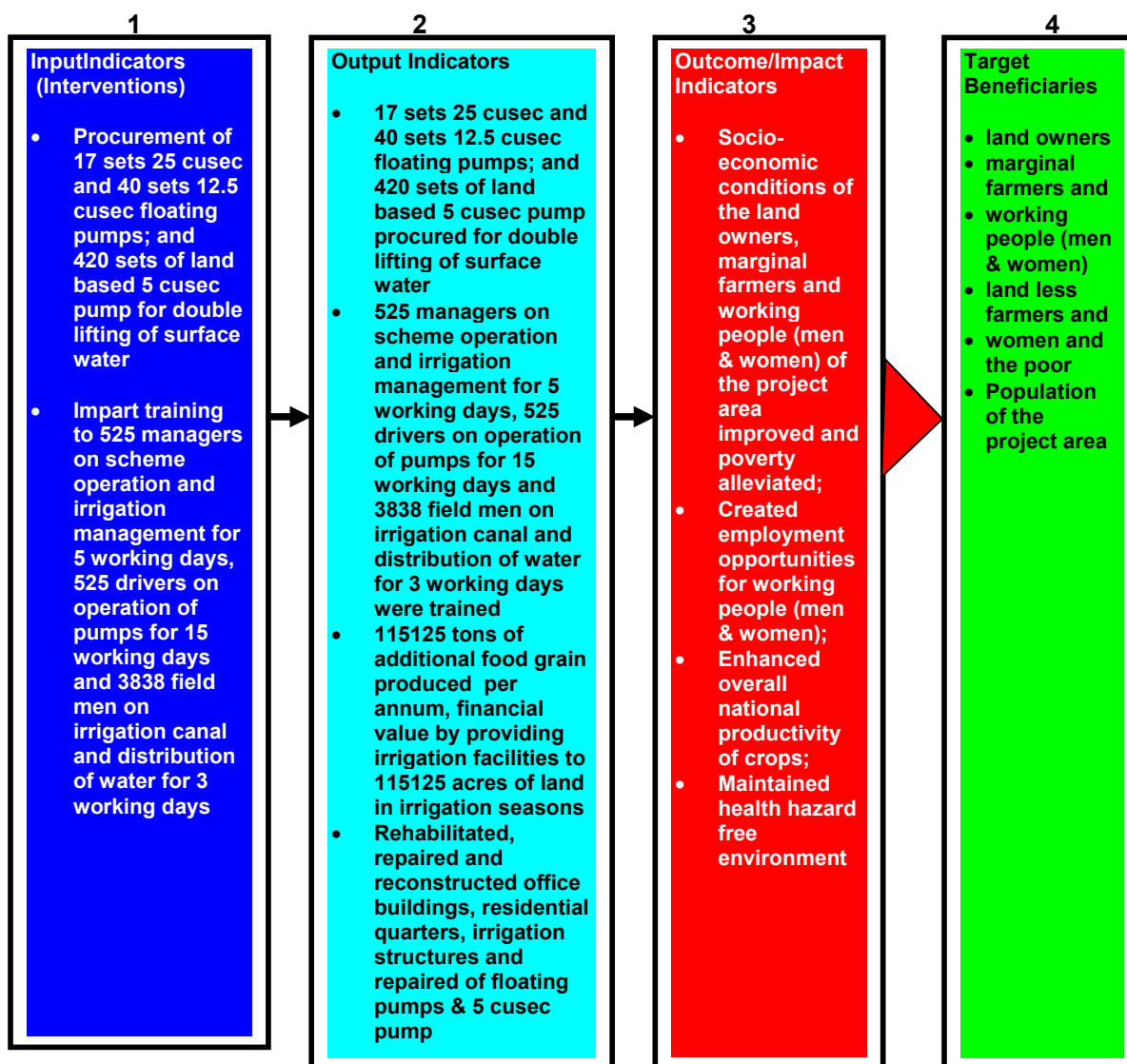
Allied Officials Field (75): Upazila Chairmen/Vice Chairmen— 16; UP Chairmen and members—23; Upazila Nirbahi Officers—15 at Upazila level; Upazila Agriculture Officers—21

Unions (33: 22 intervention and 11 Control areas): Catchments' Community Profile: Data from all the Intervention and Control Unions development status, such as volumes of agricultural productions, acreages of coverage of irrigated lands by types of irrigations, number of Schools and health centers were collected. This facilitated assessment of the comparability of the Unions and their selections in the samples, be those form Intervention/Treatment or Control/Comparison catchments. This was collected by using a standard checklist.

Design of Analyses of Findings: A Conceptual Framework

The flow chart below delineates assessment of the following input, output and outcome variables of the project impacting on the: Increased food grain production by utilizing the surface water of the largest rivers of the country by using land based and floating pumps through double lifting; additional food grain production by providing irrigation facilities by using 25 cusec, 12.5 cusec floating pump and 5 cusec land based pumps; training imparted on scheme operation and irrigation; training imparted on operation of pumps; Training imparted, on irrigation canal and distribution of water.

**Flow Chart-1 on Study Indicators
Project Interventions, Achievements & Impact on Beneficiaries**



The flow chart above delineates the processes of project implementation (inputs) and achievements: (outputs and outcome/impact indicators) 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/impact indicators of the project as in Project documents: PP, PCR and Evaluation Report. Column 4 describes the population involved in the project and were influenced and benefited by project inputs and outputs.

Chapter III Data Collection

The study was implemented in 11 Districts, 33 Upazilas, 33 Unions and 33 villages covering 4697 respondents in 3520 households. READ implemented the study in the following steps.

Development of Questionnaires/Guidelines and Checklists: Eight types of data collection instruments were developed for the study. To meet the objectives of the study the following data collection instruments were developed and also reviewed during training through field pretest by the investigators and Technical Committee and Steering Committee of IMED and approved by concerned authority of IMED.

1. Household questionnaires for Intervention areas
2. Household questionnaires for Control areas
3. Intensive Interviews Questionnaires for Managers, Pump Operators and Field Men
4. Intensive Interviews Questionnaires for Allied officials at Upazila & Unions
5. Intensive Interview Questionnaire for Project personnel at District and NHQ
6. FGD Guidelines for intervention areas at union level
7. Observation Checklist: Irrigation Pumps and Other Infrastructure
8. Union Profile Checklist

Training of Survey Teams: Training of 45 survey manpower was conducted for 5 days, of which, 2 days were for field practices combined with pre-testing of data collection instruments: survey questionnaire and qualitative guidelines. The training was conducted from 9th January 2011 to 13th January 2011 and the field pre-test was conducted at Savar Upazila in between the training (on 11 and 12 January 2011).

Monitoring, Supervision and Quality Control: Each Field Team was guided and managed by one Field Supervisor, who regularly maintained contacts with the Co-Team Leader and or Field Coordinator in READ office to report on day to day basis on the progress of data collection at respective Unions. The field supervisor in each team was responsible for ensuring supervision and management of each team at the field level by assigning and taking stock of team's day's work by individual interviewers; arrange and accommodation, coordinate with local influential and maintain regular liaison with READ office at Dhaka. The Field Supervisors in addition to their functions of supervision and field management ensured quality control checks through random interviews.

Quality control of the filled in questionnaires was ensured by the Consultants, READ Quality Control Officers and the Supervisors through random checks of selected questions of the filled in interviews (LQAS method). In addition, concerned personnel of IMED also visited the field for enhanced data quality checking.

Data Collection from field: Data for the study were collected during the month of 18 January – 16 February 2011. The data collection of the study was done through multiple methods through both quantitative and qualitative investigations.

- Reviewed PP, PCR and Evaluation reports;
- Observed 33 Irrigation Pumps & related infrastructures were completed in the sample intervention areas
- Completed hundred percent of the household level (beneficiaries) interpersonal interviews: 3520 respondents from the Intervention areas and 1177 respondents from the Control areas of 11 districts, 33 Upazilas, 33 Unions and 33 Villages (22 in intervention and 11 in control areas) in the following distribution:

Sample areas	Sample Units: Upazilas/ Unions/Villages	Households	Respondents		
			Men	Women	Total
Intervention	22	2640	2640	880	3520
Control	11	880	880	297	1177
Total	33	3520	3520	1177	4697

- 347 (79%) Intensive interviews out of 438 with the concerned project personnel and allied officials were completed:
 - ✓ 240 (74%) of the President/Secretaries/Managers of Irrigation Committees, Pump operators and Field men) out of 324
 - ✓ 32 (123%) of BADC Officials out of 26
 - ✓ 75 (85%) of elected officials of local Government & allied officials out of 88;
- 22 (100%) Focus Group Discussions (FGDs) were completed (one per Union);
- Conducted a Local level Workshop in Ramu Upazila, Cox's Bazer on 9 March 2011; and
- 22 (100%) data on Catchments (Union) Profile (primarily development aspects) were collected.

List of Sample Area of Data Collection: Household data were collected from the following sample areas:

Districts	Intervention areas			Control areas		
	Upazilas	Name of Unions	Name of villages	Upazilas	Name of Unions	Name of villages
Manikganj	Manikganj Sadar	Bhararia	Bhurundi	Ghior	Payela	Basudeb Bari
Munshiganj	Gazaria	Gazaria	Pradhaner Char	Tongibari	Sonarang	Sonarang Paschim
Kishoreganj	Itna	Itna	Itna Pashchim Gram	Bhairab	Shimulkandi	Shimul Kandi
	Mithamoin	Mithamoin	Borohati			
	Nikli	Nikli	Kamalpur			
	Bazitpur	Baliardi	Nowahati			
	Ashtagram	Ashtagram	Kewrakanda			
Netrokona	Atpara	Lunesshor	Joynagar	Kendua	Aashujia	Singargaon
Madaripur	Kalkini	Char Sahebrampur	Char Sahebrampur	Madaripur Sadar	Jhawdi	Bramandi
Chandpur	Chandpur Sadar	Chandpur Sadar	Manihar	Kachua	Ashrafpur	Ashrafpur
	Sharasti	Uttar Suchipara	Shersark			
	Hajiganj	Pashchim Hatila	Kathali			
	Matlab	Sultanabad	Shibpur			
B.baria	Nabinagar	Shaymgram	Shahjadpur	Akhaura	Akhaura	Kunda
Cox's Bazar	Ramu	Garjania	Purba Bomangkhil	Ukhia	Haldia Palang	Maricchai Palang
Hobiganj	Lakhai	Bamai	Bamai	Bahubal	Mirpur	Purba Rupsankar
	Azmeriganj	Shibpasha	Shibpasha			
Barisal	Muladi	Saphipur	Bheduria	Agoiljhora	Bakal	Jobshen
	Gournadi	Barthi	Dhanbhog			
Bhola	Lalmahan	Charbhuta	Hariganj	Dawlatkhan	Char Khalifa	Kalakopa
	Bhola Sadar	Char Samaia	Char Shfuli			
	Charfashion	Char Manika	Char Aicha			
11 Districts	22 Upazilas	22 Unions	22 Villages	11 Upazilas	11 Unions	11 Villages

Data Consolidation and Analysis

Data collection and data consolidation occurred simultaneously. Completed interview schedules were brought to READ office Dhaka phase by phase for processing. Data consolidation activities, such as editing, coding, translating, classifying and data entry into the computer software for analysis have been carried out separately. Frequency tables (one, two or multi ways) are prepared for interpretations and analysis. Statistical and computer tools (SPSS and d-Base, EPI soft wares, Fox pro) used for data analysis.

Chapter-IV Findings on Infrastructures

Section 1: Assessment Physical Targets Review of PCR and Allied Reports

Summary Findings of the Project Completion Report (PCR):

Bangladesh Agricultural Development Corporation (BADC) under the Ministry of Agriculture was executed the project “ Expansion of Irrigation Through Utilization of Surface Water by Double Lifting (1st Phase-Revised) Project included installation of 5 cusec land based pumps and 12.5 cusec and 25 cusec floating pump and other related water infrastructures.

The project was implemented to:

- produce food grain, produce 115125 tons of additional food grain per annum, financial value of which is Tk. 92.10 crore by maximum utilization of surface water of the largest rivers of the country such as the Padma, the Meghna, the Jamuna along with other flowing rivers by utilization of 5-cusec pumps and floating pumps through double lifting;
- give training to managers on scheme operation and irrigation management, drivers on operation of pumps and field men on irrigation canal and distribution of water;
- develop socio-economic conditions to the land owners, marginal farmers and working people (men & women) and thus alleviate poverty and Post flood rehabilitation for repair and reconstruction of office buildings, residential quarters, irrigation structures and repair of pumps.

Financing arrangement (Allocation of the project): The project was funded by the Government of Bangladesh. The estimated cost and the actual cost of the project are given below.

(In lakh Taka)

Description	Estimated Cost			Actual expenditure (30.6.07)	Cost over-run (% of original cost)
	Original	1 st Revised	2 nd Revised (Latest)		
Total Taka	10700.00	9300.48	8240.80	8001.18	-25.22%
PA	-	-	-	-	-

Implementation Period: The implementation period of the project was originally scheduled from July 1999 to June 2004. Subsequently the project period was revised and extended up to June 2007 as shown in the chart below.

Implementation Period as per PP		Actual Implementation period	Time Over-run (% of original implementation period)	Remarks
Original	Latest Revised			
July 1999 to June 2004	July 1999 to June 2007	May 2000 to June 2007	43.33%	Due to late of approval and fund

Project revision with reasons: The Project was revised with some following reasons:

- **Procurement of 25 cusec floating pumps:** As per decision of the PEC meeting held on 12.03.06, scope for procurement of 25 cusec floating pumps was changed from 66 sets to 20 sets and for which fund allocation was revised from TK. 2640.00 lakh to TK. 822.00 lakh and it was reflected in the revised PP.
- **Procurement of 12.5 cusec floating pumps:** As per decision of the PEC meeting held on 12.03.06, scope for procurement of 12.5 cusec floating pumps were changed from 89 sets to 60 sets and again fund allocation was revised from TK. 1958.00 lakh to TK. 1580.00 lakh and it was reflected in the revised PP.
- **Procurement of spare parts for repairing of floating pumps and 5 cusec pumps:** Due to extension of the project period for one year, fund allocation has been increased from TK. 280.00 lakh to TK. 330.00 lakh and it was reflected in the revised PP.
- **Repair and maintenance of floating pumps and 5 cusec pumps:** Due to extension of

the project period for one year, fund allocation was increased from TK. 50.00 lakh to TK. 60.00 lakh and it was reflected in the revised PP.

- **Construction of discharge box and irrigation structures:** As per decision of the PEC meeting held on 12.03.06, scope for construction as well as fund allocation was reduced TK. 540.00 lakh to TK. 370.00 lakh and it was reflected in the revised PP.
- **Office management cost (O & M offices):** Due to extension of the project period for one year, O & M cost was increased from TK. 150.00 lakh to TK. 190.00 lakh.
- **Pay and allowances including overhead:** Due to extension of the project period for one year, O & M cost was increased from TK. 150.00 lakh to TK. 190.00 lakh.
- **Post Flood rehabilitation:** TK. 155.00 lakh has been allocated against post flood rehabilitation for repair and reconstruction of office buildings, residential quarters, irrigation structures and repair of floating pumps and 5 cusec pumping sets of the project. As per GOB decision, this amount was included in the revised PP.

Component-wise Progress (As per latest approved PP):

Items of work (as per PP)	Unit	Target (as per 2 nd Revised PP)		Actual Progress		% achievement	
		Financial	Physical (Quantity)	Financial	Physical (Quantity)	Financial	Physical (Quantity)
1	2	3	4	5	6	7	8
Revenue Component							
Repair, Maintenance of Floating Pump and 5 cusec Pump with supply of Spares	L.S	60.00	L.S	60.00	L.S	100%	100%
Repair, Maintenance of Vehicles along with Spares	Nos	80.00	45	80.00	45	100%	100%
Oil and Fuel for Vehicles and Motor Vessel	Nos	80.00	45	80.00	45	100%	100%
Local consultants	mm	26.77	60	26.77	60	100%	100%
Training of Group Managers	Nos	21.00	6500	19.15	4065		
Carrying and Handling	L.S	44.00	L.S	44.00	L.S	100%	100%
Repair, Maintenance of Furniture and Office Equipment and other	L.S	15.00	L.S	15.00	L.S	100%	100%
Repair, Maintenance of Office Building and Quarter	Nos	36.00	33	36.00	L.S	100%	
O & M of Offices	L.S	190.00	L.S	190.00	L.S	100%	100%
Contingency (Miscellaneous cost)	L.S	6.00	L.S	6.00	L.S	100%	100%
Mid term Evaluation	L.S	5.00	L.S	1.79	L.S	36%	
Overhead along with Pay and Allowances of Office Personnel	Nos	3600.55	289	3443.43	289	96%	100%
Sub – Total (Revenue Component)		4164.32		4002.14		96%	
Capital Component							
a) Procurement of 25 cusec Floating Pump (Barge mounted-Diesel driven)	Set	822.00	20	779.00	20	95%	100%
b) Depreciated value of 25 cusec Floating Pump	Set	126.28	14	126.28	14	100%	100%
a) Procurement of 12.5 cusec Floating Pump (Barge mounted-Diesel/Electric driven)	Set	1580.00	60	1541.32	60	98%	100%
b) Depreciated value of 12.5 cusec Floating Pump	Set	56.10	11	56.10	11	100%	100%
a) Procurement of 5 cusec Floating Pump (Diesel driven) and Accessories	Set	350.00	200	350.00	200	100%	100%
b) Depreciated value of 5 cusec Pump (Diesel driven)	Set	37.10	70	37.10		100%	
Procurement of 5 cusec Floating Pump (Electric driven) and Accessories	Set	155.00	150	155.00	150	100%	100%
Procurement of Spares Parts for Floating Pump and 5 cusec Pump	L.S	330.00	L.S	339.00	L.S	103%	
Procurement of Survey/ Office Equipment and other materials	L.S	25.00	L.S	23.85	L.S	95%	
Construction of Irrigation Structure (Discharge box)	L.S	200.00	L.S	200.00	L.S	100%	100%
Construction of Irrigation Structure (Pucca Channel and others)	L.S	170.00	L.S	174.83		103%	
Procurement of Furniture and Office Equipment	L.S	70.00	L.S	70.00	L.S	100%	100%
Taxes and Duties	L.S						
Sub – Total (Capital Component)		3921.48		3852.48		98%	
Sub-Total (A+B)		8085.80		7854.62		97%	
Flood Rehabilitation	L.S	155.00	L.S	146.56	L.S	95%	
Gross cost		8240.80		8001.18		97%	95%

Activities of the project were implemented according to the Annual Development Programme and at the end of June/2007 the overall physical progress of the project was 95% and financial targets achieved was 97%.

Section 2: Findings of observed Irrigation Pumps and Related Irrigation Infrastructures

In the 22 sample Upazilas in 11 districts, where the current evaluation survey was conducted, READ experts (consulting professionals and records) identified in total 167 pumps: 8 are of 25 cusec, 26 of 12.5 cusec and 133 are of 5 cusec capacities. From these, 33 pumps (20%) from different sample catchments were randomly selected for physical verifications by READ field team. Out of the selected 33 pumps, 6 were of 25, 6 were of 12.5 and 21 were of 5 cusec capacities. Total irrigated area covered under 167 pumps was 36,010 acres, of which 11,838 acres were covered by the catchments of the 33 sample pumps. Table 6 delineates the operating conditions of the sample 33 pumps and other allied infrastructures (physically verified) used for water distribution in the scheme area.

Table 6: Location of the observed sample pumps

Districts	Sample Upazilas	Sample Coverage for physical verifications: 20% of total coverage (selected randomly)				Irrigation area coverage (acres) per observed Pump
		Physically Observed				
		25 cusec	12.5 cusec	5 cusec	Total	
Manikganj	Sadar	0	0	3	3	210
Munshiganj	Gazaria	0	0	1	1	60
Kishoreganj	Nikli	1	1	1	3	1256
	Ashtagram	0	1	2	3	1550
	Itna	0	1	0	1	500
	Mithamoin	1	1	2	4	1752
	Bazitpur	0	1	0	1	350
Netrakona	Atpara	0	0	1	1	70
Madaripur	Kalkini	1	0	0	1	120
Chandpur	Hajiganj	1	0	0	1	1750
	Sharasti	1	0	0	1	1500
	Chandpur Sadar	0	0	2	2	300
	Matlab	0	1	0	1	350
B.baria	Nabinagar	1	0	0	1	900
Cox's Bazar	Ramu	0	0	1	1	105
Hobiganj	Lakhai	0	0	1	1	150
	Azmeriganj	0	0	1	1	200
Barisal	Muladi	0	0	1	1	150
	Gournadi	0	0	1	1	120
Bhola	Lalmahan	0	0	1	1	50
	Charfashion	0	0	1	1	175
	Sadar	0	0	2	2	220
11 Districts	22 Upazilas	6	6	21	33	11838

Among the selected 33 pumps: all 6 of 25 cusec are double lifting, out of 12.5 cusec 6 pumps, 4 are double lifting and 2 are single lifting. Out of 21 pumps of 5 cusec, 3 are double lifting and 18 are single lifting. Among the total of 33 selected pumps, 13 (40%) are double lifting. Out of all 33 selected pumps, 23 uses electric motors and 10 uses diesel engines as source of power for operation. In case of the schemes under double system, primary pumping is by 25, 12.5 and 5 cusec pumps followed by secondary pumping with low lift pumps of 1 or 2 cusec in most cases. However, 5 cusec pump is also used in two schemes for secondary pumping. Distribution system of 13 double lifting pumps is presented in Table next page:

Table 7: Distribution of 13 (40%) pumps used for double lifting

Primary Lifting	Supply	Secondary Lifting
5 cusec	Canals/Khals/Beels to Irrigate land	Shallow pump
	Canals/Khals/Beels to Irrigate land	Shallow pump
	Canals/Khals/Beels to Irrigate land	2 cusec
12.5	Canals/Khals/Beels to Irrigate land	1/2 cusec
	Canals/Khals/Beels to Irrigate land	1/2cusec
	Canals/Khals/Beels to Irrigate land	2 cusec
	Canals/Khals/Beels to Irrigate land	Box and re-channel
25 cusec	Canals/Khals/Beels to Irrigate land	5 cusec
	Canals/Khals/Beels to Irrigate land	2 cusec
	Canals/Khals/Beels to Irrigate land	2 cusec
	Canals/Khals/Beels to Irrigate land	Shallow pump
	Canals/Khals/Beels to Irrigate land	1, 2 and 5 cusec
	Canals/Khals/Beels to Irrigate land	1,2,and 5 cusec

Information gathered on selected schemes and pumps:

Origin of Pump:

- Out of 21 pumps of 5 cusecs; 12 are made in China, 8 are made in Bangladesh and 1 is made in Germany.
- Out of 6 pumps of 12.5 cusecs; 4 are made in China, 1 is made in Japan and 1 is in England
- Out of 6 pumps of 25 cusecs; 3 are made in Japan and 3 are made in England.

Mode of Pump Operation:

- 21 pumps of 5 cusecs, of which 5 are driven by diesel engine and 16 are electricity operated.
- 6 pumps were of 12.5 cusecs, of which 2 are driven by diesel engine and 4 are electricity operated.
- 6 pumps were of 25 cusecs, of which 3 are driven by diesel engine and 3 are electricity operated.

Year of installation:

- The year of installation 5 cusec pumps are: Installed 3 pumps in 1999, 1 pump in 2000, 1 pump in 2001, 3 pumps in 2002, 4 pumps in 2003, 1 pump in 2004, 4 pumps in 2006 and 4 pumps in 2007. That means, installation started in 1999 and completed in 2007, a very long duration.
- Installation period for 12.5 cusec pumps: Installed 1 pump in 1999, 1 pump in 2005 and 4 pumps in 2007.
- Installation of 25 cusec pumps: Installed 2 pumps in 1997, 1 pump in 2001, 1 pump in 2002, 1 pump in 2008 and 1 in 2010. Installation duration is further longer for 25 cusec pumps.

Functional Status: Status survey in the selected 33 schemes revealed that 23 pumps which are 70% of the pumps observed are functioning well. About 30% of the pumps are not functioning well due to mechanical problems such as; weak nozzle and plunger, cracks in pipes, self starter do not work, switch of fuel pump out of service, damage of magnet of fuel pump and overall condition of engine is weak (old). Malfunctioning of auto circuit causes shut down of the machine. These problems cause insufficient water delivery. Out of 33 pumps, 15 can not deliver designed level discharge of water.

Status of Water Distribution Network:

Discharge Box: In the catchments of 33 pumps surveyed, 28 discharge boxes were identified, of which 8 (29%) are not in good condition and the remaining 20 are in good operating condition. Even base of some of the boxes are not lined, thereby get damaged due

to falling water from the discharge pipe. Discharge boxes frequently get overtopped as box size (s) is/are not appropriate.

Irrigation Channels: There are both unlined (kacha) and lined (pucca) channels linked with the 33 pumps. Of these, 23 pumps are linked with both pucca and kacha channels and 10 pumps are linked with only kacha channels. The current status of the channels is as follows:

- Status of channels both pucca and kacha, connected with 23 pumps:
 - Channels linked with 7 pumps are in good condition (no holes and cracks),
 - Channels linked with 3 pumps are in bad condition (there are many holes, cracks, broken sections and thereby there is uncontrolled water flow resulting to water loss and wastage).
 - Incase channels linked with 13 pumps, conditions of the pucca channels are good, but the conditions of kacha irrigation channels are bad: there are many holes, cracks, broken sections. Water flow is uncontrolled, goes to other undesired lands and water is wasted.
- Status of kacha channels connected with 10 pumps:
 - Channels connected with 3 pumps are good (no holes and cracks are found) and
 - Channels connected within 7 pumps are bad: there are many holes, cracks, broken sections and water goes to other lands which are not supposed to get irrigation water and uncontrolled flow causes 20-25% water loss.

Status of maintenance: Information collected on the status and sources of maintenance indicate that all the pumps (33) are maintained, but such maintenance is not under a regular routine system, instead it is on ad-hoc basis, i.e., as and when need basis. Scheme Committee and BADC mostly share responsibility of maintenance. Scheme committee is responsible for other infrastructures and BADC takes responsibility of pumps and accessories. The costs for such maintenance and repairs of the pumps are mostly borne by BADC and the costs for maintenance and repairs of other related infrastructures under the pumps are mostly borne by the Scheme Committee.

Out of 33 surface pumps, people from 27 (88%) schemes mentioned that BADC supervise the pumps. But the field men and pump operators often face problems. The problems are of different natures such as holes/cracks/damaged irrigation channels (70%), shortage or no pucca irrigation channels (42%), channels are not constructed according to the design (9%), lack of training of pump operators (6%) disruptions of electricity (27%), and insufficient water supply (6%).

Table 8: Overall comments on physical observation of Schemes

Name of projects	Negative impact of the project	Positive impact of the project
1.Uttar kurakir char shech prakalpa (5 cusec pump), Kurakir char, Manikganj Sadar, Manikgan	<ul style="list-style-type: none"> ✓ Shortage of pucca irrigation channels ✓ Problem in distribution of water due to kacha irrigation channel and water is wasted 	<ul style="list-style-type: none"> ✓ Present condition of the pump is good ✓ People are getting irrigation water easily ✓ Increased agricultural production/paddy ✓ Increased fertility of land ✓ Increased income ✓ Reduced water logging ✓ Improved life style/improved socio-economic status
2.Burundi 3 no (5 cusec pump), Bhararia, Manikganj Sadar, Manikgan	<ul style="list-style-type: none"> ✓ Problem in distribution of water due to kacha irrigation channel and water is wasted 	<ul style="list-style-type: none"> ✓ Present condition of the pump is good ✓ People are getting irrigation water easily ✓ Increased agricultural production/paddy ✓ Improved life style/improved socio-economic status
3. Bhurundi 2 no, Hatipara, Manikganj Sadar, Manikgan	<ul style="list-style-type: none"> ✓ Problem in distribution of water due to kacha irrigation channel and water is wasted 	<ul style="list-style-type: none"> ✓ Present condition of the pump is good ✓ People are getting irrigation water easily ✓ Increased agricultural production/paddy ✓ Increased income ✓ Increased educational opportunity ✓ Improved life style/improved socio-economic status

Name of projects	Negative impact of the project	Positive impact of the project
4. Pradhaner char shech prakalpa, Gazaria, Munshiganj	<ul style="list-style-type: none"> ✓ Problem in distribution of water due to shortage of pucca irrigation channels 	<ul style="list-style-type: none"> ✓ Present condition of the pump is good ✓ People are getting irrigation water ✓ Increased agricultural production/paddy ✓ Increased employment ✓ Increased income ✓ Improved life style/improved socio-economic status
5. Airakandi bhasoman shech prakalpa, Baliardi, Bazitpur, Kishoreganj	<ul style="list-style-type: none"> ✓ There is no pucca irrigation channels ✓ Problem in distribution of water due to kacha irrigation channel and water is wasted ✓ Nozzle and Plunger are weak and do not work efficiently 	<ul style="list-style-type: none"> ✓ Increased agricultural production/paddy ✓ Increased employment opportunity ✓ Reduced poverty ✓ Increased educational opportunity ✓ Improved life style/improved socio-economic status
6. Sonali bhasoman pp shech prakalpa, Itna, Kishoreganj	<ul style="list-style-type: none"> ✓ Channels have been not constructed according to the design. ✓ Problem in distribution of water due to damaged irrigation channel and water is wasted 	<ul style="list-style-type: none"> ✓ Present condition of the pump is good ✓ Increased agricultural production/paddy ✓ Reduced cost of irrigation water ✓ Increased employment opportunity ✓ Increased income ✓ Reduced poverty ✓ Developed communication system ✓ Improved life style/improved socio-economic status
7. Madal PP scheme, Nikli, Kishoreganj	<ul style="list-style-type: none"> ✓ No bad impact is observed 	<ul style="list-style-type: none"> ✓ Present condition of the pump is good ✓ Increased agricultural production/paddy ✓ Reduced cost of irrigation water ✓ Increased employment opportunity ✓ Increased irrigated land ✓ Improved of life style/improved socio-economic status
8. Dighola matikata bhasoman shech prakalpa, Nikli, Kishoreganj	<ul style="list-style-type: none"> ✓ Problem in distribution of water due to kacha irrigation channel and water is wasted ✓ Nozzle and plunger are weak/defective. Key of the fuel pump is out of service / disorder 	<ul style="list-style-type: none"> ✓ Increased agricultural production/paddy ✓ Increased employment opportunity ✓ Increased irrigated land ✓ Reduced cost of irrigation water ✓ Improved life style/improved socio-economic status
9. Darujoba bhasoman PP scheme, Nikli, Kishoreganj	<ul style="list-style-type: none"> ✓ Pump is out of service/non functional ✓ Self starter of the pump is out of service/disorder, switch of fuel pump is out of service, there is no leather and there is no chain kupa 	<ul style="list-style-type: none"> ✓ Increased agricultural production/paddy ✓ Increased employment opportunity ✓ Developed communication system ✓ Increased income
10. Bhadalpur Shech Prokalpa, Kastol, Austogram, Kishoreganj	<ul style="list-style-type: none"> ✓ No bad impact is observed 	<ul style="list-style-type: none"> ✓ Present condition of the pump is good ✓ Increased agricultural production/paddy ✓ Reduced cost of irrigation water ✓ Increased employment opportunity ✓ Developed communication system ✓ Non farming lands are brought under farming ✓ Improved life style/improved socio-economic status
11. Shah kutub shech prokalpa, Kastol, Austogram, Kishoreganj	<ul style="list-style-type: none"> ✓ Irregular supply of water in the canal where pupm has been installed 	<ul style="list-style-type: none"> ✓ Present condition of the pump is good ✓ Increased agricultural production/paddy ✓ Reduced cost of irrigation water ✓ Increased employment opportunity ✓ Non farming lands are brought under farming ✓ Created electricity supply system/people are getting electric facility ✓ Improved life style/improved socio-economic status
12. Kewra bhasoman shech prakalpa, Austogram Sadar, Austogram, Kishoreganj	<ul style="list-style-type: none"> ✓ Shortage of pucca irrigation channels ✓ Problem in distribution water due to kacha irrigation channel. There are holes/ cracks for this reasons water goes to other land and water is wasted ✓ Nozzle and plunger are weak/defective 	<ul style="list-style-type: none"> ✓ Increased agricultural production/paddy ✓ Increased employment opportunity ✓ Increased income ✓ Non farming lands are brought under farming ✓ Developed communication system ✓ Increased educational opportunity ✓ Improved life style/improved socio-economic status

Name of projects	Negative impact of the project	Positive impact of the project
13. Koykali bhasoman shech prakalpa, Mithamoin Sadar, Mithamoin, Kishoreganj	<ul style="list-style-type: none"> ✓ Present condition of pump and other infrastructure is not good ✓ There is no pucca irrigation channels ✓ Problem in distribution of water due to kacha irrigation channel. There are holes, cracks and broken sections. For this reasons water goes to other land and there is wastage of water ✓ Hole in the pipe in the machine and no check ball in the discharge box and for this reason water goes to other side/river 	<ul style="list-style-type: none"> ✓ Increased agricultural production/paddy ✓ Increased employment opportunity ✓ Increased income ✓ Improved life style/improved socio-economic status
14. Chila shech prakalpa, Mithamoin Sadar, Mithamoin, Kishoreganj	<ul style="list-style-type: none"> ✓ Shortage of pucca irrigation channels ✓ Problem in distribution of water due to kacha irrigation channel. There are holes, cracks and broken sections. For this reasons water goes to other land and causes wastage of water 	<ul style="list-style-type: none"> ✓ Present condition of the pump is good ✓ Increased agricultural production/paddy ✓ Increased employment opportunity ✓ Reduced poverty ✓ Non farming lands are brought under farming ✓ Increased educational opportunity ✓ Improved socio-economic status/life style
15. Chanpur dakkhinband shech prakalpa, Mithamoin Sadar, Mithamoin, Kishoreganj	<ul style="list-style-type: none"> ✓ Present condition of the pump is not so good ✓ There is no pucca irrigation channel and other infrastructures ✓ Problem in distribution of water due to kacha irrigation channel. There are holes, cracks and broken sections. For this reasons water goes to other land and causes wastage of water ✓ Problem in getting parts of pump, its quality is low, weak and old. Engine does not work continuously 	<ul style="list-style-type: none"> ✓ Increased agricultural production/paddy ✓ Increased employment opportunity ✓ Non farming lands are brought under farming ✓ Increased educational opportunity ✓ Improved life style/improved socio-economic status
16. Bhatuakhali bhasoman shech prakalpa, Mithamoin Sadar, Mithamoin, Kishoreganj	<ul style="list-style-type: none"> ✓ There is no pucca irrigation channel and other infrastructures (discharge box, turn-out, sluice gait, outlet etc) ✓ Problem in distribution of water due to kacha irrigation channel. There are holes, cracks and broken sections. For this reasons water goes to other land and causes wastage of water 	<ul style="list-style-type: none"> ✓ Present condition of the pump is good ✓ Increased agricultural production/paddy ✓ Increased employment opportunity ✓ Non farming lands are brought under farming ✓ Reduced cost of irrigation water ✓ Reduced poverty ✓ Developed communication system ✓ Created electricity supply system ✓ Improved life style/socio-economic status
17. Mirzapur to Joynagar scheme, Luneshor, Atpara, Netrokona	<ul style="list-style-type: none"> ✓ No bad impact is observed 	<ul style="list-style-type: none"> ✓ Present condition of the pump is good ✓ People are getting irrigation water ✓ Increased agricultural production/paddy ✓ Non farming lands are brought under farming ✓ Reduced cost of irrigation water ✓ Improved life style/improved socio-economic status
18. Anirban shech prakalpa, Sahebrampur, Kalkini, Madaripur	<ul style="list-style-type: none"> ✓ Shortage of pucca irrigation channels ✓ Problem in distribution of water due to kacha irrigation channel. There are many holes, cracks and broken sections. For this reasons water goes to other land and causes wastage of water 	<ul style="list-style-type: none"> ✓ Present condition of the pump is good ✓ Increased agricultural production/paddy ✓ Increased fertility of land ✓ Reduced poverty ✓ Improved life style/improved socio-economic status

Name of projects	Negative impact of the project	Positive impact of the project
19. Boaljhuri Shech Prakalpa, Hajiganj, Chandpur	<ul style="list-style-type: none"> ✓ Shortage of pucca irrigation channels ✓ Problem in distribution of water due to kacha irrigation channel. There are many holes, cracks and broken sections. For this reasons water goes to other land and causes wastage of water 	<ul style="list-style-type: none"> ✓ Present condition of the pump is good ✓ Increased agricultural production/paddy ✓ Increased fertility of land ✓ Reduced cost of irrigation water ✓ Reduced poverty ✓ Increased employment opportunity ✓ Improved life style/improved socio-economic status
20. Ragoibil bhasoman shech prakalpa, Suchipara Uttar, Shahrasthi, Chandpur	<ul style="list-style-type: none"> ✓ Present condition of the pump is not good. Engine does not work continuously and engine is weak and old ✓ Problem in distribution water due to kacha irrigation channel. There are many holes, cracks and broken sections. For this reasons water goes to other land and wastage of water 	<ul style="list-style-type: none"> ✓ Increased agricultural production/paddy ✓ Reduced cost of irrigation water ✓ Increased employment opportunity ✓ Improved of life style/improved socio-economic status
21. Amuakanda bhasoman shech prakalpa, 12 no. Sultanabad, Matlab, Chandpur	<ul style="list-style-type: none"> ✓ Shortage of pucca irrigation channels ✓ Problem in distribution water due to shortage of pucca irrigation channel ✓ Wastage of water due to kacha channel ✓ Water does not reach at high land and land at the end of the system. It taken longer time for irrigation 	<ul style="list-style-type: none"> ✓ Present condition of the pump and other infrastructures is good ✓ Increased agricultural production ✓ Comparatively less fertilizer is needed ✓ Increased employment opportunities/create employment opportunities ✓ Improved life style/improved socio-economic status
22. Maniher 5 cusec bhasoman shech prakalpa, Rampur, Chandpur Sadar, Chandpur	<ul style="list-style-type: none"> ✓ Problem in distribution water due to shortage of pucca irrigation channel ✓ Wastage of water due to kacha channel ✓ Water logging ✓ Water does not reach at high land and land at the end of the system. It taken longer time for irrigation 	<ul style="list-style-type: none"> ✓ Present condition of the pump and other infrastructures is good ✓ Increased agricultural production ✓ Increased employment ✓ Increased income ✓ Create employment opportunities ✓ Improved life style/improved socio-economic status
23. Monihar 5 cusec shech prakalpa, Rampur, Chandpur Sadar, Chandpur	<ul style="list-style-type: none"> ✓ Shortage of pucca irrigation channels as per need 	<ul style="list-style-type: none"> ✓ Present condition of the pump and other infrastructures is good ✓ Increased agricultural production ✓ Reduced poverty ✓ Improved life style/improved socio-economic status
24. Manik nagar meghna shech prakalpa, Shaymgram, Nabinagar, B. Baria	<ul style="list-style-type: none"> ✓ Shortage of pucca irrigation channels 	<ul style="list-style-type: none"> ✓ Present condition of the pump and other infrastructures is good ✓ People are getting irrigation water easily ✓ Reduced cost of irrigation water ✓ Increased paddy production
25. Purba bomangkhill shech prakalpa, Garjania, Ramu, Cox's Bazar	<ul style="list-style-type: none"> ✓ Battery of the engine is weak and does not get charged properly. Engine does not work continuously due to frequent mechanical problem and engine is weak and old ✓ Shortage of pucca irrigation channels ✓ Channels are not constructed according to the design ✓ Farmers get water in the beginning of the season but face water shortage by the end of the season ✓ Committee does not effective 	<ul style="list-style-type: none"> ✓ Increased paddy production ✓ Increased income ✓ Increased irrigated area

Name of projects	Negative impact of the project	Positive impact of the project
26. Baishagara shech prakalpa, Batam, Lakhai, Habiganj	<ul style="list-style-type: none"> ✓ Problem in distribution of water due to kacha irrigation channel and wastage of water ✓ There are no pucca irrigation channels 	<ul style="list-style-type: none"> ✓ Present condition of motor/engine is good. ✓ People are getting irrigation water easily ✓ Increased Boro paddy production ✓ Increased income ✓ Reduced cost of irrigation water ✓ Improved life style/improved socio-economic status
27. Birat shibpara shech prakalpa, Shibpash, Ajmeriganj, Habiganj	<ul style="list-style-type: none"> ✓ Unplanned irrigation channel ✓ Problem in distribution of water due to kacha irrigation channel and wastage of water ✓ There are no pucca irrigation channels ✓ Lack of training of pump operator ✓ Increased flies, mosquito's and diseases ✓ Increase use of chemical fertilizers and pesticides 	<ul style="list-style-type: none"> ✓ Present condition of motor/engine is good. ✓ People are getting irrigation water ✓ Increased Boro paddy production ✓ Increased agricultural production ✓ Increased income ✓ Improved life style/improved socio-economic status
28. Bheduria shech prakalpa, Bheduria, Muladi, Barisal	<ul style="list-style-type: none"> ✓ Lack of pump operator ✓ There are no other infrastructures other than channel and discharge box 	<ul style="list-style-type: none"> ✓ Present condition of motor/engine is good. ✓ People are getting irrigation water easily ✓ Increased paddy production ✓ Increased amount of irrigation lands
29. Dhandoba shech prakalpa, Barthi, Gournadi, Barisal	<ul style="list-style-type: none"> ✓ There are no pucca irrigation channel ✓ There are no other infrastructures other than discharge box 	<ul style="list-style-type: none"> ✓ Present condition of motor/engine is good. ✓ People are getting irrigation water ✓ Non farming lands are brought under farming
30. Uttar horiganj shech prakalpa, Charbhuta, Lalmahan, Bhola	<ul style="list-style-type: none"> ✓ Lack of pump operator ✓ Non functional discharge box ✓ There are no pucca irrigation channel ✓ Problem in distribution of water due to kacha irrigation channel and wastage of water ✓ Auto circuit dysfunctional and causes shut down of the machine 	<ul style="list-style-type: none"> ✓ People are getting irrigation water ✓ Increased Boro paddy area and production
31. Karimpara sadar road purba dakkhin shech prakalpa, Charmanik, Charfashion, Bhola	<ul style="list-style-type: none"> ✓ There are no other infrastructures other than pump ✓ Nozzle and plunger are weak and do not work properly 	<ul style="list-style-type: none"> ✓ Same as before
32. Charanabad char shifuli adarsha shech prakalpa, Charsumaia, Bhola Sadar, Bhola	<ul style="list-style-type: none"> ✓ In 1st phase there was no turn-out, outlet, culvert under the pump but these are constructed in 2nd phase ✓ Lack of pump operator 	<ul style="list-style-type: none"> ✓ Present condition of motor/engine is good ✓ People are getting irrigation water ✓ Increased Boro paddy area and production
33. Char shifuli adarsha krishi prakalpa, Charsumaia, Bhola Sadar, Bhola	<ul style="list-style-type: none"> ✓ In 1st phase there was no pucca irrigation channel, discharge box, turn-out, outlet, culvert under the pump but these are constructed in 2nd phase 	<ul style="list-style-type: none"> ✓ Present condition of motor/engine is good ✓ People are getting irrigation water ✓ Increased Boro paddy area and production

Following are the comments of the Chief Engineer (MI), BADC on the status of the Equipment and allied infrastructures:

Problems described in draft report	Comments
<p>1) Regarding Pumping set</p> <p>Mechanical problems of engine (such as weak nozzle, plunger, self starter, fuel pump). Over all condition of engines are weak (old). Insufficient water delivery.</p>	<p>The Japanese engines coupled with floating & land based pumps are too old which require frequent repairing. Chinese engines procured in the 1st phase of the project were not performing well and that is why these are being replaced by good quality Duetz engine made in Germany in the 2nd phase. In the 1st phase of the project there was insufficient fund for repair and maintenance. More over, there is shortage of manpower (mechanic) in BADC since 1992 because of withdrawal of irrigation activities from BADC and due to privatization policy of the government. These problems will be solved very soon in the 2nd phase.</p>
<p>2) Regarding discharge <u>box</u> and irrigation channel</p> <p>Some of the discharge boxes (6 nos) are- Small in size, non functional, leaks /cracks etc.</p> <p>There are holes/cracks/damages in the irrigation channel. Repair maintenance is not done properly.</p>	<p>The discharge box of Dighola-Matikata, Nikli, Kishorganj was constructed for two nos 5-cusec pumps (10-cusec) which was utilized up to 2004-05. Later on, as per demand of the farmers of the scheme for covering more area under irrigation, the pumps were replaced by one floating pump the capacity of which is 25-cusec. For this reason the discharge box is seemed to be small. This discharge box will be renovated as per required capacity in the 2nd phase of the project.</p> <p>Pumping site of one of the scheme (Sahebrampur, Kalkini, Madripur) has been shifted to another place within the scheme as per availability of already construed electric line. That is why the previous diesel engine has been replaced by electric motor and installed at new site within the scheme. For this reason the discharge box is non functional.</p> <p>Periodical maintenance of some of the discharges boxes & irrigation channels were not done due to shortage of fund. These structures will be repaired before the next irrigation season under 2nd phase of the project.</p>

Chapter-V

Findings of Qualitative In-depth Investigations

Section 1: Training Assessments: Coverage, Performance, Institutions

Intensive training was conducted for the growth of efficient and technical man power in the areas of scheme operation, irrigation management, operation of pumps, and distribution of irrigated water. The targets set for the training were for 4888 persons: managers (525), pump drivers (525) and field man (3838). Since the training was already completed, the assessment of the training was obtained through recollection of selected trainee samples. Findings represent the outcome of Intensive Interviews with Managers/ President/Secretary of the Scheme Committee, Pump Operator and Field Man. Initially, it was decided that sample of 338 personnel (managers/president/ secretary of the scheme committee, pump operator and field man) were targeted for the interview. Due to non availability of the targeted numbers, a total sample of 240 (all males: 71% of the targeted sample of 338) were interviewed applying Intensive Investigation method using a semi-structured open ended questionnaire. Of the 240 interviewed, only 60% (144 trainees) received training on scheme operation and irrigation management, pump operation and irrigation and distribution of water. Remaining 96 persons (40%) did not receive any training.

Background: Characteristics of the Trainees: Average age of the trainees (144) is 41 years. Average educational level of the trainees is class 6 passed. Before receiving training, 79% trainees' occupation was agriculture and after obtaining training it increased from 79% to 85%. The remaining occupations of the trainees before and after training are business, service, mechanic, and students.

Participation to Project Activities

The distribution of 144 trainees per responsibilities in the project is as follows:

- Manager/president (22%),
- Secretary (8%),
- Pump operator (20%) and
- Field man (50%).

