PROJECT COMPLETION REPORT (PCR) - Compiled

Project Title: Year-round production of some selected HYVs and hybrid vegetable varieties in southern and hilly regions of Bangladesh

Project Code: TF 05-C (2013)

Project Duration: 36 Months; From May, 2013 to April, 2016 (No cost extension Sept., 2016)

CGP Project: KGF BKGET 1st Call

Submitted to:
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October 15, 2016

Abbreviations and Acronyms

BADC	:	Bangladesh Agricultural Development Corporation
BARC	:	Bangladesh Agricultural Research Council
BARI	:	Bangladesh Agricultural Research Institute
BCR	:	Benefit Cost Ratio
CGP	:	Competitive Grants Program
cm	:	Centimeter
Co.	:	Company
Co-PI	:	Co-Principal Investigator
g	:	Gram
ha	:	Hectare
HRC	:	Horticulture Research Centre
PCR	:	Project Completion Report
KGF	:	Krishi Gobeshona Foundation
PI	:	Principal Investigator
PB	:	Project Brief
PIR	:	Project Inception Report
SSURDA	:	Society for Sustainable Development for the Rural and Urban Area
MT	:	Metric ton

Project Completion Report

On

Year-round production of some selected HYVs and hybrid vegetable varieties in southern and hilly regions of Bangladesh

CGP Projects: KGF BKGET 1st Call

Project Duration: From May, 2013 to April, 2016 (No cost extension Sept., 2016)

A. Basic Project Information:

I.	Project ID Number	:	TF 05-C (2013)
II.	Project Title	:	Year-round production of some selected HYVs and hybrid vegetable varieties in southern and hilly regions of Bangladesh
III.	Name of Coordinator	:	Dr. G M A Halim, Chief Scientific Officer (CSO)
IV.	Name of Principal Investigator	:	Dr. M.A. Goffar, Senior Scientific Officer (SSO)
V.	Name of Co-investigator	:	Dr. M. Saifullah, SSO (May, 2013 to June, 2015)
VI.	Name of the applying organization with address	:	Bangladesh Agricultural Research Institute, Joydebpur, Gazipur-1701
VII.	Name of associate/ collaboration organization	:	Society for Sustainable Development for the Rural and Urban Area (SSURDA), House # 20, Block-C, eastern Housing, Pallabi, Mirpur, Dhaka-1216
/III.	Project duration (months)	:	From May 2013 to April 2016 (No cost extn. Sep., 2016)
IX.	Project commencement date	:	20-05-13(As per MoU)
X.	Project Locations/Sites	:	Bandarban and Patuakhali districts (Banadrban sadar-1 and Bauphal, Dashmina and Golachipa of Patuakhali district)
XI.	Project size	:	
	No. of participatory farmers/site:	:	30
	Land area / farmer (dec.)	:	5 and 10 min. (Five dec. for each season and min. 10 dec. for up-scaling program)
	Total No. of farmers involved	:	120 (30 farmers /upazila or site)
	Total land area used (decimal/ha)	:	600 decimal (2.42 ha)and 1200dec.(5.0ha) (2.4 ha for screening trials and 5.0 ha for up-scaling program)
	Crop season with crop varieties used	:	Vide Model I and II (pages: 3-4 and 5-6)
XII.	Project cost (Total)	:	Tk 70.00 lac (Year-1:Tk 24.76 Year-2:Tk 22.62 Year-3:Tk 22.62)
XIII.	Fund received	:	TK. 6773800.50 (3873800.0+2900000.0) and Expenditure made Tk. 6763596.50 during project period

B. Summary/Executive Summary:

Experiments on adaptive field trial were conducted at four upazilas of two districts viz.: Bandarban Sadar upazila of Bandarban district and Bauphal, Dashmina and Golachipa upazilas of Patuakhali district since May, 2013 to Septembber, 2016 for assessing the adaptability of five selected vegetables (OP & hybrid varieties of BARI and other companies/local cultivars) and up-scaling of selected vegetable varieties in each location/season and to popularize those vegetables among the farmers, of course its modern production packages, disseminating technologies and developing new cropping pattern too. The farmers of southern and hilly regions aren't familiar with good variety and its modern production technologies. Therefore, vegetable production trend is low compared to other regions of Bangladesh. The land resources remains fallow in the southern (Patuakhali district) and hilly (Bandarban district) regions , where vegetable production may be increased and their level of vegetable consumption and income may also be increased as the vegetable cultivation is more profitable compared to other crop production as it contributes higher net income from a unit area. Therefore, the present study has been under taken to popularize and to disseminate the selected vegetable varieties. As it is a coordinated project implemented by vegetable division of Horticulture Research Centre (HRC), Bangladesh Agricultural Research Institute (BARI), Gazipur in collaboration with one NGO (SSURDA) in the hilly and Southern region of Bangladesh. Therefore, the trials having different vegetables and varieties were conducted at Bandarban and Patuakhali districts maintaining "Model/Activities-I and Model/Activities-II respectively.