Specific functions discharged by the trainees are:

- Manage water supply and distribution (46%),
- Manage and guide irrigation committee's activities (29%),
- Ensure repair and maintenance of pump (24%),
- Operate pumps (19%),
- Provide advice to local farmers (7%) and
- Collect irrigation charges from the farmers (6%).

More than half (58%) of the trainee respondents opined that they did not face any problem during performance of their duties, while 42% of the respondents opined that they faced problem and these included:

- Problems in distributing of water due to holes, broken and damaged status of kacha irrigation channel (20),
- Lack of uninterrupted supply of electricity (12%),
- Delay in repairing of engine/motor (9%),
- BADC did not assess their performances or undermined their opinions (5%); and
- Financial problems (4%)

Of the trainees interviewed, 45% (64) received training on jobs and functions as a field man, followed by 37% (54) as manager/president/secretary of the scheme committee, 18% (26) as pump operators. Nine major topics were covered in the training programs and these are:

- Preservation of seeds (40%)
- Distribution of water (38%)
- Proper utilization of irrigation water in cultivating (31%)
- Scheme operation and maintenance (31%)
- Operation of pumps (31%)
- Scheme management (28%)
- Maintenance of irrigation channels (9%)
- Produce more crops in low cost (9%)
- Prevention of wastage of water (4%)

Training Effectiveness:

Although trainees identified nine different areas of training, but when they were asked to assess training effectiveness by areas covered, they mentioned about only five areas:

- Only 38% mentioned 'Distribution of water' as an area of training, but only a little over half (52%) of the trainees perceived that the training in this area was effective;
- Only 31% mentioned 'Operation of pumps' as an area of training, but only less than half (44%) of the trainees perceived that the training in this area was effective;
- Only 31% mentioned 'Scheme operation and maintenance' as an area of training, but only about a third (37%) of the trainees perceived that the training in this area was effective;
- Only 40% mentioned 'Preservation of seeds' as an area of training, but only 6% of the trainees perceived that the training in this area was effective; and
- Only 9% mentioned 'Maintenance of irrigation channels' as an area of training, but only 4% of the trainees perceived that the training in this area was effective.

Findings of the study suggest that the training programs were hardly effective, except the areas of 'Distribution of water', 'Operation of pumps' and 'Scheme operation and maintenance', in which cases, training was partly effective. May be very gloomy situations of frequent disorder of the pump machines and their lack of repair and maintenance in the absence skilled mechanics reflect the gross failure of the training programs imparted by the project.

As many as 3 different agencies and their personnel were involved in the training and of them maximum inputs were given by the experts/trainers from BADC (99%), followed by those contributed by the resource persons from Agriculture Extension Department (27%), and resource persons from Fisheries Department (1%). Only 18% trainees received practical training on operation of pump, preservation of improved seeds, plantation of paddy in the right way, preparing of seed bed, and use proper quantity of fertilizer and pesticide in the land. According to the trainees', the level of quality of the training was very good (72%) and moderate (28%).

The trainees, on average, received 5 days training with maximum period of training reported is 30 days and the minimum being 1 day. When inquired whether the duration of training was adequate or not, half of the trainees (52%) reported that the duration of the training program was adequate, while 48% trainees reported that the duration of training was inadequate. The trainees recommended on average 2 weeks' (14 days) training. All the trainees assessed that training was an important and effective intervention.

Section 2: Findings of Intensive Interviews with Project Engineers and Allied Stakeholders

In total 107 persons were interviewed, of whom:

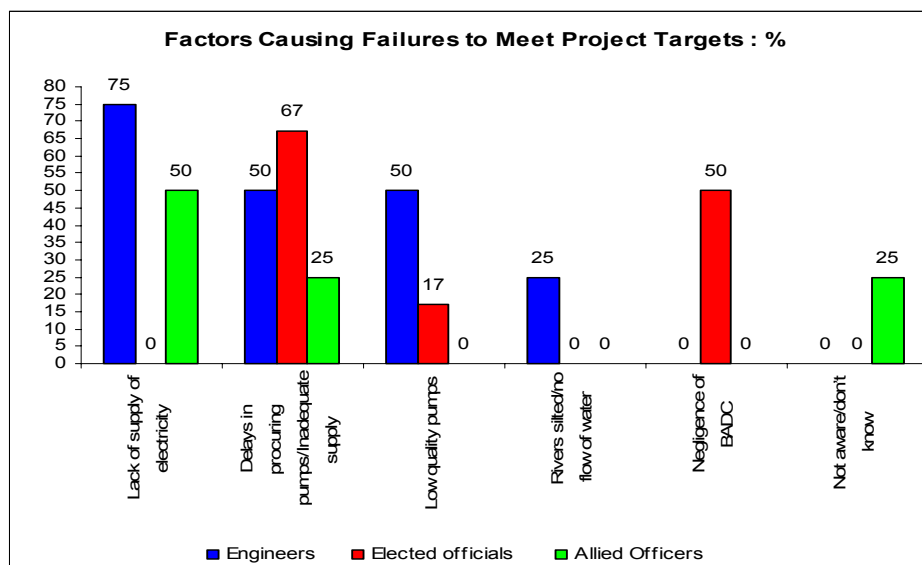
- 30% were Project engineers (32): Project Director Superintendent Engineer, Executive Engineer, Assistant Engineers, Senior Sub-Assistant Engineers and Sub Assistant Engineers; but of the Engineers only 38% claimed that they participated in the implementation of the Project;
- 36% were Elected officials of local Government (39): Upazila Chairman/Vice Chairman, UP Chairman/Members; of the Elected officials of local Government, but less than half (41%) claimed that they were involved in the Project; and
- 34% were Allied Officers at Upazila level (36): UNO, Agriculture Officers; of the Allied Officers at Upazila level, but only 25% claimed that they were involved in the Project.

Majority of the stakeholders, 69% of the Engineers, 61% of the Elected officials of the Local Government, and 45% of the Upazila level allied officials said that they went for field visits to project sites; but the functions of routine supervision was only performed by 19% of the Engineers.

As regards completion of the Project activities as per targets:

- Only 53% of the Engineers ascertained that the activities were completed as per target;
- Only 18% of the Elected officials of local Government ascertained that the activities were completed as per target; and
- Only 31% of the Allied Officers at Upazila level ascertained that the activities were completed as per target.

Varied factors have been cited as reasons for failures to complete the activities of the project as per targets, and the reasons are illustrated in the bar graphs below by three categories of respondents: Engineers, Elected Officials and Allied Officers.



- The Project Engineers mentioned about four important factors which obstructed completion of project activities as per targets and these are Shortages in the supply of electricity (75%); delays in the procurement of the pumps (50%); low quality pumps (50%) and silting of rivers resulting to severe shortages in the flow of water (25%);
- The Elected Officials of the Upazila/Union level Local Government mentioned about three important factors which obstructed completion of project activities as per targets

and these are negligence of the BADC authority (50%); delays in the procurement of the pumps/inadequate supply of pumps (67%); and low quality pumps (17%)

- The Allied Officials at the Upazila Level mentioned about two important factors which obstructed completion of project activities as per targets and these are shortages in the supply of electricity (50%); and delays in the procurement of the pumps (25%).

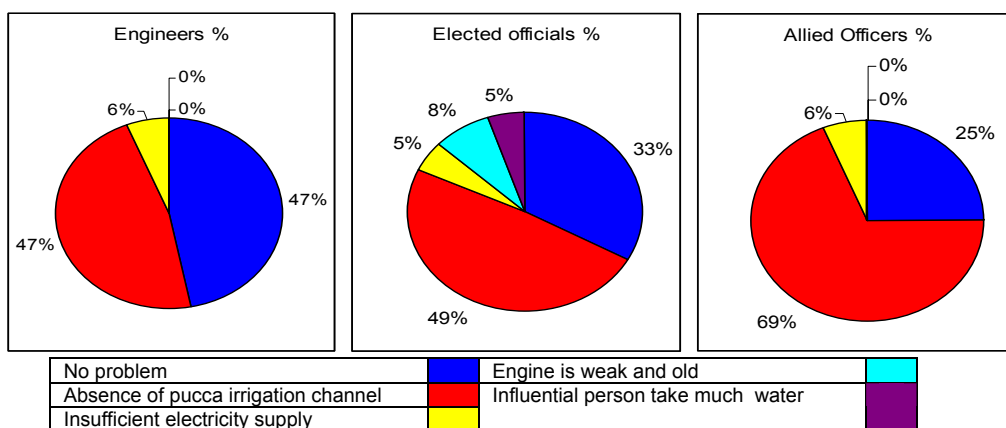
Almost half of the Engineers (41%) expressed their ignorance about the procurement process for obtaining Project equipment and materials, while 59% of the Engineers ascertained that the Project equipment and materials were procured through both tenders and quotations. Regarding selection of project sites the Engineers cited following as the priorities:

- 60% priority on availability of the surface water and its sources;
- 25% priorities on availability of adequate farm land; and
- 15% priorities on the demands of local farmers.

Regarding maintenance of the Project Equipment and Materials:

- The Engineers mentioned that BADC (70%) and the Scheme Committee (30%) were responsible; while
- The Elected Officials of the Local Government at the Upazila and Union levels mentioned that BADC (40%) and the Scheme Committee (60%) were responsible.

Pie Charts below depict the problems encountered in the distribution of the irrigated water in the project areas specified separately by the three categories of the respondents: Engineers, Elected Officials and Allied Officers.



- Absence of pucca channels and defective discharge box have been mentioned by the Engineers (47%), Elected Officials (49%) and the Allied Officers (69%) as the primary factor causing problem in the supply of irrigated water;
- Five to six percent of Engineers (6%), Elected Officials (5%) and the Allied Officers (6%) identified shortages of electricity as a factor causing problem in the supply of irrigated water;
- Eight of the Elected Officials identified weak and old pumps as a factor causing problem in the supply of irrigated water;
- Five of the Elected Officials identified interferences by the influential as a factor causing problem in the supply of irrigated water; and
- About half of the Engineers (47%), one third of the Elected Officials (33%) and a quarter of the Allied Officers (25%) observed that there was no problem in the distribution of water in the project areas.

Section 3: Findings of the Focus Group Discussions (FGD)

In total 22 FGDs were conducted in the catchments of the Intervention unions of the Project. A Total of 240 participants attended the FGDs @ 11 participants per FGD in the following distribution per sample districts: Koshorganj-5, Netrokona-1, Munsiganj-1, Chandpur-4, Manikganj-1, Madaripur-1, Hobiganj- 2, B.Barria-1, Cox's Bazar-1, Barisal-2, Bhola-3. The distributions of the participants by their identities are as follows:

Category of participants

- President/Secretary of Irrigation Committee – 22
- Vice President/Assistant Secretary – 10
- Manager – 19
- Pump Operator – 45
- Field Man – 142
- Accountant – 2

Most of the participants' occupations were farming (86%), while a few are business men (10%) and 4% service holders. The participants were well informed about the objectives (interventions) of the project, which as they envisaged were:

- Ensure utilization of river and haor water; Ensure sufficient use of water for farming; Extended coverage of uncultivated land under irrigation; Reduce irrigation cost; and Increase the fertility of land;
- Increase agricultural production and development; and Increase crop diversification; and
- Reduce food scarcity; Ensure financial benefits for the farmers; Create job opportunities; Ensure Socio-economical development; Poverty alleviation; and Control environmental disaster/hazards.

Perception of FGD participants about project inputs and interventions were also quite detailed and comprehensive and they perceived that the project created following facilities and services: Drainage system developed; 25 cusec, 12.5 cusec, 5 cusec pumps were installed; Pucca irrigation channel, discharge box set up, pipe culverts, turn out, and sluice gates established; and Irrigation canal developed. Participants also could specify the project implementation periods approximately from 2000 to 2007.

➤ Scheme operation, water distribution and management committee: related issues

- 100% of the committees are currently operational;
- Committee members are farmers, teachers, businessmen, elite people, service holders, members;
- Specific responsibilities of the committee are as follows: operation and management of the irrigation system including water distribution; Collect water charges and keep accounting records; repair and maintenance of Pump machine and other installations; and ensure Supervision and monitoring, particularly to ensure that the Field man keep clean the irrigation water distribution channels and maintain liaison with BADC.

Gender participation: Participation of the women in the project was observed to be very meager; some of the participants perceived that women are needed to be involved, while others thought women are not available or are not interested and this particularly reflect BADC's weaknesses in launching social and gender based mobilization to create support of the community for the project interventions irrespective of gender or SES.

Section 4: Local level opinion sharing workshop

The workshop was held in Ramu Cox'sbazar on 9th March 2011. The workshop was organized and conducted jointly by IMED and READ. Secretary, IMED graced the workshop as the Chief Guest and the DG IMED presided over the workshop. The workshop was participated by local stakeholders of Ramu and also representatives from IMED, READ: Total Participants—62.

Participants' Identity	Total	Male	Female
IMED Officials: Secretary, Director General, Director	4	4	0
Upazila Vice Chairman	2	1	1
Upazila Nirbahi Officer	1	1	0
Allied Officers: Agriculture Officer, Education Officer	2	2	0
Union Parishad Chairman/Member	2	1	1
Local Journalist	2	2	0
Beneficiary Farmers	24	17	7
President of Irrigation Committees /Pump Manager	3	3	0
Pump operator, Field men	4	4	0
Mechanics	2	2	0
Imam	1	1	0
BADC Officials: Chief Engineer, Project Director, Deputy Director, Executive Engineer, Assistant Engineer, Sub Assistant Engineer	7	7	0
READ Officials: Managing Director, Consultant, Additional Director, Deputy Director	8	6	2
Total Participants	62	51	11

The workshop proceedings were distributed in three major functional areas:

- Morning session: 9 am to 10 am registration of participants;
- Morning Second Session: 10.30 to 1 pm: Open discussions and sharing opinions among the participants
- Lunch break
- Afternoon Concluding Session: Address by Chief Guest and dialogues with the participants and conclusion by DG IMED

Major points raised and concerns expressed:

Project Brief and Status

- Prior to project inception, for irrigation, BADC used to apply 2 cusec low lift pump; consequently coverage of irrigated plots were extremely limited;
- Since 2002 under the Double Lifting Project (as the project is known in common parlance), one 5 cusec pump was used and in addition 1 discharge box was established; the local people on their own expenses created irrigation channels (mud built).But after sometime the discharge box was damaged, as the bottom part of the box was not constructed with cement.
- Majority of the participants however complained that the while the engine of the pump comprise of 36 horse power, the battery is of 28 plate capacity; consequently battery of the engine is unworkable and the pump does not function properly.
- Whenever the pump is out of order, it is repaired with funding from the local sources; BADC does not support such expenses. BADC claims that the local office has no supply of equipment needed for repairs. Moreover there is severe shortage of Mechanic for repairs.
- Since ground level is not plain, rather the ground is some where raised and somewhere its low and on the top of that the pucca irrigation channels are built in a zig--zag course resulting to huge wastage of irrigated water and quite a portion of the farm lands remain un irrigated.

- Besides, the kaccha channels over time have grown with shrubs and bushes resulting to water logging in many sections, which hamper growth of crops.

Local Management of Irrigation Scheme

- For management of Irrigation Scheme there is a Local Committee (LC), which consists of 18/20 members with a general body of 60 members initially' and now membership has been raised to 200 and all of them are local farmers.
- The Committee discharges the functions of: distribute or allocate irrigated water; fixing charges for irrigated water; collect charges for irrigated water; repairing the pumps etc. Usually the Committee President performs these functions.
- The LC holds one meeting per month.

Charges for irrigated water

Within the same project, the charges for irrigated water vary widely. Per forty decimals of land:

- Tk. 900 is charged for the plots where rubber dam provides for irrigation, as the plots served by rubber dam are located at lower landscape (following the dam) for which flow of water is uninterrupted; and
- Tk. 1800 to Tk. 2000 is charged for the plots served by pumps, where land is located comparatively at high and uneven ground.

Training of Project Personnel

Under the double lifting project, only 35 persons were trained for the area' where local level workshop was held; and many of them are now not available in the area. Besides, the training hardly focused on maintenance and repairs, instead, it emphasized on water management resulting to serious shortages of manpower needed to meet the local demands for repairs.

Remarks by the Chief Engineer BADC in response to the opinions and suggestions by the stakeholders

- Already in the area, the local people on their own initiative have dug small size canals to improve irrigation facilities; hence it is urged that the local community take necessary initiatives to dig more canals to expand the coverage of irrigation facilities;
- It is difficult to use solar power for a powerful machine like 5 cusec pump and even if it is possible, it would cost Taka twenty lacs per machine;
- The charges for irrigation water is determined by the Upazila Irrigation Committee;
- There is certainly serious shortages of mechanics in the project areas; BADC will try to solve the problems of the shortages of mechanics;
- In the next phase of the project, plans are there to procure quality pump machines: either Garman Doez or England Mister Peter; as cost of a pump machine, the local community is charged Tk.56,000; problems of matching the batteries for the machines will be taken care in future;
- Obviously, the area needs the services of more surface water pump machines;
- It is true that the cost of diesel is higher, but there is severe shortages of electricity;
- There is lot of defects in the construction of irrigation channels and boxes, which will be prevented through intensive monitoring and supervision in future; and
- Coverage by constructed irrigation channels will be expanded in future.

Remarks by the Secretary IMED

- The workshop participants have clearly underscored their problems with the defective pump machines and about the shortages of mechanics; BADC should consider a separate project to meet the local demands for pump operators and mechanics integrating improved training systems;
- It is true that BADC in Bangladesh has contributed a lot to accelerate agricultural production to use of scientific methods and techniques;

- Irrigation experts opined that irrigation system evolved through Gravity Flow Irrigation, i.e. where water is raised on a higher ground and it is supplied to the lower ground with force and ease;
- Local communities need to focus their endeavors to diversify crop production, i.e. to evolve practices of producing fruits and vegetables apart from paddy only;
- Following the Barind example, evolving of underground pipes for irrigation of water is probably a better idea; and
- Lastly, Bangladesh is predominantly an agriculture based country, hence more projects for expanded irrigation system is an imperative in order to accelerate agricultural productions.

Director General IMED thanked the participants, especially the farmers for their frank and open sharing of issues and concerns regarding the Double Lifting Irrigation System now in vogue in the local communities. He also hoped that in future the local communities with support of BADC will further improve the irrigation system and thereby accelerate the agricultural productions of the area.

DG IMED also visited Habiganj

- 12.5 cusec pump will be used in Kasba beside river Bibiana
- Project covers 840 acre
- Beneficiary farmers: 65
- Additional production target during Boro is 1660 tons

Chapter-VI

Findings and Discussions of Quantitative Household Survey of Beneficiaries

Beneficiary level perceptions of the project interventions and its outcome were assessed through a quantitative household level survey both in the Intervention and in the Control areas and the distribution of the sample is given in the table below:

Table 9: Distribution of household Beneficiary sample by gender and areas

Gender	Intervention areas		Control areas	
	n	%	n	%
Male	2640	75	880	75
Female	880	25	297	28
Total	3520	100	1177	100

Socio Demographic Characteristics

Roughly, one third of the respondents are poor and two thirds are non poor with slight difference between the Intervention and the Control areas at post project periods (currently).

Table 10: Distribution of respondents (households) by Socio economic status (SES)

Household SES currently in %	Intervention: %	Control: %
Poor: average monthly income Tk. 5000 and household structure: thatched and mud	30	35
Non poor: average monthly income Tk. 10,500 and Household Structure: tin and or cement	70	65

Table below shows the comparative distribution of the samples in the Intervention and in the Control Areas by selected independent variables

Table 11: Distribution beneficiary samples in Intervention & in Control Areas by independent variables

Independent Variables	Intervention		Control	
	Male	Female	Male	Female
Mean Age: in years	45	37	45	36
Mean Education: Completed Grades	5	3	4	3
Currently Married: %	98	100	100	100
Mean no. of living children: Numbers	4	4	4	4
Mean no. of family members: Numbers	6	6	6	6
Singly family: %	72	77	78	79
Farmers % Agri Laborers: %	93	1	90	0

The distribution of the samples demonstrates almost perfect comparability between the two areas: Intervention and the Control.

Table below depicts the status of current irrigation facilities comparatively by intervention and control areas as perceived by the male respondents (farmers).

Table 12: Types of current irrigation system in your area at present

Male Perceptions: in %	Intervention	Control
5 cusec pump	55	0
12.5 cusec pump	27	0
25 cusec pump	22	0
Low lift pump	0	28
Shallow tube well	8	51
Deep tube well	0	30

In the Intervention areas, majority of the males mentioned that they use irrigation pumps: 5 cusec irrigation pumps—55%; 12.5 cusec irrigation pumps—27%; and 25 cusec irrigation pumps—22%; In the Control areas, on the contrary, they use: Low lift irrigation pumps—28%; Shallow Tube well—51%; and Deep Tube well—30%.

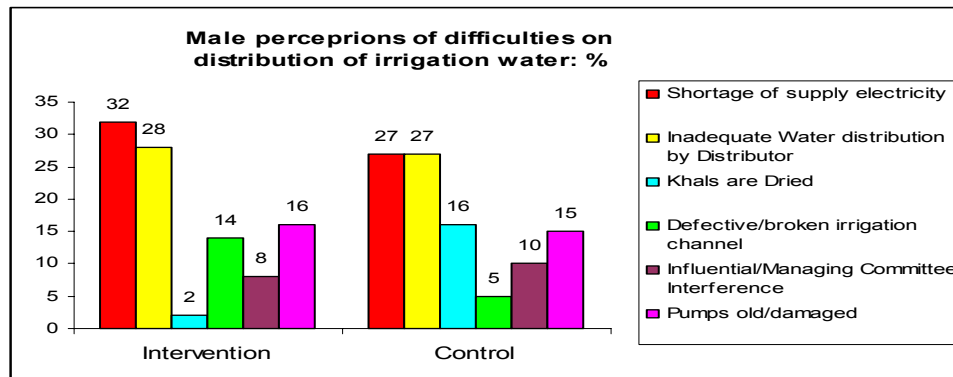
Comparative Status on Irrigation system

The data in the table above (Table 12) evidence that in the Intervention areas, irrigated water is distributed and used through application of high powered pumps: 5, 12.5 and 25 Cusecs, while in the control areas, the irrigated water is used mostly through shallow tube well, deep tube well and lofting pump (2 cusec). Most of the times water is distributed in the intervention areas on rotation (54%), while in the Control areas according to necessity (57%)

Table 13: Perception on water distribution practices

Male perception in %	Intervention	Control
By rotation	54	33
According to necessity	30	57
According to the responsible distributor	16	10

Almost universally, the farmers (94%) in the Intervention areas and about three fourths in the Control areas (76%) use irrigated water for farming. About two thirds of the males in the intervention areas (65%) and less than majority in the Control areas (44%) claimed that land covered by the irrigation system increased compared to the past. In the Intervention areas, more than three fourths (82%) and in the Control Areas, more than two thirds (69%) said that they did not face any problem with the irrigation system; the Distribution of the types of problems faced are shown in the bar graphs below:



The problems faced in the distribution of irrigated water both in the Intervention and in the Control areas are quite comparable both by types and in terms of proportions. Shortages of electricity and the problems created by the distributors are the most frequently faced problems.

Majority of the males (78%) and females (63%) claimed that they were aware of the project interventions, but only 7% of the males and 2% of the females participated directly in the implementation of the project.

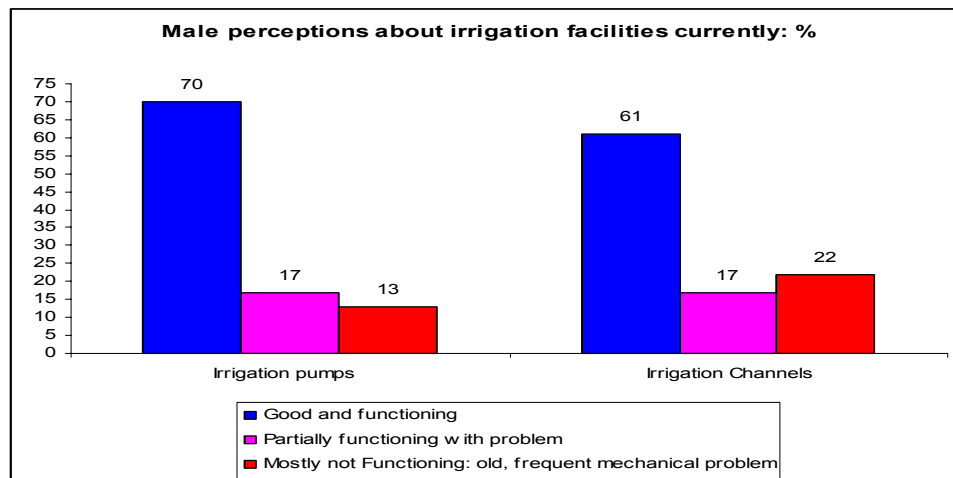
On a query on male perceptions on the availability and in functional status of project equipment (pumps by varying capacities in cusecs) and allied infrastructures in maximum possible number per cluster, following data were obtained.

Table 14: Status of pumps and allied infrastructures: Male perceptions on estimated maximum units per cluster

Pumps and allied infrastructures	Maximum number of units	
	Installed/ constructed	Functional
25 cusec pump Maximum	2	2
12.5 cusec pump Maximum	3	3
5 cusec pump Maximum	16	14
Discharge box Maximum	30	16
Pucca irrigation channel Maximum	30	16
Culvert Maximum	20	20
Cross dam Maximum	9	7
Turn out Maximum	16	12

Findings in the table show that both the pumps of 25 cusecs and 12.5 cusecs are available in any cluster to a maximum extent of two to three respectively; and these pumps, as perceived, are in full use and in functional status. The pumps of 5 cusec capacity are available to maximum of 16 numbers, out of which, at least 2 would be out of order or not in functional status. Almost 50% of the Discharge Boxes and of the Pucca Channels are possible to be dysfunctional (16) out of a total maximum availability of 30 in a cluster. Culverts are in good usable conditions. Some of the turn outs and cross dams remain out of order.

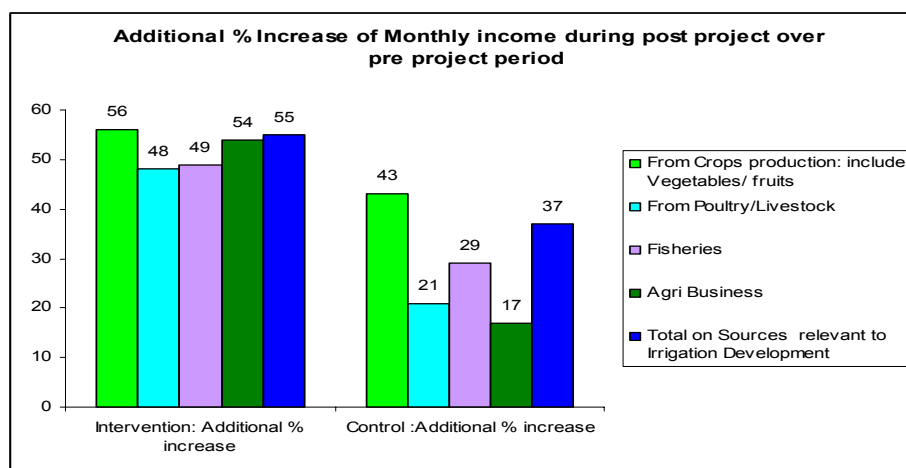
Bar graphs below depict the perceptions of the males regarding the current status of the irrigation pumps and the channels in the intervention areas currently.



Most of the males mentioned that the pumps (70%) and channels (61%) are good and functioning. But regarding the status of timely repairs of the facilities, 34% of the males claimed that these are not done properly and in time. Most of the males (73%) claimed that the maintenance work is discharged by the Scheme Committee and costs are also borne by the Scheme Committee and their performance is satisfactory. Very rarely both men (8%) and women (6%) claimed that the women are involved in the irrigation functions.

Comparative Impact on Socio-economic status

Bar graphs next page illustrate additional percent of monthly income during post project over pre project period comparatively between intervention and Control areas. The income from the agricultural sub sector (deep blue bar) show that the additional income earned during the post project period in the intervention areas is much higher than those in the control areas (a gap of 18%).



Income from the agri business comparatively between the intervention and the control areas is the highest; Intervention area shows an additional increase of 54%, while that of the control areas is only 17% and the next achieved higher income is from 'Poultry and Livestock'.

Overall monthly income in the Intervention area increased additionally by 58% during then post project period over the pre project period, that of the Control area income only rose additionally by 39%; and in such increment in the monthly income the major contributions came from the Agricultural sub sector in the Intervention areas, reflecting the effective outcome of the irrigation interventions through double lifting and distribution of the surface water.

We have conducted statistical significance test (Pair sample test) to assess the impact of Intervention on average monthly family income. The analysis shows that overall average monthly family income increased additionally by Tk. 4506 and Tk. 3034 in the Intervention and Control areas respectively. Pair sample test (Pre-post) shows that average monthly family income in Intervention areas increased significantly after the implementation of project ($d=50$; $p<.01$). It is also found that in the Control area, the monthly family income also increased significantly ($d=28.0$; $p<.01$). But the value of d-statistic indicates that intervention area is more highly significant than control area in terms of increasing average monthly income. The results show that percentage of additional income in the intervention area is higher than control area. The P-value shows that there are significant differences in increasing monthly family income between two areas (control and intervention).

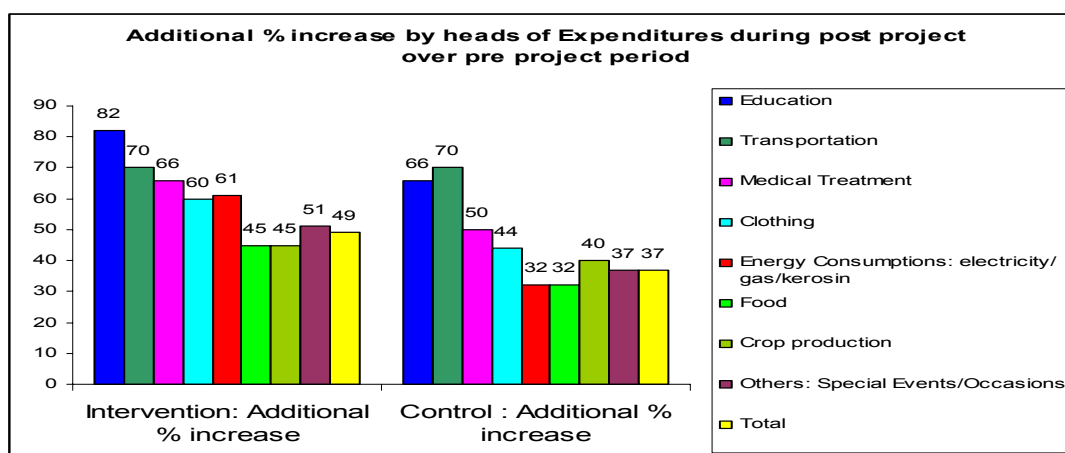
Table 15: Monthly family income by different heads: in taka

Average Monthly family income by heads	Intervention			Control			P-value
	Pre	Post	Additional % increase	Pre	Post	Additional % increase	
From Crops production: include Vegetables/ fruits	4784	7456	56	4841	6908	43	0.00
From Poultry/Livestock	508	754	48	414	500	21	0.00
Fisheries	172	256	49	171	221	29	0.00
Agri Business	815	1259	54	837	979	17	0.00
Subtotal: Heads relevant to Irrigation Development	6279	9725	55	6263	8608	37	0.00
Service	519	780	50	625	812	30	0.00
Other sources: Remittance, mortgage, loans	932	1731	86	940	1442	53	0.00
Total include all sources	7730	12236	58	7828	10862	39	0.00

*P-value based on Z-test

Here it may be mentioned that Report of the Household Income and Expenditures Survey 2010 (from Daily News paper sources) of BBS shows the average rural monthly family income about Tk. 10,000, which matches with the income observed for the control areas of this survey.

Bar graphs below illustrate the additional % increase by heads of Expenditures during post project over pre project period comparatively between intervention and Control areas.



In the intervention area highest increase in the expenditures has been observed on education followed by transportation, medical treatment and clothing in that order. In the Control area highest increase in the expenditures has been observed on transportation followed by, education, medical treatment and clothing in that order.

The overall monthly expenditures per family has increased both in the Intervention and in the Control areas, but the expenditures are little higher in the Intervention area (49%) than that in the Control area comparatively between pre and post project periods. Data in the table reflect that expenditures incurred tend to show increased investments pertaining to family's socio economic development (increased investments on education), more specifically in the intervention areas than in the control areas.

We have conducted statistical significance test (Pair sample test) to assess the impact of Intervention on average monthly family expenditure. The analysis shows that overall average monthly family expenditure increased additionally by Tk. 3025 and Tk. 2319 in the Intervention and Control areas respectively. Pair sample test (Pre-post) shows that average monthly family expenditure in Intervention areas increased significantly after the implementation of project ($d=65.3$; $p<.01$). It is also found that in the Control area, the monthly family expenditure also increased significantly ($d=33.5$; $p<.01$). But the value of d-statistic indicates that intervention area is more highly significant than control area in terms of increasing average monthly expenditure. The results show that percentage of additional expenditure in the intervention area is higher (49%) than control area (37%). The P-value shows that there are significant differences in increasing monthly family expenditure between two areas (control and intervention).

Table 16: Monthly family expenditure by heads: in taka

Average Monthly family expenditures by heads	Intervention			Control			*P-value
	Pre	Post	Additional % increase	Pre	Post	Additional % increase	
Education	209	381	82	247	410	66	0.00
Transportation	157	268	70	165	280	70	0.50
Medical Treatment	212	353	66	211	316	50	0.00
Clothing	261	418	60	265	382	44	0.00
Energy Consumptions: electricity/gas/kerosin	129	208	61	145	190	32	0.00
Food	3212	4653	45	3200	4210	32	0.00
Crop production	1582	2300	45	1577	2200	40	0.00
Others: Special Events/Occasions	402	608	51	384	525	37	0.00
Total	6164	9189	49	6194	8513	37	0.00

*P-value based on Z-test

Further it is evidenced from the data in the table below that the number of children going to schools has gone up comparatively in a more accelerated manner in the Intervention area (an increase by 0.58 unit during post project period) than in the control area (an increase by 0.16 unit during post project period). The Pair sample test showing there are significant improvements in average number of school going children. Comparing with the intervention and control area, the result shows that significant difference in increasing in number of school going children ($P < 0.01$). Findings indicate that intervention area is more highly significant than control area.

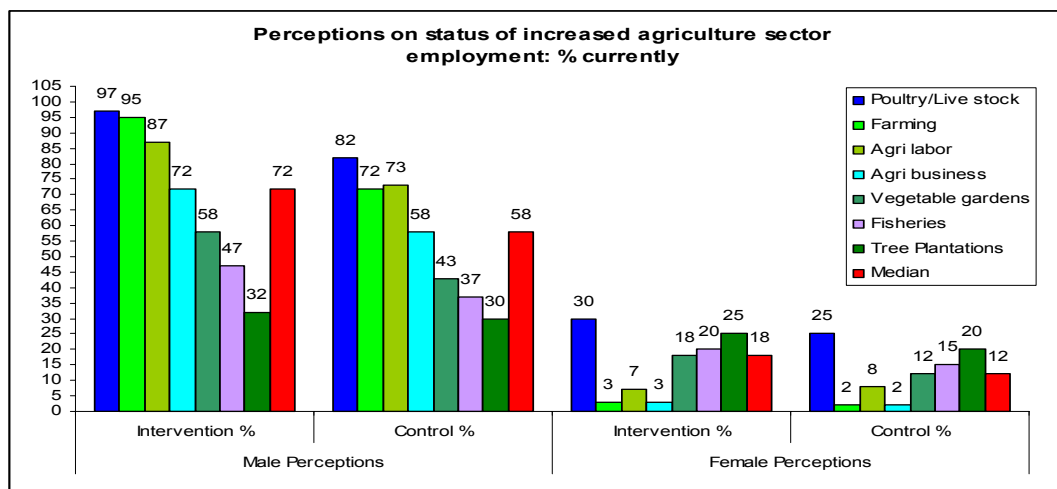
Table 17: Number of school going children between project and control areas

Number availed the opportunity	Intervention				Control				Z-value	**P-value
	Pre	Post	diff	*P-value	Pre	Post	diff	*P-value		
Mean number per family	1.03	1.61	0.59	0.00	1.08	1.24	0.16	0.00	8.5	0.00

*P-value based on d-test; **P-value based on Z-test

Employment Opportunities

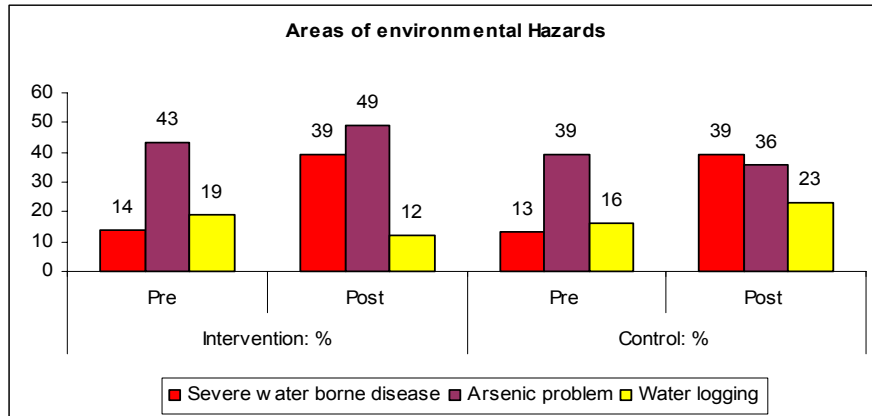
Bar graphs below show the distribution of male and female respondents by their perceptions on the status of increased agriculture sector employment comparatively by Intervention and Control Areas currently (at post project period). Perceptions are obtained for the males from male respondents, and for the females from the female respondents. Median percent (Red Bar) of employment by gender in the Agricultural Sector is as follows: for Males in the intervention areas: 72%; for Females in the Intervention areas: 18%; for Males in the Control areas: 58%; and for Females in the Control areas: 12%.



Highest employments for the males, irrespective of Intervention or Control areas, are perceived in the sub sectors of Poultry/Live stock; Farming; Agri labor; and Agri business. Highest employments for the females, irrespective of Intervention or Control areas, are perceived in the sub sectors of Poultry/Live stock; Vegetable gardens; Fisheries; and Tree Plantations.

Environmental Impact

About a third of the respondents in the intervention (34%) and about a quarter in the Control areas (27%) ascertained the status of environmental impact comparatively by pre and post project periods. Bar graphs below show the prevalence environmental hazards in three areas: Severe water borne disease; Arsenic problem; and Water logging comparatively by intervention and Control areas and also by time periods: pre and post project periods.

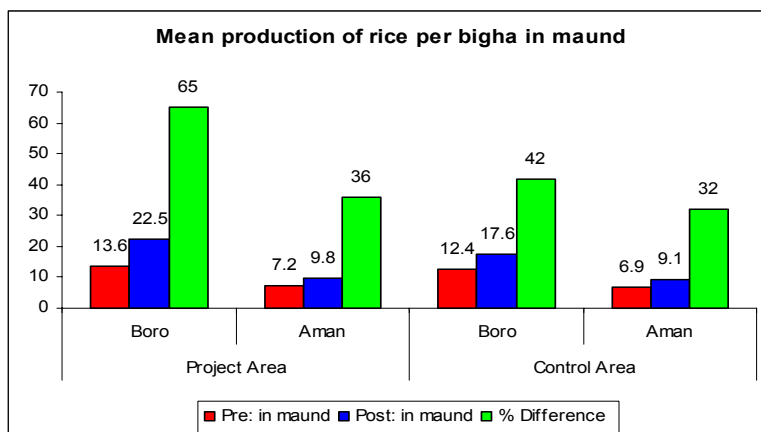


- In the intervention areas:
 - Perceptions about the severity of water borne diseases have increased from 14 to 39%; due to katcha channels and also due to defective discharge boxes, many areas face the problems of water logging, which might have caused such problems of diseases (diarrhoea, skin diseases and or mosquito borne diseases);
 - On arsenic problem the increase of perceptions at post project period (49%) over pre project (43%) among the respondents is less; but
 - On the status of water logging the perceptions declined from 19% to 12%.
- In the Control areas:
 - Perceptions about the severity of water borne diseases have increased from 13 to 39%;
 - On arsenic problem, the perceptions at post project period (36%) declined over pre project (39%); but
 - On the status of water logging the perceptions increased from 16% to 23%.

Chapter-VII Assessments of Agriculture Sector Productions

Following assessments have been done on the basis of the findings from the beneficiaries' samples at households level: Intervention areas: Male Sample—2640 and Female—880; and Control areas: Male Sample—880 and Female—297 covering 33 Upazilas in 11 Districts.

Findings evidence accelerated production of rice in respect of the two crops (Boro and Aman) both in the intervention and in the control areas comparatively between pre and post project periods.



The rate acceleration in the production of rice for both crops in the Intervention areas is much higher than that in the control areas:

- In respect of Boro crop, the additional increase in the intervention areas during post project period is 65% compared 42% in the control areas; and
- In respect of Aman crop, the additional increase in the intervention areas during post project period is 36% compared to 32% in the control areas;

Findings indicate that significant increase of productions of Boro and Aman crops during post project period both in the intervention and control areas in respect of all crops ($p < 0.01$). However, statistical analysis shows that in the intervention areas, production of Boro and Aman crops increase more significantly ($p < 0.01$) than in the control areas (see table below).

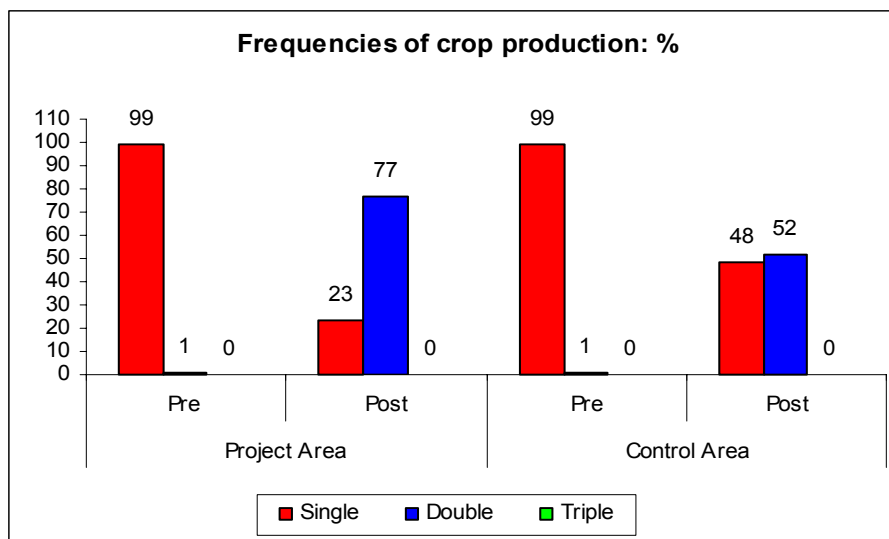
Table 18: Rice production between project and control areas

Rice production increased per bigha	Project Area					Control Area					Z-value	P-value
	Pre: in maund	Post : in maund	Absolute mean diff.	SD	P-value	Pre: in maund	Post : in maund	Absolute mean diff.	SD	P-value		
Boro	13.6	22.5	8.9	4.25	0.00	12.4	17.6	5.2	3.48	0.00	4.1	0.00
Aman	7.2	9.8	2.6	1.9	0.00	6.9	9.1	2.2	1.32	0.00	6.7	0.00

Multiple Crops: Data of the survey show that:

- In the Intervention areas, prior to project, 99% of the respondents were producing single crop, while during the post project period, production of single crop has been reported by only 23%, but production double crops (previously 0) is reported by 77% respondents; and

- In the Control areas, prior to project, 99% of the respondents were producing single crop, while during the post project period, production of single crop has been reported by only 48%, and production double crops (previously 0) is reported by only 52% respondents.



Cropping Intensity

The study results show that the cropping intensity has increased additionally by 59% (from 137% to 196%) in the project area. The cropping intensity gradually (day by day) increased from 100% in the pre project period to 225% in the year 2011, which is higher than the national average crop intensity level 181% (Krishi Diary, AIS & DAE Report, 2005-2011) reported in 2011. Findings clearly indicated that tremendous positive impact was achieved on cropping intensity after implementation of the project. The single crop area has significantly decreased with increase of double and triple crop areas.

Table 19: Cropping intensities by districts and by pre and post project periods: in %

District	Pre Project	Post Project	% Change	Cropping intensity (Krishi Diary, AIS & DAE Report, 2005-2011) 165.00 - 181.00
Manikganj	165.00	200.00	35.00	
Munsigonj	100.00	140.00	40.00	
Kishoregonj	125.00	223.00	98.00	
Netrokona	115.00	195.00	80.00	
Madaripur	177.00	210.00	33.00	
Chandpur	160.00	225.00	65.00	
B-Baria	135.00	198.00	63.00	
Cox's Bazar	132.00	173.00	41.00	
Hobiganj	119.00	183.00	64.00	
Barishal	147.00	217.00	70.00	
Bhola	130.00	190.00	60.00	
Total	137.00	196.00	59.00	

Status of Production in the allied Agricultural Sector: Following is the comparative assessments of Tree plantations, Fish cultivation, Cattle rearing, and Poultry raising between Intervention and the Control areas:

- 96% of the respondents in the intervention areas claimed that tree plantations were undertaken, while only 62% from the Control areas affirmed the same;
- 83% of the respondents in the intervention areas claimed that fish cultivation were undertaken, while only 69% from the Control areas affirmed the same;
- 94% of the respondents in the intervention areas claimed that cattle rearing were undertaken, while only 87% from the Control areas affirmed the same; and
- 91% of the respondents in the intervention areas claimed that Poultry raising were undertaken, while only 75% from the Control areas affirmed the same.

Chapter-VIII

Strength and Weakness: Recommendations and Sustainability

Findings of Trainees

Strengths of Training: Effectiveness:

- Only a little over half (52%) of the trainees perceived that the training on 'Distribution of water' was effective;
- Less than half (44%) of the trainees perceived that the training on 'Operation of pumps' was effective;
- Only about a third (37%) of the trainees perceived that the training on 'Scheme operation and maintenance' was effective;
- Only 6% of the trainees perceived that the training on 'Preservation of seeds was effective; and
- Only 4% of the trainees perceived that the training on 'Maintenance of irrigation channels' was effective.

Training Weaknesses:

Findings of the study suggest that the training programs were hardly effective.

- Very gloomy situations of frequent disorder of the pump machines and their lack of repair and maintenance in the absence skilled mechanics reflect the gross failure of the training programs imparted by the project.
- Only 18% trainees received practical training on operation of pump, preservation of improved seeds, plantation of paddy in the right way, preparing of seed bed, and use proper quantity of fertilizer and pesticide in the land.

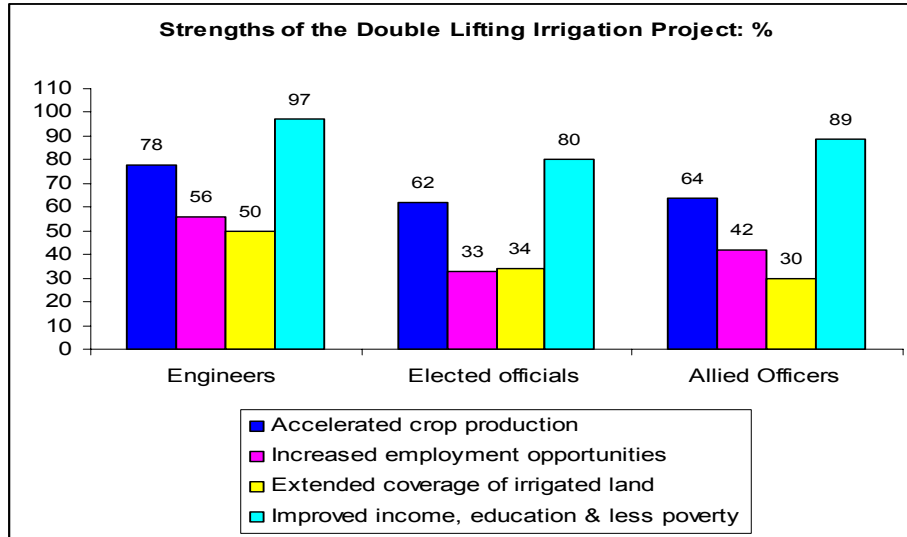
Measures for strengthening training program:

Ten different measures were suggested by the trainees for strengthening the future training programs and improving their skill:

- ✓ Provide more practical training (49%)
- ✓ Increase duration of training (33%)
- ✓ Provide more training simultaneously or refreshers' training (11%)
- ✓ Provide training for every farmer under the project (8%)
- ✓ After training follow up (8%)
- ✓ Village wise training provide (2%)
- ✓ Provide training by skill trainers (2%)
- ✓ Train every farmer of the village 2%)
- ✓ Provide training allowances (2%)
- ✓ Supply of relevant books (1%)

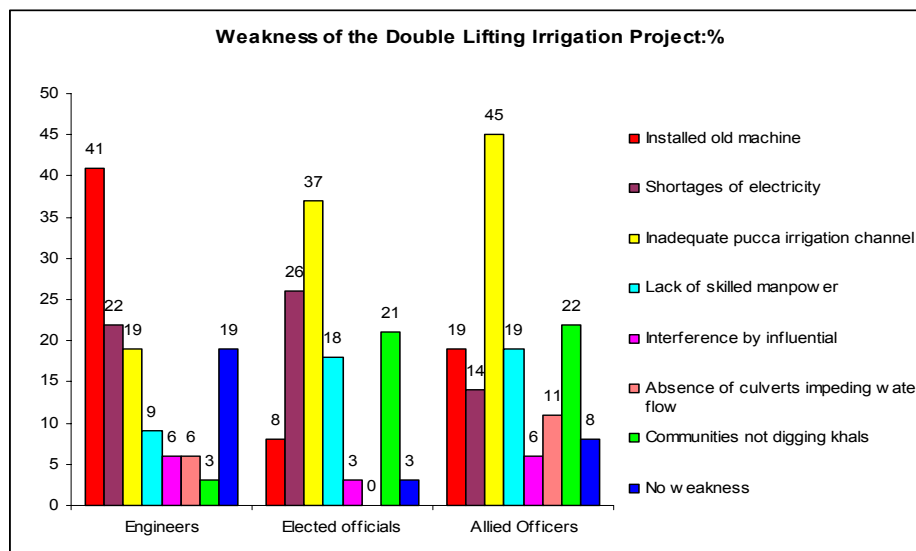
Findings of Project Engineers and Allied Stakeholders

Project Benefits/Strengths: Three stakeholders: Project Engineers (97%), Elected Officials (80%) and the Allied Officers (89%) overwhelmingly acknowledged that project outcome resulted to increased income for the farm families. Of course they identified accelerated agricultural productions were achieved by the farmers using largely irrigated water: Project Engineers (78%), Elected Officials (62%) and the Allied Officers (64%).



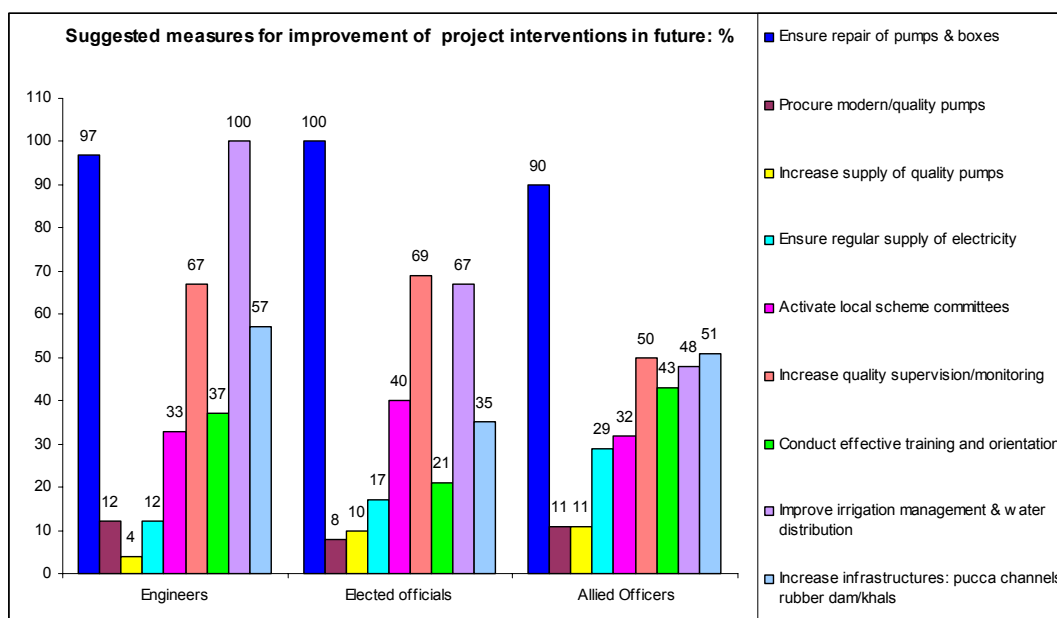
Other benefits accrued as project benefits are: Increased employment opportunities (33—56%); and Extended coverage of irrigated land (30—50%).

Project Weaknesses: Project Engineers (41%) perceived Installation of the old and low quality pumps as the major weakness of the project, while the Elected Officials (37%) and the Allied Officers (45%) perceived inadequate coverage of the irrigated land by Pucca Channels as the major weakness.



Other weaknesses of the project were shortages of electricity and lack of skilled manpower, particularly mechanics.

Suggested Measures to Improve Project Performances—Recommendations: Project Engineers (100%) prioritized the actions to ensure 'Improve irrigation management system: water distribution', while the Elected Officials (100%) and the Allied Officials (90%) prioritized the actions to ensure 'timely repair of the pumps and the discharge boxes'. The Project Engineers (97%) also emphasized on 'timely repair of the pumps and the discharge boxes'.



The other important recommendations to improve performances of the project in future are:

	Engineers %	Elected officials %	Allied Officers %
• Increase quality supervision and monitoring	67	69	50
• Ensure increased Irrigation infrastructures: culvert/pucca channel/ Construct Cross/rubber dam/dig khals	57	35	51
• Effective training (for mechanics, pump operator) and orientation (for Engineers and Community)	37	21	43
• Activate local scheme committees	33	40	32
• Procure modern and quality pump machines	12	8	11
• Ensure regular supply of electricity	12	17	29
• Increase supply of quality pumps	4	10	11

Findings of Focus Group Discussions (FGD)

Strength/Benefit accrued due to project implementation

Participants identified accelerated agricultural productions (70%) as the direct benefits of the project:

- Increased Coverage of farm land including Uncultivated land – 18%
- Increased crop production – 40%
- Used irrigation water properly – 12%

The outcome of excess agricultural productions positively impacted on the Socio Economic Development (30%):

- Increased employment opportunities in the agriculture sector – 11%
- Environmental balance achieved – 3%
- Increased business opportunities in agriculture sector – 4%

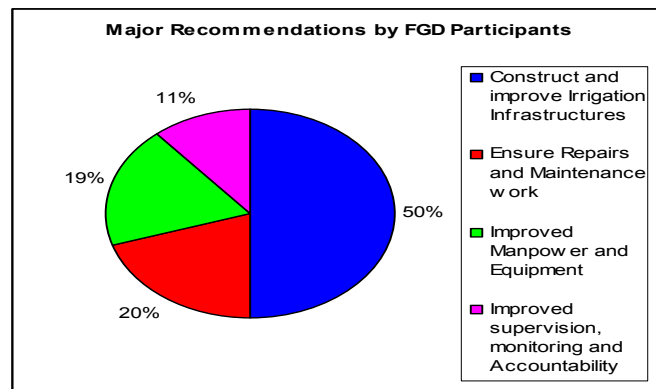
- Increased demand and value (price) of land – 4%
- Improved quality of life in the areas of: income, education, reduced poverty—18%

Weaknesses/environmental problems created due to project implementation

More than two thirds (69%) of the participants mentioned that they have been using the project irrigation pump and other infrastructures without problems. Little over one third of the participants rated the operational efficiencies of the project as good (39%), while about a quarter (27%) rated it as fair, which means the rest Little over one third of the participants rated the operational efficiencies of the project as good (39%), while about a quarter (27%) rated it as fair, which means the rest rated it as 34% rated it as poor. Specifically, following problems in the use of project facilities and services were experienced:

- ✓ Difficult to discharge irrigated water through the kacha channels causing insufficient supply of water;
- ✓ During rainy season cultivated land become unworthy for farming in the absence of sluice gate to remove water logging;
- ✓ Water is wasted for damaged/broken irrigation channels and water supplies to farm land is delayed;
- ✓ BADC do not supply machine at proper time; hence cultivation is disrupted
- ✓ Rivers are silted and water is scarce;
- ✓ Shortages of electricity interfered with pump operations;
- ✓ Proper supervisory services by BADC on use of irrigation water were lacking; 60% participants underscored such problem;
- ✓ Farmers suffered most of the times with the problems of repairs and maintenance of pumps and allied facilities and according to them only 17% of their need was met in this regard. For which repairs and maintenance work was mostly carried by the local Scheme Committee (54%) and when it was delayed the work was carried out by the individual farmers (26%) and only occasionally by BADC (20%) and the costs for repairs were also met in this proportions;
- ✓ Use of insecticides caused harmful effects on people and use of excess chemical fertilizers also affected fertility of land; and
- ✓ Due to water logging, cultivable land became unworthy of use and it also caused infestations of mosquitoes and flies.

Recommendations: The FGD participants underscored several suggestions for future improvement of the project interventions (see Pie Chart) in order to enhance the quality and effectiveness of implementation:



- Construct and improve Irrigation Infrastructures and Increased Operational Efficiencies of the Irrigation System (50%):
 - Construct more pucca irrigation channels and modern drainage systems – 25%
 - Construct quality discharge boxes and sluice gates – 9%
 - Dig irrigation canals – 8%

- Construct more culverts, embankments and developed communication system – 5%
- Undertake river dredging of rivers to remove silts -- 3%
- Ensure Repairs and Maintenance work (20%):
 - Ensure adequate supply of electricity -- 10%
 - Timely repair and maintenance – 9%
 - Ensure that the pump machines are always in operational condition – 1%
- Improved Manpower and Equipment (19%)
 - Need to procure and supply better quality pump machines and batteries – 11%
 - Need of strengthen training programs, particularly to ascertain the trained and skilled Mechanics are available as per demand – 8%
- Improved supervision, monitoring and Accountability (11%):
 - BADC must intensify its technical support for the field personnel-- 5%
 - Ensure adequate allocations of funds and allied government support – 3%
 - All time supervision by both BADC and the Scheme Committees – 3%

Findings of Local level Workshop

Strengths/benefits of the Project:

- Project introduced more powerful pump (5 cusec) compared to pre project period when pump was of 2 cusec capacity. Consequently, current irrigation system covers greater land area and also yield more crops; previously per 40 decimals (kani), yield was 10 maunds, while it has now increased to 25 to 30 maunds; and previously farmer used to gain only one crop, but now it is at least 2 crops;
- Project implementation, i.e., for digging irrigation channels, running pump machines, have contributed to local generation of employments in the farming sector; and
- All these investments resulted to increased income for the farmers, who are now sending their children to schools in greater numbers (80% attendance) compared to the pre project period (20-30% attendance).

Weaknesses of the Project

- Under the double lifting project procured pump machines operated smoothly for the first 2/3 years, but after that the machines started showing defects;
- The pump machines procured were of low quality (made in China) for which the machines were frequently in disordered conditions for which services required for irrigation by the machines is impeded resulting to gradually decreased coverage of plots of farming lands through the irrigation systems;
- Shortages of required parts for the machines also created situations when machines could not be repaired in time, and this was further aggravated by shortages of mechanic resulting to operational hazards due to the out of order pump machines;
- BADC also did not have supporting supervisory services to provide for immediate repair of the machines;
- In the area, there are shortages of irrigation channel, box culvert, sluice gate, turn out, and outlet;
- In many cases, irrigation channels were constructed where it was not a priority leaving the plots of land requiring priority services;
- In some cases, the contractor did not construct the irrigation channel and the discharge box as per approved design;
- As the irrigation channels were constructed in zig-zag manner in order to satisfy the vested interest groups resulting to either water logging (overflow of water) or shortages of water in other plots of land;

- As canals could not be dug in some areas resulting to dearth of irrigated water in the dry season; and
- Lastly in the area the irrigation system has induced increased use of insecticides and chemical fertilizers.

Recommendations for future improvement of the irrigation systems

➤ On pump machines

- Need to procure better quality pump machines (possibly German made);
- The battery procured should match the capacity of the pump;
- Area needs use of more 5 cusec pump machines;

➤ On irrigation system management

- Future program must meet the demands for trained and experienced mechanic and scheme manager;
- Ensure supply of electricity and as an alternative solar generation of electricity may be planned;
- Need to dig more canal for coverage of greater plots of farming land;
- Need to increase coverage of plots of land by pucca channels; and before the channels are designed and dug the local stakeholders (farmers) need to be thoroughly consulted;
- Need to construct more discharge box, rubber dam and box culvert;
- Need to construct alternative cross dams for reservation of water;
- Consider introducing underground pipes for irrigation of water and under this system wastage of water can be prevented;

➤ On repair, maintenance and supervision

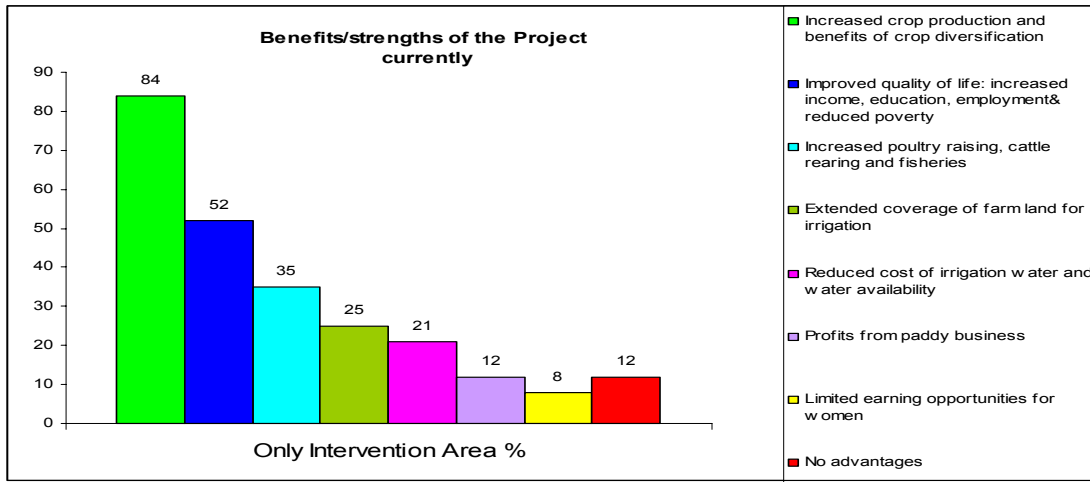
- BADC need to strengthen supervisory and follow up services in order to ensure timely repair and maintenance of the irrigation facilities;
- The local personnel of BADC should be more alert in providing supportive technical services;
- The scheme committee should be more efficient and effective to ensure improved management and support services on irrigation and allied activities;
- Need to consider increased training, particularly to generate more personnel on repair and operation of the pump machines (mechanic); and
- Need to consider construction of more bridges and culverts creating improved communication facilities for the farmers to carry their products to the markets.

Findings of Household Survey

Strengths and Weaknesses and Recommendations

Perceived Overall Benefits of the Project

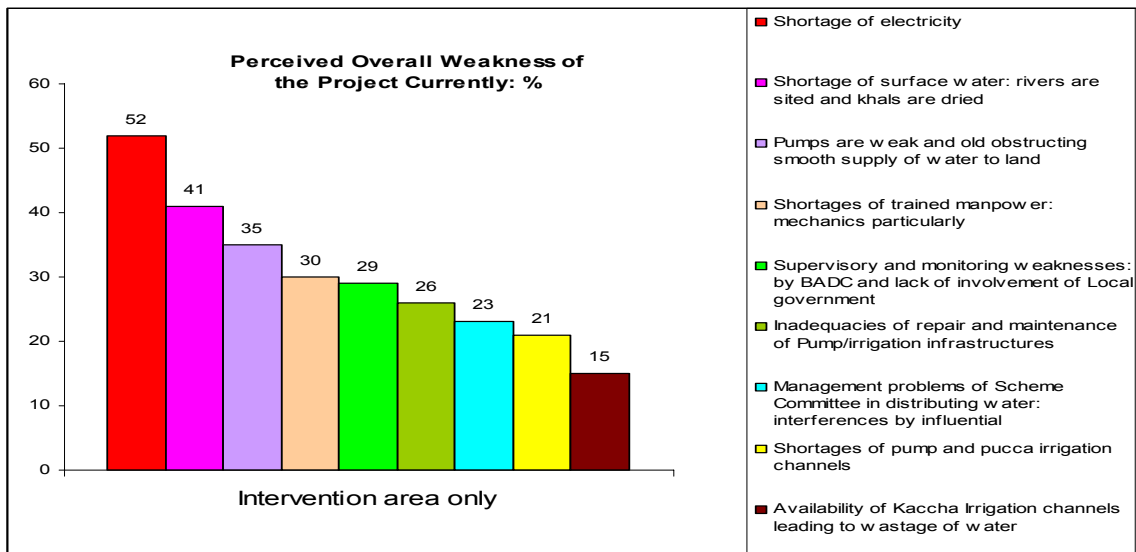
About a tenth of the respondents perceived that the project did not have any impact as benefits for them, while the rest 88% ascertained any or combination of benefits directly accelerating crop productions and crop diversifications (84%) followed by substantial impact on enhancing quality of life (52%).



More than a third of the respondents observed that there is boost in the endeavors on poultry raising, cattle rearing and fisheries. A quarter of the respondents identified extended coverage of farming land under irrigation and about a fifth perceived easy availability of water at reduced costs. And little over one tenth identified gains through paddy business, while a still lesser proportions (8%) thought that project interventions resulted to increased earning opportunities for women.

Perceived Overall Weakness of the Project

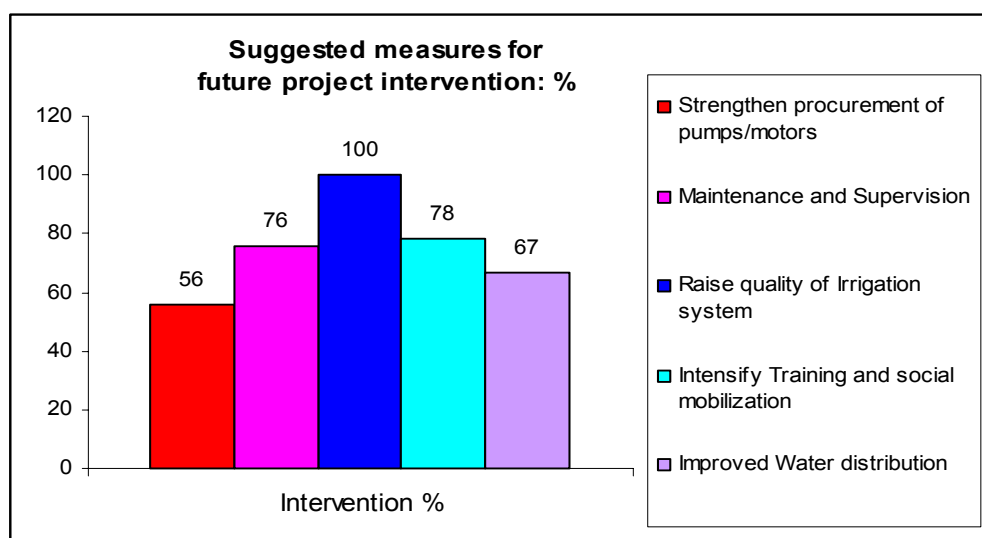
About a quarter of the respondents (28%) perceived that the project currently is experiencing following problems (see bar graphs).



Majority of the respondents identified shortages of electricity as the major problem (52%), followed by shortages of surface water: rivers are sited and khals are dried; Pumps are weak and old obstructing smooth supply of water to land; Shortages of trained manpower: mechanics particularly; Supervisory and monitoring weaknesses: by BADC and lack of involvement of Local government; and Inadequacies of repair and maintenance of Pump/irrigation infrastructures.

Recommendations

Five major areas of interventions have been suggested to improve the performances of the project implementation in future ensuring sustainability.



Of the five measures improving quality of irrigation system including infrastructures is the most priority recommendation, which has been advocated unanimously. The rest measures are: Strengthen procurement of pumps/motors (56%); Maintenance and Supervision (76%); Intensify Training and social mobilization (78%); and Improved Water distribution (67%). Detailed specific recommendations by major heads are delineated in the table below.

Table 20: Suggested measures for future project intervention

Response	Intervention %
a. Ensure procurement of quality pumps/motors	56
Increase supply of more good quality pumps	56
b. Maintenance and Supervision	76
Ensure timely repair of pumps and allied infrastructures	35
Intensify supervision by BADC and also by local bodies	41
c. Raise quality of Irrigation system	100
Ensure regular supply of electricity	55
Formation of active scheme committee	29
Increase number of irrigation channels/pucca channels	20
Construct more allied structures: boxes, culverts, dams and cross dams	31
d. Intensify Training and social mobilization	78
Train the field men and mechanics	15
Train the Engineers on approaches and techniques of local level supervision and monitoring	15
Train water distributors	18
Launch social mobilization on involvement of women and the all the stakeholders locally	12
Arrange for practice training	18
e. Improved Water distribution	67
Timely water distribution	31
Equal water distribution for all people (poor-non poor)	15
Increase number of water distributor	12
Water distribution should be modern method	9

Chapter-IX

Overall Recommendations and Conclusion

Overall Recommendations

Measures to strengthen training

- Ensure wider coverage of training: Train every farmer of the village and prioritize training of mechanics, field men and water distributors so that experiences of severe shortages of this manpower under the current project do not recur at the field level in future;
- Emphasize more on practical training at the field level in order to encourage growth of skills commensurate to the practice problems encountered during implementation;
- Engender quality and adequacy of training by increasing duration of training from 5 days to 14 days with provisions for refreshers (repeat) training and also provisions of after training follow-up of the trainees and supplies to trainees necessary training kits including manuals and tools etc.
- Train the Engineers on approaches and techniques of local level supervision and monitoring
- Launch social mobilization on involvement of women and the all the stakeholders locally

Improving Irrigation system and allied infrastructure

- Ensure increased Irrigation infrastructures: culvert/pucca channel/construct cross/rubber dam/dig khals
 - ✓ Construct more pucca irrigation channels and modern drainage systems
 - ✓ Construct quality discharge boxes and sluice gates
 - ✓ Dig irrigation canals
 - ✓ Construct more culverts, embankments and developed communication system
- Undertake river and canal dredging of rivers to remove silts
- Procure and increase supply of quality modern pump machines
- Ensure regular supply of electricity
- Need to construct alternative cross dams for reservation of water;
- Consider introducing underground pipes for irrigation of water and under this system wastage of water can be prevented;
- Need to consider construction of more bridges and culverts creating improved communication facilities for the farmers to carry their products to the markets.
- Ensure timely water distribution: equal water distribution for all people (poor-non poor); increase number of water distributors and water distribution should be modern method and standardize charges for water

Monitoring and Local Participation

- Increase quality supervision and monitoring of project implementation by the Project Engineers
- Activate local scheme committees and engage them for monitoring functions
- Improved supervision, monitoring and Accountability
 - ✓ BADC must intensify its technical support for the field personnel
 - ✓ Ensure adequate allocations of funds and allied government support
 - ✓ All time supervision by both BADC and the Scheme Committees

Strengthen Repair and Maintenance

- Ensure Repairs and Maintenance work: Timely repair and maintenance
- Ensure that the pump machines are always in operational condition
- BADC need to strengthen supervisory and follow up services in order to ensure timely repair and maintenance of the irrigation facilities
- To ensure regular, effective and quality repair maintenance services BADC may be allowed to obtain increased allocations to procure and distribute at the field level adequate spare parts and needed equipment

- The local personnel of BADC should be more alert in providing supportive technical services
- The scheme committee should be more efficient and effective to ensure improved management and support services on irrigation and allied activities

Conclusion

Double lifting project implemented by BADC certainly accrued expected benefits of accelerated agricultural productions and extended coverage of farm lands under surface water irrigation system. Such acceleration of agricultural productions in turn ensured improvements in the quality of life of the people living in the catchments of the project, which is evidenced by comparative analyses of the survey data collected from the control areas and also through comparisons of pre and post project status. But the project suffers from several technical and management problems, like inadequate supervision by project engineers; lack of timely repairs and maintenance of the pumps and the allied irrigation infrastructures. The serious shortages of trained and experienced manpower were due to discontinuation of many BADC personnel from services at one point through golden handshake, which probably was not an appropriate action. Data also underscore inadequacies of the training programs conducted to strengthen the field operations. Above all findings also suggest that pre and during project deficiencies in launching social mobilization campaigns to generate community support, particularly from the poor and the women.

Research findings suggest that in future expansion the programs (projects and functions) of BADC need to be considered strongly with a vision on coverage of increased areas of farm lands under surface water irrigation system to obviate the threats of acute shortages of underground water supply. Irrigation and agricultural development is integrally interlinked and BADC can and will play a pivotal role in this regard. We also recommend that BADC may be given the opportunities to design and implement the second project revising the first project based on the findings of the current evaluation on use of surface water for irrigation through double lifting.

Reference

1. Government of the People's Republic of Bangladesh, Ministry of Agriculture, Bangladesh Agricultural Development Corporation, Revised Development Proforma/Proposal (RDPP) for "Project for Expansion of Irrigation Through Utilization of Surface Water by Double Lifting (1st Phase)(Revised 2nd)".
2. Director General, Evaluation Sector, Implementation Monitoring and Evaluation Division (IMED), Ministry of Planning, Standard Request For Proposal (RFP) for the Selection of Consultant Services For "Expansion of Irrigation Through Utilization of Surface Water by Double Lifting (1st Phase)" (for lump-sum Consultancy), Invitation for Proposals No: 1/5, Issued on: 22/08/2010, Proposal Package No: 01.
3. Government of the People's Republic of Bangladesh, Agriculture, Rural Development and Research Sector, Implementation Monitoring and Evaluation Division (IMED), Ministry of Planning, Evaluation Report of "Expansion of Irrigation Through Utilization of Surface Water by Double Lifting (1st Phase)", 19.11.2007.
4. Rossi P. H, Freeman H. E, Evaluation A Systematic Approach, Third edition, SAGE Publications, Beverly Hills London, New Delhi, 1985.
5. Miller D. C, A Text and Reference Book For the Social and Behavioral Sciences Handbook of Research Design and Social Measurement, Fourth Edition, Longman, New York & London, 1964.
6. Cochran W. G, Sampling Techniques, third edition, John Wiley & Sons, New York, Chichester, Brisbane, Toronto, Singapore, A Wiley Publication in Applied Statistics, 1977.
7. Population Census 2001, National Report, Bangladesh Bureau of Statistics, Planning Division, Ministry of Planning, July 2003.
8. Bangladesh Demographic and Health Survey 2007, National Institute of Population Research and Training (NIPORT), Dhaka, Bangladesh, Mitra and Associates, Dhaka Bangladesh, Macro International, Calverton, Maryland, USA, March 2009.
9. Unlocking the Potential, National Strategy for Accelerated Poverty Reduction, General Economics Division, Planning Commission, Government of the People's Republic of Bangladesh, October 2005.
10. Minor Irrigation Survey Report 2007- 08, Government of the People's Republic of Bangladesh, Ministry of Agriculture, Bangladesh Agricultural Development Corporation, October 2008.

Appendix—1

Detailed Findings of Observed Irrigation Pumps and Other irrigation infrastructures

Table 1: Name, Location, Type of pump and Place of installation of the Scheme

Name of Scheme and Location	Type of Pump, Brand & Country, installation period, functional and driven status	Place of installation and Process of Lifting: Primary & Secondary lifting
1.Uttar kurakir char shech prakalpa (5 cusec pump), Kurakir char, Manikganj Sadar, Manikgan	Type of pump: 5 cusec Type of lifting: Double Made by: Chaina Installation year: 1999 Starting of using year: 1999 Functional status: Functional Driven by: Electricity	<ul style="list-style-type: none"> ✓ It is installed at the riverside. Installation place is not good. It is situated in such a place, where the soil condition is not good. At any time the installation place can be slide down and damaged ✓ At the first stage water is lifted from the river to khal and the 2nd stage from the khal by low lifting pump to the crop land through irrigation channel
2.Burundi 3 no (5 cusec pump), Bhararia, Manikganj Sadar, Manikgan	Type of pump: 5 cusec Type of lifting: Single Made by: Chaina Installation year: 2000 Starting of using year: 2001 Functional status: Functional Driven by: Electricity	<ul style="list-style-type: none"> ✓ It is installed at the riverside. At present water is brought to the pump by digging huge amount of soil ✓ Water is lifted by irrigation pump from the river and supplied it directly to the crop land through irrigation channel
3. Bhurundi 2 no, Hatipara, Manikganj Sadar, Manikgan	Type of pump: 5 cusec Type of lifting: Single Made by: Chaina Installation year: 2003 Starting of using year: 2003 Functional status: Functional Driven by: Electricity	<ul style="list-style-type: none"> ✓ It is installed at the riverside and the condition of the place is good ✓ River water is lifted by irrigation pump and supplied it directly to the crop land through irrigation channel
4.Pradhaner char shech prakalpa, Gazaria, Munshiganj	Type of pump: 5 cusec Type of lifting: Single Made by: Chaina Installation year: 2001 Starting of using year: 2002 Functional status: Functional Driven by: Diesel	<ul style="list-style-type: none"> ✓ It is installed at the riverside and the condition of the place is good ✓ River water is lifted by irrigation pump and supplied directly to the crop land through field channel
5. Airakandi bhasoman shech prakalpa, Baliardi, Bazitpur, Kishoreganj	Type of pump: 12. 5 cusec Type of lifting: Single Made by: Chaina Installation year: 2007 Starting of using year: 2007 Functional status: Functional Driven by: Electricity	<ul style="list-style-type: none"> ✓ The pump is installed as floating pump and very often housed in tin sheds ✓ From the River water is lifted by irrigation pump and supplied directly to the crop land
6. Sonali bhasoman pp shech prakalpa, Itna, Kishoreganj	Type of pump: 12. 5 cusec Type of lifting: Single Made by: Chaina Installation year: 2007 Starting of using year: 2007 Functional status: Functional Driven by: Electricity	<ul style="list-style-type: none"> ✓ The pump is installed as floating on the water, and the condition is good ✓ River water is lifted by irrigation pump and supplied directly to the crop land through irrigation channel
7. Madal PP scheme, Nikli, Kishoreganj	Type of pump: 5 cusec Type of lifting: Single Made by: Chaina Installation year: 2007 Starting of using year: 2007 Functional status: Functional Driven by: Electricity	<ul style="list-style-type: none"> ✓ It is installed at the riverside. Installation place is good ✓ River water is lifted by irrigation pump and supplied directly to the crop land through irrigation channels
8. Dighola matikata bhasoman shech prakalpa, Nikli, Kishoreganj	Type of pump: 25 cusec Type of lifting: Double Made by: England Installation year: 2001 Starting of using year: 2001 Functional status: Functional Driven by: Diesel	<ul style="list-style-type: none"> ✓ The pump is installed as floating on the water of river ✓ At the first stage water is lifted by irrigation pump from the river to beel and some amount supplied directly to the crop land through irrigation channel in the second stage water is lifted by 2 cusect pump from the beel to the crop land through the irrigation channel

Name of Scheme and Location	Type of Pump, Brand & Country, installation period, functional and driven status	Place of installation and Process of Lifting: Primary & Secondary lifting
9. Darujoba bhasoman PP scheme, Nikli, Kishoreganj	Type of pump: 12. 5 cusec Type of lifting: Double Made by: England Installation year: 2005 Starting of using year: 2005 Functional status: Functional Driven by: Diesel	✓ The pump is installed as floating on the water of river ✓ At the first stage water is lifted by irrigation pump from the River to Bil and some amount supplied directly to the crop land through irrigation channel and the 2 nd stage from the Bil water is lifted by 1 & 2 cusec pump to the crop land through the irrigation channel
10. Bhadalpur Shech Prokalpa, Kastol, Austogram, Kishoreganj	Type of pump: 5 cusec Type of lifting: Single Made by: Chaina Installation year: 2002 Starting of using year: 2005 Functional status: Functional Driven by: Electricity	✓ It is installed at the riverside of the river Dhaleswari ✓ River water is lifted by irrigation pump and it supplied directly to the crop land through irrigation channel
11. Shah kutub shech prokalpa, Kastol, Austogram, Kishoreganj	Type of pump: 5 cusec Type of lifting: Single Made by: Chaina Installation year: 2006 Starting of using year: 2006 Functional status: Functional Driven by: Electricity	✓ The pump is installed at about 300 meter from the river Dhaleswari by the side of a natural canal ✓ Canal water is lifted by irrigation pump and it supplied directly to the crop land through irrigation channel
12. Kewra bhasoman shech prakalpa, Austogram Sadar, Austogram, Kishoreganj	Type of pump: 12. 5 cusec Type of lifting: Double Made by: Japan Installation year: 1999 Starting of using year: 1999 Functional status: Functional Driven by: Diesel	✓ The pump is installed as floating on the water of river ✓ At the first stage water is lifted by irrigation pump from the river to khal and some amount supplied directly to the crop land through irrigation channel. In the second stage from the khal, water is lifted by 1 & 2 cusec pump to the crop land through the irrigation channel
13. Koykali bhasoman shech prakalpa, Mithamoin Sadar, Mithamoin, Kishoreganj	Type of pump: 25 cusec Type of lifting: Double Made by: England Installation year: 2008 Starting of using year: 2008 Functional status: Functional Driven by: Diesel	✓ The pump is installed as floating on the water of river ✓ At the first stage water is lifted by irrigation pump from the river to beel and some amount supplied directly to the crop land through irrigation channel. In the second stage from the beel water is lifted by 2 cusec pump to the crop land through the irrigation channel
14. Chila shech prakalpa, Mithamoin Sadar, Mithamoin, Kishoreganj	Type of pump: 5 cusec Type of lifting: Single Made by: Chaina Installation year: 1999 Starting of using year: 1999 Functional status: Functional Driven by: Electricity	✓ It is installed at the riverside ✓ River water is lifted by irrigation pump and it supplied directly to the crop land through irrigation channel
15. Chanpur dakkhinband shech prakalpa, Mithamoin Sadar, Mithamoin, Kishoreganj	Type of pump: 5 cusec Type of lifting: Single Made by: Germany Installation year: 1999 Starting of using year: 1999 Functional status: Functional Driven by: Diesel	✓ It is installed at the riverside ✓ River water is lifted by irrigation pump and supplied directly to the crop land through irrigation channel
16. Bhatuakhali bhasoman shech prakalpa, Mithamoin Sadar, Mithamoin, Kishoreganj	Type of pump: 12. 5 cusec Type of lifting: Double Made by: Chaina Installation year: 2007 Starting of using year: 2007 Functional status: Functional Driven by: Electricity	✓ The pump is installed as floating on the water of river ✓ At the first stage water is lifted by irrigation pump from the river to beel and some amount supplied directly to the crop land through irrigation channel. In the second stage water is lifted by 2 cusec pump to crop land through the irrigation channel
17. Mirzapur to Joynagar scheme, Lunesshor, Atpara, Netrokona	Type of pump: 5 cusec Type of lifting: Single Made by: Bangladesh Installation year: 2004 Starting of using year: 2004 Functional status: Functional Driven by: Electricity	✓ It is installed at the riverside ✓ River water is lifted by irrigation pump and it supplied directly to the crop land through discharge box and irrigation channel

Name of Scheme and Location	Type of Pump, Brand & Country, installation period, functional and driven status	Place of installation and Process of Lifting: Primary & Secondary lifting
18. Anirban shech prakalpa, Sahebrampur, Kalkini, Madaripur	Type of pump: 25 cusec Type of lifting: Double Made by: England Installation year: 2010 Starting of using year: 2010 Functional status: Functional Driven by: Electricity	✓ The pump is installed as floating on the water of river ✓ At the first stage water is lifted by irrigation pump from the River to Khal and the 2 nd stage from the Khal water is lifted by shallow pump to the crop land through the irrigation channel
19. Boaljhuri Shech Prakalpa, Hajiganj, Chandpur	Type of pump: 25 cusec Type of lifting: Double Made by: Japan Installation year: 1997 Starting of using year: 1997 Functional status: Functional Driven by: Electricity	✓ The pump is installed as floating on the water of river ✓ At the first stage water is lifted by irrigation pump from the river to khal. In the second stage water is lifted by 1, 2 & 5 cusec pump from the khal and supplied to the crop land through the irrigation channel
20. Ragoibil bhasoman shech prakalpa, Suchipara Uttar, Shahrasthi, Chandpur	Type of pump: 25 cusec Type of lifting: Double Made by: Japan Installation year: 1997 Starting of using year: 1997 Functional status: Functional Driven by: Electricity	✓ The pump is installed as floating on the water of river ✓ At the first stage water is lifted by irrigation pump from the river to khal. In the second stage water is lifted by 1 & 5 cusec pump from the khal and supplied to the crop land through the irrigation channel
21. Amuakanda bhasoman shech prakalpa, 12 no. Sultanabad, Matlab, Chandpur	Type of pump: 12. 5 cusec Type of lifting: Double Made by: Chaina Installation year: 2007 Starting of using year: 2007 Functional status: Functional Driven by: Electricity	✓ The pump is installed as floating on the water of river ✓ At the first stage water is lifted by irrigation pump from the river to discharge box. In the second stage water is supplied from the discharge box to the crop land through the long (190 m) pucca irrigation channel
22. Maniher 5 cusec bhasoman shech prakalpa, Rampur, Chandpur Sadar, Chandpur	Type of pump: 5 cusec Type of lifting: Single Made by: Bangladesh Installation year: 2007 Starting of using year: 2007 Functional status: Functional Driven by: Electricity	✓ It is installed at the riverside ✓ River water is lifted by irrigation pump to discharge box and water is supplied to the crop land through the pucca irrigation channel
23. Monihar 5 cusec shech prakalpa, Rampur, Chandpur Sadar, Chandpur	Type of pump: 5 cusec Type of lifting: Single Made by: Chaina Installation year: 2007 Starting of using year: 2007 Functional status: Functional Driven by: Electricity	✓ It is installed at the riverside ✓ River water is lifted by irrigation pump to discharge box and water is supplied to the crop land through the pucca irrigation channel
24. Manik nagar meghna shech prakalpa, Shaymgram, Nabinagar, B. Baria	Type of pump: 25 cusec Type of lifting: Double Installation year: 2002 Starting of using year: 2002 Functional status: Functional Driven by: Diesel	✓ The pump is installed as floating on the water of river ✓ At the first stage water is lifted by irrigation pump from the river to khal. In the second stage water is lifted by 5 cusec pump from the khal and supplied to the crop land through the irrigation channel
25. Purba bomangkhil shech prakalpa, Garjania, Ramu, Cox's Bazar	Type of pump: 5 cusec Type of lifting: Single Made by: Chaina Installation year: 2002 Starting of using year: 2002 Functional status: Functional Driven by: Diesel	✓ It is installed at the riverside ✓ River water is lifted by irrigation pump and it supplied directly to the crop land through irrigation channel
26. Baishagara shech prakalpa, Batam, Lakhai, Habiganj	Type of pump: 5 cusec Type of lifting: Single Made by: Chaina Installation year: 2003 Starting of using year: 2003 Functional status: Functional Driven by: Diesel	✓ It is installed at the canal side ✓ River water is lifted by irrigation pump and it supplied directly to the crop land through irrigation channel

Name of Scheme and Location	Type of Pump, Brand name & Country, period of installation, functional status and driven status	Place of installation and Process of Lifting: Primary & Secondary lifting
27. Birat shibpara shech prakalpa, Shibpash, Ajmeriganj, Habiganj	Type of pump: 5 cusec Type of lifting: Double Made by: Chaina Installation year: 2002 Starting of using year: 2002 Functional status: Functional Driven by: Electricity	✓ It is installed at the canal side ✓ At the first stage water is lifted by irrigation pump from the khal to discharge Box. In the second stage water is lifted by Shallow machine from the discharge box and supplied to the crop land through the irrigation channel
28. Bheduria shech prakalpa, Bheduria, Muladi, Barisal	Type of pump: 5 cusec Type of lifting: Single Made by: Bangladesh Installation year: 2003 Starting of using year: 2003 Functional status: Functional Driven by: Electricity	✓ It is installed at the canal side ✓ Khal water is lifted by irrigation pump and it supplied directly to the crop land through irrigation channel
29. Dhandoba shech prakalpa, Barthi, Gourmadi, Barisal	Type of pump: 5 cusec Type of lifting: Double Made by: Bangladesh Installation year: 2003 Starting of using year: 2003 Functional status: Functional Driven by: Electricity	✓ It is installed at the riverside ✓ At the first stage water is lifted by irrigation pump from the river to khal. In the second stage water is lifted by 2 cusec pump from the khal and supplied to the crop land through the irrigation channel
30. Uttar horiganj shech prakalpa, Charbhuta, Lalmahan, Bhola	Type of pump: 5 cusec Type of lifting: Single Made by: Bangladesh Installation year: 2006 Starting of using year: 2006 Functional status: Functional Driven by: Electricity	✓ It is installed at the canal side ✓ Canal water is lifted by irrigation pump and it supplied directly to the crop land through irrigation channel
31. Karimpara sadar road purba dakkhin shech prakalpa, Charmanik, Charfashion, Bhola	Type of pump: 5 cusec Type of lifting: Single Made by: Bangladesh Installation year: 2007 Starting of using year: 2007 Functional status: Functional Driven by: Diesel	✓ It is installed at the canal side ✓ Canal water is lifted by irrigation pump and it supplied directly to the crop land through irrigation channel
32. Charanabad char shifuli adarsha shech prakalpa, Charsumaia, Bhola Sadar, Bhola	Type of pump: 5 cusec Type of lifting: Single Made by: Bangladesh Installation year: 2006 Starting of using year: 2006 Functional status: Functional Driven by: Electricity	✓ It is installed at the canal side ✓ Canal water is lifted by irrigation pump and it supplied directly to the crop land through irrigation channel
33. Char shifuli adarsha krishi prakalpa, Charsumaia, Bhola Sadar, Bhola	Type of pump: 5 cusec Type of lifting: Single Made by: Bangladesh Installation year: 2006 Starting of using year: 2006 Functional status: Functional Driven by: Electricity	✓ It is installed at the canal side ✓ Canal Khal water is lifted by irrigation pump and it supplied directly to the crop land through irrigation channel

Table 2: Fault in installation of pumps and availability of Water

Name of projects	Fault in installation of Pumps and types of fault	Status of availability of water (enough or not) and reasons of non availability
1.Uttar kurakir char shech prakalpa (5 cusec pump), Kurakir char, Manikganj Sadar, Manikganj	Yes, Pump is installed at unstable side	Available
2.Burundi 3 no (5 cusec pump), Bhararia, Manikganj Sadar, Manikganj	No	Not available: electricity problem (low voltage)
3. Bhurundi 2 no, Hatipara, Manikganj Sadar, Manikganj	No	Not available: electricity problem (low voltage)
4.Pradhaner char shech prakalpa, Gazaria, Munshiganj	No	Available
5. Airakandi bhasoman shech prakalpa, Baliardi, Bazitpur, Kishoreganj	No	Not available: Equipment problem (Nozzel and plunger, cracked pipe); Electricity problem (low voltage)
6. Sonali bhasoman pp shech prakalpa, Itna, Kishoreganj	No	Available
7. Madal PP scheme, Nikli, Kishoreganj	No	No Electricity problem (low voltage)
8. Dighola matikata bhasoman shech prakalpa, Nikli, Kishoreganj	No	Not available: Equipment problem (Nozzel and plunger); and Electricity problem (low voltage)
9. Darujoba bhasoman PP scheme, Nikli, Kishoreganj	No	Not available: Equipment problem (Self starter switch of fuel pump out of service, no leather and chain kupa); Electricity problem (low voltage)
10. Bhadalpur Shech Prokalpa, Kastol, Austogram, Kishoreganj	No	Available
11. Shah kutub shech prokalpa, Kastol, Austogram, Kishoreganj	No	Available
12. Kewra bhasoman shech prakalpa, Austogram Sadar, Austogram, Kishoreganj	No	Not available: Equipment problem (Nozzel weak)
13.Koykali bhasoman shech prakalpa, Mithamoin Sadar, Mithamoin, Kishoreganj	No	Not available: Equipment problem (Damage of magnet of fuel pump, no check valve in discharge box and water flows back to river); Electricity problem (low voltage)
14. Chila shech prakalpa, Mithamoin Sadar, Mithamoin, Kishoreganj	No	Available
15. Chanpur dakkhinband shech prakalpa, Mithamoin Sadar, Mithamoin, Kishoreganj	No	Not available: Equipment problem (Engine does not work continuously and engine is weak and old)
16. Bhatuakhali bhasoman shech prakalpa, Mithamoin Sadar, Mithamoin, Kishoreganj	No	Not available: Electricity problem (low voltage)
17. Mirzapur to Joynagar scheme, Lunesshor, Atpara, Netrokona	No	Not available: Electricity problem (low voltage)
18. Anirban shech prakalpa, Sahebrampur, Kalkini, Madaripur	No	Available
19. Boaljhuri Shech Prakalpa, Hajiganj, Chandpur	No	Available
20. Ragoibil bhasoman shech prakalpa, Suchipara Uttar, Shahrasthi, Chandpur	No	Not available: Equipment problem (Engine does not work continuously and engine is weak and old)
21. Amuakanda bhasoman shech prakalpa, 12 no. Sultanabad, Matlab, Chandpur	No	Available
22. Maniher 5 cusec bhasoman shech prakalpa, Rampur, Chandpur Sadar, Chandpur	No	Available
23. Monihar 5 cusec shech prakalpa, Rampur, Chandpur Sadar, Chandpur	No	Available
24. Manik nagar meghna shech prakalpa, Shaymgram, Nabinagar, B. Baria	No	Available
25. Purba bomangkhal shech prakalpa, Garjanja, Ramu, Cox's Bazar	No	Not available: Equipment problem (Engine does not work continuously due to frequent mechanical problem)
26. Baishagara shech prakalpa, Batam, Lakhai, Habiganj	No	Available
27. Birat shibpara shech prakalpa, Shibpash, Ajmeriganj, Habiganj	No	Available
28. Bheduria shech prakalpa, Bheduria, Muladi, Barisal	No	Available
29. Dhandoba shech prakalpa, Barthi, Gournadi, Barisal	No	Available
30. Uttar horiganj shech prakalpa, Charbhuta, Lalmahan, Bhola	Yes, Pupm is installed at far distance from discharge box	Not available: Auto circuit does not functioning properly, causes shut down of the machine
31. Karimpara sadar road purba dakkhin shech prakalpa, Charmanik, Charfashion, Bhola	No	Not available: Defective equipment (Nozzel, Plunzer); Insufficient water in the Canal
32. Charanabad char shifuli adarsha shech prakalpa, Charsumaia, Bhola Sadar, Bhola	Yes, Ownership problem of the land, where discharge box is constructed, since it not on BADC land	Available
33. Char shifuli adarsha krishi prakalpa, Charsumaia, Bhola Sadar, Bhola	No	Available

Table 3: Present condition of physical verifications of Motor/ engines of Irrigation Pumps located at different places

Name of scheme	Present condition of Motor/Engine of the pupm	Present condition of related infrastructures under the pump
1.Uttar kurakir char shech prakalpa (5 cusec pump), Kurakir char, Manikganj Sadar, Manikgan	Present condition of Motor/engine is good and working properly. There is no problem in lifting water.	<ul style="list-style-type: none"> • There are both kacha (3 m) and pucca irrigation channels (1200 m) under the pump and the condition for the both types are poor. It was found that there was holes, cracks and broken parts in both the pucca and kacha irrigation channels • The condition of discharge box (1) is good
2.Burundi 3 no (5 cusec pump), Bhararia, Manikganj Sadar, Manikgan	Present condition of motor/pump is good. There is no fault. Water is lifting properly	<ul style="list-style-type: none"> • Pucca (1km) and kacha (2km) both types of channel are there. It was found that there are holes/cracks in both the pucca and kacha irrigation channels • The condition of discharge box (2) is good • The condition of turn-out (1) is good • The condition of sluice gates (6) is good • The condition of culverts (6) is good
3. Bhurundi 2 no, Hatipara, Manikganj Sadar, Manikgan	Present condition of motor/pump is good. There is no fault. Water is lifting properly	<ul style="list-style-type: none"> • There are both kacha (3.4 km) and pucca (0.5 km) irrigation channels, and conditions for the both types are very poor. There are holes, cracks and broken sections. Most sections of the kacha channels are damaged • The condition of discharge box (1) is good • The condition of turn-out (5) is good • The condition of sluice gates (5) is not so good • The condition of culverts (1) is good
4.Pradhaner char shech prakalpa, Gazaria, Munshiganj	New engine (2010) and Motor/engine is fully good. There is no problem in lifting water.	<ul style="list-style-type: none"> • There are both kacha (0.4km) and pucca (0.6 km) channel under the pump, the condition is good in both cases but problem in distributing of water due to shortage of pucca channel • The conditions of discharge box (1), cross dam, turn-out (1), outlet (30) and culvert (1) are good
5. Airakandi bhasoman shech prakalpa, Baliardi, Bazitpur, Kishoreganj	Present condition of motor/engine is not good. Its Nozel and Plunger are weak and do not work efficiently	<ul style="list-style-type: none"> ✓ There are only kacha channels (3 km) under the pump. It is observed that there are many holes, broken sections in it and water goes to other lands for this reason, water is wasted
6. Sonali bhasoman pp shech prakalpa, Itna, Kishoreganj	Present condition of motor/engine is good. All parts are working and water is lifting properly. There is no problem in lifting water	<ul style="list-style-type: none"> • There are both kacha (1 km) and pucca (50.15m) channel under the irrigation pump. The condition of the pucca irrigation channel is very bad. There are many holes, broken sections in it and for this reason, 20% water is wastage. Water goes to other lands because of these broken parts. Channels are not constructed according to the design. But the present condition of kacha channel is good
7. Madal PP scheme, Nikli, Kishoreganj	Present condition of motor/engine is good. Water is lifting properly. There is no problem in lifting water	<ul style="list-style-type: none"> • There are both kacha (1km) pucca channel (225 m) under the pump, the condition is good in both cases • The conditions of discharge box (1), turn-out (2) and outlet (2) are good • There is no culvert
8. Dighola matikata bhasoman shech prakalpa, Nikli, Kishoreganj	Present condition of motor/engine is not good. Its Nozel and Plunger are weak/defective. Key of the fuel pum is out of service / disordered. Start/stop switch does not function properly	<ul style="list-style-type: none"> • There are both kacha (4km) pucca channel (38m) under the irrigation pump. The condition of the pucca irrigation channel is good but the condition of kacha channel is not good. There are many holes, broken sections in it and for this reason water goes to other lands and water is wasted • There is a discharge box and condition is good but small in size • There is a pipe culvert but its condition is not good. One side of culvert is broken

Name of scheme	Present condition of Motor/Engine of the pupm	Present condition of related infrastructures under the pump
9. Darujoba bhasoman PP scheme, Nikli, Kishoreganj	Present condition of motor/engine is not good. Presently it is not functional. Self starter of the pump is out of service, switch of fuel pump is out of service, there is no leather and there is no chain kupa	<ul style="list-style-type: none"> • There are both kacha (2.5 km) and pucca channel (228.10m) under the pump, the condition is good in both cases • The conditions of discharge box (1), turn-out (2) and outlet (4) are good • There is no culvert
10. Bhadalpur Shech Prokalpa, Kastol, Austogram, Kishoreganj	Present condition of motor/engine is good. There is no problem in lifting water	<ul style="list-style-type: none"> • There are both kacha (1.5 km) and pucca channel (225m) under the pump, the condition is good in both cases • The conditions of discharge box (1) and culvert (1) are good • There is no outlet, turn out
11. Shah kutub shech prokalpa, Kastol, Austogram, Kishoreganj	Present condition of motor/engine is good. There is no problem in lifting water	<ul style="list-style-type: none"> • There are both kacha (1.5 km) and pucca (225m) channel under the pump, the condition is good in both cases • The conditions of discharge box (1) and culvert (2) are good • There is no outlet, turn out
12. Kewra bhasoman shech prakalpa, Austogram Sadar, Austogram, Kishoreganj	Nozel and plunger are weak/defective, but water can be lifted	<ul style="list-style-type: none"> • There are both kacha (1.5km) and pucca (350m) channel under the pump. The condition of the pucca irrigation channel is good but the condition of kacha channel is not good. There are many holes, broken sections in it and for this reason water goes to other lands and wastage of water • The condition of discharge box (1) is good • The condition of pipe culvert is not good. It is cracked • There is no outlet, turn out
13. Koykali bhasoman shech prakalpa, Mithamoin Sadar, Mithamoin, Kishoreganj	Hole in the pipe in the machine and no check valve in the discharge box and for this reason water goes to other side/ river	<ul style="list-style-type: none"> • There are only kacha (4km) irrigation channel under the pump. The condition of irrigation channel is bad. There are many holes, broken sections in it and for this reason water goes to other lands and water is wasted • The condition of discharge box (1) is not good and it is under size. Box is overtopped, if pumps run with higher speed/full capacity • The condition of pipe culverts (4) is good • There is no sluice gate, outlet, turn out
14. Chila shech prakalpa, Mithamoin Sadar, Mithamoin, Kishoreganj	Present condition of motor/engine is good. All parts are working and there is no problem in lifting water	<ul style="list-style-type: none"> • There are both kacha (1000km) and pucca (5.20 km) channel. The condition of the pucca irrigation channel is good but the condition of kacha channel is not good. There are many holes, broken sections in it and for this reason water goes to other lands and water is wasted • The condition of discharge box (1) and pipe culvert (2) is good • There is no sluice gate, outlet, turn out
15. Chanpur dakkhinband shech prakalpa, Mithamoin Sadar, Mithamoin, Kishoreganj	Present condition of motor/engine is not good. Engine does not work continuously; it goes out of order almost after every 2/3 days. There is hole in the pipe in the pump and for this reason water goes outside	<ul style="list-style-type: none"> • There are only kacha (2.50km) irrigation channel under the pump. The condition of irrigation channel is bad. It is found that there are many holes, broken parts in it and for this reason water goes to other lands and there is wastage of water • The condition of kacha discharge box (1) is not good • There is no sluice gate, outlet, turn out, culvert
16. Bhatuakhali bhasoman shech prakalpa, Mithamoin Sadar, Mithamoin, Kishoreganj	Present condition of motor/engine is good. There is no problem in lifting water	<ul style="list-style-type: none"> • There are only kacha (2 km) irrigation channel. The condition of irrigation channel is bad. It is found that there are many holes, broken sections in it and for this reason water goes to other lands and 25% water is wasted • The condition of kacha discharge box (1) is not good • The condition of culvert (5 nos.) is good • There is no outlet and turn out

Name of scheme	Present condition of Motor/Engine of the pupm	Present condition of related infrastructures under the pump
17. Mirzapur to Joynagar scheme, Lunesshor, Atpara, Netrokona	Present condition of motor/engine is good. There is no problem in lifting water	<ul style="list-style-type: none"> • There are both kacha (4km) and pucca (225m) channel under the pump. The condition of both the pucca and kacha channel is good • The condition of discharge box (1), turn out (1) and outlet (3) is good • There is no culvert
18. Anirban shech prakalpa, Sahebrampur, Kalkini, Madaripur	Present condition of motor/engine is good. There is no problem in lifting water	<ul style="list-style-type: none"> • There are both kacha (3 km) and pucca (1km) channel under the pump. The condition of the pucca irrigation channel is good but the condition of kacha channel is very bad. There are many holes, broken sections in it and for this reason water goes to other lands and there are wastage of water • The condition of discharge box (1) is bad and non functional • The condition of sluice gate (1) is good • There is no culvert, outlet and turn out
19. Boaljhuri Shech Prakalpa, Hajiganj, Chandpur	Present condition of motor/engine is good. There is no problem in lifting water	<ul style="list-style-type: none"> • There are both kacha (40 km) and pucca (1.2km) channel under the pump. The condition of the pucca irrigation channel is good but the condition of kacha channel is very bad. There are many holes, broken sections in it and for this reason water goes to other lands and water is wasted • There is 6 discharge box and condition is good • There is no culvert, outlet and turn out
20. Ragoibil bhasoman shech prakalpa, Suchipara Uttar, Shahrasthi, Chandpur	Present condition of motor/engine is not good. Engine is weak and old. Engine does not work continuously it goes out of order almost after every 2/3 days and needs to repair	<ul style="list-style-type: none"> • There are both kacha (20 km) and pucca (30m) channel under the pump. The condition of the pucca irrigation channel is good but the condition of kacha channel is very bad. There are many holes, broken sections in it and for this reason water goes to other lands and water is wasted • There is 6 discharge box and condition is good • There is no culvert, outlet and turn out
21. Amuakanda bhasoman shech prakalpa, 12 no. Sultanabad, Matlab, Chandpur	Present condition of motor/engine is good and working properly. There is no problem in lifting water.	<ul style="list-style-type: none"> • There are both kacha (3km) and pucca (0.19) channel and conditions are good in both cases. But there is problem in distributing of water due to shortage of pucca channel • There is discharge box (1) and condition is good • There is no culvert, outlet and turn out
22. Maniher 5 cusec bhasoman shech prakalpa, Rampur, Chandpur Sadar, Chandpur	Present condition of motor/engine is good and working properly. There is no problem in lifting water.	<ul style="list-style-type: none"> • There are both kacha (2km) and pucca (30m) channel. The condition of the pucca irrigation channel is good but the condition of kacha channel is not good. It was found that, in some cases water could not flow properly due to the holes/cracks • There is discharge box (1) and condition is good • There is no culvert, outlet and turn out
23. Monihar 5 cusec shech prakalpa, Rampur, Chandpur Sadar, Chandpur	Present condition of motor/engine is good and functional	<ul style="list-style-type: none"> • There are both kacha (2km) and pucca (0.19) channel under the pump, the condition of pucca channel is good. No holes, crack • There is discharge box (1) and condition is good • There is no culvert, outlet and turn out
24. Manik nagar meghna shech prakalpa, Shaymgram, Nabinagar, B. Baria	Present condition of motor/engine is good. There is no problem in lifting water.	<ul style="list-style-type: none"> • There are few pucca and many kacha irrigation channels and their condition is good • There is sluice gate and condition is good • There is no discharge box, culvert, outlet & turn out
25. Purba bomangkhal shech prakalpa, Garjania, Ramu, Cox's Bazar	Present condition of motor/engine is not good. Battery of the engine is weak and does not charge properly. Engine does not work continuously due to frequent mechanical problem	<ul style="list-style-type: none"> • There are very few pucca (0.50km) irrigation channels under the pump. Most of the channels are kacha under the pump. The condition of pucca channel is good but in the kacha channels, there are holes/ crack thereby water could not flow properly • The condition of discharge box (1) is not good. Canal lining is not done including its bottom • There is no culvert, outlet and turn out

Name of scheme	Present condition of Motor/Engine of the pump	Present condition of related infrastructures under the pump
26. Baishagara shech prakalpa, Batam, Lakhai, Habiganj	Present condition of motor/engine is good. There is no problem in lifting water.	<ul style="list-style-type: none"> • There are only kacha channels and damaged in several places, therefore water is wasted • There is a discharge box and water leaks due to cracks in the box • There is no culvert, outlet, turn out, sluice gate
27. Birat shibpara shech prakalpa, Shibpash, Ajmeriganj, Habiganj	Present condition of motor/engine is good. There is no problem in lifting water.	<ul style="list-style-type: none"> • There are both kacha (5km) and pucca (225m) channel. The condition of pucca channel is good but conditions of the kacha channel get damaged when water flows • There are 2 big size of discharge box and their conditions are good. • There are irrigation outlets and it is made by tin and bamboo, it will be good if concrete outlets are provided • There are 2 culverts and 2 outlets • There is no turn out
28. Bheduria shech prakalpa, Bheduria, Muladi, Barisal	Present condition of motor/engine is good. There is no problem in lifting water.	<ul style="list-style-type: none"> • There only kacha irrigation channel in 1st phase. In 2nd phase, pucca (750m) irrigation channel, turn out, outlet, sluice gate have been constructed. The condition of the channel is good • There is discharge box (1) and its condition is good
29. Dhandoba shech prakalpa, Barthi, Gournadi, Barisal	Present condition of motor/engine is good	<ul style="list-style-type: none"> • There are only kacha irrigation channel under the pump and the condition is not good. It is found that there are many holes/cracks/splits in it • There is a discharge box and it is found that water leaks due to some cracks • There is a pipe culvert and condition is good • There is no outlet and turn out
30. Uttar horiganj shech prakalpa, Charbhuta, Lalmahan, Bhola	Present condition of motor/engine is not good. Auto circuit is not functional and causes shut down of the machine	<ul style="list-style-type: none"> • There are only kacha (1. 50km) irrigation channel under the pump and the condition is not good. There are holes/cracks/broken sections in it • There is a discharge box and its condition is not good • There is no other infrastructures like outlet, turn out and culvert
31. Karimpara sadar road purba dakkhin shech prakalpa, Charmanik, Charfashion, Bhola	Present condition of motor/engine is not good. Nozel and plunger are weak and do not work efficiently	<ul style="list-style-type: none"> • There are only kacha (2km) irrigation channel under the pump and the condition is good • There are no other infrastructures
32. Charanabad char shifuli adarsha shech prakalpa, Charsumaia, Bhola Sadar, Bhola	Present condition of motor/engine is good	<ul style="list-style-type: none"> • There were only kacha (2km) irrigation channel in 1st phase. In 2nd phase, pucca (1148m) irrigation channels have been constructed. The condition of the channel is good • There is a discharge box and its condition is good • There are turn-out, outlet, culvert but these are constructed in 2nd phase and condition is good
33. Char shifuli adarsha krishi prakalpa, Charsumaia, Bhola Sadar, Bhola	Present condition of motor/engine is good	<ul style="list-style-type: none"> • There were only kacha irrigation (2000 feet) channel in 1st phase. In 2nd phase, pucca irrigation channels have been constructed (1148 feet). The condition is good in both cases • There are discharge box, turn-out, outlet, culvert but these have been constructed in 2nd phase and the condition is good for the both types of channels

Appendix—2

Detailed Tables of Household Survey

Table 1: Types of difficulties to supply irrigation water to the crop field

Male perception in %	Intervention	Control
No difficulty	74	79
Shortage of supply electricity	30	36
Inadequate Water distribution by Distributor	26	34
Khals are Dried	2	21
Defective/broken irrigation channel	13	7
Influential/Managing Committee Interference	7	13
Pumps old/damaged	15	20

Table 2: Respondent's assessment on present condition of the irrigation facilities

Responses	Intervention: %		
	Male	Female	Total
Irrigation pumps			
Good and functioning	70	68	69
Partially functioning with problem	17	17	16
Mostly not functioning: old, frequent mechanical problem	13	15	15
Irrigation infrastructures			
Good and functioning	61	62	61
Partially functioning with problem	17	12	15
Mostly not functioning: old, frequent mechanical problem	22	26	24

Table 3: Respondent's opinion on maintenance authority/person of the irrigation pump and other irrigation infrastructures

Responses	Intervention: %		
	Male	Female	Total
Irrigation pumps			
BADC	25	26	25
Scheme Committee	73	72	73
Care Taker	2	2	2
Irrigation infrastructures			
BADC	17	15	16
Scheme Committee	70	75	71
Care Taker	13	10	13

Table 4: Respondent's opinion on present condition of the irrigation pump and other irrigation infrastructures of Double Lifting Irrigation Project

Male perceptions about irrigation facilities currently: %	Irrigation pumps	Irrigation Channels
Good and functioning	70	61
Partially functioning with problem	17	17
Mostly not Functioning: old, frequent mechanical problem	13	22

Table 5: Assessment of increased agriculture sector employment

Male Perceptions	Intervention %	Control %
Poultry/Live stock	97	82
Farming	95	72
Agri labor	87	73
Agri business	72	58
Vegetable gardens	58	43
Fisheries	47	37
Tree Plantations	32	30
Median	72	58

Table 6: Status of environmental hazards

Areas of environmental Hazards	Intervention: %		Control: %	
	Before	After	Before	After
Severe water borne disease	39	14	39	13
Arsenic problem	49	43	36	39
Water logging	12	19	16	23

Table 7: Distribution of respondent's by their assessment of Project benefits at post project period in the Intervention areas

Benefits/strengths of the Project currently	Only Intervention Area %
Increased crop production and benefits of crop diversification	84
Improved quality of life: increased income, education, employment& reduced poverty	52
Increased poultry raising, cattle rearing and fisheries	35
Extended coverage of farm land for irrigation	25
Reduced cost of irrigation water and water availability	21
Profits from paddy business	12
Limited earning opportunities for women	8
No advantages	12

Table 8: Areas of environmental Hazards

Areas of environmental Hazards	Intervention: %		Control: %	
	Before	After	Before	After
Severe water borne disease	14	39	13	39
Arsenic problem	43	49	39	36
Water logging	19	12	16	23

Table 9: Respondent's opinion on percent of rice production increased between project areas and control areas

Rice production increased per bigha	Project Area			Control Area		
	Before: in maund	After: in maund	% increased	Before: in maund	After: in maund	% increased
Boro	13.6	22.5	65	12.4	17.6	42
Aman	7.2	9.8	36	6.9	9.1	32

Table 10: Household respondent's opinion on frequencies of crop production

Crops types	Project Area: %		Control Area: %	
	Before	After	Before	After
Single	99	23	99	48
Double	1	77	1	52
Triple	0	0	0	0
Total	100	100	100	100

Table 11: Cropping intensities by districts and by pre and post project periods: in %

district	Pre Project	Post Project	% Change	Cropping intensity (Krishi Diary, AIS & DAE Report, 2005-2011) 165.00 - 181.00
Manikganj	165.00	200.00	35.00	
Munsigonj	100.00	140.00	40.00	
Kishoregonj	125.00	223.00	98.00	
Netrokona	115.00	195.00	80.00	
Madaripur	177.00	210.00	33.00	
Chandpur	160.00	225.00	65.00	
B-Baria	135.00	198.00	63.00	
Cox's Bazar	132.00	173.00	41.00	
Hobiganj	119.00	183.00	64.00	
Barishal	147.00	217.00	70.00	
Bhola	130.00	190.00	60.00	
Total	137.00	196.00	59.00	

Appendix—3

Year wise Fielding Position & Irrigated Area of Sample Districts

Districts	Total cultivable land (ha)	Total irrigated land (ha)	Total irrigated land														Production of crops 2006-07 (M.ton)	Price of production crops (lac taka)
					2001-02		2002-03		2003-04		2004-05		2005-06		2006-07			
			Total pum p used	Irrigated land (ha)	Total pum p used	Irrigated land (ha)	Total pum p used	Irrigated land (ha)	Total pum p used	Irrigated land (ha)	Total pum p used	Irrigated land (ha)	Total pum p used	Irrigated land (ha)	Total pum p used	Irrigated land (ha)		
Manikganj	137900	91167	8	480	7	420	12	720	12	720	11	660	12	720	13	780	1926.60	154.13
Munshiganj	95500	60799	1	60	3	180	4	240	4	240	4	240	4	240	4	240	592.80	47.42
Kishoreganj	268900	175058	5	300	6	360	67	5428	83	6180	61	7660	66	6760	50	7092	17517.24	1401.38
Netrakona	281000	192487	1	60	1	60	2	120	2	120	4	240	4	240	4	240	592.80	47.42
Madaripur	114500	76792	3	180	6	360	8	600	10	600	11	660	11	660	11	784	1936.48	154.92
Chandpur	170400	102016	0	0	3	180	20	3010	18	2680	13	2180	13	3580	13	3006	7424.82	593.99
B.baria	192700	143713	0	0	0	0	12	800	14	920	3	580	2	520	2	650	1605.50	128.44
Cox's Bazar	149200	55321	2	120	2	120	3	180	3	180	4	240	4	240	4	240	741.00	59.28
Hobiganj	263700	171079	1	60	15	900	37	3302	28	2160	18	1880	18	1880	18	1545	3816.15	305.29
Barisal	279100	177206	0	0	0	0	0	0	0	0	15	900	15	900	14	840	2074.80	165.98
Bhola	340300	163727	7	420	9	540	11	660	16	960	15	900	15	900	18	1080	2667.60	213.41
11 Distritcs	2293200	1409365	28	1680	52	3120	176	15060	190	14760	159	16140	164	16640	151	16497	40895.79	3271.66

NB: Per metric ton price of crop TK. 8000.00 (market price of 2000 according to PCR)

Appendix—4

Data Collection Instruments (Questionnaire & Guideline in Bangla)

Wvej wj dŀUs Gi gva`tg f-cwi `cwi bi mnvth` tmP mæcŀhvi Y (1g chŀq) kxl R cKŀí i cŀve gj`vqb

Lvbn Rwi c cKŀgvj v

(cŀR± Gwi qvi Rb` : th `vŀb cKŀí i Avl Zvq Wvej wj dŀUs Gi gva`tg f-cwi `cwi bi mnvth`
tmP cvæú `vcb Kiv ntŀtŀ)

ŀKm bst

--	--	--	--

fvgKv: Avmŀnj vgy Avj vBKg | Avgiv i xW (Mŀel Yv cŀZŀvb) | AvBGgBwW (cwi Kí bv gšŀvj q) Gi cŀŀ t_ŀK gv chŀq
gj`vqb Rixci Dŀí ŀk` Gŀmŀ | evsj v` k Kwl Dbŀb Kŀcŀi kb (weGwWm) -KZŀ 1999-2007 mvj evsj v` ŀki 22u
ŀRj vq Wvej wj dŀUs (`y` dvq DŀÉvj b) Gi gva`tg f-cwi `cwi bi mnvth` tmP mæcŀhvi Y (1g chŀq) cKŀí i KvR ev`
ewŀZ ntŀtŀ | cKŀí i Dŀí k` wŀj ŀ` ŀki eo eo b` x h_v cŀv, tgNbv, hgŀv | Ab`vb` b` xi cwb cvŀæú mnvth` (fvgŀZ
`wcz I fimgvb) Wvej wj dŀUs cxwZŀZ tmP e`e`v wŀvŀZ Kiv | cKŀí i gva`tg AwZwi³ Lv` Drcv` b Kŀi GjvKvq
Rvgi gwj K, ŀŀ` I cŀŀSK Pvl x, kŀRwŀe gwj v | cŀŀŀ` i Av`mvgwRK Ae`vi Dbŀb Kŀi `wŀ` ŀ` ŀ Kiv | eZŀvb
Rixci Dŀí k` nt`ŀ f-cwi `cwi bi mnvth` fimgvb cvŀæú (25 wKDŀmK Ges 12.5 wKDŀmK) Ges fvgŀZ `wcz
cvŀæú (5 wKDŀmK) gva`tg tmP cKŀí i gj`vqb Kiv | Avgiv G mæúŀK`Avcbvi gj`evb gZvgZ msMŀni Rb` Gŀmŀ |

Avcbv gj`evb Z` w` ŀq G Mŀel Yvi KvŀR mnŀhwMZv KiŀZ cvŀb | Avcbvi gZvgZ `i agvŀ Mŀel Yvi KvŀRB e`eüZ
ntŀ | Avcbvi ŀ` qv Z` mæúŀŀMvcb ivLv ntŀ | Avcbvi AbgŀZ ŀcŀj Awg mvŀŀvKvi `i` KiŀZ cwi |

weFwM :	ŀKwWbs :
ŀRj v :	ŀKwWbs :
DcŀRj v :	ŀKwWbs :
BDwŀqb :	ŀKwW bs :
Mŀg :	ŀKwW bs :
tmP `æŀgi bvg :	

DÉi `vZv/DÉi `vŀxi aib:

1. **Adult Male, Main earner or Head of Household (land holding farmer/ marginal farmer/working as farmer)**
2. **Adult Married Women (Preferably wife the head of household)**

mvŀŀvKvi MŀhYKvixi bvg :	mvŀŀvKvi MŀŀYi Zwi L:
mpvi fivBRŀi i bvg :	Zwi L:
mvŀŀvKvi MŀY: `i`i mgq :	ŀkl mgq:

BŀUvi wFDqvi ŀ` i Rb` wŀŀ` Rbv t BŀUvi wFDqvi mvŀŀvKvi `i`i AvŀM ŀ_ŀKB DÉi `vZvŀK cKŀgvj vq Dŀj w-Z ŀcŀe`Ges eZŀvŀb
ŀ mgŀqi e`vL`v w` ŀq wŀteb | ŀcŀe` Ges ŀeZŀvŀbi ŀ e`vL`v ntŀj vt 1. ŀcŀe` A_ŀ D³ Gj vKvq tmP cKŀí i cwb hLb ŀ_ŀK
e`envi `i` Kŀiŀŀ Zvi cŀeŀ mgq Ges 2. ŀeZŀvŀb ej ŀZ mvŀŀvKvi Mŀŀŀbi Zwi L ntŀZ MZ 6 ŀ_ŀK 12 gŀtmi GKUv Mo
mgq |

ƒmKkb- 1: Lvbvi mƒavi Y Z_`vej x

- DĒi`vZvi big (ihub Lvbv cāvb A_ev cāvb DcvRbKvi x):
(cj`fi i ƒŋĳĳ ihub Lvbv cāvb A_ev cāvb DcvRbKvi x Ges ġnj vi ƒŋĳĳ cui eƒĳi i eq`ĳ Ges weevnZ ġnj v)
- DĒi`vZvi eqm: eQi K. DĒi`vZvi eZġyb ƒckv:
- DĒi`vZvi mĳŋMZ ƒhvM`Zv: (mĳevŋ ƒh ƒkYx cvm Kĳi ƒQb)
- DĒi`vZvi`eevnK Ae`tr: 1. weevnZ 2. AweevnZ 3. wecZmK/weaev
4. Zvj vKcāB/cāBv 5. c_xK
- DĒi`vZvi RmeZ mŠvb mL`v: ƒQĳ : ƒġĳ : ƒġU:
- cui eƒĳi i ƒġU m`m` mL`vtRb (0-14 eQi chS_iki; 14 eQi i Dĳx`eq`ĳ (m`m`)
eq`ĳ cj`lt.....Rb ƒQĳ mki t.....Rb
eq`ĳ ġnj vt.....Rb ƒġĳ mki t.....Rb
- DĒi`vZvi Avĳ : K. %wbK Avĳ.....UvKv L. ġnmK Avĳ.....UvKv
- cui eƒĳi i aib: 1. GKK cui evi 2. thŠ` cui evi

ƒmKkb- 2: Wej vĳ dāUs ƒmP cv`ú cĳĳĳ i Gĳ vKv m`úwKZ Z_`

- Avĳbv`i Mĳġ ƒmPī Rb` mK mK ƒmP cv`ú e`envi Kiv nĳ ev mK ai ƒbi ƒmP e`e`v i ƒġĳ?
cĳe`.....
eZġyb:
- Avĳbv`i Mĳġ 1999-2007 mĳĳ Wej vĳ dāUs Gi ġva`ġĳ f-cui `cvmbi mrvĳh` ƒmP m`cāvi Y (1ġ chĳ) cĳĳĳ i ġva`ġĳ mK mK KvR nĳġĳ?

K. mK mK KvR KZw nĳġĳ? (cāZw aĳi aĳi mRĳAm Ki`b)	L. KZw Kvĳġĳ i ƒġĳ?	M. th_ĳĳ v Kvĳġĳ ƒbB, Zvi Kvi Y mK mK?
1. 25 mKĳmK cv`ú`ĳcb: .....wU	.....wU	
2. 12.5 mKĳmK cv`ú`ĳcb: .....wU	.....wU	
3. 5 mKĳmK cv`ú`ĳcb: .....wU	.....wU	
4. cĳĳŋY Kvĳĳĳ		
5. mVmPvR`e. :wU	.....wU	
6. cvKv ƒmPbv v: .....wU	.....wU	
7. Kvĳ ƒvU`.....wU	.....wU	
8. ŋmW`vĳ: .....wU	.....wU	
9. Uvb`AvDU: .....wU	.....wU	
10. `ŋm ƒMBU: .....wU	.....wU	
11. Ab`vb` (ubv`Š Ki`b)		

- Avĳbv` GB cĳĳĳ i mK ai ƒbi ƒmP cv`úú cvmb ƒmPī KvR e`envi Kĳi b?
1. 25 mKĳmK ƒmġyb cv`ú 2. 12.5 mKĳmK ƒmġyb cv`ú
3. 5 mKĳmK ƒmġZ`mCZ cv`ú 4. Dfĳ cv`ú ƒ_ƒK
5. ƒKvbUvB e`envi Kivi bv
- Avĳbv` ƒKvb eQi ƒ_ƒK cĳĳĳ i ƒmP cv`ú nĳZ cvmb ƒmPī KvR e`envi `i i` Kĳi ƒQb?
1. 25 mKĳmK ƒmġyb cv`ú tmĳĳ
2. 12.5 mKĳmK ƒmġyb cv`ú tmĳĳ
3. 5 mKĳmK j`vU ƒBRW&cv`ú tmĳĳ

L. Avcbri e'eüZ tmP cvtëúí cwbí Drm wK ?

1. b`x t_+K :big Dfj E-Ki`b
2. Luj /wej /nvl i t_+K :big Dfj E-Ki`b
3. Ab`vb` Drm t_+K :big Dfj E-Ki`b

M. Avcbri e'eüZ tmP hš;we`jr bmk wWfRj Øviv Pwj Z nq? 1. we`jr Øviv 2. wWfRj Øviv

N. Avcab cKfí i tmP cvtëúí cwb wK wK KvR e`envi Ki+Qb?

N1. wK wK KvR fmfPi cwb e`envi Ki+Qb?	N2. RvZ: +Kw: 1. nvBeW 2. D`Pd j bkj 3. `vbxq RvZ	N3. wK ai +bi tmP cvtëúí t_+K cwb tbb? +Kw 1. 25 wKD+mK fimgvb cv`ú 2. 12.5 wKD+mK fimgvb cv`ú 3. 5 wKD+mK fngtZ `wcz cv`ú	N4. tmP cvtëúí t_+K Avcbri Rvg KZ` fi Aeiv`Z?
1. fevtiv avb Avert`			.....MR
2. AvDm avb Avert`			.....MR
3. Avgb avb Avert`			.....MR
4. Mg PvfI			.....MR
5. fjev PvfI			.....MR
6. cvU Drcv` +b			.....MR
7. AvL PvfI			.....MR
8. %Zj RvZxq km`PvfI (mvi l v/wZj /ev`vg...)			.....MR
9. meRx PvfI (big:.....)			.....MR
10. dtj i evMf+b (big:.....)			.....MR
11. Wvj RvZxq km` PvfI (big:.....)			.....MR
12. Ab`vb` (wv` Ø Ki`b):			

O. wK wqgtg cKfí i fmfPi cwb weZiY Kiv nq?

1. chfµtg
2. cØqvRbft`
3. `wqZpØB eEbKvixi gtZ
4. Ab`vb` (wv` Ø Ki`b)

P. cKfí i tmP cvtëúí cwb Avcab mWKFvte e`envi Ki+Z cvi+Qb wK?

1. niiv
2. bv

Q. bv ntj , tKb cvi+Qb bv?

R. cKfí i tmP cvtëúí t_+K Avcbri Pwn`vi KZfVM cwb e`envi Kf+b?%

S. Pwn`vi tPtq cwb Kg cvl qvi KviY wK wK?

1. chfß cwbí Afve
2. Drcv` b LiP ep×
3. Ab`vb` (wv` Ø Ki`b)

12. cKfí i tmP cvtëúí cwb eUb l mieivni t`fí wK wK Amjevavi m=§xb nb?

1. cwbeUb h_vmgq nqbv
2. cfnekj x e`w³ iv tekx cwb tbg
3. e`e`vcv KvgU tekx cwb tbg
4. tmP hš;tmP bij v/cwbí Ab`vb` AeKvWtgv
bó ntj mWk mgq tgivgZ Kiv nq bv
5. cwb eEb e`e`v µUcy®
6. tmP bij v mWKFvte Kiv nq bvB
7. tmP bij v fv½v
8. tKvb Amjevav nqbv
9. Ab`vb` (wv` Ø Ki`b)

13. cKfí i ev`evqtbí dtj cteP Zj bvq eZgvtb fmfPi Rvgi cwi gvb ep× tctqtQ wK?

1. niiv
2. bv

K. niiv ntj , fmfPi Avl Zvq wK cwi gvb Rvg ep× tctqtQ?

cte ^q .....kZvsk Rvg wQj	eZgvtb t .....kZvsk Rvg ntqtQ
-------------------------------------	-------------------------------

14. cĶrĭ ev`evqtĭbi dtĭj cĥeP Zĭ bĭq eZġvĭb ĩmP LiP KĭgtĭQ bĭmK tetotĭQ? 1. KĭgtĭQ 2. tetotĭQ

K. GK tġsmĭtg ĩmĭPi cĭmbi Rb` cĭZ ĩeNĭq KZ UvKv ĩ ĩZ nq A_ev dĭmĭj i KZfĭM ĩ ĩZ nq?

cĥeP	eZġvĭb
K. ĩe`ĭr Pĭĭj Z cĭtĥu:.....UvKv (cĭZ ĩeNv)	K. ĩe`ĭr Pĭĭj Z cĭtĥu:.....UvKv (cĭZ ĩeNv)
L. ĩWĭRĭj Pĭĭj Z cĭtĥu:.....UvKv (cĭZ ĩeNv)	L. ĩWĭRĭj Pĭĭj Z cĭtĥu:.....UvKv (cĭZ ĩeNv)
M. dĭmĭj i KZfĭM: 1. ĩZbĭfĭMi GKfĭM	M. dĭmĭj i KZfĭM: 1. ĩZbĭfĭMi GKfĭM
2. Pĭi fĭfĭMi GKfĭM 3. Ab`vb`	2. Pĭi fĭfĭMi GKfĭM 3. Ab`vb`

15. cĶrĭ ev`evqtĭbi ĭi`i mgq t_ĭKB cĶrĭ mĥuĭK^QAvcĭb RĭvĭZb ĩK? 1. nĭv 2. bv

16. cĶrĭ ev`evqtĭbi ĭKĭb KĭfR Avcĭb AskMĭY KĭĭQb ĩK? 1. nĭv 2. bv

K. nĭv ntĭj , ĩK ĩK KĭfRi mĭt_ Avcĭb RĭoZ ĩQĭj b?

- | | | |
|--------------------|--------------------------------|------------------------------|
| 1. ĩbgPĭ KĭfR | 4. Rĭg `vb | 7. KĭR Z`vi ĩK |
| 2. ġmĭL Lĭĭbi KĭfR | 5. ev`evqb KĭĭUĭZ | 8. ĭvbĥevbĭi KĭR |
| 3. kĭ `vb/kĭgK `vb | 6. e`e`ĭcĭv I i PĭYĭtePĭY KĭfR | 9. Ab`vb` (ĭbĭ`Ė Kĭ`b) |

L. cĶrĭ ev`evqtĭbi KĭfR AskMĭY Kĭi Avcĭb ĭKĭb fĭZv ev ġRĭx ĭcĭtĭQb ĩK? 1. nĭv 2. bv

M. nĭv ntĭj , fĭZv ev ġRĭxi cĭvi ġvb KZ? %ĭbK: UvKv

17. Avcĭbi ġtZ, cĶrĭi ĭ`ĭcĭv ĩbgPĭYi KĭR,tĭj v ĩWKġZ ntĭqĭQj ĩK? 1. nĭv 2. bv 3. Rĭobv

18. GB cĶrĭi i (Wej ĭj dĭUs ĩmP cĭvĭ) ĩmĭPi cĭmb Qĭov Ab` ĭKĭb Drm t_ĭK Avcĭb dĭmĭj Drĭcĭv ĭb ĩmĭPi cĭmb e`envi Kĭĭb ĩK?

1. nĭv: Ab`vb` Drm t_ĭK Avcĭbi Pĭĭĭvi KZfĭM cĭmb e`envi Kĭĭb:% 2. bv

K. nĭv ntĭj , ĭKb Avcĭb Ab`vb` Drm t_ĭK ĩmĭPi cĭmb e`envi Kĭĭb?

19. ev`emqZ cĶrĭi i ĩmP cĭvĭ I Ab`vb` AeKĭVĭtġv,tĭj v Avcĭbi v mĭR I mĭWKfĭte e`envi KĭĭZ cĭvĭQb ĩK?

1. mĭRl mĭWKfĭte e`envi KĭĭZ cĭvĭQ 2. e`envĭi mġm`v AvĭQ

K. e`envĭi mġm`v_vKĭj ĩK aiĭbi mġm`v nt`Q?

ĭmKĭb- 3: cĶrĭ i PĭYĭtePĭY mĥuĭKZ Z`

20. cĶrĭi i ĩmP cĭvĭuĭ cĭmb Avcĭb e`envi KĭĭQb Zvi Ae`v eZġvĭb ĭKġb iĭtĭQ?

1. 25ĭKDĭmK cĭv`u	1. fĭj (mPj) 2. tġvĭvġĭJ (mPj ĩKŠ`ġvĭSġvĭS mġm`v nq) 3. Lvĭvc (APj)
2. 12.5ĭKDĭmK cĭv`u	1. fĭj (mPj) 2. tġvĭvġĭJ (mPj ĩKŠ`ġvĭSġvĭS mġm`v nq) 3. Lvĭvc (APj)
3. 5ĭKDĭmK cĭv`u	1. fĭj (mPj) 2. tġvĭvġĭJ (mPj ĩKŠ`ġvĭSġvĭS mġm`v nq) 3. Lvĭvc (APj)
4. cĭKv ĩmPbĭj v	1. fĭj (ĭQ`ĭdĭvĭv/fĭv`v BZ`w` bĭB) 2. tġvĭvġĭJ (ĭQĭU LvĭU ĭQ`ĭdĭvĭv/fĭv`v AvĭQ, KĭR Pĭj bĭ) 3. Lvĭvc (eo eo ĭQ`ĭdĭvĭv/fĭv`v AvĭQ, KĭR Pĭj bĭ)
5. ĩWmPĭR ^Q .	1. fĭj (mPj) 2. tġvĭvġĭJ (mPj ĩKŠ`ġvĭSġvĭS mġm`v nq) 3. Lvĭvc (APj)
6. Uvb ^Q -AvDU	1. fĭj (mPj) 2. tġvĭvġĭJ (mPj ĩKŠ`ġvĭSġvĭS mġm`v nq) 3. Lvĭvc (APj)
7. cĭmbi Ab`vb` AeKĭVĭtġv.....	1. fĭj (mPj) 2. tġvĭvġĭJ (mPj ĩKŠ`ġvĭSġvĭS mġm`v nq) 3. Lvĭvc (APj)

21. Avcbvi GjvKiq cKkí i tmP cvú I Ab'vb" AeKivrtgv, t jv tgi v g Z I i Yvte Y Y Kiv nq uK? 1. n'u 2. bv

K. niv ntj, tKvbmgstq tgi v g Z I i Yvte Y Y Kiv ntq _vtK?

1. dmj tgsmg i i i cte®
2. cvb e'enrti i mgstq
3. dmj DVi cti
4. cqvRb gZ ueGivm-tK Rvrtj
5. chqumtg
6. Ab'vb" (ubv" i Ki"b)

L. tgi v g Z I i Yvte Y Yt Yi KvR tK ev Kiv Kti _vtKb?

1. 25 uKDtmK cv-ú	1. ueGivm	2. ag Kigul	3. tKqvi tUKvi	4. Ab'vb" (ubv" i Ki"b)
2. 12.5 uKDtmK cv-ú	1. ueGivm	2. ag Kigul	3. tKqvi tUKvi	4. Ab'vb" (ubv" i Ki"b)
3. 5 uKDtmK cv-ú	1. ueGivm	2. ag Kigul	3. tKqvi tUKvi	4. Ab'vb" (ubv" i Ki"b)
4. tmPbj v	1. ueGivm	2. ag Kigul	3. tKqvi tUKvi	4. Ab'vb" (ubv" i Ki"b)
5. mVmPvR®	1. ueGivm	2. ag Kigul	3. tKqvi tUKvi	4. Ab'vb" (ubv" i Ki"b)
6. Uvb®-AvDU	1. ueGivm	2. ag Kigul	3. tKqvi tUKvi	4. Ab'vb" (ubv" i Ki"b)
7. cvbi Ab'vb" AeKivrtgv.....	1. ueGivm	2. ag Kigul	3. tKqvi tUKvi	4. Ab'vb" (ubv" i Ki"b)

M. tgi v g Z I i Yvte Y Yt Yi LiP tK enb Kti?

1. 25 uKDtmK cv-ú	1. ueGivm	2. ag Kigul	3. tKqvi tUKvi	4. Ab'vb" (ubv" i Ki"b)
2. 12.5 uKDtmK cv-ú	1. ueGivm	2. ag Kigul	3. tKqvi tUKvi	4. Ab'vb" (ubv" i Ki"b)
3. 5 uKDtmK cv-ú	1. ueGivm	2. ag Kigul	3. tKqvi tUKvi	4. Ab'vb" (ubv" i Ki"b)
4. tmPbj v	1. ueGivm	2. ag Kigul	3. tKqvi tUKvi	4. Ab'vb" (ubv" i Ki"b)
5. mVmPvR®	1. ueGivm	2. ag Kigul	3. tKqvi tUKvi	4. Ab'vb" (ubv" i Ki"b)
6. Uvb®-AvDU	1. ueGivm	2. ag Kigul	3. tKqvi tUKvi	4. Ab'vb" (ubv" i Ki"b)
7. cvbi Ab'vb" AeKivrtgv.....	1. ueGivm	2. ag Kigul	3. tKqvi tUKvi	4. Ab'vb" (ubv" i Ki"b)

tmKkb- 4: cKkí / ag cvi Pj bv, cvb eU b I e'e' vcbv Kigul msvs-

22. cKkí ev ag cvi Pj bvi KvR tK ev Kiv Kti _vtKb ev Kiv v bttqvrZ AvtQb? 1. Kigul 2. Ab'vb" (ubv" i Ki"b)

K. vrtgi vrtqZ; hvi v AvtQb Zvi v uK uK KvR Kti _vtKb?

1. Mtg cvb eU b I mieivn
2. cvbi h_vh_ e'enrti veltq cigk®
3. cigk® t q mnvh" Kiv
4. tmP LiP Av' vq Kiv
5. Kigul v befv m" m" i v bttq v bttqZ igul/mfv Kiv
6. Avq-e'tqi v mve msi Y Y
7. cKkí Y Y c'v b
8. tmP cvú I cvbi Ab'vb" AeKivrtgv i Yvte Y Y I tgi v g Z
9. Ab'vb" (ubv" i Ki"b)

L. ag cvi Pj bv Kigul/ t j i KvR Avcv mšó uK? 1. mšó 2. Amšó

M. Amšó ntj, Zvi Kiv uK?

N. Avcv i Mtg tmPi cvb eU b v bttq uK uK mgm'v i tqtQ?

O. ag cvi Pj bv ev mdj fvt e ev vrtqbi Rb" Avcv mcvv k uK?.....

23. ag cvi Pj bvi ttt gntj vt i tKv AskMhb AvtQ uK? 1. n'u 2. bv

K. bv ntj, tKb?

L. ag cvi Pj bvi ttt gntj vt i AskMhb uK fvt ev vrtq hvt?.....

Ўзгач- 5: сўзсўй мсµвс-

24. сўзсўй (F-cwi "cwiб мµвнч" тµП сµвс сўзсўй) Avl Zvq Avcbv tKvб сўзсўй tctqtQb вК? 1. n'u 2. bv
K. нµв нтj, D³ сўзсўй i Avl Zvq Avcbv вК inmйте, KZи' тби Ges вК вК велтqi Dci сўзсўй tctqtQb?

L. сўзсўйtYi aiY	M. KZи' тби сўзсўй tctqtQb?	N. вК вК велтqi Dci сўзсўй tctqtQb?
1. g'v'tbRvi (mfvcwZ/tmtµUvix)		
2. сµвс Pij K		
3. вdи g'vb		
4. Ab'vb' (vbw'и K'i'b)		

L. сўзсўй i сўзсўй t_тK th me Avb l 'qZv ARи K'tiтQb Zv Avcbvi KvтR вКfvте mнvqZv K'tiтQ/vКfvте KvтR j vMтZ tctiтQb?
.....
.....

M. сўзсўй i сўзсўйtYi gvb tKgb иQj? 1. fij 2. tgvUvgU 3. Lvvc

Ўзгач- 6: Wiej vj dиUs тµП сµвс сўзсўй i Kvhйg Pij ynl qvi сфeP l eZйvб Av_мvgµвRK Ae'v

25. Avcbvi cwi evti i DcvRиKvix m'm' msL'v KZRb? (сфeй eZйvб)

сфeйKZRb иQj (сўзсўй i cwiб hLb t_тK e'envi 'i" K'tiтQ Zvi сфeP mgq)	eZйvб KZRb (mв'qvrKvi Mб'тби Zwi L нтZ MZ 6 -12 gvtmi GKUv Mo mgq)
сj'l..... Rb; gµvj v..... Rb; tgvU.....Rb	сj'l..... Rb; gµvj v..... Rb; tgvU.....Rb

26. Avcbvi савб tckv вК? (сфeP l eZйvб)

сўзсўй ev' emqZ nl qvi сфeй	eZйvб
1. Kµl KvR	1. Kµl KvR
2. Kµl gRj	2. Kµl gRj
3. Kj -Kvi Lvбvi kтgK	3. Kj -Kvi Lvбvi kтgK
4. q'i 'e'emv	4. q'i 'e'emv
5. gvSvi x e'emv	5. gvSvi x e'emv
6. eo e'emv	6. eo e'emv
7. PvKix	7. PvKix
8. тeKvi	8. тeKvi
9. Ab'vb' (vbw'и K'i'b)	9. Ab'vb' (vbw'и K'i'b)

27. Avcbvi cwi evti i tgvU gµвK Avтqi Drm l cwi gY: сфeP l eZйvб

Avтqi Drm	сўзсўй ev' emqZ nl qvi сфeй Mo gµвK Avq (UvKvq)	eZйvб Mo gµвK Avq (UvKvq)
1. Kµl LvZ t_тK		
2. сi' сvj b t_тK (nµm/ gi Mx/Mi "OvMj сvj b)		
3. kvKmeиRи evMvb/d'j i evMvb t_тK		
4. grm Pv l t_тK		
5. e'emv-eвbR' t_тK		
6. PvKix t_тK		
7. Ab'vb' t_тK tс'и Z (tiгtUY)		
8. eUKx m'v' t_тK		
9. FY t' l qv t_тK		
10. Ab'vb' (vbw'и K'i'b)		
tgvU gµвK Avq (UvKv)		

28. Avcvri cwi evti i tgvU gwmK e`tqi LvZ: cteP I eZgtbi

e`tqi LvZ	cKri ev`emqZ ni qvi cte ^o Mo gwmK e`q (UvKvq)	eZgtb Mo gwmK e`q (UvKvq)
1. Lv`		
2. dmj Pvl ver`		
3. wPkrmv		
4. tcvlvK		
5. `g -Ktj R		
6. cwi enb		
7. wej (we`jr/M`vm/tKti vmb)		
8. Drme		
9. Ab`vb` (ubv` tKi`b)		
tgvU gwmK e`q (UvKv)		

29. Avcvri cwi evti i tgvU Rigi cwi gvb: cteP I eZgtbi

Rigi ev figi aiY	cKri ev`emqZ ni qvi cte ^o (kZvstK)	eZgtb (kZvstK)
1. vbR`Pvl thvM` Rigi		
K. tmPKZ Pvl thvM` Rigi		
L. tmP Qrov Pvl thvM` Rigi		
2. eMfRigi (t`qv/tbqv)		
3. emZ wfUv I Ab`vb` Rigi (evMvb, cKi, cuZZ BZ`w`)		
tgvU Rigi cwi giY		

30. cKri ev`erqtb i dtj cteP Zj bvq eZgtb t0tj tqtq` i `g /Ktj R/gv` tmvq uk`vli mthvM tetot0 uk?

1. niv 2. bv

31. Avcvri cwi evti uk`vli c0Z0rb hvl qvi DcthvMx m`tm`i msLv:.....Rb Ges KZRb cte`htZ cvi Z Ges eZgtb cvti?

cKri ev`emqZ ni qvi cte ^o	K. uk`vli c0Z0rb hvl qvi DcthvMx m`tm`i msLv:.....Rb L. Gi gta` t0tj KZRb thZ:.....Rb M. Gi gta` tqtq KZRb thZ:.....Rb
eZgtb	K. uk`vli c0Z0rb hvl qvi DcthvMx m`tm`i msLv:.....Rb L. Gi gta` t0tj KZRb hvq:.....Rb M. Gi gta` tqtq KZRb hvq:.....Rb

32. Avcvri tKvb GbvrI /Dbqbgj K c0Z0rb i m`m` uk?

- cKri ev`emqZ ni qvi cte^o 1. niv 2. bv eZgtbt 1. niv 2. bv

33. cKri ev`erqtb i dtj cteP Zj bvq eZgtb Avcvri` i Gj vKvq kZKiv KZfvM gvuj v wvfbaDbqbgj K Kvtr AskMhY Ki t0?
cte^o% Ki tZv; eZgtb t% Ki t0

K. niv ntj, gvuj viv AvtM uk`vli Kvtr tekx AskMhY Ki tZv Ges eZgtb uk`vli Kvtr tekx AskMhY Ki t0?

Kvtr i t`vI	cte ^o	eZgtb	Kvtr i t`vI	cte ^o	eZgtb
1. Kvl KvR			7. nvm/gj Mx cvj b		
2. Kvl gRj			8. Kvl i kt`i KvR		
3. kvK-mevRi evMvb			9. vj`e`emv (ubv` tKi`b)		
4. e`v`ivcb (evrbq) Gi KvR			10. Pvkix		
5. grm` Pvl			11. Ab`vb` (ubv` tKi`b)		
6. Mi`/Qvj cvj b				

34. cKri i cte`Ges eZgtb Avcvri` i emotZ we`jr vQj /Avt0 uk?

- cKri ev`emqZ ni qvi cte^o 1. niv 2. bv eZgtbt 1. niv 2. bv

35. Lvbri Av_9migmRK Ae^v:
1. nZ^mi^a (gwmK Avq - 2000 UvKv ev Zvi bxtP)
 2. ^wi^7ibgmeE (gwmK Avq - 2001 UvKv t_tK 7500 UvKv)
 3. ^Oj/ga^meE (gwmK Avq - 7501 UvKv ev Zvi Dt^9)

tmKkb- 7: Kml weIqK Z_

36. cKí ev^evqtbí dtj c^eP Zj b^vq eZ^vrb Lv^ (avb) Drcv^b tetotQ mK? 1. n^u 2. bv

K. niv ntj , c^Z weNvq mK cwi gvb tetotQ?

cKí ev^ewqZ nl qvi c^e ⁹ (cKtí i cwb hLb t_tK e^envi i i^ Ktí tQ Zvi AvtMi mgq)	eZ^vrb (mv^vrvKvi M^tbi Zwi L ntZ MZ 6-12gv^mi GKUv Mo mgq)
1. tev^iv avb : c^Z weNvq .....gY ntZv	1. tev^iv avb : c^Z weNvq .....gY nq
2. AvDm avb : c^Z weNvq .....gY ntZv	2. AvDm avb : c^Z weNvq .....gY nq
3. Avgb avb : c^Z weNvq .....gY ntZv	3. Avgb avb : c^Z weNvq .....gY nq

37. cKí ev^evqtbí dtj c^eP Zj b^vq eZ^vrb gb c^Z avtbi gj^ tetotQ mK? 1. n^u 2. bv

K. niv ntj , gb c^Z avtbi gj^ KZ tetotQ?

cKí ev^ewqZ nl qvi c^e ⁹	eZ^vrb
1. tev^iv avb : c^Z gb .....UvKv nQj	1. tev^iv avb : c^Z gb .....UvKv
2. AvDm avb : c^Z gb .....UvKv nQj	2. AvDm avb : c^Z gb .....UvKv
3. Avgb avb : c^Z gb .....UvKv nQj	3. Avgb avb : c^Z gb .....UvKv

38. cKí ev^evqtbí dtj c^eP Zj b^vq eZ^vrb Kml t^tí ktm^i eügluKi b (GKB RvgtZ GKwaK dmj Drcv^b) nt^Q mK?

1. n^u 2. bv

K. niv ntj , GKB RvgtZ eQtí KquU dmj Drcw^ Z nq?

cKí ev^ewqZ nl qvi c^e ⁹	eZ^vrb
1. GKU 2. ^bu 3. wZbu 4. Pviu I Zvi tekx	1. GKU 2. ^bu 3. wZbu 4. Pviu I Zvi tekx

L. GKB RvgtZ eQtí mK mK dmj Drcw^ Z nq?

c^e⁹ t.....

eZ^vrb t.....

39. cKí ev^evqtbí dtj c^eP Zj b^vq eZ^vrb we^fbacKvi AvZwi^3 Lv^ ktm^i (avb Qrov Ab^vb^ dmj) Drcv^b nt^Q mK?

1. n^u 2. bv

K. niv ntj , c^e^mK mK AvZwi^3 Lv^ km^ Drcw^ Z ntZv Ges eZ^vrb mK mK nt^Q?

cKí ev^ewqZ nl qvi c^e ⁹	eZ^vrb
1. Mg	1. Mg
2. f^ev	2. f^ev
3. cvU	3. cvU
4. AvL/B^l	4. AvL/B^l
5. gwi P/avbqv/nj j /.....)	5. gwi P/avbqv/nj j /.....)
6. %Zj RvZxq km^ (mwi l v/wZm/wZj /ev^ vg/.....)	6. %Zj RvZxq km^ (mwi l v/wZm/wZj /ev^ vg/.....)
7. Wvj RvZxq (gM/gmj /Kj vB.....)	7. Wvj RvZxq (gM/gmj /Kj vB.....)
8. kvK-me^R (bvq D^j E-Ki^b:)	8. kvK-me^R (bvq D^j E-Ki^b:)
9. dj (bvq D^j E-Ki^b:)	9. dj (bvq D^j E-Ki^b:)
10. Ab^vb^ (wv^ t K i^b).....	10. Ab^vb^ (wv^ t K i^b).....

40. cKí ev`eqtbi cte⁹ eZ⁹tb ktm`i bvg, RvZ, dj tbi cwi gvb t

dmtj i bvg	Rvgi cwi gvb (kZvstk)		RvZ:		cZ eQi weNv cZ Drcv tbi cwi gvY (gY-G)					
	c ⁹	eZ ⁹ tb	c ⁹	eZ ⁹ tb	1. nvBeW		2. D ⁹ Pdj bkxj		3. vbxq RvZ	
					c ⁹	eZ ⁹ tb	c ⁹	eZ ⁹ tb	c ⁹	eZ ⁹ tb
1. tetiv avb										
2. AvDk avb										
3. Avgb avb										
4. Mg										
5. Ab`vb` (nbw` 0 Ki`b).										

41. cKí ev`eqtbi dtj cte⁹ Zj bvg eZ⁹tb Avcbvi Gj vKvq e⁹ttivcb tetotQ wK? 1. niuv 2. bv

K. tKb tetotQ?

42. cKí ev`eqtbi dtj cte⁹ Zj bvg eZ⁹tb Avcbvi Gj vKvq gvtQi Drcv`b tetotQ wK? 1. niuv 2. bv

43. cKí ev`eqtbi dtj cte⁹ Zj bvg eZ⁹tb Avcbvi Gj vKvq num-gj Mx cvj b tetotQ wK? 1. niuv 2. bv

44. cKí ev`eqtbi dtj cte⁹ Zj bvg eZ⁹tb Avcbvi Gj vKvq ci` cvj b tetotQ wK? 1. niuv 2. bv

tmKkb- 8: Kgms`vtbi mthvM

45. cKí ev`eqtbi dtj cte⁹ Zj bvg eZ⁹tb Avcbv`i Gj vKvq Kgms`vtbi mthvM tetotQ wK? 1. niuv 2. bv

K. niuv ntj, tKvbtKvbt⁹ Kgms`vtbi mthvM m⁹ ntqtQ/tetotQ? (cKt⁹ i ceZ⁹ Ae`vi t⁹ttZ Zj bv Kti eZ⁹tb kZKiv KZfVM (%) tetotQ tmB intmte DEi w`b)

tKvb tKvb t ⁹ tt tetotQ	kZKiv KZ fVM (%) tetotQ	cj`l ⁹ i t ⁹ tt (%)	gunj vt` i t ⁹ tt (%)
1. Kwl KvR			
2. Kwl gRj			
3. kvK-memRi evMb			
4. e ⁹ ttivcb (ebvqb) Gi KvR			
5. grm` Prl			
6. Mi`/QvMj cvj b			
7. num/gj Mx cvj b			
8. K ⁹ U i wkt ⁹ i KvR			
9. t ⁹ tt` e`emv			
10. gvSvi x e`emv			
11. eo e`emv			
12. iv`wvU/tmZvbg ⁹ KvR			
13. g ⁹ U Lbb KvR			
14. Kj Kvi Lvbi KvR			
15. PvKi x			
16. Ab`vb` (nbw` 0 Ki`b)			

46. cKí ev`eqtbi dtj cte⁹ Zj bvg eZ⁹tb Avcbv`i Gj vKvq gunj vt` i Avtqi mthvM tetotQ wK? 1. niuv 2. bv

K. niuv ntj, kZKiv KZfVM tetotQ? cte⁹% wQj ; eZ⁹tb t% ntqtQ

խոսք- 9: անորոշական

47. Տեղի է կանգնում այն բանը, որ հինգը հարյուրից մեծ է:

Տեղի է կանգնում այն բանը, որ հինգը հարյուրից մեծ է					
1. չէ			2. է		
1. չէ	2. է	3. էնք	1. չէ	2. է	3. էնք

48. Տեղի է կանգնում այն բանը, որ հինգը հարյուրից մեծ է:

Տեղի է կանգնում այն բանը, որ հինգը հարյուրից մեծ է	1. չէ	2. է	Տեղի է կանգնում այն բանը, որ հինգը հարյուրից մեծ է	1. չէ	2. է
--	-------	------	--	-------	------

49. Տեղի է կանգնում այն բանը, որ հինգը հարյուրից մեծ է:

1. չէ	2. է
-------	------

50. Տեղի է կանգնում այն բանը, որ հինգը հարյուրից մեծ է:

1. չէ	2. է
-------	------

51. Տեղի է կանգնում այն բանը, որ հինգը հարյուրից մեծ է:

1. չէ	2. է
-------	------

Կ. ընտրե՛ք այն հարցը, որին կհարցնե՞ք:

- | | |
|---|--|
| 1. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: | 6. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: |
| 2. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: | 7. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: |
| 3. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: | 8. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: |
| 4. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: | 9. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: |
| 5. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: | 10. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: |

52. Տեղի է կանգնում այն բանը, որ հինգը հարյուրից մեծ է: (GKRb երկրի GKmaK ինքնին, խոսքի ինքնին երկուսից մեկը խոսքի ինքնին է: Այլ հարցերի համար տես՝ 7 և 8 հարցերը: Տեղի է կանգնում այն բանը, որ հինգը հարյուրից մեծ է: (1. չէ/2. է):

Այլ հարցերից մեկը	եզր	Այլ/ ինքնին		Եզրի կերպ		Կոչվո՞ւմ Այլ հարցը (ը՞նչ)		Այլ հարցերից մեկը հարցնում է:		Ինչու երբեք չես գնում հինգը հարյուրից մեծ է? (1. չէ/2. է)	
		ճիշտ	ՄԶ 1	ճիշտ	ՄԶ 1	ճիշտ	ՄԶ 1	ճիշտ	ՄԶ 1	ճիշտ	ՄԶ 1
Կ. երբեք չես գնում (14 հարցի դիմաց)											
Լ. երբեք չես գնում (14 հարցի դիմաց)											
Մ. երբեք չես գնում (0-14 հարց)											
Ն. երբեք չես գնում (0-14 հարց)											

Ինքնին խոսքի ինքնին: 1. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: 2. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: 3. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: 4. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: 5. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: 6. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: 7. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: 8. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: 9. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է: 10. Ինչու երբեք չես գնում հինգը հարյուրից մեծ է:

խՈԿԵՒՆ 10: Ինքնուրույն աշխատանքի Ծրագիր

53. Ընտրե՛ք ճիշտ պատասխանը հարցի համար և նշե՛ք ճիշտ պատասխանը:

Ինքնուրույն	Ընտրե՛ք ճիշտ պատասխանը	Ծրագիր
1. Կարծիքի ակտ	1. Դձ 2. Դձ բ	1. Արդ 2. ԲԻ
2. Կարծիքի ակտ (ԲԱ ռոման)	1. Դձ 2. Դձ բ	1. Արդ 2. ԲԻ
3. Կարծիքի ակտ (Կարծիքի ակտ)	1. Դձ 2. Դձ բ	1. Արդ 2. ԲԻ
4. ԵՐ-Կյ վԿ	1. Դձ 2. Դձ բ	1. Արդ 2. ԲԻ

Կ. Ընտրե՛ք ճիշտ պատասխանը հարցի համար և նշե՛ք ճիշտ պատասխանը:

(Ընտրե՛ք ճիշտ պատասխանը հարցի համար և նշե՛ք ճիշտ պատասխանը:
 (Ընտրե՛ք ճիշտ պատասխանը հարցի համար և նշե՛ք ճիշտ պատասխանը:
 6, 5, 4 Գրե՛ք ճիշտ պատասխանը հարցի համար և նշե՛ք ճիշտ պատասխանը)

Ինքնուրույն	Ընտրե՛ք ճիշտ պատասխանը	Ծրագիր
1. ԵՐԻԿԵ		
2. ԳՍ ԻԿԵ		
3. Ի - Վ		
4. ԲՎ		
5. ԵՄ		
6. ԱԿ		
7. ԻԱԿ		
8. ԲՄԳԲ/ԲՄԿԿ		
9. ԱԻՎՄ (ԻԿԵ ԻԿԵ)		

խՈԿԵՒՆ 11: Ընտրե՛ք ճիշտ պատասխանը հարցի համար և նշե՛ք ճիշտ պատասխանը:

54. Ընտրե՛ք ճիշտ պատասխանը հարցի համար և նշե՛ք ճիշտ պատասխանը:

.....

55. Ընտրե՛ք ճիշտ պատասխանը հարցի համար և նշե՛ք ճիշտ պատասխանը:

Ինքնուրույն	Ծրագիր
Կ. Իմ Իմ/Իմ հԵ	
Լ. Իմ Ե՛Վ ԿԻ Բ	
Մ. ԿԵ ԵՎ	
Ն. ԻԿԵԿԵ (Իմ ԿԵՎ Ի ԱԻՎՄ ԱԵԿՎԵԿԵ)	
Օ. ԶԶԵԵԵԵ ԵՎ ԻՎԵ	
Ք. ԵԿ ԿԵԿԵ	
Չ. ԸԿԵԿԵ	
Ր. ԱԻՎՄ Ծրագիր (ԻՎՄ ԻԿԵ)	

Ընտրե՛ք ճիշտ պատասխանը հարցի համար և նշե՛ք ճիշտ պատասխանը:

Wvej wj dUUs Gi gva'tg f-cwi ' cwmbi mwnvth" tmP mæcñvi Y (1g chiq)
kxl R cKtí i cFve gj "vqb

Lvbn Rwi c cKgvj v

(KtUj Gwi qvi Rb": th v'v b cKtí i Avl Zvq Wvej wj dUUs Gi gva'tg f-cwi ' cwmbi mwnvth"
tmP cváú v'vcb Kiv nqub ev Kg ntqtQ)

†Km bst

--	--	--	--

fvgKv: Avmñvj vgyAvj vBKg| Avgiv ixW (Mtel Yv cñZvb) | AvBGgBwW (cwi Kí bv gšYvj q) Gi c¶ t_†K gvW chiq
gj "vqb Rixtci D†I †k" G†miQ| eZgub Rixtci D†I k" n"Q, Avcbv† i M†tg eZgub †m†Pi Rb" wK ai†bi tmP e"e"v
i†qtQ hvi gva'tg Avcbvix Kwl dmj Drcv`b Ki†Qb| GQov †m†Pi Pwn`v c†Y bv ntj wKfvte †m†Pi Pwn`v c†Y
Ki†Qb tm mæú†K® Rvbv| Avgiv G mæú†K®Avcbvi gj "evb gZvgZ msMñni Rb" G†miQ|

Avcbv gj "evb Z_ w'q G Mtel Yvi Kv†R mn†hwMZv Ki†Z cv†b| Avcbvi gZvgZ i agv† Mtel Yvi Kv†RB e"eüZ
nte| Avcbvi t`qv Z_ mæúY®Mvcb ivLv nte| Avcbvi Abguz tctj Awg mv¶vrKvi "i" Ki†Z cwi |

weFwM :	†KvWbs :
†Rjv :	†KvWbs :
Dc†Rjv :	†KvWbs :
BDwbqb :	†KvW bs :
M†g :	†KvW bs :
tmP v'v†gi bvg:	

DÉi`vZv/DÉi`v†xi aib:

1. Adult Male Main earner or Head of Household (land holding farmer/ marginal farmer/working as farmer)
2. Adult Married Women (Preferably wife the head of household)

mv¶vrKvi M†hYKvixi bvg :	mv¶vrKvi M†h†Yi Zwi L:
mv¶vi fvBRv†i i bvg :	Zwi L:
mv¶vrKvi M†hY: i i"i mgq :	†kl mgq:

Իմ ԿԿԵ- 1: Լսելու և արձագանքելու միջոցներ

1. Դձի ընտրելու արձագանքը (կարող եմ արձագանքել Ընտրողին):
(այժմ էլ եմ արձագանքելու արձագանքը Ընտրողին Գրքի մասին որպեսզի ես կարող եմ արձագանքել քեզ):
2. Դձի ընտրելու արձագանքը: Է. Դձի ընտրելու արձագանքը:
3. Դձի ընտրելու արձագանքը (մեծ մասամբ):
4. Դձի ընտրելու արձագանքը: 1. արձագանքելու 2. արձագանքելու 3. արձագանքելու
4. չեմ արձագանքելու 5. չեմ արձագանքելու
5. Դձի ընտրելու արձագանքը: Իմ: Դձի: Դձի:
6. Կարող եմ արձագանքելու Է. (0-14 արձագանքելու: 14 արձագանքելու մասին)
Կարող եմ արձագանքելու Է. Կարող եմ արձագանքելու Է.
Կարող եմ արձագանքելու Է. Կարող եմ արձագանքելու Է.
7. Դձի ընտրելու արձագանքը: Է. արձագանքելու Է. Կարող եմ արձագանքելու Է.
8. Կարող եմ արձագանքելու: 1. Կարող եմ արձագանքելու 2. Կարող եմ արձագանքելու

Իմ ԿԿԵ- 2: Կարող եմ արձագանքելու

9. Կարող եմ արձագանքելու Կարող եմ արձագանքելու Կարող եմ արձագանքելու Կարող եմ արձագանքելու
1. Կարող եմ արձագանքելու 2. Կարող եմ արձագանքելու 3. Կարող եմ արձագանքելու 4. Կարող եմ արձագանքելու
10. Կարող եմ արձագանքելու Կարող եմ արձագանքելու Կարող եմ արձագանքելու Կարող եմ արձագանքելու
1. Կարող եմ արձագանքելու 2. Կարող եմ արձագանքելու 3. Կարող եմ արձագանքելու 4. Կարող եմ արձագանքելու
- Կ. Կարող եմ արձագանքելու Կարող եմ արձագանքելու Կարող եմ արձագանքելու
1. Կարող եմ արձագանքելու 2. Կարող եմ արձագանքելու 3. Կարող եմ արձագանքելու
- Լ. Կարող եմ արձագանքելու Կարող եմ արձագանքելու Կարող եմ արձագանքելու
1. Կարող եմ արձագանքելու 2. Կարող եմ արձագանքելու
- Ս. Կարող եմ արձագանքելու Կարող եմ արձագանքելու Կարող եմ արձագանքելու
1. Կարող եմ արձագանքելու 2. Կարող եմ արձագանքելու 3. Կարող եմ արձագանքելու 4. Կարող եմ արձագանքելու
- Ն. Կարող եմ արձագանքելու Կարող եմ արձագանքելու Կարող եմ արձագանքելու

N1. Կարող եմ արձագանքելու Կարող եմ արձագանքելու	N2. Կարող եմ արձագանքելու: 1. Կարող եմ արձագանքելու 2. Կարող եմ արձագանքելու 3. Կարող եմ արձագանքելու	N3. Կարող եմ արձագանքելու Կարող եմ արձագանքելու Կարող եմ արձագանքելու Կարող եմ արձագանքելու 1. Կարող եմ արձագանքելու 2. Կարող եմ արձագանքելու 3. Կարող եմ արձագանքելու 4. Կարող եմ արձագանքելու	N 4. Կարող եմ արձագանքելու Կարող եմ արձագանքելու Կարող եմ արձագանքելու Կարող եմ արձագանքելու
1. Կարող եմ արձագանքելու			.....MR
2. Կարող եմ արձագանքելու			.....MR
3. Կարող եմ արձագանքելու			.....MR
4. Կարող եմ արձագանքելու			.....MR
5. Կարող եմ արձագանքելու			.....MR
6. Կարող եմ արձագանքելու			.....MR
7. Կարող եմ արձագանքելու			.....MR
8. Կարող եմ արձագանքելու (կարող եմ արձագանքելու /եղբայր...)			.....MR
9. Կարող եմ արձագանքելու (կարող եմ արձագանքելու: .....			.....MR
10. Կարող եմ արձագանքելու (կարող եմ արձագանքելու: .....			.....MR
11. Կարող եմ արձագանքելու (կարող եմ արձագանքելու: .....			.....MR
12. Կարող եմ արձագանքելու (կարող եմ արձագանքելու):			

O. μ K μ bq μ g Avcb μ t μ i μ t μ Pi c μ b μ eZiY Kiv nq?
 1. ch μ q μ t μ g 2. c μ q μ Rb μ t μ t μ 3. μ wqZc μ 0 μ e μ EbKvixi g μ Z 4. Ab μ vb μ (μ b μ r μ 0 Ki μ "b)

P. Avcbvi e μ e μ Z μ mP cv μ t μ u μ c μ b Avcb μ mVKf μ te e μ envi Ki μ tZ cv μ tQb μ K? 1. ni μ v 2. b μ v

Q. b μ v n μ tj , tKb cv μ tQb b μ v?

R. D μ 3 μ mP cv μ t μ u μ t μ K Avcbvi P μ vn μ vi KZf μ M c μ b e μ envi K μ t μ b?%

S. P μ vn μ vi tP μ tq c μ b Kg cv μ l qvi KviY μ K μ K?
 1. ch μ 0 μ c μ b μ Af μ v 2. Drc μ r μ b LiP e μ x 3. Ab μ vb μ (μ b μ r μ 0 Ki μ "b)

11. D μ tj μ eZ μ t μ Pi c μ b e μ Ub I mi eiv μ ni t μ q μ t μ μ K μ K Am μ ev μ i m μ 0 μ x μ nb?

- | | |
|---|---|
| 1. c μ b e μ Ub h μ _mgtq nq μ v | 5. c μ b e μ Eb e μ e μ v μ m μ UcY μ |
| 2. c μ f μ rek μ v x e μ w μ 3 iv t μ ex c μ b t μ bq | 6. μ mP b μ v v μ mVKf μ te Kiv nq b μ vB |
| 3. e μ e μ vcbv K μ g μ U t μ ex c μ b t μ bq | 7. μ mP b μ v v f μ v μ v |
| 4. μ mP h μ š/ μ mP b μ v v/c μ b μ Ab μ vb μ AeK μ v μ t μ gv
b μ n μ tj μ mVK mgtq t μ g μ vZ Kiv nq b μ v | 8. tK μ v Am μ ev μ nq μ v |
| | 9. Ab μ vb μ (μ b μ r μ 0 Ki μ "b) |

12. c μ e μ P Zj b μ vq eZ μ vtb μ t μ Pi R μ g e μ x t μ tq μ Q μ K? 1. ni μ v 2. b μ v

K. ni μ v n μ tj , μ t μ Pi Av μ l Z μ vq μ K cv μ i g μ v R μ g e μ x t μ tq μ Q?

c μ e μ .....kZ μ vk R μ g μ Qj	eZ μ vtb t .....kZ μ vk R μ g n μ tq μ Q
---	--

L. b μ v n μ tj , tKb e μ to μ b?

13. c μ K μ e μ v μ evq μ tbi d μ tj c μ e μ P Zj b μ vq eZ μ vtb μ mP LiP K μ tq μ Q b μ wK t μ et μ Q? 1. K μ tq μ Q 2. t μ et μ Q

K. GK t μ g μ m μ g μ t μ Pi c μ b μ Rb μ c μ 0Z μ eN μ vq KZ UvKv μ tZ nq A μ _ev d μ tj i KZf μ M μ tZ nq?

c μ e μ	eZ μ vtb
K. μ e μ jr P μ wj Z cv μ t μ u μ :.....UvKv (c μ 0Z μ eN μ v)	K. μ e μ jr P μ wj Z cv μ t μ u μ :.....UvKv (c μ 0Z μ eN μ v)
L. μ w μ tRj P μ wj Z cv μ t μ u μ :.....UvKv (c μ 0Z μ eN μ v)	L. μ w μ tRj P μ wj Z cv μ t μ u μ :.....UvKv (c μ 0Z μ eN μ v)
M. d μ tj i KZf μ M: 1. μ Zb μ f μ tMi GKf μ M	M. d μ tj i KZf μ M: 1. μ Zb μ f μ tMi GKf μ M
2. P μ i f μ tMi GKf μ M 3. Ab μ vb μ	2. P μ i f μ tMi GKf μ M 3. Ab μ vb μ

μ mKkb- 3: c μ b e μ Ub I e μ e μ vcbv K μ g μ U m μ s μ v μ š-

14. Avcb μ t μ i M μ t μ g μ t μ Pi c μ b e μ Ub I e μ e μ vcbvi K μ vR tK e μ v Kiv K μ t μ μ v μ Kb? 1. K μ g μ U 2. Ab μ vb μ (μ b μ r μ 0 Ki μ "b)

K. c μ b e μ Ub I e μ e μ vcbvi μ wq μ Zj h μ ri v Av μ tQb Z μ ri v μ K μ K K μ vR K μ t μ μ v μ Kb?

- | | |
|---|---|
| 1. M μ t μ g c μ b e μ Ub I mi eiv μ n | 6. Avq-e μ tq μ μ m μ ve m μ i μ q μ Y |
| 2. c μ b μ h μ _v μ e μ envi μ e μ t μ q civgk μ | 7. c μ 0k μ q μ Y c μ 0v |
| 3. civgk μ μ t μ m μ vn μ Kiv | 8. μ mP cv μ t μ u μ I c μ b μ Ab μ vb μ AeK μ v μ t μ gv i μ q μ Y μ te μ q μ Y I t μ g μ vZ |
| 4. μ mP LiP Av μ vq Kiv | 9. Ab μ vb μ (μ b μ r μ 0 Ki μ "b) |
| 5. K μ g μ U μ μ bef μ x m μ m μ t μ i μ b μ tq μ bq μ gZ μ g μ U μ s/m μ f μ v Kiv | |

L. c μ b e μ Ub I e μ e μ vcbv K μ g μ U/ μ tj i K μ vR Avcb μ m μ š μ μ K? 1. m μ š 2. Am μ š

M. Am μ š n μ tj , Z μ i Kiv b μ K?

N. Avcbrt`i Mf`g f`m`Pi cwb eUb wbtq wK wK mgn`v i fqtQ?

.....

O. cwb eUb I e`e`vcbr mdj f`te cwi Prj br ev ev`evqtbi Rb` Avcbri mpcwi k wK?.....

.....

15. cwb eUb I e`e`vcbri f`f`f`T g`nj v` i tKvb AskM`hb AvtQ wK? 1. n`u 2. br

K. br ntj , tKb?

L. cwb eUb I e`e`vcbri f`f`f`T g`nj v` i AskM`hb wK f`te evovtbr hvq?.....

.....

f`mKkb- 4: Av`mvgw`RK Ae`v

16. Avcbri cwi evt`i i DcvR`Kvi x m`m` msL`v KZRb? (c`e` eZ`g`tb)

c`e`KZRb w`j	eZ`g`tb KZRb
cj`I..... Rb; g`nj v..... Rb; tgvU.....Rb	cj`I..... Rb; g`nj v..... Rb; tgvU.....Rb

17. Avcbri c`wb tckv wK? (c`e` I eZ`g`tbi)

c`e`	eZ`g`tb
1. KwL KvR	1. KwL KvR
2. KwL gRj	2. KwL gRj
3. Kj -Kvi Lvbi ktgK	3. Kj -Kvi Lvbi ktgK
4. f`z`e`emv	4. f`z`e`emv
5. gvSvi x e`emv	5. gvSvi x e`emv
6. eo e`emv	6. eo e`emv
7. PvKa x	7. PvKa x
8. t`Kvi	8. t`Kvi
9. Ab`vb` (w`v` t` Ki`b)	9. Ab`vb` (w`v` t` Ki`b)

18. Avcbri cwi evt`i i tgvU gwmK Avtqi Drm I cwi gvY: c`e` I eZ`g`tbi

Avtqi Drm	c`e` Mo gwmK Avq (UvKvq)	eZ`g`tb Mo gwmK Avq (UvKvq)
1. KwL LvZ` t`_t`K		
2. ci` cvj b t`_t`K (nwm/ gj Mx/Mi`/QvMj` cvj b)		
3. kvKmeiRi` evMvb/dtj`i` evMvb t`_t`K		
4. grm Pvl t`_t`K		
5. e`emv-ewbR` n`t`Z		
6. PvKa x t`_t`K		
7. Ab`vb` n`t`Z t`c`i` Z (t`i`g`t`U`Y)		
8. e`UKx m`u` t`_t`K		
9. FY` t` I`qv t`_t`K		
10. Ab`vb` (w`v` t` Ki`b)		
tgvU gwmK Avq (UvKv)		

19. Avcbri cwi evti i tgvU gwmK e`tqi LvZ: c`eP I eZ`gtbi

e`tqi LvZ	c`e ^o Mo gwmK e`q (UvKvq)	eZ`gtb Mo gwmK e`q (UvKvq)
1. Lv`		
2. dmj Pvl ver`		
3. wPkRmv		
4. tciLvK		
5. `g -Ktj R		
6. cwi enb		
7. wej (we` jr/M`vm/tKti wmb)		
8. Drme		
9. Ab`vb` (wbw` t Ki`b)		
tgvU gwmK e`q (UvKv)		

20. Avcbri cwi evti i tgvU Rigi cwi gvb: c`eP I eZ`gtbi

Rig ev figi aiY	c`e ^o (kZvstik)	eZ`gtb (kZvstik)
1. emZ wfUv		
2. wbR`Pvl thvM` Rig K. tmPKZ Pvl thvM` Rig L. tmP Qrov Pvl thvM` Rig		
3. eM`PRig (t` qv/tbqv)		
4. cwiZ Rig		
5. cKi		
6. evMvb evox		
7. Ab`vb` Rig (wbw` t Ki`b)		
tgvU Rigi cwi gvY		

21. c`eP Zj bqv eZ`gtb tQtj tqt` i `g /Ktj R/gv` tmvq wk`lvi m`thvM tetotQ wk? 1. niv 2. bv

22. Avcbri cwi evti wk`lv cZ`vrb hvl qvi Dc`thvMx m`sb KZRb Ges KZRb c`e`htZ cvi Z Ges eZ`gtb cvti?

c`e ^o	K. wk`lv cZ`vrb hvl qvi Dc`thvMx m`tm`i msL`v:.....Rb L. Gi gta` tQtj KZRb thZ:.....Rb M. Gi gta` tqtq KZRb thZ:.....Rb
eZ`gtb	K. wk`lv cZ`vrb hvl qvi Dc`thvMx m`tm`i msL`v:.....Rb L. Gi gta` tQtj KZRb hvq:.....Rb M. Gi gta` tqtq KZRb hvq:.....Rb

23. Avcib tKvb Gb`RI /Dbqbgj K cZ`vrb m`m` wk?

cK`i ev`emqZ nl qri c`eP 1. niv 2. bv eZ`gtbt 1. niv 2. bv

24. c`eP Zj bqv eZ`gtb Avcbt` i Gj vKvq kZKiv KZfvM gunj v wvfb`Dbqbgj K KvR AskMhY Ki tQ?

c`e`% Ki tZv ; eZ`gtb t% Ki tQ

K. niv ntj , gunj viv AvtM wk` wk` KvR tekx AskMhY Ki tZv Ges eZ`gtb wk` wk` KvR tekx AskMhY Ki tQ?

KvRi t`I	c`e ^o	eZ`gtb	KvRi t`I	c`e ^o	eZ`gtb
1. Kvl KvR			7. num/gj Mx cij b		
2. Kvl gRj			8. Kvlj wk`i i KvR		
3. kvK-mevRi evMvb			9. `lj`e`emv (wbw` t Ki`b)		
4. e`t`ivcb (ebvqb) Gi KvR			10. Pvkix		
5. grm` Pvl			11. Ab`vb` (wbw` t Ki`b)		
6. Mi`/Qvj cij b					

25. c`e`Ges eZ`gtb Avcbt` i ewotZ we` jr wQj /AvtQ wk?

cK`i ev`emqZ nl qri c`eP 1. niv 2. bv eZ`gtbt 1. niv 2. bv

26. Lvbri Av_9migmRK Ae^v:
1. nZ^ mi `^a (gwmK Avq - 2000 UrKv ev Zvi bxtP)
 2. `wi `^fbgmeE (gwmK Avq - 2001 UrKv t_tK 7500 UrKv)
 3. `^Qj /ga^meE (gwmK Avq - 7501 UrKv ev Zvi Dt^9)

fmKkb- 5: Kwl weiqK Z_

27. Avcbri^ i Gj vKvq AvtMi Zj bVq eZ@vrb Lv^ (avb) Drcv^ b tetotQ wK? 1. n^u 2. bv

K. nuv ntj , c@Z weNvq wK cwi gvb tetotQ?

c^e^	eZ@vrb
1. tev^i v avb : c@Z weNvq .....gY ntZv	1. tev^i v avb : c@Z weNvq .....gY nq
2. AvDm avb : c@Z weNvq .....gY ntZv	2. AvDm avb : c@Z weNvq .....gY nq
3. Avgb avb : c@Z weNvq .....gY ntZv	3. Avgb avb : c@Z weNvq .....gY nq

L. bv ntj , tKb evtoib?

28. Avcbri^ i Gj vKvq AvtMi Zj bVq eZ@vrb gb c@Z avtbi gj^ tetotQ wK? 1. n^u 2. bv

K. nuv ntj , gb c@Z avtbi gj^ KZ tetotQ?

c^e^	eZ@vrb
1. tev^i v avb : c@Z gb .....UvKv uQj	1. tev^i v avb : c@Z gb .....UvKv
2. AvDm avb : c@Z gb .....UvKv uQj	2. AvDm avb : c@Z gb .....UvKv
3. Avgb avb : c@Z gb .....UvKv uQj	3. Avgb avb : c@Z gb .....UvKv

L. bv ntj , tKb evtoib?

29. c^e^ Zj bVq eZ@vrb Kwl t^t^t ktm^i eugLxKi b (GKB RvgtZ GKwaK dmj Drcv^ b) nt^Q wK? 1. n^u 2. bv

K. nuv ntj , GKB RvgtZ KqilU dmj Drcw^ Z nq?

c^e^	eZ@vrb
1. GKilU 2. `BilU 3. wZbilU 4. PvilU l Zvi tekx	1. GKilU 2. `BilU 3. wZbilU 4. PvilU l Zvi tekx

L. GKB RvgtZ wK wK dmj Drcw^ Z nq?

c^e^ t.....
eZ@vrb t.....

30. c^e^ Zj bVq eZ@vrb weifbacKvi AvZwi^3 Lv^ ktm^i (avb Qvov Ab^vb^ dmj) Drcv^ b nt^Q wK? 1. n^u 2. bv

K. nuv ntj , c^e^ wK wK AvZwi^3 Lv^ km^ Drcw^ Z ntZv Ges eZ@vrb wK wK nt^Q?

c^e^	eZ@vrb
1. Mg	1. Mg
2. fjev	2. fjev
3. cvU	3. cvU
4. Avl/B^l	4. Avl/B^l
5. gwi P/avbqv/nj j /.....)	5. gwi P/avbqv/nj j /.....)
6. %Zj RvZxq km^ (mwi l v/wZm/wZj /ev^ vg/.....)	6. %Zj RvZxq km^ (mwi l v/wZm/wZj /ev^ vg/.....)
7. Wvj RvZxq (gM/gmj /Kj vB.....)	7. Wvj RvZxq (gM/gmj /Kj vB.....)
8. kvK-meR (big D^j E-Ki ^b:)	8. kvK-meR (big D^j E-Ki ^b:)
9. dj (big D^j E-Ki ^b:)	9. dj (big D^j E-Ki ^b:)
10. Ab^vb^ (wv^ @ Ki ^b).....	10. Ab^vb^ (wv^ @ Ki ^b).....

L. bv ntj , tKb AvZwi^3 Lv^ ktm^i Drcv^ b nt^Q bv ?

31. cʰeᵛ eZᵛtʰ Drcv` Z kʰm`i bvg, RvZ, dj ʰbi cwi gvbt

dmtj i bvg	Rvgi cwi gvb (kZvstʰk)		RvZ: 1. nvBeʰW 2. DʰPdʰj bkxj 3. ʰvbxq RvZ		cūZ eQi weNv cūZ Drcv` ʰbi cwi gvY (gY-G)					
	cʰeᵛ	eZᵛtʰ	cʰeᵛ	eZᵛtʰ	1. nvBeʰW		2. DʰPdʰj bkxj		3. ʰvbxq RvZ	
					cʰeᵛ	eZᵛtʰ	cʰeᵛ	eZᵛtʰ	cʰeᵛ	eZᵛtʰ
1. ʰeʰtʰi v avb										
2. AvDk avb										
3. Avgb avb										
4. Mg										
5. Ab`vb` (ʰbw` ʰ Ki`b)....										

32. cʰeᵛ Zj bvg eZᵛtʰ Avcbri Gj vKvq eʰtʰi vcb tətəʰQ wK? 1. niuv 2. bv
K. bv ntj , tKb evtoib?

33. cʰeᵛ Zj bvg eZᵛtʰ Avcbri Gj vKvq gvtʰQi Drcv` b tətəʰQ wK? 1. niuv 2. bv
K. bv ntj , tKb evtoib?

34. cʰeᵛ Zj bvg eZᵛtʰ Avcbri Gj vKvq num-gj Mx cvj b tətəʰQ wK? 1. niuv 2. bv
K. bv ntj , tKb evtoib?

35. cʰeᵛ Zj bvg eZᵛtʰ Avcbri Gj vKvq c`i cvj b tətəʰQ wK? 1. niuv 2. bv
K. bv ntj , tKb evtoib?

ʰmKkb- 6: Kgʰs`vʰbi mʰhvm

36. Avcbri` i Gj vKvq cʰeᵛ Zj bvg eZᵛtʰ Kgʰs`vʰbi mʰhvm tətəʰQ wK? 1. niuv 2. bv
K. niuv ntj , tKvbtKvbtʰtʰtʰ Kgʰs`vʰbi mʰhvm ewx tətəʰQ Ges kZKiv KZFvM (%) tətəʰQ ?

tʰtʰ	kZKiv KZ FvM (%) tətəʰQ	cj`lʰ i tʰtʰ (%)	gvnj vʰ i tʰtʰ (%)
1. Kvl KvR			
2. Kvl gRj			
3. kvK-mewRi ewMb			
4. eʰtʰi vcb (ebvqb) Gi KvR			
5. grm` Pvl			
6. Mi`/Qmʰj cvj b			
7. num/gj Mx cvj b			
8. Kvl i wktʰ i KvR			
9. ʰj`e`emv			
10. gvSvi x e`emv			
11. eo e`emv			
12. iv`vWU/tmZvbgʰY KvR			
13. gvU Lbb KvR			
14. Kj Kvi Lvbi KvR			
15. Pvkix			
16. Ab`vb` (ʰbw` ʰ Ki`b)			

37. Avcbri` i Gj vKvq AvtMi Zj bvg eZᵛtʰ gvnj vʰ i Avtqi mʰhvm tətəʰQ wK? 1. niuv 2. bv

K. niiv ntj, kZKiv kZfM tetotQ? cʔeʔ% uQj ; eZʔrb t% ntqtQ

L. bv ntj, tKb ertob?

ʔmKkb- 7: cwi ʔekMZ cʔve

38. cʔeʔ Zj bʔq eZʔrb Avcbri Gj vKvq cwb ewnZ tivʔMi cʔKvc ʔKgb ntqtQ?

cʔeʔ			eZʔrb		
1. uQj bv	2. Kg	3. ʔekx	1. ʔbB	2. Kg	3. ʔekx

39. cʔeʔ Zj bʔq eZʔrb Avcbri Gj vKvq AvʔmʔK mgniv ʔKgb?

cKiv ev-ewiqZ ni qvi cʔeʔ 1. uQj 2. uQj bv eZʔrb t 1. AvʔQ 2. ʔbB

40. eZʔrb Rj ve×Zv i ʔqtQ uK? 1. niiv 2. bv

41. eZʔrb Kw RiqʔZ cwb uʔvʔkʔb mjeav ntqtQ uK? 1. niiv 2. bv

42. eZʔrb Avcbri i Gj vKvq cwi ʔekMZ uK uK Amjeav i ʔqtQ?

- | | |
|--|-------------------------------|
| 1. ʔivM RxeYyl gkv gmQi cʔKvc tetotQ | 6. imvqubK mʔi e'envi tetotQ |
| 2. Riqi DeʔZv KʔqtQ | 7. Re mʔi e'envi KʔqtQ |
| 3. gʔ cwbʔZ grm Pvl eU ntqtQ | 8. Ddmx dmtj i Pvl ver tetotQ |
| 4. dmtj tcvKvqKo I tivMej vBʔqi Avʔgb tetotQ | 9. Rj ve×Zv ep× tctqtQ |
| 5. ejv vBvikK e'envi i dtj cwi ʔek ʔY tetotQ | 10. Ab'vb (ubv ʔ Ki'b) |

43. cʔeʔ Ges MZ 1 eQʔi i gʔa cwi ertii tivMe'wa mʔuKZ we'wi Z _:

(GKRb e'wʔi GKwaK tivM ntj, cʔZ'K tivʔMi ʔʔʔ e'wʔi bvg I cʔZuW tivʔMi we'wi Z weeiY c_K c_Kfvʔe vj wce× Ki'b)

Amj' e'wʔi bvg	eqm	Amj' / tivM		eQʔi KZevi		KZiv b Amj' uQʔj b? (w ʔb)		Amj' vKvi Rb' tguU KZiv b KvR KiʔZ cvʔib ev ʔj ʔiZ cvʔib?		wPivKrmv ʔbqv ntquQj uKbv? (1. niiv/2.bv)	
		cʔeʔ	M1 eQʔi	cʔeʔ	MZ 1 eQʔi	cʔeʔ	MZ 1 eQʔi	cʔeʔ	MZ 1 eQʔi	cʔeʔ	MZ 1 eQʔi
K. eq' cgvjv (14 eQʔi i Dʔxʔ)											
L. eq' cʔj'l (14 eQʔi i Dʔxʔ)											
M. ʔqtj wki (0-14eQi)											
N. ʔqtj wki (0-14eQi)											

ʔivʔMi bʔqi ʔKvW: 1. Wqwi qv; 2. Kʔj iv; 3. UvBdʔqW; 4. c'ivi vUvBdʔqW; 5. Avqvkq; 6. Kug; 7. RvEm; 8. Pj Kwib/ tLwncvPov; 9. ʔKvb tivM nqub; 10. Ab'vb (ubv ʔ Ki'b)

ԹմԿԿԵ- 8: ԻՆՎԵՍՏԻՄԵՆՏԻ ԸՆԴՈՒՄ

44. Հետևյալ բառերից ընտրե՛ք այն, որոնք օգտագործվում են ներդրումների մեծացման համար:

Ինվեստիցիա	Հետևյալ	Ընտրություն
1. Կապիտալի ծախսերի նվազեցում	1. ճիշտ 2. սխալ	1. Այո 2. Ոչ
2. Կապիտալի ծախսերի (ԲԱՆՈՒՄ) նվազեցում	1. ճիշտ 2. սխալ	1. Այո 2. Ոչ
3. Կապիտալի ծախսերի (Կապիտալի Կապիտալի)	1. ճիշտ 2. սխալ	1. Այո 2. Ոչ
4. ԷՎՄ-ի կիրառում	1. ճիշտ 2. սխալ	1. Այո 2. Ոչ

Կ. Հետևյալ բառերից ընտրե՛ք այն, որոնք հարմար են կիրառվում:

(ԸՆԴՈՒՄ ԻՆՎԵՍՏԻՄԵՆՏԻ ՄԵՏՈՒԿԱՆՈՒՄԻ Կիրառման մեթոդի տեքստի Կիրառման մեթոդի 8-րդ գլուխը, 7, 6, 5, 4 հարցերի համար՝ Կիրառում)

Կիրառում	Հետևյալ (Կիրառում)	Ընտրություն (Կիրառում)
1. ԷՎՄ-ի կիրառում		
2. ԳՆԱՆՈՒՄԻ կիրառում		
3. ՄԻՆՈՒՄ		
4. ԲԱՆՈՒՄ		
5. ԷՎՄ		
6. ԱՌԿ		
7. ԻՆՎԵՍՏԻՄԵՆՏԻ ՄԵՏՈՒԿԱՆՈՒՄ		
8. ԲԱՆՈՒՄ/ԲԱՆՈՒՄ		
9. ԱՌԿ (Կիրառում)		

ԹմԿԿԵ- 9: ԲԱՆՈՒՄԻ Կիրառումը Կիրառումից ԵՎՄ-ի Կիրառում

45. Հետևյալ բառերից ընտրե՛ք այն, որոնք օգտագործվում են ներդրումների մեծացման համար:

1. Կիրառում
2. Կիրառում

Կ. Կիրառումը, ԳՆԱՆՈՒՄԻ և ԳՆԱՆՈՒՄԻ ՀԱՆՐԱՊԵՏՈՒԹՅԱՆ Կիրառումը:

.....

46. Հետևյալ բառերից ընտրե՛ք այն, որոնք օգտագործվում են ներդրումների մեծացման համար:

.....

Կիրառումը և ԳՆԱՆՈՒՄԻ ՀԱՆՐԱՊԵՏՈՒԹՅԱՆ Կիրառումը

Wvej wj dUUs Gi gva'ig f-cwi ' cwi bi mnvth' tmP mæcñvi Y (1g chiq) kxl R cKtí i cñve gj 'vqb

wbueo Avtj vPbvi cKgyj v
(mfvcwZ/tmtpUvi x/g'vtpRvi /cvú Acvfi Ui /wdi g'vbt` i Rb")

tkm bst

--	--	--

fugKv: Avmñvj vgyAvj vBKg | Avgiv i xW (Mtel Yv cñZövb) I AvBGgBwW (cwi Kí bv gš'vj q) Gi cñ t_ik gv chiq gj 'vqb Rixci Dñk' GtmQ | evsj v`k Kw Dbqb Ktçk kb (weGwWm) -KZK 1999-2007 mvtj evsj v`tki 22wU tRj vq Wvej wj dUUs ('y` dvq DñEj b) Gi gva'ig f-cwi ' cwi bi mnvth' tmP mæcñvi Y (1g chiq) cKtí i KvR ev- ewqZ ntqfQ | cKtí i Dñk' wQj t`tki eo eo b`x h_v cUv, tgNbv, hgpbv I Ab'vb' b`xi cmb cvtúvi mnvth' (fugtZ 'wcz I fimgvb) Wvej wj dUUs cxwZtZ tmP e'e'v wbüÖZ Kiv | cKtí i gva'ig AwZwi³ Lv' Drcv' b Kti GjvKvq Rvgi gwj K, K.L.K, cñSK Pvlx, kçRme gwj v I cñ'lt' i Av_çmvgwRK Ae'vi Dbqb Kti `wv'`'`' Kiv | eZçvb Rixci Dñk' nt'Q f-cwi ' cwi bi mnvth' fimgvb cvtúvi (25 wKDtmK Ges 12.5 wKDtmK) Ges fugtZ 'wcz cvtúvi (5 wKDtmK) gva'ig tmP cKtí i gj 'vqb Kiv | Avgiv G mæútk'Avcbvi gj 'evb gZvgZ msMñi Rb' GtmQ |

Avcbv gj 'evb Z_ w'iq G Mtel Yvi KvR mnthwMZv Kitz cvtib | Avcbvi gZvgZ i agv' Mtel Yvi KvRb e'eüZ nte | Avcbvi t`qv Z_ mæúY'çMvcb ivLv nte | Avcbvi AbgüZ tçtj Awg mç'jvKvi 'i' Kitz cwi |

weFwM :	tKwbs :
tRj v :	tKwbs :
DçtRj v :	tKwbs :
BDwbqb :	tKw bs :
Mög :	tKw bs :
tmP 'çtgi big:	

mç'jvKvi MñbKvixi bvg :	mç'jvKvi Mñtbi Zwi L:
mçvi fvBRvñi i bvg :	Zwi L:
mç'jvKvi Mñb: 'i'i mgq :	tKl mgq:

B:Uvi wFDqvi t` i Rb' wbt` Rbv t B:Uvi wFDqvi mç'jvKvi 'i'i AvtM t_ikB DEi `vZvK cKgyj vq Dñj w-Z çte'Ges eZçvñb Ó envi 'i' KitiQ Zvi cteP mgq Ges 2. çZçvb0 ej tZ mç'jvKvi Mñtbi Zwi L ntZ MZ 6 t_ik 12 gvñmi GKUv Mo mgq | mgtqi e'vLv w'iq wteb | çte' Ges çZçvñb0 e'vLv ntj vt 1. çte' A_ç D³ GjvKvq tmP cKtí i cmb hLb t_ik e'

1. ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ: ԲԱՆԱԿԱՆ (ԽՈՒՄՈՒՄ):
2. ԳՆԱԿ: 1. ԲՆԱԿ 2. ԳՆԱԿ
3. ԵՐԿՐԱՆՈՒՄ: ԵՐԿՐԱՆՈՒՄ
4. ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ: (ԽՈՒՄՈՒՄ ԻՆ ԿՐԻՄԱՆ ԿՐԻՄԱՆ)
5. ԲԱՆԱԿԱՆ: ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ: ԵՐԿՐԱՆՈՒՄ:

ԳՐԱԿԱՆՈՒԹՅԱՆ ԳՆԱԿԱՆ ԲԱՆԱԿԱՆ ԵՐԿՐԱՆՈՒՄ ԵՐԿՐԱՆՈՒՄ ԵՐԿՐԱՆՈՒՄ

6. ԱՎՅԱԿԱՆ ԳՆԱԿԱՆ ԵՐԿՐԱՆՈՒՄ ԵՐԿՐԱՆՈՒՄ ԵՐԿՐԱՆՈՒՄ ԵՐԿՐԱՆՈՒՄ (1 ԳՐԱԿԱՆ) ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ ԵՐԿՐԱՆՈՒՄ

Կ. ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ?	Լ. ԵՐԿՐԱՆՈՒՄ ԿՐԻՄԱՆ ԵՐԿՐԱՆՈՒՄ?	Մ. ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ?	Ն. ԵՐԿՐԱՆՈՒՄ ԱՎՅԱԿԱՆ ԵՐԿՐԱՆՈՒՄ, ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ
1. 25 ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ	
2. 12.5 ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ	
3. 5 ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ	
4. ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ			
5. ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ	
6. ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ	
7. ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ	
8. ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ	
9. ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ	
10. ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ	
11. ԱՎՅԱԿԱՆ (ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ)			

7. ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ ԱՎՅԱԿԱՆ ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ ԵՐԿՐԱՆՈՒՄ ԵՐԿՐԱՆՈՒՄ 1. ԸՆԴՀԱՆՈՒՐ 2. ԸՆԴՀԱՆՈՒՐ

ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ, ԸՆԴՀԱՆՈՒՐ

ԳՐԱԿԱՆՈՒԹՅԱՆ ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ

8. ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ (ԸՆԴՀԱՆՈՒՐ ԵՐԿՐԱՆՈՒՄ ԵՐԿՐԱՆՈՒՄ) ԱՎՅԱԿԱՆ ԱՎՅԱԿԱՆ ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ 1. ԸՆԴՀԱՆՈՒՐ 2. ԸՆԴՀԱՆՈՒՐ

ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ ԱՎՅԱԿԱՆ ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ

1. ԸՆԴՀԱՆՈՒՐ (ԸՆԴՀԱՆՈՒՐ/ԸՆԴՀԱՆՈՒՐ)
2. ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ
3. ԸՆԴՀԱՆՈՒՐ
4. ԱՎՅԱԿԱՆ (ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ)

ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ

ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ

ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ

1. ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ (ԸՆԴՀԱՆՈՒՐ) ԸՆԴՀԱՆՈՒՐ
2. ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ
3. ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ
4. ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ
5. ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ
6. ԱՎՅԱԿԱՆ (ԸՆԴՀԱՆՈՒՐ ԸՆԴՀԱՆՈՒՐ)

0. cġkġiYi wēl qe' , t j v w k w Qj ?

cġkġiYi wēl q	cġkġiYi wēl q m g n e' w i Z f i t e D t j e K i ' b
1. w g c w i P y j b v l i q i Y t e q i Y	
2. c v ' u P y j v t b v	
3. t m P b y j v l c w b e U b m e u i k z	
4. A b ' v b ' (w b i ' e K i ' b)	

P. cġkġiYi g u b t K g b w Q j ? 1. f i j 2. t g v U r g y U 3. L v i c

9. t h t h w e l t q i D c i c ġ k ġ i Y t ' q v n t q t Q t

K. t m w e l q , t j v i t K v b t K v b u K v R j w M t Z c v i t Q b ?

L. t K v b t K v b u K v R j w M t Z c v i t Q b b v ?

M. t K b K v R j w M t Z c v i t Q b b v ?

10. A v c b v i g t Z c ġ k ġ i Y i m g q h t ' o w Q j w k ? 1. n i v 2. b v

K. h w ' b v n q , Z t e c ġ k ġ i Y u K Z w ' t b i n l q v D w P r ? w ' b

11. g v c h e q w M t q (n v t Z K j t g) t K v b c ġ k ġ i Y t ' q v n t q w Q j w k ? 1. n i v 2. b v

K. n i v n t j , t K v b t K v b w e l t q g v c h e q w M t q (n v t Z K j t g) c ġ k ġ i Y t ' q v n t q w Q j ?

12. c ġ k ġ i Y u f i e l ' t z h v t Z A v c b v i A v i l K v R j v t M (d j c m - n q) t m R b ' w k w k e ' e ' v t b q v t h t Z c v i t ?

t m K k b - 3: c ġ k ġ i Y v ' i w b i ' e ' w i q Z i G e s t m w e l t q g Z v g Z

13. G B c k t i i t K v b t K v b u K v R i m t ' A v c b v R u o Z (w b i ' o K t i e j p) ?

K. A v c b v i ' w i q Z i c y j b K i t Z w M t q w k a i t b i m g m ' v e r e r a v i m e q u b n t q t Q b ?

14. A v c b v t ' i G j v K v q t m t P i c w b e U b l m i e i v t n i ' w i q Z i t K c y j b K t i b ?

15. A v c b v t ' i M t g c k t i i t m P c v e u l A b ' v b ' A e K v W t g v t g i v g Z l i q i Y t e q i Y K i v n q w k ?

1. n ' u 2. b v (0 b s c ġ k ġ i b)

K. n i v n t j , t g i v g Z l i q i Y t e q i Y i K v R w k f i t e K i v n q ?

L. t K v b t m g t q t g i v g Z l i q i Y t e q i Y K i v n t q ' v t K ?

1. d m j t g s m g i i i c t e 2. c w b e ' e n v t i i m g t q 3. d m j D V i c t i
4. c ġ q v R b g Z w e G w W m - t K R v b t j 5. c h i q u t g 6. A b ' v b ' (w b i ' e K i ' b)

M. Kiv tgi vZ I i Yte Y Kv Ri wqZ i tQb?

1. 25 mKDmK cv`u	1. weGwMm	2. ag KugwJ	3. tKqvi tUKvi	4. Ab`vb` (ubw` t Ki`b)
2. 12.5 mKDmK cv`u	1. weGwMm	2. ag KugwJ	3. tKqvi tUKvi	4. Ab`vb` (ubw` t Ki`b)
3. 5 mKDmK cv`u	1. weGwMm	2. ag KugwJ	3. tKqvi tUKvi	4. Ab`vb` (ubw` t Ki`b)
4. cvKv tmPbj v	1. weGwMm	2. ag KugwJ	3. tKqvi tUKvi	4. Ab`vb` (ubw` t Ki`b)
5. mWmPvR`e.	1. weGwMm	2. ag KugwJ	3. tKqvi tUKvi	4. Ab`vb` (ubw` t Ki`b)
6. cwbi Ab`vb` AeKvWtgv.....	1. weGwMm	2. ag KugwJ	3. tKqvi tUKvi	4. Ab`vb` (ubw` t Ki`b)

N. tgi vZ I i Yte Y Li P tK enb Kti?

1. 25 mKDmK cv`u	1. weGwMm 4. BDwbq cwii l t i Znwej ntZ	2. ag KugwJ	3. vbxqfvte Pu`v msMh l t`Ovk tgi gva`tg 5. Ab`vb` (ubw` t Ki`b)
2. 12.5 mKDmK cv`u	1. weGwMm 4. BDwbq cwii l t i Znwej ntZ	2. ag KugwJ	3. vbxqfvte Pu`v msMh l t`Ovk tgi gva`tg 5. Ab`vb` (ubw` t Ki`b)
3. 5 mKDmK cv`u	1. weGwMm 4. BDwbq cwii l t i Znwej ntZ	2. ag KugwJ	3. vbxqfvte Pu`v msMh l t`Ovk tgi gva`tg 5. Ab`vb` (ubw` t Ki`b)
4. cvKv tmPbj v	1. weGwMm 4. BDwbq cwii l t i Znwej ntZ	2. ag KugwJ	3. vbxqfvte Pu`v msMh l t`Ovk tgi gva`tg 5. Ab`vb` (ubw` t Ki`b)
5. mWmPvR`e.	1. weGwMm 4. BDwbq cwii l t i Znwej ntZ	2. ag KugwJ	3. vbxqfvte Pu`v msMh l t`Ovk tgi gva`tg 5. Ab`vb` (ubw` t Ki`b)
6. cwbi Ab`vb` AeKvWtgv.....	1. weGwMm 4. BDwbq cwii l t i Znwej ntZ	2. ag KugwJ	3. vbxqfvte Pu`v msMh l t`Ovk tgi gva`tg 5. Ab`vb` (ubw` t Ki`b)

10. bv ntj , tKb tgi vZ I i Yte Y Kiv nq bv?

16. tgi vZ I i Yte Y t i e`vcti weGwMm -Gi Kv t tK wK ai tbi mnvZv cvb?
.....

17. Avcbv` i Mtg cK t i tmP cv`u l Ab`vb` AeKvWtgv, tj v Gj vKvi tj vKRb mnR l mWKFvte e`envi Ki tZ cvi tQ wK?
1. mnR l mWKFvte e`envi Ki tZ cvi tQ 2. e`envi mgm`v AvtQ

K. e`envi mgm`v vKtj wK ai tbi mgm`v nt`O?

18. tm tPi cwbi e`envi h_vh_ nt`O wKbv Zv t` Lvi Rb` weGwMm ZZyeavqb ev dtj vAvc Kti wK? 1. niw 2. bv

19. Avcbvri Gj vKvq cK t i tmP cv`u l cwbi Ab`vb` AeKvWtgv, tj vi eZgvb Ae`v tKgb i tQb?

1. 25 mKDmK cv`u	1. fvj (mPj)	2. tgvUvgwJ (mPj wKs` gvtSgvtS mgm`v nq)	3. Lvi vc (APj)
2. 12.5 mKDmK cv`u	1. fvj (mPj)	2. tgvUvgwJ (mPj wKs` gvtSgvtS mgm`v nq)	3. Lvi vc (APj)
3. 5 mKDmK cv`u	1. fvj (mPj)	2. tgvUvgwJ (mPj wKs` gvtSgvtS mgm`v nq)	3. Lvi vc (APj)
4. cvKv tmPbj v	1. fvj (wQ` tcvUv/fv`w BZ`w` bvB)	2. tgvUvgwJ (tQvU LvU wQ` tcvUv/fv`w AvtQ, wKs` KvR Ptj)	3. Lvi vc (eo eo wQ` tcvUv/fv`w AvtQ, KvR Ptj bv)
5. mWmPvR`e.	1. fvj (mPj)	2. tgvUvgwJ (mPj wKs` gvtSgvtS mgm`v nq)	3. Lvi vc (APj)
6. Kvj fvU`	1. fvj (mPj)	2. tgvUvgwJ (mPj wKs` gvtSgvtS mgm`v nq)	3. Lvi vc (APj)
7. mWvg	1. fvj (mPj)	2. tgvUvgwJ (mPj wKs` gvtSgvtS mgm`v nq)	3. Lvi vc (APj)
8. Uvb` AvDU	1. fvj (mPj)	2. tgvUvgwJ (mPj wKs` gvtSgvtS mgm`v nq)	3. Lvi vc (APj)
9. tPm-tMBU	1. fvj (mPj)	2. tgvUvgwJ (mPj wKs` gvtSgvtS mgm`v nq)	3. Lvi vc (APj)
10. Ab`vb` (ubw` t Ki`b)			

20. Avcbv` i Mtg tmP cv`u i cwbi eUv l mieivtvi t t t wK ai tbi mgm`v ev Amjeav nq?

- | | |
|---|---------------------------------|
| 1. cwbeUv h_vmg t qbv | 5. cwbeEb e`e`v mUcY` |
| 2. cfvkvj x e`w` iv tekx cwbi t bq | 6. tmP bjv v mWKFvte Kiv nq bvB |
| 3. e`e`vcbv KugwJ tekx cwbi t bq | 7. tmP bjv v fv`w |
| 4. tmP hS`/tmP bjv v/cwbi Ab`vb` AeKvWtgv
bó ntj mWk mg t q tgi vZ Kiv nq bv | 8. tKvb Amjeav nqbv |
| | 9. Ab`vb` (ubw` t Ki`b) |

K. «Kfite mgm'vi mgravb Kiv nq?»

ჰმკკბ- 3: კული ელოკ Z_

21. ცქი ერეტიბი დტი ცეე Zj ბიყ ეZტბი ტმტი რიგი ცი გიბ ეიქ ტტტტო უკ? 1. ნიუ 2. ბი

K. ნიუ ნტი, ცქი ერეტიბი დტი გი ვიკი კული რიგი კკვი კკვი ტმტი ავი ზვი გტტო?

ცეე	1.% რიგ იჯ	2. რიბი	ეZტბი	1.% რიგ ნტი	2. რიბი
-----	-----------------	---------	-------	------------------	---------

22. ცქი ერეტიბი დტი კული ტტი ლი კტი (ავბ) დრე ბ ტეტიო უკ? 1. ნიუ 2. ბი

K. ნიუ ნტი, ციZ ენვი უკ ცი გიბ ტეტიო?

ცქი ერეტიბი ნი კი ცეე	ეZტბი
1. ტეტი ავბ : ციZ ენვი .....gY ნტი	1. ტეტი ავბ : ციZ ენვი .....gY ნტი
2. ავი ავბ : ციZ ენვი .....gY ნტი	2. ავი ავბ : ციZ ენვი .....gY ნტი
3. ავი ავბ : ციZ ენვი .....gY ნტი	3. ავი ავბ : ციZ ენვი .....gY ნტი

23. ცქი ერეტიბი დტი ცეე Zj ბიყ ეZტბი კული ტტი კტი ეუტიკიბ (გკბ რიტიZ გკიკ დტი დრე ბ) ნტი უკ? 1. ნიუ 2. ბი

K. ნიუ ნტი, გკბ რიტიZ ეტი კილი დტი დრე ბ ზი?

ცქი ერეტიბი ნი კი ცეე	ეZტბი
1. გკილი 2. ბილი 3. ივილი 4. პილი ზი ტეტი	1. გკილი 2. ბილი 3. ივილი 4. პილი ზი ტეტი

24. ცქი ერეტიბი დტი ცეე Zj ბიყ ეZტბი ავი³ ლი კტი (ავბ დივ ავი ბი) დრე ბ ნტი უკ? 1. ნიუ 2. ბი

K. ნიუ ნტი, ცეე უკ ავი³ ლი კტი დრე ბ ზი გეი ეZტბი უკ უკ ნტი?

ცქი ერეტიბი ნი კი ცეე	ეZტბი
1. Mg	1. Mg
2. ფი	2. ფი
3. ცი	3. ცი
4. ავი/ბი	4. ავი/ბი
5. გი P/ავბ/ნი ი /.....)	5. გი P/ავბ/ნი ი /.....)
6. %Zj რვიკი კი (ნიი ი ვი/ნი/ნიZ/ ევ ვგ/.....)	6. %Zj რვიკი კი (ნიი ი ვი/ნი/ნიZ/ ევ ვგ/.....)
7. ვვი რვიკი (გმ/გმი/კი ვბ.....)	7. ვვი რვიკი (გმ/გმი/კი ვბ.....)
8. კიკ-მეიR (ბიგ დტი ლ-კი ბ:)	8. კიკ-მეიR (ბიგ დტი ლ-კი ბ:)
9. დი (ბიგ დტი ლ-კი ბ:)	9. დი (ბიგ დტი ლ-კი ბ:)
10. ავი ბი (ნიი ბ კი ბ).....)	10. ავი ბი (ნიი ბ კი ბ).....)

ჰმკკბ- 4: ცი ტეტიZ ცეე

25. ცქი ერეტიბი დტი ცეე Zj ბიყ ეZტბი ავი გი ვიკი ციბ ენიZ ტი ტი ციკი ტკბი ნტი?

ცქი ერეტიბი ნი კი ცეე	ეZტბი
1. იჯ ბი 2. კი 3. ტეტი	1. ბი 2. კი 3. ტეტი

26. ცქი ერეტიბი დტი ცეე Zj ბიყ ეZტბი ავი გი ვიკი ავი ბი მგმ'ვი ტკბი?

ცქი ერეტიბი ნი კი ცეე 1. იჯ 2. იჯ ბი ეZტბი 1. ავი 2. ბი

27. cKí er`eqtbi dtj Gj vKvq cwi tekMZ wK wK Amjeav ntqt0 er ¶wZKi cfiie ctot0??

- | | |
|--|-----------------------------------|
| 1. ðivM RxeYyl gkv gm0i c0Kvc tetot0 | 6. ivmivqibK mrti i e`envi tetot0 |
| 2. Rigi DePZv Ktqt0 | 7. `Re mrti i e`envi Ktqt0 |
| 3. gP cwbZ grm` Pvl eU ntqt0 | 8. Ddmx dmtj i Pvl ver` tetot0 |
| 4. dmtj tcvKvqKo I ðivMej vBtqi Avµgb tetot0 | 9. Rj ve×Zv ep× tctqt0 |
| 5. ejv vBvikK e`envti i dtj cwi tek` tY tetot0 | 10. Ab`vb` (wv` 0 Ki`b) |

¶mKkb- 5: cKtí i mdtj -` eP w` K mgn Ges mpcwi k

28. cKí er`eqtbi dtj Avcbv` i wK wK DcKvi er mjeav ntqt0?

.....

.....

.....

29. cKí er`eqtbi dtj Avcbv` i ðKv&tKv&t¶tí Avq tetot0 Ges KZ tetot0?

Avtqi t¶tí	c`ep Avq	eZgvtbi Avq
K. Kwí t¶tí		
1. avb	.....UvKv	.....UvKv
2. Mg/ fjev	.....UvKv	.....UvKv
3. cvU	.....UvKv	.....UvKv
4. Ab`vb` dmtj (AvL/mwi l v/ Wvj / kvK-mewR/ gmj v/dj BZ`w` ).....	.....UvKv	.....UvKv
L. Kwí e`wZZ Ab` tKv tckvi gva`tg	.....UvKv	.....UvKv
M. Ab`vb` t¶tí (Dtj E-Ki`b) .....	.....UvKv	.....UvKv

30. cKí w fvel` tZ Avi I KvhKi Kivi Rb` wbgj wLZ wel`tq Avcbvi gZvgZ er mpcwi k wK?

wel`q (c0ZwU t¶tí atí atí RvbZ nte)	mpcwi k
K. ¶mP tgvkb/¶mP hSj	
L. ¶mP e`e`v cwi Pvj bv	
M. cwb eUb	
N. i ¶¶vte¶¶Y (¶mP cv`ú I Ab`vb` AeKvWrtgv)	
O. ZZjeavqb er dtj vAvc	
P. `«g KvgwU	
Q. c0K¶¶Y	
R. Ab`vb` mpcwi k (Dtj E-Ki`b)	

Avcbvi mn`thwMxZvi Rb` Avcbv`K ab`ev`

Wvej wj dšUs Gi gva'tg f-cwi 'cwi bi mrvvth' tñP mæcñvi Y (1g chñq) kxlR cKtí i cFve gj 'vqb

wbueo Avtj vPbvi cKgyj v (DctRj v I BDubqb chñqi Ab'vb' msuké-KgRZñ' i Rb')

FigKv: Avmñvj vgy Avj vBKg| Avgiv ixW (Mtel Yv cñZövb) I AvBGgBñW (cwi Kí bv gšYvj q) Gi cñl t_ñK gvW chñq gj 'vqb Rixtci Dñl ñk' GñmñQ| ersj vt' k Kw Dbqb Ktcñi kb (ñeGñWñm) -KZK 1999-2007 mñtj ersj vt' ñki 22ñW tRj vq Wvej wj dšUs ('y' dñq DñEj b) Gi gva'tg f-cwi 'cwi bi mrvvth' tñP mæcñvi Y (1g chñq) cKtí i KvR ev' ewñqZ ntñqQ| cKtí i Dñl k' wñj t' ñki eo eo b' x h_v cÜv, tñNbv, hñbv I Ab'vb' b' xi cwb cvt'ñi mrvvth' (fñgñZ 'ñwcZ I fvmgyb) Wvej wj dšUs cññZ tñP e'e'v wñwñZ Kiv| cKtí i gva'tg AwZwi ð Lv' Drcv' b Kti Gj vKvq Rñgi gñj K, K.I.K, cñŠK Pvl x, kñRñe gñj v I cñl'ñ' i Av_ñmvgwñRK Ae'vi Dbqb Kti 'wii 'ñ' ñ Kiv| eZñvb Rixtci Dñl k' nt'Q f-cwi 'cwi bi mrvvth' fvmgyb cvt'ñi (25 ñKDñmK Ges 12.5 ñKDñmK) Ges fñgñZ 'ñwcZ cvt'ñi (5 ñKDñmK) gva'tg tñP cKtí i gj 'vqb Kiv| Avgiv G mæñtKñAvcbvi gj 'evb gZñgZ mñMñi Rb' GñmñQ|

Avcwb gj 'evb Z_ w' tñ G Mtel Yvi KvñR mñññWZv KiñZ cvt'ñi b| Avcbvi gZñgZ i agvñ Mtel Yvi KvñRB e'euñZ nte| Avcbvi t' qv Z_ mæñYñMvcb ivLv nte| Avcbvi Abgñw tñtj Awg mñññvñvi 'i' KiñZ cwi |

wefñM	:	tKvWbs	:
tRj v	:	tKvWbs	:
DctRj v	:	tKvW bs	:
BDubqb	:	tKvW bs	:

mñññvñvi MñbKvixi bvg : mñññvñvi Mññbi Zwi L:

mñvñi fñBRññi i bvg : Zwi L:

mñññvñvi Mñb: 'i' i mgq : tñl mgq:

BñUvi wñDqvi ñ' i Rb' wññ' Rbv t BñUvi wñDqvi mñññvñvi 'i' i AvñM t_ñKB Dñi vZvñK cKgyj vq Dñj wñZ ðcñeñGes eZñvñb ð mgñqi e'vL'v w' tñ wññeb| ðcñeñ Ges ðeZñvñbi ð e'vL'v ntñj vt 1. ðcñeñ A_ñ D³ Gj vKvq tñP cKtí i cwb hLb t_ñK e'envi 'i' i KñññQ Zvi cñeñ mgq Ges 2. ðeZñvñb ðj ñZ mñññvñvi Mññbi Zwi L ntñZ MZ 6 t_ñK 12 gvñmi GKUv Mo mgq|

1. bvg : tñvb bññi :
2. c`ex:
 1. DctRj v tPqvi g'vb
 2. DctRj v fñBññPqvi g'vb
 3. BDubqb cwi l` tPqvi g'vb
 4. BDubqb cwi l` tñññi
 5. DctRj v wñeñññ Avñdmvi
 6. DctRj v Kwñ Avñdmvi
 7. Ab'vb' (wññ' ð Ki 'b)
3. KgñZ cñZñvñbi bvg.....

4. Avcbri GjvKivq 1999-2007 mtj Wej wj dUUs Gi gva'tg f-cwi ' cwbi mnv'th' tmP m'c'nhvi Y (1g ch'q) cK'f' ev'erq'tbi c'te'q'K uK tmP e'e'v Pij yuQj ?

.....
.....

tmKkb- 1: Wej wj dUUs Gi gva'tg f-cwi ' cwbi mnv'th' tmP m'c'nhvi Y cK'f' m'au'K'Z' Z' ..

5. Wej wj dUUs Gi gva'tg f-cwi ' cwbi mnv'th' tmP m'c'nhvi Y (1g ch'q) kxl K cK'f' i Kv'R Avc'ub R'woZ uQ'tj b uK?
1. niiv 2. bv

K. niiv ntj , D³ cK'f' Avc'ub uK'f'v'te R'woZ uQ'tj b ev Avc'bri f'ig'Kiv/Ae'v' b uK uQj ?

.....
.....

6. cK'f' c'v'q'b l ev'erq'tb Avc'bri t'K'v' g'Z'ig'Z M'h'Y Kiv n'tq'uQj uK? 1. niiv 2. bv

7. Avc'ub ev Avc'bri c'U'Z'ov'tbi t'KD m'ti R'ig'tb Kiv' cwi' k'Z' vi uK K'ti'uQ'tj b uK? 1. niiv 2. bv

K. niiv ntj , uK'f'v'te K'ti'uQ'tj b? ?.....

.....

8. Avcbri GjvKivq 1999-2007 mtj Wej wj dUUs Gi gva'tg f-cwi ' cwbi mnv'th' tmP m'c'nhvi Y (1g ch'q) cK'f' i uK uK Kiv'R n'tq'tQ?

- | | |
|-----------------------------|-------------------------------------|
| 1. 25 uKD'tmK cv'ú' 'v'cb | 6. cv'Kiv tmP'bv'v' u'bg'f'Y |
| 2. 12.5 uKD'tmK cv'ú' 'v'cb | 7. K'v' f'v'u'q'bg'f'Y |
| 3. 5 uKD'tmK cv'ú' 'v'cb | 8. μ'mW'ig' u'bg'f'Y |
| 4. c'k'f'Y K'v'h'f'ig | 9. U'v'b' Av'DU u'bg'f'Y |
| 5. u'W'mP'v'R'e' u'bg'f'Y | 10. Ab'v'b' (u'v'v' t' Ki' b) |

9. D'ct'iv³ Kiv' t'j v' Q'ov'l Av'l t'K'v' K'v'R'i c'U'q'v'R'b uQj uK? 1. niiv 2. bv

K. niiv ntj , uK ai't'bi K'v'R'i c'U'q'v'R'b uQj ?

.....

10. A't' cK'f' i cwi K'f' b'v' g'w'd'K Avc'bri Gjv'K'vi me Kiv'R' t'j v' c'f'iv'c'vi ev'er'w'q'Z n'tq'tQ uK?

1. niiv 2. bv 3. R'v'bb'v

K. bv ntj , t'K'b n'q'v'b?

11. cK'f' e'e'ü'Z g'v'v'g'v' μ'q Ges e'env'ti i t'f'f'f' t'K'v' m'gm'v' n'tq'uQj uK? 1. niiv 2. bv 3. R'v'bb'v

K. niiv ntj , uK ai't'bi m'gm'v' n'tq'uQj ?

.....

12. cK'f' i Av'l Z'v'q' μ'q Kiv' m'K'j ai't'bi g'v'v'g'v' i ' Y'MZ g'v'b t'K'g'b uQj ?

.....
.....

13. cK'f' ev'er'q'b'K'v'tj 'v'v'q' c'U'Z'v'v'a't' i g'Z'ig't'Z'i c'U'Z' 'i'Z'f' q'v' n'Z' uK? 1. niiv 2. bv

14. t'K'v'b'v'm'Z'g'v'v' i w'f'i'É't'Z cK'f' Gjv'K'v' i'be'f'P'b Kiv' n'tq'uQj ?

.....
.....

15. t'K'v'b'v'm'Z'g'v'v' i w'f'i'É't'Z cK'f' /'w'g' t'j v' t'bl q'v' n'tq'uQj ?

.....
.....

16. Avc'bri Gjv'Kiv'q cK'f' i tmP cv't'e'úi' c'w'b' e'U'b l mi'eiv'tni t'f'f'f' uK ai't'bi m'gm'v' ev' A'm'p'ear' n'q' ev' i't'q'tQ?

.....
.....

K. «Kfite mgm'vi mgravb Kiv nq?

17. Avcbri GjvKvq cKt'i i tM P cv'ú I Ab'vb' AeKvWtgv,tj vi Ae'v eZ@tB tKgb i tqtQ?

1. 25 «KDtMk cv'ú	1. fvj (mPj)	2. tgvUvgvU (mPj «Kš' gvtSgvts mgm'v nq)	3. Lvi vc (APj)
2. 12.5 «KDtMk cv'ú	1. fvj (mPj)	2. tgvUvgvU (mPj «Kš' gvtSgvts mgm'v nq)	3. Lvi vc (APj)
3. 5 «KDtMk cv'ú	1. fvj (mPj)	2. tgvUvgvU (mPj «Kš' gvtSgvts mgm'v nq)	3. Lvi vc (APj)
4. cvKv tM Pbvj v	1. fvj («Q' ?dvUv/fv'zv BZ'w' brB)	2. tgvUvgvU (tQvU LvU «Q' ?dvUv/fv'zv AvtQ, «Kš' KvR Ptj)	3. Lvi vc (eo eo «Q' ?dvUv/fv'zv AvtQ, KvR Ptj br)
5. «WmPvR'e-	1. fvj (mPj)	2. tgvUvgvU (mPj «Kš' gvtSgvts mgm'v nq)	3. Lvi vc (APj)
6. Kvj fVU©	1. fvj (mPj)	2. tgvUvgvU (mPj «Kš' gvtSgvts mgm'v nq)	3. Lvi vc (APj)
7. μmWvg	1. fvj (mPj)	2. tgvUvgvU (mPj «Kš' gvtSgvts mgm'v nq)	3. Lvi vc (APj)
8. Uvb©-AvDU	1. fvj (mPj)	2. tgvUvgvU (mPj «Kš' gvtSgvts mgm'v nq)	3. Lvi vc (APj)
9. Pm-tMBU	1. fvj (mPj)	2. tgvUvgvU (mPj «Kš' gvtSgvts mgm'v nq)	3. Lvi vc (APj)
10. Ab'vb' (nbw' © Ki'b)			

18. cKt'i i tM P cv'ú I Ab'vb' AeKvWtgv,tj v eZ@tB GjvKvi tj vKRb mnR I mWkfite e'envi KitZ cvi tQ «K?

1. mnR I mWkfite e'envi KitZ cvi tQ 2. e'envi mgm'v AvtQ

K. e'envi mgm'v vKtj «K ai tbi mgm'v nt'Q?

19. Avcbri GjvKvq ev'ewqZ cKt'i i tM P cv'ú I Ab'vb' AeKvWtgv,tj v gvZ I i qYvte qY Kiv nq «K?

1. n'w 2. br (0 bs c@k@h@b)

K. niv ntj, tgi vZ I i qYvte qY Kiv «Kfite Kiv nq?

L. tKv&mgv tgi vZ I i qYvte qY Kiv ntq v tK?

1. dmj tgsng 'i i c'© 2. cvb e'envi i mgv 3. dmj DVvi c'ti
4. c@qvRb gv weGvWm-tK Rvbtj 5. ch'qμ t'g 6. Ab'vb' (nbw' © Ki'b)

M. Kiv tgi vZ I i qYvte qY KvRi v wqZ; i tqtQb?

1. 25 «KDtMk cv'ú	1. weGvWm	2. 'ag KvguU	3. tKqvi tUKvi	4. Ab'vb' (nbw' © Ki'b)
2. 12.5 «KDtMk cv'ú	1. weGvWm	2. 'ag KvguU	3. tKqvi tUKvi	4. Ab'vb' (nbw' © Ki'b)
3. 5 «KDtMk cv'ú	1. weGvWm	2. 'ag KvguU	3. tKqvi tUKvi	4. Ab'vb' (nbw' © Ki'b)
4. tM Pbvj v	1. weGvWm	2. 'ag KvguU	3. tKqvi tUKvi	4. Ab'vb' (nbw' © Ki'b)
5. «WmPvR'e-	1. weGvWm	2. 'ag KvguU	3. tKqvi tUKvi	4. Ab'vb' (nbw' © Ki'b)
6. cvbi Ab'vb' AeKvWtgv.....	1. weGvWm	2. 'ag KvguU	3. tKqvi tUKvi	4. Ab'vb' (nbw' © Ki'b)

N. tgi vZ I i qYvte qY Li P tK enb Kti?

1. 25 «KDtMk cv'ú	1. weGvWm	2. 'ag KvguU	3. tKqvi tUKvi	4. Ab'vb' (nbw' © Ki'b)
2. 12.5 «KDtMk cv'ú	1. weGvWm	2. 'ag KvguU	3. tKqvi tUKvi	4. Ab'vb' (nbw' © Ki'b)
3. 5 «KDtMk cv'ú	1. weGvWm	2. 'ag KvguU	3. tKqvi tUKvi	4. Ab'vb' (nbw' © Ki'b)
4. tM Pbvj v	1. weGvWm	2. 'ag KvguU	3. tKqvi tUKvi	4. Ab'vb' (nbw' © Ki'b)
5. «WmPvR'e-	1. weGvWm	2. 'ag KvguU	3. tKqvi tUKvi	4. Ab'vb' (nbw' © Ki'b)
6. cvbi Ab'vb' AeKvWtgv.....	1. weGvWm	2. 'ag KvguU	3. tKqvi tUKvi	4. Ab'vb' (nbw' © Ki'b)

O. br ntj, tKb tgi vZ I i qYvte qY Kiv nq br?

.....
.....

29. cKí er-evqłbi dtj cŁeP Zj bŕq eZŁvŁb gb cŁZ avŁbi gj Ĩ tetotQ ũK? 1. niŕ 2. bŕ

K. niŕ ntj , gb cŁZ avŁbi gj Ĩ KZ tetotQ?

cKí er-evqłZ nl qvi cŁeP	eZŁvŁb
1. tetiv avb : cŁZ gb .....UvKv ũQj	1. tetiv avb : cŁZ gb .....UvKv
2. AvDm avb : cŁZ gb .....UvKv ũQj	2. AvDm avb : cŁZ gb .....UvKv
3. Avgb avb : cŁZ gb .....UvKv ũQj	3. Avgb avb : cŁZ gb .....UvKv

30. cKí er-evqłbi dtj cŁeP Zj bŕq eZŁvŁb Kũl tŁŁt kŁm'i eŁgŁKib (GKB RŕgŁZ GKŕaK dmj Drcŕ'b) nt"Q ũK?

1. niŕ 2. bŕ

K. niŕ ntj , GKB RŕgŁZ Kqũl dmj Drcŕ' Z nq?

cKí er-evqłZ nl qvi cŁeP	eZŁvŁb
1. GKũ 2. `Bũ 3. ŕZbũ 4. Pviũ I Zvi tekŕ	1. GKũ 2. `Bũ 3. ŕZbũ 4. Pviũ I Zvi tekŕ

31. cKí er-evqłbi dtj cŁeP Zj bŕq eZŁvŁb ŕŕfŁbi KŁgi AvZŕi ĩ Lv Ĩ kŁm'i (avb Qŕov Ab'vb' dmj) Drcŕ' b nt"Q ũK?

1. niŕ 2. bŕ

K. niŕ ntj , cŁeP ũK AvZŕi ĩ Lv Ĩ km' Drcŕ' Z ntZŕ Ges eZŁvŁb ũK ũK nt"Q?

cKí er-evqłZ nl qvi cŁeP	eZŁvŁb
1. Mg	1. Mg
2. fŁEv	2. fŁEv
3. cvũ	3. cvũ
4. Avũ/BŁZ	4. Avũ/BŁZ
5. gŕi P/avbqv/nj ĩ /.....)	5. gŕi P/avbqv/nj ĩ /.....)
6. %Zj RvZŕq km' (mŕi l v/ŕZŕm/ŕZj /er' vg/.....)	6. %Zj RvZŕq km' (mŕi l v/ŕZŕm/ŕZj /er' vg/.....)
7. Wŕj RvZŕq (gŕ/gmĭ /Kj ŕB.....)	7. Wŕj RvZŕq (gŕ/gmĭ /Kj ŕB.....)
8. kvK-meŕR (bŕg DŁj Ł-Ki "b:)	8. kvK-meŕR (bŕg DŁj Ł-Ki "b:)
9. dj (bŕg DŁj Ł-Ki "b:)	9. dj (bŕg DŁj Ł-Ki "b:)
10. Ab'vb' (ŕbŕ Ł Ki "b).....	10. Ab'vb' (ŕbŕ Ł Ki "b).....

32. cKí GĭŕKŕq Kũl tŁŁt Lv Ĩ kŁm'i Drcŕ' Łbi cŕi gŕb t

K. j ŁŁgŕŕv ũQj t..... tĕŕũK ũb (cŁZ eQi)

L. er' Łe AvRZ ntŁŁt tĕŕũK ũb (cŁZ eQi)

M. hŕ j ŁŁgŕŕv cŁY bŕ ntŁŁt ŕŁK Zŕntj Zvi KŕiY ũK ũK?

ŁmKkb- 3: Kĕŕŕ' vŁbi mŁhŕM

33. cKí er-evqłbi dtj cKí GĭŕKŕq Kĕŕŕ' vŁbi mŁhŕM tetotQ ũK? 1. niŕ 2. bŕ

K. niŕ ntj , tKvbŁtKvbŁtŁŁt Kĕŕŕ' vŁbi mŁhŕM mŁŁ ntŁŁtQ/tetotQ?

(cKŁt i ceŁZP Ae ĩvi tŁŁtŁZ Zj bŕ Kti eZŁvŁb kZKiv KZfŕM (%) tetotQ tŕB ŕntŁte DŁi ŕ b)

tKvbŁtKvbŁtŁŁt tetotQ	kZKiv KZ fŕM (%) tetotQ	cĭ "Łt' i tŁŁtŁŁt (%)	gŕŕj vŁ' i tŁŁtŁŁt (%)
1. Kŕl KŕR			
2. Kŕl gRĭ			
3. kvK-meŕRi eŕMŕ			
4. eŁŁtŁvcb (eŕqŕb) Gi KŕR			
5. grŕ' Pŕl			
6. Mi "/QŕMj cĭj b			
7. nŕm/gĭ Mx cĭj b			
8. Kŕũi ũKŁt i KŕR			
9. ŁŁj 'e' emv			
10. gŕSvi x e' emv			

†Kvb&†Kvb&†¶¶†† tetotQ	kZKiv KZ fWM (%) tetotQ	cj`l†`i t¶¶†† (%)	g¶nj vt`i t¶¶†† (%)
11. eo e`emv			
12. iv`wWU/tmZwbq¶¶ KvR			
13. g¶U Lbb KvR			
14. Kj Kvi Lvbi KvR			
15. PvKi x			
16. Ab`vb` (wb`¶ Ki`b)			

34. cK† ev`eqtbi dtj g¶nj vt`i AvtMi Zj bvq Avtqi m¶h¶M tetotQ ¶K? 1. n¶v 2. bv
 K. n¶v ntj , kZKiv KZfWM tetotQ? c¶e¶% ¶Qj ; eZ¶vtb t% ntqtQ

¶mKkb- 4: cwi ¶ekMZ c¶ve

35. cK† ev`eqtbi dtj c¶e¶ Zj bvq eZ¶vtb cK† Gj vKvq cwb emvZ ti vtMi c¶Kic ¶Kgb ntqtQ?

cK† ev`emqZ n¶ qvi c¶e¶	eZ¶vtb
1. ¶Qj bv 2. Kg 3. ¶ekx	1. ¶bB 2. Kg 3. ¶ekx

36. cK† ev`eqtbi dtj c¶e¶ Zj bvq eZ¶vtb Avcbvi Gj vKvq Avt¶¶K mgm`v tKgb?

cK† ev`emqZ n¶ qvi c¶e¶ 1. ¶Qj 2. ¶Qj bv eZ¶vtb t 1. AvtQ 2. ¶bB

37. cK† ev`eqtbi dtj Gj vKvq cwi ¶ekMZ ¶K ¶K Am¶eav ntqtQ ev ¶¶wZKi c¶ve ctotQ??

- | | |
|---|----------------------------------|
| 1. ¶i¶M Rxe¶¶l gkv g¶¶¶i c¶Kic tetotQ | 6. i¶m¶q¶bK m¶¶i e`envi tetotQ |
| 2. R¶¶gi De¶Zv K¶gtQ | 7. `Re m¶¶i e`envi K¶gtQ |
| 3. g¶¶ cwb¶Z gr¶¶ P¶l e¶¶ ntqtQ | 8. D¶d¶m¶ d¶m¶j i P¶l ve` tetotQ |
| 4. d¶m¶j tcvK¶¶¶Ko l ti v¶¶e¶j vB¶¶¶i Av¶¶gb tetotQ | 9. Rj ve×Zv e¶× tctqtQ |
| 5. e¶j vB¶b¶K e`en¶¶i dtj cwi ¶ek `¶Y tetotQ | 10. Ab`vb` (wb`¶ Ki`b) |

¶mKkb- 5: cK††i i m¶dj -`e¶ w`K m¶¶ Ges m¶¶cwi k

38. cK†¶¶ ev`emqZ nevi ct¶i Gj vKvi RbM¶¶¶i ¶K ¶K DcKvi ntqtQ A_¶¶ cK††i i m¶dj Zv_¶¶j v¶K ¶K?

.....

39. cK††i i `¶¶ w`K_¶¶j v¶K ¶K?

.....

40. cK†¶¶ ¶¶el `¶Z Av¶l Kvh¶¶i Kivi Rb` ¶bg¶¶ ¶LZ ¶el ¶q Avcbvi gZ¶gZ ev m¶¶cwi k ¶K?

¶el q (c¶Z¶¶¶ t¶¶¶†† at¶ at¶ RvbtZ n¶e)	m¶¶cwi k
K. ¶m¶¶ t¶¶¶b/tm¶¶ h¶¶¶	
L. ¶m¶¶ e`e`v cwi P¶j bv	
M. cwb e¶¶b	
N. i ¶¶¶¶¶¶¶¶ (¶m¶¶ cv¶¶¶ l Ab`vb` AeKv¶¶¶¶¶)	
O. Z¶¶eavq¶ ev dtj vAvc	
P. ¶¶¶¶¶¶¶¶	
Q. c¶¶¶¶¶¶¶	
R. Ab`vb` m¶¶cwi k (D¶j ¶¶¶¶¶)	

Avcbvi m¶¶h¶¶¶¶¶¶¶ Rb` Avcbv¶¶K ab`ev`

Wvej wj dñus Gi gva"tg f-cwi " cwmbi mnvth" tmP m=chvi Y (1g chq)
kxl R cKtí i cfve gj "vqb

wbueo Avtj vPbvi cKgvj v
(RvZxq, tRj v I DctRj v chqí cKí msuké-KgRZŕ i Rb")

FigKv: Avmtvj vgy Avj vBKg | Avgiv ixW (Mtel Yv cZövb) I AvBGgBilW (cwi Kí bv gSŕYj q) Gi cŕ t_ŕK gvW chq gj "vqb
Rixci Dŕí k " GtmQ | ersj vt " k Kwl Dbq b Ktcŕ i kb (ueGwlWm) -KZR 1999-2007 mtj ersj vt " ki 22wJ tRj vq Wvej wj dñus
(y`dvq DŕÉvj b) Gi gva"tg f-cwi " cwmbi mnvth" tmP m=chvi Y (1g chq) cKtí i Kvr ev`ewqZ ntqtQ | cKtí i Dŕí k " wQj
t`tki eo eo b`x h_v cUv, tgNbv, hgbv I Ab"vb` b`xi cwmb cvt=úí mnvth" (fvgtZ "wcz I fvmgyb) Wvej wj dñus c=ñZŕZ tmP
e`e"v wbuZ Kiv | cKtí i gva"tg AwZwi 3 Lv` Drcv` b Kti GjvKvq Rngi gwj K, K.L.K, cŕSK Pvl x, ktRme gvnj v I cŕ "ŕt` i
Av`mvgwRK Ae`vi Dbq b Kti `wi `a` i Kiv | eZŕvb Rixci Dŕí k " nt"Q f-cwi " cwmbi mnvth" fvmgyb cvt=úí (25 wKDtmK
Ges 12.5 wKDtmK) Ges fvgtZ "wcz cvt=úí (5 wKDtmK) gva"tg tmP cKtí i gj "vqb Kiv | Avgiv G m=útkAvcbvi gj "vqb
gZvgZ mslMni Rb" GtmQ |

Avcub gj "vqb Z_` w` tq G Mtel Yvi KrtR mnthwMZv KiŕZ cvt i b | Avcbvi gZvgZ i agvŕ Mtel Yvi KvtRB e`eúZ nte | Avcbvi
t` qv Z_` m=úyMwcb ivLv nte | Avcbvi AbgvZ tctj Awg mvŕŕKvi i i " KiŕZ cwi |

Table with fields: wefM, tRj v, DctRj v and tKwWbs.

Table with fields: mvŕŕKvi Mh bKvixi bvg, mvŕŕKvi Mh tbi Zwi L, mcv i fvBRvŕt i bvg, Zwi L, mvŕŕKvi Mh b: i i "i mgq, tkl mgq.

BvUvwFDqvi t` i Rb` wbŕ` Rbv t BvUvwFDqvi mvŕŕKvi i i "i AvtM t_ŕKB DEi` vZvtK cKgvj vq Dŕj w-Z Őcŕe Ges eZŕvb Ő
mgtqi e`vL v w` tq wŕteb | Őcŕe Ges ŐeZŕvtbi Ő e`vL v ntj vt 1. Őcŕe A_ŕ D 3 GjvKvq tmP cKtí i cwmb hLb t_ŕK e`envi
i i " Kti tQ Zvi cŕeP mgq Ges 2. ŐeZŕvb Ő ej tZ mvŕŕKvi Mh tbi Zwi L ntZ MZ 6 t_ŕK 12 gvtmi GKUv Mo mgq |

1. bvg : tclvb b vŕfi :

- 2. c`ex:
1. Project Director
2. Superintendent Engineer
3. Executive Engineer
4. Upazila Engineer
5. Assistant Engineers
6. Senior Sub-Assistant Engineers
7. Sub Assistant Engineers
8. Ab"vb` (wbŕ` Ő Ki "b)

3. Avcub G KgŞj vKvq KZw b aŋi wbtqmRZ AvfQb?eQi gvm
4. Avcbri cKf Gj vKvq 1999-2007 mtj Wej wj dŋUs Gi gvaŋg f-cwi '- cwbi mnvth' tmP m=cŋvi Y (1g chf) cKf ev-
evqŋbi cŋeŋK wK tmP e'e'v Pj ywQj ?
.....
.....

ŋmKkb- 1: Wej wj dŋUs Gi gvaŋg f-cwi '- cwbi mnvth' tmP m=cŋvi Y cKf m=ŋwKZ Z_

5. cKf ASŋ³ Avcbri ŋg 1999-2007 mtj Wej wj dŋUs Gi gvaŋg f-cwi '- cwbi mnvth' tmP m=cŋvi Y (1g chf) cKf i gvaŋg wK wK KvR ntqŋQ?

K. wK wK KvR ntqŋQ?	L. j ŋ'gvŋv KZ wQj ?	M. cKZcŋŋ KZwU ntqŋQ?	N. j ŋ'gvŋv Abŋvqx bv ntj , wK wK Kvŋŋy nqub?
1. 25 wKDŋmK cv'ú 'vcb	.....wU	.....wU	
2. 12.5 wKDŋmK cv'ú 'vcb	.....wU	.....wU	
3. 5 wKDŋmK cv'ú 'vcb	.....wU	.....wU	
4. cKŋŋY Kvŋŋg			
5. wWmPvR'e.	.....wU	.....wU	
6. cvKv tmPbvj v	.....wU	.....wU	
7. Kvj fvU©	.....wU	.....wU	
8. ŋmW'vg	.....wU	.....wU	
9. Uvb©-AvDU	.....wU	.....wU	
10. ŋm-ŋMBUvb©-AvDU	.....wU	.....wU	
11. Ab'vb' (wv' ŋ Ki' b)			

6. Wej wj dŋUs Gi gvaŋg f-cwi '- cwbi mnvth' tmP m=cŋvi Y (1g chf) kxŋ cKf i KvŋR Avcub RwoZ wQj b wK?
1. niw 2. bv

K. niw ntj , D³ cKf i Avcub wK `wqZj cvj b KŋiŋQb?
.....

7. j ŋ'gvŋv Abŋvqx D³ cKf i KvR mwKfvŋe ev'ewqZ ntqŋQ wK? 1. niw 2. bv 3. Rwbv

K. bv ntj , wK wK Kvŋŋy ev'ewqZ nqub?
.....

8. cKf i KvR eivŋ KZ At_ŋm=ubntqŋQ wK? 1. niw 2. bv 3. Rwbv

K. bv ntj , tKb ŋkŋ nqub?
.....

9. cKf `wj tj wbaŋi Z mKj ŋmPcv=ú I Ab'vb' AeKwŋgv thLvŋb thLvŋb nevi K_v wQj tm_j v GB cKf i Avl Zvq ev'ewqZ
ntqŋQ wK? 1. niw 2. bv

K. bv ntj , tKb?
.....

10. cKf `wj tj Duj wZ KvŋRi evBŋi tKv ŋmPcv=ú I Ab'vb' AeKwŋgv GB cKf i Avl Zvq ev'ewqZ ntqŋQ wK?
1. niw 2. bv

K. niw ntj , tKb?
.....

11. wK c=ŋZiZ cKf i ŋmPcv=ú I Ab'vb' gvj vgvj ŋq Ki v ntqŋQj ?
.....

12. G wŋŋtq tKv tUŋvi t'qv ntqŋQj wK? 1. niw 2. bv 3. Rwbv

- K. G tUŋvi RvZvq chŋŋi wQj bwK AvŋRwZK chŋŋi wQj? 1. RvZvq chŋŋi 2. AvŋRwZK chŋŋi

L. tUŋvi wntj Kkb c=ŋZ wK wQj?
.....

M. G tUÜvi çµµvq ewnti i tKvb çFie ev n`¶¶c µQj wK? 1. niw 2. bv 3. Rwbv

N. niw ntj , wK ai tbi çFie ev n`¶¶c µQj ?

O. wK fite mgravb Kiv ntqµQj ?

13. cKtí e`eüZ gyj vgvj µq Ges e`eniti i t¶¶tí wK wK ai tbi mgm`v ntqµQj ?

14. cKtí i Avl Zvq µq Kiv mKj ai tbi gyj vgvj cKtí i tKvb ch¶q (Phase) KZw µq Kiv ntqµQj?

cKtí i Avl Zvq µq Kiv mKj ai tbi gyj vgvj	tKvb ch¶q (Phase) µq Kiv ntqµQj?	KZw µq Kiv ntqµQj?	tKvb t`tki %Zix?
1. 25 wKDtmK cv`ú			
2. 12.5 wKDtmK cv`ú			
3. 5 wKDtmK cv`ú			
4. BwÄb/gUi			
5. Ab`vb` (wkw`ö Ki`b)			

15. cKtí i Avl Zvq µq Kiv mKj ai tbi gyj vgvj i `YMZ gvb hvPvB Kiv ntqµQj wK? 1. niw 2. bv 3. Rwbv

K. niw ntj , wK fite?.....

16. cKtí ev`erqbKvj xb mg¶q wK wK mgm`v t`Lv w` tµQj ?

K. wK fite mgm`vi mgravb Kiv ntqµQj ?

17. cKtí e`e`cbvq wK wK mgm`v ntqµQj ?

K. wK fite mgm`vi mgravb Kiv ntqµQj ?

18. cKtí i KvR Pj vKvj xb mg¶q cKtí i KvR t¶i Rg¶b cwi`kß/Z`vi wK Kiv nZ wK? 1. niw 2. bv 3. Rwbv

K. niw ntj , wK fite Kiv nZ?

19. cKtí Gj vKvq tmt¶i cw b eÜb l mi eiv¶ni `wqZj tK cvj b Ktí b?.....

20. cKtí i tµP cvæú l Ab`vb` AeKvWtgv` t j v mµwK fite KvR Ki tQ wK? 1. niw 2. bv

K. bv ntj , tKb mµwK fite KvR Ki tQ bv?

21. tKvbßwµZgyj vi w¶iÉtZ cKtí Gj vKv wbe¶Pb Kiv ntqµQj ?

22. tKvbßwµZgyj vi w¶iÉtZ cKtí /`wq` t j v tbi qv ntqµQj ?

23. GK tǵmǵ tǵmǵi cǵmǵi Rb cǵZ ǵeNǵq KZ UvKv ǵ tǵ nǵ?

ǵe`ǵr Pǵmǵ Z cǵtǵú	ǵǵtǵRǵ Pǵmǵ Z cǵtǵú
1. 25 ǵKDǵmK cǵ`ú :.....UvKv	1. 25 ǵKDǵmK cǵ`ú:.....UvKv
2. 12.5 ǵKDǵmK cǵ`ú :.....UvKv	2. 12.5 ǵKDǵmK cǵ`ú :.....UvKv
3. 5 ǵKDǵmK cǵ`ú :.....UvKv	3. 5 ǵKDǵmK cǵ`ú :.....UvKv

K. tǵmP PǵRǵDVtǵZ tǵKvb Amǵeav nǵ ǵK? 1. nǵ 2. bv 3. Rǵmǵbv

24. cǵKǵtǵi tǵmP cǵǵú I Ab`vb` AeKǵWtǵǵ, tǵǵi vi Ae`v eZǵǵtǵb tǵKgb i tǵtǵQ?

1. 25 ǵKDǵmK cǵ`ú	1. Fǵǵ (mPǵ) 2. tǵǵUǵǵǵǵ (mPǵ ǵKŠ`ǵtǵSǵtǵS mǵm`v nǵ) 3. Lvi vc (APǵ)
2. 12.5 ǵKDǵmK cǵ`ú	1. Fǵǵ (mPǵ) 2. tǵǵUǵǵǵǵ (mPǵ ǵKŠ`ǵtǵSǵtǵS mǵm`v nǵ) 3. Lvi vc (APǵ)
3. 5 ǵKDǵmK cǵ`ú	1. Fǵǵ (mPǵ) 2. tǵǵUǵǵǵǵ (mPǵ ǵKŠ`ǵtǵSǵtǵS mǵm`v nǵ) 3. Lvi vc (APǵ)
4. cǵKv tǵmPǵǵǵ v	1. Fǵǵ (ǵQ` ǵdvUǵ/Fǵǵǵ BZ` ǵm` bvB) 2. tǵǵUǵǵǵǵ (tǵUǵ LǵU ǵQ` ǵdvUǵ/Fǵǵǵ AvtǵQ, ǵKŠ` KǵR Pǵǵ) 3. Lvi vc (eo eo ǵQ` ǵdvUǵ/Fǵǵǵ AvtǵQ, KǵR Pǵǵ bv)
5. ǵǵmPǵRǵe.	1. Fǵǵ (mPǵ) 2. tǵǵUǵǵǵǵ (mPǵ ǵKŠ`ǵtǵSǵtǵS mǵm`v nǵ) 3. Lvi vc (APǵ)
6. Kǵǵ FǵUǵ	1. Fǵǵ (mPǵ) 2. tǵǵUǵǵǵǵ (mPǵ ǵKŠ`ǵtǵSǵtǵS mǵm`v nǵ) 3. Lvi vc (APǵ)
7. ǵmWǵǵ	1. Fǵǵ (mPǵ) 2. tǵǵUǵǵǵǵ (mPǵ ǵKŠ`ǵtǵSǵtǵS mǵm`v nǵ) 3. Lvi vc (APǵ)
8. Uǵb`AvDU	1. Fǵǵ (mPǵ) 2. tǵǵUǵǵǵǵ (mPǵ ǵKŠ`ǵtǵSǵtǵS mǵm`v nǵ) 3. Lvi vc (APǵ)
9. ǵm-ǵmBUǵb`AvDU	1. Fǵǵ (mPǵ) 2. tǵǵUǵǵǵǵ (mPǵ ǵKŠ`ǵtǵSǵtǵS mǵm`v nǵ) 3. Lvi vc (APǵ)
10. Ab`vb` (ǵbǵ` ǵ Ki`b)	

25. cǵKǵtǵi tǵmP cǵǵú I Ab`vb` AeKǵWtǵǵ, tǵǵi v eZǵǵtǵb Gǵǵvǵi tǵǵKǵRb mǵR I mǵWKǵtǵe e`envi Ki tǵZ cǵi tǵQ ǵK?

1. mǵR I mǵWKǵtǵe e`envi Ki tǵZ cǵi tǵQ 2. e`envtǵi mǵm`v AvtǵQ

K. e`envtǵi mǵm`v ǵKtǵǵ ǵK ai tǵbi mǵm`v nǵ`Q?

26. cǵKǵtǵi tǵmP cǵǵú I Ab`vb` AeKǵWtǵǵ, tǵǵi v tǵǵǵZ I i ǵǵǵtǵǵǵ Kǵv nǵ ǵK? 1. nǵ 2. bv (0 bs cǵKǵhǵb)

K. nǵ nǵǵ, tǵǵǵZ I i ǵǵǵtǵǵǵ KǵR ǵKǵtǵe Kǵv nǵ?.....

L. tǵKǵǵmǵtǵǵ tǵǵǵZ I i ǵǵǵtǵǵǵ Kǵv nǵǵ ǵtǵK?

1. dmǵ tǵǵmǵ i i cǵe` 2. cǵm e`envtǵi i mǵtǵ 3. dmǵ DVi cǵtǵ
4. cǵǵǵRb gZ ǵeGǵWm-tK Rǵbǵtǵ 5. cǵǵǵǵ 6. Ab`vb` (ǵbǵ` ǵ Ki`b)

M. Kǵv tǵǵǵZ I i ǵǵǵtǵǵǵ KǵtǵRi `ǵmǵtǵǵi tǵtǵQb?

1. 25 ǵKDǵmK cǵ`ú	1. ǵeGǵWm 2. `ǵǵ Kǵǵǵǵ 3. tǵKǵvi tǵUKvi 4. Ab`vb` (ǵbǵ` ǵ Ki`b)
2. 12.5 ǵKDǵmK cǵ`ú	1. ǵeGǵWm 2. `ǵǵ Kǵǵǵǵ 3. tǵKǵvi tǵUKvi 4. Ab`vb` (ǵbǵ` ǵ Ki`b)
3. 5 ǵKDǵmK cǵ`ú	1. ǵeGǵWm 2. `ǵǵ Kǵǵǵǵ 3. tǵKǵvi tǵUKvi 4. Ab`vb` (ǵbǵ` ǵ Ki`b)
4. tǵmPǵǵǵ v	1. ǵeGǵWm 2. `ǵǵ Kǵǵǵǵ 3. tǵKǵvi tǵUKvi 4. Ab`vb` (ǵbǵ` ǵ Ki`b)
5. ǵǵmPǵRǵe.	1. ǵeGǵWm 2. `ǵǵ Kǵǵǵǵ 3. tǵKǵvi tǵUKvi 4. Ab`vb` (ǵbǵ` ǵ Ki`b)
6. cǵmǵi Ab`vb` AeKǵWtǵǵ.....	1. ǵeGǵWm 2. `ǵǵ Kǵǵǵǵ 3. tǵKǵvi tǵUKvi 4. Ab`vb` (ǵbǵ` ǵ Ki`b)

N. tǵǵǵZ I i ǵǵǵtǵǵǵ LiP tǵK enb Kǵtǵ?

1. 25 ǵKDǵmK cǵ`ú	1. ǵeGǵWm 2. `ǵǵ Kǵǵǵǵ 3. tǵKǵvi tǵUKvi 4. Ab`vb` (ǵbǵ` ǵ Ki`b)
2. 12.5 ǵKDǵmK cǵ`ú	1. ǵeGǵWm 2. `ǵǵ Kǵǵǵǵ 3. tǵKǵvi tǵUKvi 4. Ab`vb` (ǵbǵ` ǵ Ki`b)
3. 5 ǵKDǵmK cǵ`ú	1. ǵeGǵWm 2. `ǵǵ Kǵǵǵǵ 3. tǵKǵvi tǵUKvi 4. Ab`vb` (ǵbǵ` ǵ Ki`b)
4. tǵmPǵǵǵ v	1. ǵeGǵWm 2. `ǵǵ Kǵǵǵǵ 3. tǵKǵvi tǵUKvi 4. Ab`vb` (ǵbǵ` ǵ Ki`b)
5. ǵǵmPǵRǵe.	1. ǵeGǵWm 2. `ǵǵ Kǵǵǵǵ 3. tǵKǵvi tǵUKvi 4. Ab`vb` (ǵbǵ` ǵ Ki`b)
6. cǵmǵi Ab`vb` AeKǵWtǵǵ.....	1. ǵeGǵWm 2. `ǵǵ Kǵǵǵǵ 3. tǵKǵvi tǵUKvi 4. Ab`vb` (ǵbǵ` ǵ Ki`b)

0. bv nǵǵ, tǵKb tǵǵǵZ I i ǵǵǵtǵǵǵ Kǵv nǵ bv?

.....
.....

27. i ԳլԿԵԳԻԿ ԿՎՐ ԱԷՔ մս՝Յ ԱՎՈ ՈՒՔ? 1. ուր 2. Յ 3. ՐոՅՅ
- Կ. ուր յյ, Գ ԿՎՐ ԱԷՔ մս՝Յ հյՕ ՈՒՔ? 1. ուր 2. Յ 3. ՐոՅՅ

28. շՒՔԻ Ի ԻՄ ՇՎՅԱԻ ՇՅ ԵՍԵ Լ Ի ԵՎՆԻ ԻՊԻՒ ՈՒ ԱԻՅԻ ՄԳՆՎ ԵՎ ԱՄԵՎԱՆ ՈՂ ԵՐ ԻՏՂՈ?

.....

.....

Կ. ՈՒՔԻՄ ԴՄՆԻ ՄԳՎՅ ԿԻՆ ՈՂ?

.....

.....

ԻՄԿԿԵ- 2: շՒՔԻ ՈՂ ԳՂՎՅ

29. շՒՔԻ Ի ԱՎ ԶՎ ԿՎՐ ԻՒՔ, ԿԶՐԵՒՔ, ՈՒ ՈՒ ՈՂՈՂ Լ ԿԶՐ ԵՅԻ շՒՔԻ ԻՒՔ ՈՂՈՂ?

Կ. ԿՎՐ Ի շՒՔԻ ԻՒՔ ՈՂՈՂ?	Լ. ԿԶՐԵՒՔ շՒՔԻ ԻՒՔ ՈՂՈՂ? (մՍԼՎ)	Մ. շՒՔԻ ԻՒՔ ՈՂՈՂ ԵՎ ՈՂՈՂ ՈՂՈՂ?	Ն. ԿԶՐ ԵՅԻ շՒՔԻ ԻՒՔ ՈՂՈՂ? (ՈՒՅ)
1. ԳՎԵՐՎԻ (մՎՈՅ/ԻՄԻՍՎԻ)			
2. ՇՎՅ ՔԿ			
3. ՈՒ ԳՎՅ			
4. ԱՅՎՐ (ՈՒՅ ԿԻՅ)			

30. շՒՔԻ Ի ԱՎ ԶՎ շՒՔԻ ԿԳՐՈՒ ԿՎՐ ԵՎ ՈՂՈՂ ՈՂՈՂ? 1. ուր 2. Յ

Կ. Յ յյ, ԻՒՅ ԿՎՐ ԵՎ ՈՂՈՂ?

ԻՄԿԿԵ- 3: ԿՎՐ ՈՂ ԶՐ

31. շՒՔԻ ԵՎՈՂՅԻ ԵՅ ՇՎՅ ԶԵՅԻՄ ԻՄ ԼԻ ՔԵՂՈՒ ԵՎ ԵՅՈՂ? 1. ԿՂՈՒ 2. ԵՅՈՂ

Կ. ԿՂՈՂՅԻ ԵՅ ԵՅԻ ՇՎՅ ԶԵՅԻՄ ԿԶ ՈՒՅ ՈՂՈՂ ԱՅԵ ԵՅ ԵՅ ԿԶԻՄ ՈՂՈՂ?

ՇՎՅ	ԵՅԻՄ
Կ. ՈՒՅ ՔԿ Զ ՇՎՅ:.....ՈՒՅ (ՇՎՅ ՈՒՅ)	Կ. ՈՒՅ ՔԿ Զ ՇՎՅ:.....ՈՒՅ (ՇՎՅ ՈՒՅ)
Լ. ՈՒՅ ՔԿ Զ ՇՎՅ:.....ՈՒՅ (ՇՎՅ ՈՒՅ)	Լ. ՈՒՅ ՔԿ Զ ՇՎՅ:.....ՈՒՅ (ՇՎՅ ՈՒՅ)
Մ. ԵՅԻ ԿԶԻՄ: 1. ՈՒՅԻՄ ԿԶԻՄ	Մ. ԵՅԻ ԿԶԻՄ: 1. ՈՒՅԻՄ ԿԶԻՄ
2. ՔԿ ԿԶԻՄ 3. ԱՅՎՐ	2. ՔԿ ԿԶԻՄ 3. ԱՅՎՐ

32. շՒՔԻ ԵՎՈՂՅԻ ԵՅ շՒՔԻ ԳՎՅ ԿՎՐ ՐԿԵ ԿԶԻՄ ԿԶԻՄ ԵՅԻՄ ԱՎ ԶՎ ԳՂՈՂ?

ՇՎՅ 1.% ՐԿ ՈՂՈՂ 2. ՐՅՅ	ԵՅԻՄ 1.% ՐԿ ՈՂՈՂ 2. ՐՅՅ
-----------------------------	------------------------------

33. շՒՔԻ ՈՂՅ ԵՅ ԵՅԻՄ ՐԿԵ ԵՅ ԿՂՈՂ ԿԶ ԿԶԻՄ ԿԶԻՄ ԳՎՅ շՒՔԻ ԵՅԻՄ ԱՎ ԶՎ ԱՅՎ ՈՂՈՂ?

Կ. ԵՅԻՄ ՐԿԵ ԵՅ ԿՂՈՂ ԿԶԻՄ.....ԿԶԻ Լ. ԵՅԻՄ ԱՅԻՄ ՈՂՈՂ.....ԿԶԻ

Մ. ՈՒՅ ԵՅ ԿՂՈՂ ԿԶԻՄ ԵՅԻՄ ՐԿԵ ԿԶԻՄ.....ԿԶԻ

34. շՒՔԻ ԵՎՈՂՅԻ ԵՅ ԿՎՐ ԵՅԻՄ ԼՎՐ ԿՂՈՂ (ԱՅ) ԵՅԻՄ ԵՅՈՂ ՈՂՈՂ? 1. ուր 2. Յ

Կ. ուր յյ, ՇՎՅ ՈՂՈՂ ԿԶ ԿՎՅ ԵՅՈՂ?

շՒՔԻ ԵՎՈՂՅԻ ՈՂՈՂ ԵՅԻՄ	ԵՅԻՄ
1. ԵՅԻՄ ԱՅ : ՇՎՅ ՈՂՈՂ .....ԳՂ ՈՂՈՂ	1. ԵՅԻՄ ԱՅ : ՇՎՅ ՈՂՈՂ .....ԳՂ ՈՂՈՂ
2. ԱՅԵ ԱՅ : ՇՎՅ ՈՂՈՂ .....ԳՂ ՈՂՈՂ	2. ԱՅԵ ԱՅ : ՇՎՅ ՈՂՈՂ .....ԳՂ ՈՂՈՂ
3. ԱՅԵ ԱՅ : ՇՎՅ ՈՂՈՂ .....ԳՂ ՈՂՈՂ	3. ԱՅԵ ԱՅ : ՇՎՅ ՈՂՈՂ .....ԳՂ ՈՂՈՂ

35. cKí er-evq̄tbi dtj c̄eP Zj b̄vq eZ̄ḡv̄tb gb c̄Z av̄tbi gj̄ tet̄oQ w̄K? 1. n̄u 2. b̄v

K. n̄iv ntj , gb c̄Z av̄tbi gj̄ KZ tet̄oQ?

cKí er-evq̄Z nI qvi c̄e ^o	eZ̄ḡv̄tb
1. tev̄iv av̄b : c̄Z gb .....UvKv w̄Qj	1. tev̄iv av̄b : c̄Z gb .....UvKv
2. AvDm av̄b : c̄Z gb .....UvKv w̄Qj	2. AvDm av̄b : c̄Z gb .....UvKv
3. Avgb av̄b : c̄Z gb .....UvKv w̄Qj	3. Avgb av̄b : c̄Z gb .....UvKv

36. cKí er-evq̄tbi dtj c̄eP Zj b̄vq eZ̄ḡv̄tb Kwl t̄q̄t̄i k̄m̄i eügl̄Kib (GKB RigtZ GKwaK dmj Drcv̄ b) nt̄oQ w̄K?

1. n̄u 2. b̄v

K. n̄iv ntj , GKB RigtZ Kq̄w dmj Drcw̄ Z nq?

cKí er-evq̄Z nI qvi c̄e ^o	eZ̄ḡv̄tb
1. GKw 2. `βw 3. wZbw 4. Pvw I Zvi tekx	1. GKw 2. `βw 3. wZbw 4. Pvw I Zvi tekx

37. dmtj i w̄beozv cKí er-evq̄tbi c̄eP eZ̄ḡv̄tb KZ? c̄e^o..... % eZ̄ḡv̄tb.....%

38. cKí er-evq̄tbi dtj c̄eP Zj b̄vq eZ̄ḡv̄tb w̄rf̄bei Ktgi AwZwi³ Lv̄ k̄m̄i (av̄b Qrov Ab̄v̄b dmj) Drcv̄ b nt̄oQ w̄K?

1. n̄u 2. b̄v

K. n̄iv ntj , c̄eP w̄K AwZwi³ Lv̄ k̄m̄i Drcw̄ Z nt̄Zv Ges eZ̄ḡv̄tb w̄K w̄K nt̄oQ?

cKí er-evq̄Z nI qvi c̄e ^o	eZ̄ḡv̄tb
1. Mg	1. Mg
2. f̄j̄v	2. f̄j̄v
3. cvU	3. cvU
4. AvL/B̄q̄z	4. AvL/B̄q̄z
5. gwi P/aw̄bq/nj j /.....)	5. gwi P/aw̄bq/nj j /.....)
6. %Zj RvZxq km̄ (mwi l v/wZm/wZj /ev̄ vg/.....)	6. %Zj RvZxq km̄ (mwi l v/wZm/wZj /ev̄ vg/.....)
7. Wvj RvZxq (gM/gmj /Kj vB.....)	7. Wvj RvZxq (gM/gmj /Kj vB.....)
8. kvK-mewR (bvg D̄tj E-Ki "b:)	8. kvK-mewR (bvg D̄tj E-Ki "b:)
9. dj (bvg D̄tj E-Ki "b:)	9. dj (bvg D̄tj E-Ki "b:)
10. Ab̄v̄b (w̄b̄ θ Ki "b).....)	10. Ab̄v̄b (w̄b̄ θ Ki "b).....)

39. cKí w̄j tj D̄tj w̄Z Kwl t̄q̄t̄i Lv̄ k̄m̄i Drcv̄ t̄bi j q̄l̄gv̄v KZ w̄Qj Ges c̄KZc̄t̄q̄ KZLwb Drcv̄ b nt̄oQ?

K. Drcv̄ t̄bi j q̄l̄gv̄v w̄Qj t..... t̄ḡw̄K Ub (c̄Z eQi)

L. ev̄ t̄e AwRZ nt̄oQ t..... t̄ḡw̄K Ub (c̄Z eQi)

M. hw̄ j q̄l̄gv̄v c̄Y b̄v nt̄q _vtK Zvntj Zvi KviY w̄K w̄K?

.....

t̄mKkb- 4: Kḡm̄s̄-v̄tbi m̄th̄w̄M

40. cKí er-evq̄tbi dtj cKí Gj v̄Kvq Kḡm̄s̄-v̄tbi m̄th̄w̄M tet̄oQ w̄K? 1. n̄iv 2. b̄v

K. n̄iv ntj , t̄Kv̄b̄t̄Kv̄b̄t̄q̄t̄i Kḡm̄s̄-v̄tbi m̄th̄w̄M m̄w̄ nt̄oQ/tet̄oQ?

(cKí i cēZ̄P Aēvi t̄c̄m̄t̄iZ Zj b̄v K̄ti eZ̄ḡv̄tb kZKiv KZfv̄M (%) tet̄oQ t̄mB w̄nt̄m̄te DEi w̄ b)

t̄Kv̄b̄t̄Kv̄b̄t̄q̄t̄i tet̄oQ	kZKiv KZ fv̄M (%) tet̄oQ	cj "l̄t̄i t̄q̄t̄i (%)	ḡw̄nj v̄t̄i t̄q̄t̄i (%)
1. Kwl KvR			
2. Kwl gRj			
3. kvK-mewRi ewM̄b			
4. ēq̄t̄iv̄cb (ebv̄qb) Gi KvR			
5. gr̄m̄ Pvl			
6. Mi "Q̄Mj c̄j b			
7. num/gj Mx c̄j b			
8. K̄w̄i w̄k̄t̄i i KvR			

tkvbatKvbafqif tetotQ	kZKiv KZ fM (%) tetotQ	cj"lfi tffl (%)	gnjvf`i tffl (%)
9. flj`e`emv			
10. gvSvi x e`emv			
11. eo e`emv			
12. iv`wWU/tmZnbgfY KvR			
13. gmU Lbb KvR			
14. Kj Kvi Lvbvi KvR			
15. PvKi x			
16. Ab`vb` (wb` 0 Ki`b)			

41. cKf ev`eqtbi dtj gnjvf`i AvtMi Zj bvq Avtqi mthM tetotQ wK? 1. niv 2. bv
K. niv ntj, kZKiv KZfM tetotQ? cte`% wQj ; eZqtb t% ntqtQ

tmKkb- 5: cwi tekMZ cfve

42. cKf ev`eqtbi dtj cteP Zj bvq eZqtb cKf Gj vKvq cmb emnZ tivtMi cKic tKgb ntqtQ?

cKf ev`emqZ nl qvi cteP			eZqtb		
1. wQj bv	2. Kg	3. teku	1. tbB	2. Kg	3. teku

43. cKf ev`eqtbi dtj cteP Zj bvq eZqtb Avcbvi Gj vKvq AvtMok mgniv tKgb?

cKf ev`emqZ nl qvi cteP 1. wQj 2. wQj bv eZqtb t 1. AvtQ 2. tbB

44. cKf ev`eqtbi dtj cwi tekMZ wK wK flwZ ev Amjeav ntqtQ?

- 1. tivM RxyYl gkv gmQi cKic tetotQ
- 2. Rigi DePZv KtgtQ
- 3. gP cmbtZ grm` Pvl eU ntqtQ
- 4. dmtj tcvKvKo l tivMevj vBtqi Avmgb tetotQ
- 5. evj vBvkK e`envi i dtj cwi tek` tY tetotQ
- 6. imvqibK mvti i e`envi tetotQ
- 7. `Re mvti i e`envi KtgtQ
- 8. Ddmx dmtj i Pvlver` tetotQ
- 9. Rj veXZv evx tctqtQ
- 10. Ab`vb` (wb` 0 Ki`b)

tmKkb- 6: cKf i mdj -`eP w`K mgn Ges mpcwi k

45. cKf w ev`emqZ nevi cti Gj vKvi RbmYi wK wK Dckvi ntqtQ A` cKf i mdj Zv,tj v wK wK?

.....

46. cKf i `ep w`K,tj v wK wK?

.....

47. fuel tZ GKB ai tbi cKf ev`eqtbi tffl hvfZ Dctiv` `ep Zv,tj v bv vtK tmRb` wK Kiv DiPZ etj Avcmb gtb Ktib?

.....

48. ev`emqZ cKf w fuel tZ Avi l KvhKi Kivi Rb` wbgj mLZ welfq Avcbvi gZvZ ev mpcwi k wK?

welfq	mpcwi k
K. tmP tgnkb/tmP hS _i	
L. tmP e`e`v cwi Pvj bv	
M. cmb eUv	
N. i flYteflY (tmP cvu i Ab`vb` AeKvWtgV)	
O. ZZyearqb ev dtj vAvc	
P. `ag KvgU	
Q. cKflY	
R. Ab`vb` mpcwi k (Dtj l-Ki`b)	

Avcbvi mthMxZvi Rb` AvcbvtK ab`ev`

Wvej wj dŕŭs Gi gva'tg f-cwi ' cwi bi mnv'th' tŕP m'cŕŕvi Y (1g chŕq) kxl R cŕŕŕ i cŕve gj 'vqb

`j xq Avtj vPbvi wbt' RkV: BDwbqb chŕq (cŕR± Gwi qvi Rb': th 'v'tb cŕŕŕ i Avl Zvq Wvej wj dŕŭs Gi gva'tg f-cwi ' cwi bi mnv'th' tŕP cv'ú 'vcb Kiv n'tqŕQ)

fŕgKv: Avmŕnj vgy Avj vBKg | Avgiv i xW (Mtel Yv cŕZŕvb) | AvBGgBŕW (cwi Kŕbv gŕŕYvj q) Gi cŕŕ t_ŕK gvW chŕq gj 'vqb Rixŕci Dŕŕŕk' GŕmŕQ | evsj v't k Kw Dbŕb Kŕcŕŕkb (weGŕWŕm) -KZŕ 1999-2007 mŕtj evsj v't ŕki 22ŕŭ ŕRj vq Wvej wj dŕŭs ('y' dŕv Dŕŕŕj b) Gi gva'tg f-cwi ' cwi bi mnv'th' tŕP m'cŕŕvi Y (1g chŕq) cŕŕŕ i KvR ev'evŕqZ n'tqŕQ | cŕŕŕ i Dŕŕŕk' ŕQj ŕ' ŕki eo eo b`x h_v cŭv, tgNbv, hgbv | Ab'vb' b`xi cwb cv't'ú i mnv'th' (fŕgŕZ 'ŕcZ | fŕmgyb) Wvej wj dŕŭs c'xŕZŕZ tŕP e'e'v wŕŕŕZ Kiv | cŕŕŕ i gva'tg AvZŕi³ Lv' Drcv' b Kŕi Gj vKvq Rŕgi gvŕj K, K.I.K, cŕŕŕK Pvlx, kŕRŕe gvŕj v | cŕŕŕŕŕ i Av_ŕmgyŕRK Ae'vi Dbŕb Kŕi 'wŕŕ' ŕ' Kiv | eZŕvb Rixŕci Dŕŕŕk' n't'Q f-cwi ' cwi bi mnv'th' fŕmgyb cv't'ú i (25 ŕKDŕmK Ges 12.5 ŕKDŕmK) Ges fŕgŕZ 'ŕcZ cv't'ú i (5 ŕKDŕmK) gva'tg tŕP cŕŕŕ i gj 'vqb Kiv | Avgiv G m'úŕK' Avcbŕŕ' i `j xq ŕfŕŕEK gj 'evb gZŕgZ mŕMŕni Rb' GŕmŕQ |

Avcbŕiv `j MZfŕŕe gj 'evb Z_ ' ŕ' q G Mtel Yvi KvŕR mn'thŕMZv KiŕZ cv't' b | `j MZ gZŕgZ ŕ' agŕŕ Mtel Yvi KvŕR e'e'ŕZ nŕe Ges Zv m'úŕY'ŕMŕcb ivLv nŕe | Avcbŕŕ' i AbgyZ ŕcŕj Avgiv `j xq Avtj vPbv ŕi' KiŕZ cwi |

BDwbqb:	DcŕRj v:
ŕRj v:	ŕefŕM:
FGD -Gi 'vb:	Zŕi L:
mgŕŕŕKvixi bvg:	Z_ ' ŕ' ŕc'xKvixi bvg:

- cŕZ `j xq Avtj vPbvq AskMŕbKvixi ai b (cŕZ **FGD**-ŕZ AskMŕbYKvix mŕL'v 12 Rb)
- tŕP Kŕgŕŕi m'f'cŕZ- 1 Rb
 - tŕP Kŕgŕŕi m'vivi b m'ŕ' K- 1 Rb
 - cv'ú Acŕŕŕi Ui - 2 Rb
 - ŕdŕ g'vb- 8 Rb

Նյութի Կարգավիճակի Անվանումը և Տեսակը

Կարգ համար	Կարգ	Մեծություն	Եզր	Միավոր	Տեսակ	Կարգավիճակի համար (Կարգ)	Կարգավիճակի համար (Կարգ)	Տեսակ (մ ² մ ³)
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								

՝ j xq Avtj vPbvi gj vel qe` t

➤ Wej wj dUUs tmP cvau cKf maukZ Z`

1. Avcbv` i Mtg 1999-2007 mtj Wej wj dUUs Gi gva`tg f-cwi` cmbi mnvth` tmP m`cUvi Y (1g chq) cKf i gva`tg wK wK KvR ntqtQ Ges cKf i gj Df`k` mgn wK wQj ?
K. tmP cvau I cmbi Ab`vb` AeKvWtgvMtj v AvbgwbK Kte` Zix Kiv ntqtQ?
L. GB cKf i KvR Avcbv` wK wK wbu` o` wqZi cvj b Ki tQb Zv nek` fvt e j p?
2. Avcbv` GB cKf i cmb tmP KvR e`envi Ki tQb wK ? Kij , wK KvR cKf i tmP cvau cmb e`envi Ki tQb?
K. Avcbv` Kte` t`tk cKf i tmP cvau cmb tmPi KvR e`envi i i` Kti tQb?
3. cKf i tmP cvau I Ab`vb` AeKvWtgv` tj v eZgvtb Gj vKvi tj vKRb mnR I mWkfvte e`envi Ki tZ cvi tQ wK? e`envi mgn` vKtj wK ai tbi mgn`v nt`Q?
4. cKf i tmP cvau cmb eU b I mieivni t`f`f` wK ai tbi mgn`v ev Amjeav nq ev i tqtQ?
5. GB cKf i tmPi cmb Qvov Ab` tKv b Drm t`tk Avcbv` dmj Drv` t b tmPi cmb e`envi Kti b wK? Kij , tKv b dmtj i Rb` Ges tKv b Drm t`tk Avcbv` tmPi cmb e`envi Kti b?
6. tmPi cmbi e`envi h`vh` nt`Q wKv Zv t` Lvi Rb` wGwWm ZZjeavq ev dtj vAvc Kti wK?

➤ cKf i i`Yvte`Y m`aukZ Z`

7. Avcbv` i Gj vKv cKf i tmP cvau I Ab`vb` AeKvWtgv` tj v tgi vG Z I i`Yvte`Y Kiv nq wK? ntj , tKv b mgtq tgi vG Z I i`Yvte`Y Kiv ntq` vK?
K. tgi vG Z I i`Yvte`Y tbi KvR tK ev Kiv Kti` vKb?
L. tgi vG Z I i`Yvte`Y tbi KvR Avcbv` AskMhb Kti b wK? wKfvte AskMhb Kti b?
M. tgi vG Z I i`Yvte`Y tbi LiP tK enb Kti ?
N. Avcbv` i Gj vKv cKf i tmP cvau I Ab`vb` AeKvWtgv` tj vi eZgvtb Ae`v tKgb i tqtQ?

➤ cKf /`ag cwi Pj b v, cmb mieivn I e`vcbv KvgU mspvS-

8. Avcbv` i Mtg cKf /`ag cwi Pj b v, cmb mieivn, e`envi I e`vcbv Rb` tKv KvgU MVb Kiv ntqtQ wK? ntj , KvgU m`m` Kiv?
K. Avcbv` wK D³ KvgU m`m`v? m`m` ntj , KvgU tZ Avcbv` i` wqZi wK wK?
L. w`g KvgU KvR AvI KvhRix Ki tZ Avcbv` i mpcwi k wK?
M. w`g cwi Pj b vi t`f`f` gvnj v` i tKv AskMhb AvtQ wK? bv ntj , tKb?

➤ cKf Y mspvS-

9. cKf i AvI Zvq Avcbv` tKv cKf Y tctqtQb wK? tctj , D³ cKf i AvI Zvq wK wmvte cKf Y tctqtQb?
K. wK wK w`l tqi Dci cKf Y tctqtQb?
L. cKf i cKf Y t`tk th me Avb I` f`Zv ARB Kti tQb Zv Avcbv` i KvR wKfvte mnvZv Kti tQ/wKfvte KvR j vWtZ tcti tQb? KvR j vWtZ bv cvi t j , tKb KvR j vWtZ cvi tQb bv?

➤ cKf i m`j I` e`f` w`K mgn

10. cKf e`v`eqtbi dtj Gj vKv tmPi Rvgi cwi gvb ep` tctqtQ wK ? c`e`Kw Rvgi kZKiv KZfW tmPi AvI Zvq wQj Ges eZgvtb Kw Rvgi kZKiv KZfW tmPi AvI Zvq GtmtQ ?
11. cKf e`v`eqtbi dtj Kw t`f`f` Lv` ktm`i (avb) Drv` b tetotQ wK? c`e`cUz wNvq KZ gY avb ntZv Ges eZgvtb cUz wNvq KZ gY avb nq ?
12. cKf e`v`eqtbi dtj c`e`f` Zj bvq eZgvtb AvZwi³ Lv` ktm`i (avb Qvov Ab`vb` dmj) Drv` b nt`Q wK?
13. cKf e`v`eqtbi dtj Kw t`f`f` Drv` b evovq Avcbv` i Gj vKv Kgnv`v tbi myhW tetotQ wK?
14. cKf e`v`eqtbi dtj cwi tekMZ wK wK Amjeav ntqtQ?
15. cKf e`v`eqtbi dtj Avcbv` i wK wK DcKvi ev mjeav ntqtQ?

mpcwi k

16. cKf w`l w`l AvI KvhRi Kivi Rb` Avcbv` i gZvG ev mpcwi k wK?

cłe cłkłKiY (eri eri cłkłKi RvbZ nte)

`j xq Avtj vPbv gj wcl qe`i Avtj vK msłkł-wcl qmgłni Dci eri eri cłkł gra`tg RvbZ nte

17. Wwej wj dłUs tñP cveú cłKí mspłvš-

• cłKí i gra`tg wK wK KvR ntqłQ Ges KZ, tj v`Zix Kiv ntqłQ?

- ✓ 25 wK DłmK cv`ú `vcb:wł
- ✓ 12.5 wK DłmK cv`ú `vcb:wł
- ✓ 5 wK DłmK cv`ú `vcb:wł
- ✓ cłkłY Kvhłg
- ✓ włmPvR`e. :wł
- ✓ cvKv tñPbvj v:wł
- ✓ Kvj fiv`e.wł
- ✓ μmWvg:wł
- ✓ Uvb`AvDU:wł
- ✓ `łm-łMBUvb`AvDU:wł
- ✓ Ab`vb` (wł`ł Ki`b)

• cłKí i KvR wł`ł`wqZi cvj b KiłZ włtq Avcbv tKvb eravi m`łxb ntqłQb wKbv? ntj, wK aiłbi mgm`v ev eravi m`łxb ntqłQb?

18. cłKí /`łg cwi Pj bv, cwb mieivn l e`vcbv Kugł mspłvš-AvZwi`ł wcl q

- m`m`ł`i wK fve wbełb Kiv ntqłQ?
- cłZ eQi wbełb ev Kugł cwi eZb nq wKbv
- KugłłZ gunj v m`m` AvłQ wKbv?
- KugłłZ gunj v`i Askłłb wK fve evortbv hvq?

19. cłkłY mspłvš-AvZwi`ł wcl q

- cłkłYi mgq ht`ó włj wK?
- cłkłYi mgq ht`ó bv ntj KZw`łbi nl qv DłPZ?
- cłkłYi wcl q, tj vi tKvbłtKvbłw KvR j włtZ cvi łQb?
- tKvbłtKvbłw KvR j włtZ cvi łQb bv?
- cłkłY wł fweł`łZ hvłZ Avcbv`i Avil KvR j vłM (dj cłm-nq) łm Rb` wK wK e`v`v tlvq łłZ cvi?

20. cłKí i młj l`eł w`K mspłvš-AvZwi`ł wcl q

- cłKí ev`evqłbi dłj cłeł Zj bvq eZłvb wlv cłZ tñP LiP KłłQ bwl tetolQ? GK tgłmłg tñPi cwbil Rb` cłZ wlvq KZ Uvkv w`łZ nq A`ev dłj i KZfvm w`łZ nq?
- cłKí ev`evqłbi dłj cłeł Zj bvq eZłvb Kwl łłłł kłm`i eugłłkib (GKB RıgłZ GKwaK dıj Drcv`b) łł`Q wK? cłe`GKB RıgłZ Kqłw dıj Drcw`Z łłZv Ges eZłvb GKB RıgłZ Kqłw dıj Drcw`Z nq?
 - ✓ cłe`arb Qov Ab`vb` wK wK AvZwi`ł Lv` km` Drcw`Z łłZv Ges eZłvb arb Qov Ab`vb` wK wK AvZwi`ł Lv` km` Drcw`Z łł`Q?
- tKvbłtKvbłłłł Kgl`s`vłbi młhłM Avłv ep` łctłłQ?
 - ✓ cłKí i ceZłAe`vi łcłłłZ Zj bv Kłi eZłvb kZKiv KZ nłti (%) Kgl`s`vłbi młhłM tetolQ
 - ✓ cł`łł`i łłłłł (%) KZfvm tetolQ
 - ✓ gunj v`i łłłłł (%) KZfvm tetolQ
 - ✓ wł`ł`i łłłłł (%) KZfvm tetolQ

• cłKí wł fweł`łZ Avil Kvhłi Kivi Rb` Avcbv`i gZvgZ ev młcwi k wK?

- ✓ tñP tgłkb/tñP hš;wcl łq Avcbv`i gZvgZ ev młcwi k wK?
- ✓ tñP e`v`v cwi Pj bv wcl łq Avcbv`i gZvgZ ev młcwi k wK?
- ✓ cwb ełvb wcl łq Avcbv`i gZvgZ ev młcwi k wK?
- ✓ iłYvtełY (tñP cveú l Ab`vb` AeKvłtgv) wcl łq Avcbv`i gZvgZ ev młcwi k wK?
- ✓ ZZyeavq b ev dłj vAv wcl łq Avcbv`i gZvgZ ev młcwi k wK?
- ✓ `łg Kugł wcl łq Avcbv`i gZvgZ ev młcwi k wK?
- ✓ cłkłY wcl łq Avcbv`i gZvgZ ev młcwi k wK?

ab`ev` w`łq`j xq Avtj vPbv łkl Ki`b

Wwej wj dñUs Gi gva`tg f-cwi ` cwibi mñvñh` tñP m`cñvi Y (1g chñq) kxl R cKtí i cñve gj`vqb

tñP cv`ú I cwibi Ab`vb` AeKvVtgv (tñPbvj v, wñmPvR`e, , μmW`vg, Uvb`AvDU) mñi Rñgñb
cwi`kñ I chñj vPbv wñ`ñKv

weFwM :..... tKw bs:.....	tRj v:..... tKw bs:.....
DcñRj v:..... tKw bs:.....	BDñbqb:..... tKw bs:.....
Mñg: tKw bs:.....	tj vñKkb:
cv`ú Acññi Uñi i bvg:	c`ex:
wñi g`ñbi bvg:	c`ex:

chñeñYKvixi bvg: Zwi L:

Z`cñvbKvixi bvg, c`ex I wñKvbr:

cKí msñkñ-e`ñ³, wñi g`vb, cv`ú Acññi Uñi Kñi wñRÁvñv Kñi, e`envi Kñi ñ`i mññ_ K_v etj Ges mñi Rñgñb cwi`kñ Kñi bññPi Z`_tj v mñMñ Kñi wññceñ KñiñZ ñte| cñZñW Gj vKñg/Mñg tñP cv`ú I Zvi Avl Zñq cwibi Ab`vb` AeKvVtgv,tj v (cvKv tñPbvj v, wñmPvR`e, , Uvb`AvDU, Kvj fñU`AvDU-tj U, μmW`vg) cwi`kñ I chñj vPbv KñiñZ ñte|

(1 t`ñK 27 bs chñeñGñwñm-i cKí msñkñ-e`ñ³i KñQ t`ñK Z`_ mñMñ KñiñZ ñte)

Z`cñvb Kñixi bvg, c`ex I tñvb b`ñt

1. D³ Mñg tñw KZñW tñP cv`ú `vcb Kivi K_v wñj , cKZcññ KZñW ñtñQ Ges Kñe t`ñK e`envi Kiv`i` ñtñQ?

K. tñP cv`ú i aib	L. KZñW ñl qñi K_v wñj ?	M. cKZcññ KZñW ñtñQ?	N. KZñW Kñhññg i tñQ ev e`envi ñ`ñQ?	O. Kñe t`ñK e`envi Kiv`i` ñtñQ?
1. 25 wñDñmK cv`ú	.....wñj	.....wñj	.....wñj	.....mñj t`ñK
2. 12.5 wñDñmK cv`ú	.....wñj	.....wñj	.....wñj	.....mñj t`ñK
3. 5 wñDñmK cv`ú	.....wñj	.....wñj	.....wñj	.....mñj t`ñK

2. cwi`kñKZ tñP cv`ú `ñtgi bvg I AvBñw bs:

3. cwi`kñKZ tñP cv`ú i aib:

tñP cv`ú i aib:	tñv t`ñki %Zix?	tñv e`ññi (we`wi Z wñj Lp)?	_bMZgñv tñGb (we`wi Z wñj Lp)?
K. 25 wñDñmK cv`ú			
L. 12.5 wñDñmK cv`ú			
M. 5 wñDñmK cv`ú			

4. cwi`kñKZ cv`úwñ KZ mññ `vcb Kiv ñq? (gñm I eQi)

5. cwi`kñKZ cv`úwñi tñP Kñhññg KZ mñj t`ñK`i` ñtñQ? (gñm I eQi)

6. $\text{tmP cv}^{\text{u}}\text{U}$ e $\text{'envi Dc}^{\text{h}}\text{wM/Kvh}^{\text{f}}\text{g Av}^{\text{t}}\text{Q}$ $\text{wK}^{\text{b}}\text{r}$? 1. n 'u 2. b v
7. c $\text{ui}^{\text{'}}$ k BKZ $\text{cv}^{\text{u}}\text{/tmP h}^{\text{S}}\text{U}$ $\text{wK}^{\text{f}}\text{v}^{\text{t}}\text{e Pw}^{\text{j}}$ Z n q ? 1. $\text{w}^{\text{'}}\text{yr}$ Ovi 2. $\text{w}^{\text{'}}\text{Rj}$ Ovi 3. Ab 'vb (w $\text{b}^{\text{'}}$ O Ki 'b)
- K. c $\text{ui}^{\text{'}}$ k BKZ $\text{cv}^{\text{u}}\text{/tmP h}^{\text{S}}\text{U}$ $\text{w}^{\text{'}}\text{yr}$ Ovi Pw^{j} Z n tj KZ $\text{t}^{\text{f}}\text{v}^{\text{t}}\text{eR}$ $\text{w}^{\text{'}}\text{yr}$ -G P tj ?
- K1. 25 $\text{wKD}^{\text{t}}\text{mK}$ $\text{cv}^{\text{'}}\text{u}$:K2. 12.5 $\text{wKD}^{\text{t}}\text{mK}$ $\text{cv}^{\text{'}}\text{u}$:K3. 5 $\text{wKD}^{\text{t}}\text{mK}$ $\text{cv}^{\text{'}}\text{u}$:
8. GK $\text{t}^{\text{g}}\text{m}^{\text{t}}\text{g}$ tmP cv^{u} t_tK $\text{tm}^{\text{t}}\text{Pi}$ c wb D $\text{t}^{\text{E}}\text{v}$ $\text{t}^{\text{b}}\text{i}$ R $\text{b}^{\text{'}}$ $\text{w}^{\text{e}}\text{G}^{\text{w}}\text{m}$ - t^{K} KZ Uv^{Kv} $\text{w}^{\text{'}}$ t^{Z} n q ?
 K. 25 $\text{wKD}^{\text{t}}\text{mK}$ $\text{cv}^{\text{'}}\text{u}$: Uv^{Kv}
 L. 12.5 $\text{wKD}^{\text{t}}\text{mK}$ $\text{cv}^{\text{'}}\text{u}$: Uv^{Kv}
 M. 5 $\text{wKD}^{\text{t}}\text{mK}$ $\text{cv}^{\text{'}}\text{u}$: Uv^{Kv}
9. c $\text{ui}^{\text{'}}$ k BKZ tmP cv^{u} c wb Drm wK ?
 1. b 'x t_tK : b v g D tj t^{K} i 'b
 2. L v / $\text{w}^{\text{'}}$ t_tK : b v g D tj t^{K} i 'b
 3. Ab 'vb Drm t_tK : b v g D tj t^{K} i 'b
10. c $\text{ui}^{\text{'}}$ k BKZ cv^{u} $\text{U}^{\text{'}}$ $\text{t}^{\text{c}}\text{t}^{\text{b}}\text{i}$ R $\text{b}^{\text{'}}$ e 'iV KZ A 'KZ wQj ? (Uv^{Kv})
11. c $\text{ui}^{\text{'}}$ k BKZ cv^{u} $\text{U}^{\text{'}}$ $\text{t}^{\text{c}}\text{t}^{\text{b}}\text{i}$ R $\text{b}^{\text{'}}$ $\text{t}^{\text{g}}\text{U}$ e 'q KZ n $\text{t}^{\text{q}}\text{Oj}$? (Uv^{Kv})
12. c $\text{ui}^{\text{'}}$ k BKZ cv^{u} $\text{U}^{\text{'}}$ $\text{t}^{\text{c}}\text{t}^{\text{b}}\text{i}$ Avl Z $\text{r}^{\text{a}}\text{b}$ R u^{g} j $\text{f}^{\text{'}}$ g^{v} KZ wQj ? j $\text{f}^{\text{'}}$ g^{v} t GK i
13. c $\text{ui}^{\text{'}}$ k BKZ cv^{u} $\text{U}^{\text{'}}$ $\text{t}^{\text{c}}\text{t}^{\text{b}}\text{i}$ e 't $\text{tm}^{\text{t}}\text{Pi}$ Avl Z $\text{r}^{\text{a}}\text{b}$ R u^{g} c^{w} $\text{g}^{\text{v}}\text{b}$ KZ n $\text{t}^{\text{q}}\text{O}$? e 't $\text{A}^{\text{w}}\text{R}^{\text{Z}}\text{t}$ GK i
- K. h^{w} j $\text{f}^{\text{'}}$ g^{v} c^{t} Y b^{v} n t^{q} $\text{t}^{\text{f}}\text{K}$ Z v^{t} Z^{v} K $\text{v}}$ Y wK wK ?
14. c $\text{ui}^{\text{'}}$ k BKZ cv^{u} $\text{U}^{\text{'}}$ Avl Z r^{q} c wb wK wK AeKv $\text{w}^{\text{t}}\text{g}^{\text{v}}$ $\text{w}^{\text{b}}\text{g}^{\text{v}}$ / $\text{t}^{\text{c}}\text{b}$ K $\text{v}}$ n $\text{t}^{\text{q}}\text{O}$ Z v m^{L} v l c^{w} $\text{g}^{\text{r}}\text{c}$

c wb AeKv $\text{w}^{\text{t}}\text{g}^{\text{v}}$	$\text{w}^{\text{b}}\text{a}^{\text{f}}\text{i}$ Z j $\text{f}^{\text{'}}$ g^{v} v ($\text{w}^{\text{w}}\text{R}^{\text{v}}\text{B}^{\text{b}}$ $\text{A}^{\text{b}}\text{y}^{\text{m}}\text{t}^{\text{i}}$ K $\text{v}}$ K 'v wQj)	$\text{A}^{\text{w}}\text{R}^{\text{Z}}$ j $\text{f}^{\text{'}}$ g^{v} v (e 't t^{e} $\text{w}^{\text{b}}\text{g}^{\text{v}}$)	ch $\text{f}^{\text{'}}$ $\text{f}^{\text{'}}$ t^{Y} d^{j} v^{d} (m^{t} $\text{R}^{\text{u}}\text{g}^{\text{t}}\text{b}$ ch $\text{f}^{\text{'}}$ $\text{f}^{\text{'}}$ t^{b} m^{g} q w^{j} $\text{w}^{\text{c}}\text{x}$ K i 'b)	KZ wU K $\text{v}^{\text{h}}\text{K}^{\text{i}}$ Av tQ
1. $\text{w}^{\text{w}}\text{m}^{\text{P}}\text{v}^{\text{R}}\text{e}$.	.....\text{wU}	.....\text{wU}	.....\text{wU}	.....\text{wU
K. $\text{w}^{\text{w}}\text{m}^{\text{P}}\text{v}^{\text{R}}\text{e}$ -G i c w $\text{g}^{\text{v}}\text{c}$	% N e $\text{w}^{\text{g}}\text{U}^{\text{v}}$ c f : $\text{w}^{\text{g}}\text{U}^{\text{v}}$ D 'PZ v: $\text{w}^{\text{g}}\text{U}^{\text{v}}$	% N e $\text{w}^{\text{g}}\text{U}^{\text{v}}$ c f : $\text{w}^{\text{g}}\text{U}^{\text{v}}$ D 'PZ v: $\text{w}^{\text{g}}\text{U}^{\text{v}}$	% N e $\text{w}^{\text{g}}\text{U}^{\text{v}}$ c f : $\text{w}^{\text{g}}\text{U}^{\text{v}}$ D 'PZ v: $\text{w}^{\text{g}}\text{U}^{\text{v}}$	
2. $\text{c}^{\text{v}}\text{K}^{\text{v}}$ $\text{tm}^{\text{P}}\text{b}^{\text{v}}\text{j}$ v}	.....\text{wU}	.....\text{wU}	.....\text{wU}	.....\text{wU
K. $\text{c}^{\text{v}}\text{K}^{\text{v}}$ $\text{tm}^{\text{P}}\text{b}^{\text{v}}\text{j}$ v c^{w} $\text{g}^{\text{v}}\text{c}$	% N e w^{K} w^{g} . c f : $\text{w}^{\text{g}}\text{U}^{\text{v}}$ D 'PZ v: $\text{w}^{\text{g}}\text{U}^{\text{v}}$	% N e w^{K} w^{g} . c f : $\text{w}^{\text{g}}\text{U}^{\text{v}}$ D 'PZ v: $\text{w}^{\text{g}}\text{U}^{\text{v}}$	% N e w^{K} w^{g} . c f : $\text{w}^{\text{g}}\text{U}^{\text{v}}$ D 'PZ v: $\text{w}^{\text{g}}\text{U}^{\text{v}}$	.....\text{wU
3. $\text{K}^{\text{v}}\text{P}^{\text{v}}$ $\text{tm}^{\text{P}}\text{b}^{\text{v}}\text{j}$ v}	.....\text{wU}	.....\text{wU}	.....\text{wU}	.....\text{wU
K. $\text{K}^{\text{v}}\text{P}^{\text{v}}$ $\text{tm}^{\text{P}}\text{b}^{\text{v}}\text{j}$ v c^{w} $\text{g}^{\text{v}}\text{c}$	% N e w^{K} w^{g} . c f : $\text{w}^{\text{g}}\text{U}^{\text{v}}$ D 'PZ v: $\text{w}^{\text{g}}\text{U}^{\text{v}}$	% N e w^{K} w^{g} . c f : $\text{w}^{\text{g}}\text{U}^{\text{v}}$ D 'PZ v: $\text{w}^{\text{g}}\text{U}^{\text{v}}$	% N e w^{K} w^{g} . c f : $\text{w}^{\text{g}}\text{U}^{\text{v}}$ D 'PZ v: $\text{w}^{\text{g}}\text{U}^{\text{v}}$	.....\text{wU
4. m^{w} v^{g}}	.....\text{wU}	.....\text{wU}	.....\text{wU}	.....\text{wU
5. $\text{U}^{\text{v}}\text{b}^{\text{e}}$ $\text{Av}^{\text{D}}\text{U}$	.....\text{wU}	.....\text{wU}	.....\text{wU}	.....\text{wU
6. $\text{Av}^{\text{D}}\text{U}$ - tj U}	.....\text{wU}	.....\text{wU}	.....\text{wU}	.....\text{wU
7. P^{m} - $\text{t}^{\text{M}}\text{B}^{\text{U}}$	.....\text{wU}	.....\text{wU}	.....\text{wU}	.....\text{wU
8. K^{v} $\text{f}^{\text{v}}\text{U}^{\text{e}}$	.....\text{wU}	.....\text{wU}	.....\text{wU}	.....\text{wU
c wb AeKv $\text{w}^{\text{t}}\text{g}^{\text{v}}$	$\text{w}^{\text{b}}\text{a}^{\text{f}}\text{i}$ Z j $\text{f}^{\text{'}}$ g^{v} v ($\text{w}^{\text{w}}\text{R}^{\text{v}}\text{B}^{\text{b}}$ $\text{A}^{\text{b}}\text{y}^{\text{m}}\text{t}^{\text{i}}$ K $\text{v}}$ K 'v wQj)	$\text{A}^{\text{w}}\text{R}^{\text{Z}}$ j $\text{f}^{\text{'}}$ g^{v} v (e 't t^{e} $\text{w}^{\text{b}}\text{g}^{\text{v}}$)	ch $\text{f}^{\text{'}}$ $\text{f}^{\text{'}}$ t^{Y} d^{j} v^{d} (m^{t} $\text{R}^{\text{u}}\text{g}^{\text{t}}\text{b}$ ch $\text{f}^{\text{'}}$ $\text{f}^{\text{'}}$ t^{b} m^{g} q w^{j} $\text{w}^{\text{c}}\text{x}$ K i 'b)	KZ wU K $\text{v}^{\text{h}}\text{K}^{\text{i}}$ Av tQ
K. K^{v} $\text{f}^{\text{v}}\text{U}^{\text{e}}$ G^{i} c^{w} $\text{g}^{\text{v}}\text{c}$	% N e $\text{w}^{\text{g}}\text{U}^{\text{v}}$ c f : $\text{w}^{\text{g}}\text{U}^{\text{v}}$ D 'PZ v: $\text{w}^{\text{g}}\text{U}^{\text{v}}$	% N e $\text{w}^{\text{g}}\text{U}^{\text{v}}$ c f : $\text{w}^{\text{g}}\text{U}^{\text{v}}$ D 'PZ v: $\text{w}^{\text{g}}\text{U}^{\text{v}}$	% N e $\text{w}^{\text{g}}\text{U}^{\text{v}}$ c f : $\text{w}^{\text{g}}\text{U}^{\text{v}}$ D 'PZ v: $\text{w}^{\text{g}}\text{U}^{\text{v}}$	
9. Ab 'vb (w $\text{b}^{\text{'}}$ O Ki 'b)				

N. tgi vZ I i qYte qYi LiP tK enb Kti?

1. 25 mKDtmK cv-ú	1. weGwMm 4. BDtobq cwi l t i Zniej ntZ	2. -ag Kugul 4. BDtobq cwi l t i Zniej ntZ	3. -vbxqfite Pu v msMh l t -Ovk tgi gva t g 5. Ab vb (ubw t Ki b)
2. 12.5 mKDtmK cv-ú	1. weGwMm 4. BDtobq cwi l t i Zniej ntZ	2. -ag Kugul 4. BDtobq cwi l t i Zniej ntZ	3. -vbxqfite Pu v msMh l t -Ovk tgi gva t g 5. Ab vb (ubw t Ki b)
3. 5 mKDtmK cv-ú	1. weGwMm 4. BDtobq cwi l t i Zniej ntZ	2. -ag Kugul 4. BDtobq cwi l t i Zniej ntZ	3. -vbxqfite Pu v msMh l t -Ovk tgi gva t g 5. Ab vb (ubw t Ki b)
4. tmPbj v	1. weGwMm 4. BDtobq cwi l t i Zniej ntZ	2. -ag Kugul 4. BDtobq cwi l t i Zniej ntZ	3. -vbxqfite Pu v msMh l t -Ovk tgi gva t g 5. Ab vb (ubw t Ki b)
5. wMPrR-	1. weGwMm 4. BDtobq cwi l t i Zniej ntZ	2. -ag Kugul 4. BDtobq cwi l t i Zniej ntZ	3. -vbxqfite Pu v msMh l t -Ovk tgi gva t g 5. Ab vb (ubw t Ki b)
6. mWvg	1. weGwMm 4. BDtobq cwi l t i Zniej ntZ	2. -ag Kugul 4. BDtobq cwi l t i Zniej ntZ	3. -vbxqfite Pu v msMh l t -Ovk tgi gva t g 5. Ab vb (ubw t Ki b)
7. Uvb-AvDU	1. weGwMm 4. BDtobq cwi l t i Zniej ntZ	2. -ag Kugul 4. BDtobq cwi l t i Zniej ntZ	3. -vbxqfite Pu v msMh l t -Ovk tgi gva t g 5. Ab vb (ubw t Ki b)
8. AvDUtj U	1. weGwMm 4. BDtobq cwi l t i Zniej ntZ	2. -ag Kugul 4. BDtobq cwi l t i Zniej ntZ	3. -vbxqfite Pu v msMh l t -Ovk tgi gva t g 5. Ab vb (ubw t Ki b)
9. -Bm-tMBU	1. weGwMm 4. BDtobq cwi l t i Zniej ntZ	2. -ag Kugul 4. BDtobq cwi l t i Zniej ntZ	3. -vbxqfite Pu v msMh l t -Ovk tgi gva t g 5. Ab vb (ubw t Ki b)
10. Kij FvU	1. weGwMm 4. BDtobq cwi l t i Zniej ntZ	2. -ag Kugul 4. BDtobq cwi l t i Zniej ntZ	3. -vbxqfite Pu v msMh l t -Ovk tgi gva t g 5. Ab vb (ubw t Ki b)

23. cwi kBKZ tmP cv-ú t tK Pwn v Abhvqx chfB cwi gvY tm tPi cwb cvl qv hvq mKbv: 1. niw 2. bv
K. bv ntj tKb?

24. cwi kBKZ tmP cv-ú t tK tKvb&tKvb&tgsmtg tm tPi cwb t l qv nq:

25. cKí vj tj D t j mZ Kul t q t l Lv ktm i Drcv t bi j q t gv l v KZ mQj Ges cKZct q KZLmb Drcv b ntqt0?
K. Drcv t bi j q t gv l v mQj t..... tguUK Ub (cZ eQi)
L. ev t e AvRZ ntqt0t tguUK Ub (cZ eQi)

M. hw j q t gv l v c i Y bv ntq v t K Zvntj Zvi Kvi Y mK mK?
.....
.....

26. cwi kBKZ tmP cv-ú vctb tKvb t w i t tqtQ mKbv: 1. niw 2. bv
K. niw ntj , mK mK t w i t tqtQ ve w i Z vj Lp:

25 mKDtmK cv-ú i t q t i	12.5 mKDtmK cv-ú i t q t i	5 mKDtmK cv-ú i t q t i

27. cwi kBKZ tmP cv-ú t tK mntRB Ges ht o cwi gvY cwb D t v mKbv A t th cwi gvY cwb D t E v j t bi K v tm cwi gvY cwb DV t bv hvq mKbv: 1. niw 2. bv

K. bv ntj , Zvi Kvi Y mK:

mK ai t bi Amjeav	ve w i Z vj Lb
1. h s s t k i Amjeav	
2. vcbvi Amjeav	
3. Ab vb (ubw t Ki b)	

(28 t tK 34 chš-chšē tYKvix wbtR tP cvú I Zvi msikē-Ab'vb' AeKvWtgv,tjv mti Rigtb Nji t`Lteb I Z` wj wce x Ki teb)

28. cwi`kBKZ tP cvúUli gli/BwĀtbi eZgib Ae`v tKgb i tqtQ?

29. cwi`kBKZ tP cvúUli hw` 5 wKDtmK nq Zvntj tmiU tKv_vq emtbn ntqtQ Ges Zvi eZgib Ae`v tKgb?

30. cwi`kBKZ tP cvúUli hw` 12.5 wKDtmK A_er 25 wKDtmK nq Zvntj tmiU tKv_vq emtbn ntqtQ Ges Zvi eZgib Ae`v tKgb?

31. cwi`kBKZ tP cvúUli cwb cġg avtc DtĒvj b Kti tKvb Drtm tbqv nt`Q?

32. cwi`kBKZ tP cvúUli cwb w` Zxq avtc DtĒvj b Kti wKfvte dmtj i gvtV tbqv nt`Q?

33. cwi`kBKZ tP cvúUli Avl Zvq wK ai tbi tPbvj v i tqtQ Ges Zvi eZgib Ae`v tKgb we`wi Z wj Lp?

34. cwi`kBKZ tP cvúUli cwi bi Ab'vb' AeKvWtgv,tjvi eZgib Ae`v tKgb i tqtQ?

tP cvúUli Ab'vb' AeKvWtgv	eZgib Ae`v	tP cvúUli Ab'vb' AeKvWtgv,tjvi eZgib Ae`v chšē tY Kti we`wi Z gšē wj Lp (tKvb wQ` fcvUw/fv'zv AvtQ wKbv, cwb wKgz Dtv wKbv, cwb wKgz thtZ cvti wKbv, bv tMij tKb cvti bv BZ`w`)
1. 25 wKDtmK cv`ú	1. fvj (mPj) 2. tgvUvgjU (mPj wKš` gvtSgvtS mgm`v nq) 3. Lvi vc (APj)	
2. 12.5 wKDtmK cv`ú	1. fvj (mPj) 2. tgvUvgjU (mPj wKš` gvtSgvtS mgm`v nq) 3. Lvi vc (APj)	
3. 5 wKDtmK cv`ú	1. fvj (mPj) 2. tgvUvgjU (mPj wKš` gvtSgvtS mgm`v nq) 3. Lvi vc (APj)	
4. tPbvj v	1. fvj (wQ` fcvUw/fv'zv BZ`w` bvB) 2. tgvUvgjU (tQvU LvU wQ` fcvUw/fv'zv AvtQ, wKš` KvR Ptj) 3. Lvi vc (eo eo wQ` fcvUw/fv'zv AvtQ, KvR Ptj bv)	
5. wMpvR`e-	1. fvj (wQ` fcvUw/fv'zv BZ`w` bvB) 2. tgvUvgjU (tQvU LvU wQ` fcvUw/fv'zv AvtQ, wKš` KvR Ptj) 3. Lvi vc (eo eo wQ` fcvUw/fv'zv AvtQ, KvR Ptj bv)	
6. μmW'vg	1. fvj (wQ` fcvUw/fv'zv BZ`w` bvB) 2. tgvUvgjU (tQvU LvU wQ` fcvUw/fv'zv AvtQ, wKš` KvR Ptj) 3. Lvi vc (eo eo wQ` fcvUw/fv'zv AvtQ, KvR Ptj bv)	
7. Uvb`AvDU	1. fvj (wQ` fcvUw/fv'zv BZ`w` bvB) 2. tgvUvgjU (tQvU LvU wQ` fcvUw/fv'zv AvtQ, wKš` KvR Ptj) 3. Lvi vc (eo eo wQ` fcvUw/fv'zv AvtQ, KvR Ptj bv)	
8. AvDU-tj U	1. fvj (wQ` fcvUw/fv'zv BZ`w` bvB) 2. tgvUvgjU (tQvU LvU wQ` fcvUw/fv'zv AvtQ, wKš` KvR Ptj) 3. Lvi vc (eo eo wQ` fcvUw/fv'zv AvtQ, KvR Ptj bv)	
9. `βm-tMBU	1. fvj (wQ` fcvUw/fv'zv BZ`w` bvB) 2. tgvUvgjU (tQvU LvU wQ` fcvUw/fv'zv AvtQ, wKš` KvR Ptj) 3. Lvi vc (eo eo wQ` fcvUw/fv'zv AvtQ, KvR Ptj bv)	
10. Kvj fvu`	1. fvj (wQ` fcvUw/fv'zv BZ`w` bvB) 2. tgvUvgjU (tQvU LvU wQ` fcvUw/fv'zv AvtQ, wKš` KvR Ptj) 3. Lvi vc (eo eo wQ` fcvUw/fv'zv AvtQ, KvR Ptj bv)	
11. cwi bi Ab'vb' AeKvWtgv:	1. fvj (wQ` fcvUw/fv'zv BZ`w` bvB) 2. tgvUvgjU (tQvU LvU wQ` fcvUw/fv'zv AvtQ, wKš` KvR Ptj) 3. Lvi vc (eo eo wQ` fcvUw/fv'zv AvtQ, KvR Ptj bv)	

(35 f tK 45 chS-mpcyu e'envi Kvi xt' i (K.I.K) mtj K v etj Z. msMh Ki tZ nte)

Z. cOvb Kvi xi byg, tckv l t dvb baf (GKmaZ ntZ cvti)t

35. cui` kBkZ tP cvtuı cwb mjeavtfvMxt' i tP Kvthexub l mieivtni tñtñ wK ai tbi mgm'v ev Amjeav nq?

- | | |
|---|---------------------------------|
| 1. cwbeU b h_vmgfq nqbv | 5. cwb eEb e'v puJcY® |
| 2. cfvrekvj x e w'iv teKx cwb tbq | 6. tP bij v mWKfite Kiv nq bvb |
| 3. e'v'vcbv KguJ teKx cwb tbq | 7. tKv Amjeav nqbv |
| 4. tP hS/tP bij v/cwbi Ab'vb' AeKvWtgv bó ntj mWK mgfq tgi vZ Kiv nq bv | 8. Ab'vb' (vbw' t' Ki' b) |

36. cui` kBkZ tP cvtuı f_tK K.I.Kiv cOqrRb Abhvqx tmtPi cwb mbtZ cvi tQ wKbv: 1. nuı 2. bv
K. bv ntj , tKb?

37. cvtuı Avl Zvq th mKj Rvq Pvl Kiv nq tm me RvgtZ GKi cıZ KZ gb avb Drcv' b nq?gb

K. j gñv'v Abhvqx Drcv' b Kiv hvq wK? 1. nuı 2. bv

L. bv ntj , Zvi Kvi Y.....

38. cui` kBkZ cvtuı tmtPi cwb e'envi Kti cteP Zj biv eZgvtb GKB RvgtZ Kqu dmj Drcv' Z nt'Q? cte®..... eZgvtb:.....

39. cui` kBkZ cvtuı tmtPi cwb e'envi Kti cteP Zj biv eZgvtb AvZwi³ wK wK Lv' ktm' i Drcv' b nt'Q?

cte®.....
eZgvtb:.....

40. cui` kBkZ cvtuı tmtPi cwb e'envi Kti cteP Zj biv eZgvtb Lv' Drcv' b (avb) KZUKztetoıQ?

cıZ eQi weNv cıZ Drcv' tbi cwigrY (gY-G)	
cte®	eZgvtb

41. cui` kBkZ tP cvtuı l Ab'vb' AeKvWtgv, tj v eZgvtb Gj vKvi tj vKRb mnR l mWKfite e'envi Ki tZ cvi tQ wK? 1. mnR l mWKfite e'envi Ki tZ cvi tQ 2. e'envti mgm'v AvtQ

K. e'envti mgm'v vKtj wK ai tbi mgm'v nt'Q?

42. cui` kBkZ tP cvtuı wJ e'v'v'wqZ n l qvq Gj vKvi tj vKRb wK wK m'hwM mjeav tfvM Ki tQ?

43. cui` kBkZ tP cvtuı wdi g'v'vbi cwb mieivtni tñtñ wK wK mgm'v nq?

44. cui` kBkZ tP cvtuı cvtuı Acvti Utı i mWKfite cvtuı Pvj bvi /e'envti i tñtñ wK wK mgm'v nq?

45. cwb e'envi Kvi xt' i cwb mieivn l cıC'Zv w l t qZvZ:.....

46. chfeñYKvi x mti Rvgtb tP cvtuı l cwbi Ab'vb' AeKvWtgv, tj v chfeñY Kti Gi mweK w l t q gše' wJ Lte (tP cvtuı l cwbi Ab'vb' AeKvWtgv, tj v eZgvtb Ae'v tKgb, GuJ e'eüZ nt'Q wKbv, wK wK KvR e'eüZ nt'Q, Gj vKvi RbMY GuJ f_tK wKfite j v'fwb nt'Q, Gi ftvj v l Lviv w K_s, tj v wK ve'wi Z fite wJ wceX Ki te)

Wwej wj dUws Gi gva'ig f-cwi '- cwi bi mnnvth' tmP m^c^hvi Y (1g chiq) kxl R cKt'í i cFve gj 'vqb

BDvbqb Dbqb tPKwj ÷ (wdì mycvi fvBRvi BDvbqb t_tK GB Z_' ,tj v msMh Ki te)

gj ev c^vb Z_'c^vbKvixi (**Key Informants**) mv^lvKvi (BDvbqb cwi t'í i tPqig'vb/tg^vi, cKí mské- e'w^eM, Agriculture Workers, GbwRI g'v'rbRvi, wK^qK, Avbx gvW Kg^ Mh'tbi gva'ig BDvbqb Profile- Gi Z_' msMh Ki tZ nte| GiKi AwAK Drtmi mvf_ thvM'thM Ki'b Ges m^e nj BDvbqb cwi l` A_ev Ab'vb' c^q^Rbxq/c^m^zK Drtmi Z_'w' cp:me'fPbv/hvPvB Ki'b| Z_t' i h_v_Zvi Rb' AwAK K'vvi nteb bv; Gi cwi e'tZ'mte'PP Abgvtbi Dci Z_' msMh Ki'b|

BDvbq'tbi bvg:..... DctRjv:.....
tRjv :..... wefvM:.....

Z_'msMhKvixi bvg:..... Zwi L:.....

Z_'c^vbKvixi bvg, c` ex l wKvbr:

1. BDvbq'tbi tgvU AvqZb:	.....eM^Ktj wglvi			
2. BDvbq'tb tgvU l qvtW^P msL'v	.....wJ			
3. BDvbq'tbi tgvU M'tgi msL'v	.....wJ			
	cKí ev'ewqZ nl qvi c^e^		eZ'q'tb	
4. BDvbq'tbi tgvU Lvbrvi msL'v	.....wJ			
5. BDvbq'tbi tgvU tj vKmsL'v	tgvU: .....Rb cj'l: .....Rb g^vjv: .....Rb	tgvU: .....Rb cj'l: .....Rb g^vjv: .....Rb		
6. BDvbq'tb Lvbrvi Av_^mvgwRK Ae'v	wi`^a:.....% wi`^a bq:.....%	wi`^a:.....% wi`^a bq:.....%		
7. K'v'v'v-	1. wQj:% 2. wQj bv	1. AvtQ:% 2. bvB		
8. cvKv iv'v-(BU weQrtbv)	1. wQj:% 2. wQj bv	1. AvtQ:% 2. bvB		
9. cvKv iv'v-(Kvfc^Uv Kiv)	1. wQj:% 2. wQj bv	1. AvtQ:% 2. bvB		
10. wK ai'tbi hvbernb Pj vPj K'ti:	.....		
11. wK^lv c^Z^v'tbi msL'v	cKí ev'ewqZ nl qvi c^e^		eZ'q'tb	
K. 'g:	.....msL'v			
L. K'tj R:	.....msL'v			
M. gv`tmv:	.....msL'v			
	cKí ev'ewqZ nl qvi c^e^		eZ'q'tb	
12. Qv' - Qv'xi msL'v	Qv'	Qv'x	Qv'	Qv'x
K. 'qj				
L. K'tj tR				
M. gv`tmvq				
13. Gj vKvi RbM'tYi c^vb tckv wK				
14. Gj vKvi RbM'tYi w^Zxq tckv wK				
15. nvU/evRv'ti i msL'v	.....wJ			
16. c^Zw^Z eo gvtK^Ui msL'v	.....wJ			

	cKí ev`emqZ nl qvi c`e®	eZ@vrb
17. em/tU=úy/ UIK ÷`vÜ AvfQ wKbv? K. em/tU=úy/ UIK ÷`vÜ Gi msL`v	1. n`u: .....msL`v 2. bv	1. n`u: .....msL`v 2. bv
18. ðj c_ AvfQ wKbv? K. ðj fók`bi msL`v	1. n`u: .....msL`v 2. bv	1. n`u: .....msL`v 2. bv
19. b`x AvfQ wK? K. b`xi msL`v	1. n`u: .....msL`v 2. bv	1. n`u: .....msL`v 2. bv
20. fbS`ex`i AvfQ wK?	1. n`u 2. bv	1. n`u 2. bv
21. nvmcvZv`j i msL`v	.....uJ	.....uJ
22. wKwbKmg`ni msL`v	.....uJ	.....uJ
23. dv`g@xi msL`v	.....uJ	.....uJ
24. `v` ðK` ð ai b	.....	.....
25. KZuU GbwRI KvR K`i?	.....uJ	.....uJ
26. GbwRI `j vi bvg	.....	.....
27. GbwRI `j vi c`vb KvRt	.....	.....
28. ¶`²FYmn g`nj v mSMV`bi msL`v	.....uJ	.....uJ
29. Ab`vb` Kve/G`mwmtqk`bi msL`v	.....uJ	.....uJ
30. BDwbqtb RbM`bi RweKvi AvbpcwZK nvi	K. KwI KvRt.....% L. KwI gRj t.....% M. e`emv t% N. w`b gRj t.....% O. PvKni t.....% P. feKvi t.....% Q. QvI /QvI x t.....% R. Ab`vb` t%	K. KwI KvRt.....% L. KwI gRj t.....% M. e`emv t% N. w`b gRj t.....% O. PvKni t.....% P. feKvi t.....% Q. QvI /QvI x t.....% R. Ab`vb` t%

KwI Rvgi cwi gvb, Drcv`b I gj` m`úwKZ Z`

1998 ð`K 2010 mvtj i tgSmgtf` (Lwi c-1, Lwi c-2, iwe) ðm`Pi Rvgi cwi gvb (GKi), dmj Drcv`bi cwi gvb (tguUK Ub),
dm`j i aiY BZ`w` Dc`Rj v I BDwbqtb w`f`EK Z` Aek`B mSMh Ki`Z nte|
(weGwWm-i cKí msk`e`e`w³/KwI m`c`vY KgRZ`/KgPvixi KvQ ð`K KwI w`l`qK Z` mSMh Ki`Z nte)

Z` c`vb Kvixi bvg, c`ex I t`dv b`ft

	Wvej wj d`Us cKí ev`emqZ nl qvi c`e®	eZ@vrb
31. Wvej wj d`Us cKí ev`emqZ nl qvi c`e® eZ@vrb Gj vKvi /BDwbqtb i tguU Rvgi cwi gvb	..... GKi	.....GKi
K. ðm`Pi AvI Zvq Rvgi cwi gvb	..... GKi kZKiv KZFvM .....%	..... GKi kZKiv KZFvM%
32. K.I.K cwi`v`i i msL`v	..... msL`v	..... msL`v
33. GKB RvgtZ KquU dmj Drcw`Z nq	1. GKiu 2. `ßiu 3. wZbiU 4. PviU I Zvi teKx	1. GKiu 2. `ßiu 3. wZbiU 4. PviU I Zvi teKx
34. c`vb c`vb Drcw`Z dmj wK wK		
35. Gj vKvq KwI ð¶`I Lv` k`m`i Drcv`bi cwi gvb	..... tguUK Ub (c`Z eQi)	..... tguUK Ub (c`Z eQi)
36. Wvej wj d`Us cK`i i AvI Zvq Gj vKvi /BDwbqtb ðm`Pi Rvgi j ¶`gvI v KZ wQj t	..... GKi	..... GKi
K. Wvej wj d`Us cK`i i AvI Zvq ev``e AwRZ` ðm`Pi Rvgi cwi gvb KZ n`q`Q t	.....GKi	.....GKi
L. kZKiv KZFvM Rvq Wvej wj d`Us cK`i i ðm`Pi AvI Zvq G`m`Q t%%
37. Wvej wj d`Us cK`i i AvI Zvq Gj vKvi /BDwbqtb KwI ð¶`I Lv` k`m`i Drcv`bi j ¶`gvI v KZwQj t	..... tguUK Ub (c`Z eQi)	..... tguUK Ub (c`Z eQi)

K. ev`te AwRZ ntqtQt	..... tguUK Ub (c0Z eQi)
L. kZKiv KZfVM Lv` ktm`i Drcv`b tetotQ%
38. Wvej wj d0Us cKt`i i Avl Zvq Gj vKvi /BD0bqtb DcKZ K.I.K cwi ev`i i msL`v	..... msL`v
K. kZKiv KZfVM K.I.K cwi evi Wvej wj d0Us cKt`i i Avl Zvq Gtm`Q%

Gj vKvi /BD0bqtb Wvej wj d0Us Gi gra`tg f-cwi `cwbi mrvth` tmP m`c0vi Y (1g ch0q) cKt`i ev`erqb m`0uKZ Z`_t

39. Gj vKvi /BD0bqtb cKt`i i tmP cv`0u Gi msL`v	L. j`T`gv`v KZ wQj ?	M. cKZc`T`T` KZwU	KZwU KvR`ix Avt`Q?
• 25 mKDt`mK fimgvb cv`0u	.....uU	.....uU	.....uU
• 12.5 mKDt`mK fimgvb cv`0u	.....uU	.....uU	.....uU
• 5 mKDt`mK figt`Z `vncZ cv`0u	.....uU	.....uU	.....uU
40. Gj vKvi /BD0bqtb th KquU `0g Avt`Q tm`_tj`vi bvg			
41. BwAb`gu`ti i aiY	K. `e`wZK gUi Pwj Z cv`0u: .....uU L. wT`Rj BwAb Pwj Z cv`0u: .....uU		
42. f-cwi `cwbi Dm l msthvM Lvj	K. b`x.....bvg wj Lp L. Lvj /vej /nvl o.....bvg wj Lp M. Ab`vb`.....bvg wj Lp		
43. cwbi Ab`vb` ev`emqZ AeKvWt`gvi msL`v	L. j`T`gv`v KZ wQj ?	M. cKZc`T`T` KZwU	KZwU KvR`ix Avt`Q?
K. cvKv tmPbvj v	.....uU	.....uU	.....uU
L. wWmPvR`e.	.....uU	.....uU	.....uU
M. μmW`vg	.....uU	.....uU	.....uU
N. Uvb`e`AvDU	.....uU	.....uU	.....uU
O. `Bm`-tMBU	.....uU	.....uU	.....uU
P. etR	.....uU	.....uU	.....uU
Q. Kvj fiv`0	.....uU	.....uU	.....uU
44. tmP KugvU Avt`Q wK?	1. n`u 2. bv		
45. tmP KugvU i aiY l msL`v	K. c0Bgvix tmP KugvU:..... msL`v L. tm`tK0vix tmP KugvU:..... msL`v		
46. KZfVM tm`Pi cwbi AcPq nq %		
47. GB cKt`i i Avl Zvq KZRb cK`T`Y tctqtQ	K. mfv`cwZ.....Rb L. tm`tμUvix.....Rb M. cv`0u Pj K.....Rb N. wdi g`vb.....Rb		

48. GB cKt`i Qvov D`3 BD0bqtb tmP cKt`i mn Avi wK wK Db0bgj K cKt`i ev`emqZ ntqtQ Ges tKvb c0Z0vb ev gS`yvj q Kti tQ?		
cKt`i i bvg l KvRi aiY (wK wK KvR Kti tQ)	ev`erqbKvix c0Z0vb/gS`yvj tqi bvg	Kte ev`emqZ ntqtQ (tKvb eQti ev eZ0v`b mgq t`_tK KZ eQi Avt`M)

Z`_ msMhKvix BD0bqtb Gi mweR wcl`qi Dci gS`e` wj Lteb wcl`Kl Kti Ggb tKvb Z`_ hv nqZ Dc`i D`j w`Z nqbt
.....
.....
.....

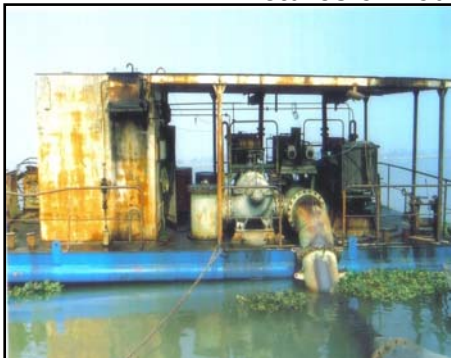
Z`_ msM0ni Drmt
.....

Appendix—5: Pictures of Local Level Workshop, Dissemination Workshop & Observed Double Lifting Irrigation Pumps

Pictures of Local Level Workshop, Ramu & Dissemination Workshop, IMED



Pictures of Double Lifting Irrigation Pumps & Discharge Box



25 cusec double lifting pump



25 cusec double lifting pump



12.5 cusec double lifting pump



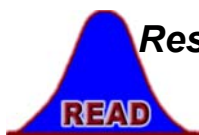
12.5 cusec double lifting pump



5 cusec pump



Discharge Box



Research Evaluation Associates For Development Ltd. (READ)

House # 27/1, Road # 13/A, Dhanmondi R/A, Dhaka

Phones: 9132425; Fax: 88-02-9132425; E-mail: read@bdcom.net