However, during conducting base line survey, it was revealed that most of the farmers were not familiar with the BARI released vegetable varieties and its yield potentiality. Their consumption level of vegetable was low; consequently their income from vegetable production was also very poor. The farmer's of studied areas were not skilled in quality seedling raising and modern techniques of vegetable production. With view to improve this situation there were 120 numbers (30 at Bandarban and 90 at Patuakhali district) of trials conducted in each season, while 30 selected farmers were included from each upazila and 200 m^2 (5 decimals) of land were allotted for each farmer. The model-I and II consists of total 14 types of vegetable crops like: Tomato (winter & summer), Bottle gourd (winter & summer), Brinjal, Ridge gourd, Snake gourd, Yard long bean, Garden pea, French bean, Cabbage, Red amaranth, Spinach, Stem amaranth, Kangkong and Indian spinach. However, seeds and seedlings of Winter/rabi-2013 season were sown/ transplanted during October-November/2013 and harvested in the month of February-March/2014, again seeds of late winter/early summer-2014 were sown just after harvest of winter crops and harvested before starting sowing of kharif/summer-2014. Following this manner, seeds of kharif/summer-2014 were sown in April-June, 2014 and harvested during July-August/2014, while, during Rabi/winter season seed were sown/planted in October/November-2014 and seeds of late winter/early summer was sown in late February and early March-2015). In the following year (2015-16), up-scaling program was conducted with selected vegetables and their varieties (Vide model I & II). Prior to starting cropping season farmers training was conducted by HRC, BARI. Farmer's training on seedling raising and techniques of winter and summer vegetable production along with summer tomato production were conducted in each upazila (29 farmer's training- 8 at Bandarban and 21 at Patuakhali have completed since project commencement, while, each training consists of 30 farmers). Subsequently, all inputs were supplied to the selected farmers. The findings revealed that the farmers have learnt about modern seedling raising techniques and also they have acquainted with BARI vegetable varieties, specially Garden pea, French bean (at Bandarban) summer Bottle gourd and summer tomato (at both locations), more specifically, BARI varieties like BARI Hybrid Tomato 4, BARI Tomato 14 and BARI Tomato 15, BARI Motorshuti 1 & 3, BARI Lau 3 & 4, BARI Begun 8, improved cultural practices and IPM techniques of crop protection are accepted by the farmers and increased their level of vegetable consumption and income through vegetables solding in the project areas. In the case of up-scaling program, it was revealed that farmers are growing selected vegetable in a large plot and getting more profit with satisfaction. In terms of the financial expenditure, the project has achieved cumulatively 99.85% progress during project period.

C. Introduction.

The proposed study area was confined to the southern (Patuakhali district) and hilly (Bandarban district) region of Bangladesh as there was vast uncultivable land exited over there to increase vegetable production through horizontal expansion approach. The farmers of southern areas aren't familiar with good vegetable variety and its modern production techniques. Therefore, vegetable production trend is low compared to other regions of Bangladesh. They are also unaware with vegetable consumption. In Patuakhali district, cropping intensity and efficiency of agricultural land use is also very poor compared to other parts of the country. Salinity causes unfavorable environment and hydrological contamination that restrict the normal crop production throughout the year. The dominant crop grown in the saline areas is local transplanted Aman rice crop with low yields. The cropping patterns followed in the coastal areas are mainly Fallow-Fallow-Transplanted Amon rice (Uddin, *et al*., 2011). A survey on "Adaption of vegetable cultivation in selected area of Patuakhali district" was conducted by Sonia (2009) and she mentioned that majority of respondents (97%) had low to medium level of adaption of the vegetable cultivation. As of the survey report of Ali *et.al* (2008), some extent vegetables are being cultivated following "Lebukhali Model (Anonymous, 2001" at homestead level but it's commercial approach have not started yet which should be innovated immediately.

On the other hand, hilly region like Bandarban district is suffering from traditional cropping pattern, low cropping intensity along with degrading soil fertility resulting low productivity. About 52.15% land is used for Jhum cultivation and fruit plantation. The main crops like paddy, mustard, cotton, tobacco and vegetable are being cultivated (Banglapedia, 2013). A Little efforts have been given to produce vegetables at homestead level under a model is called "Khagrachori Model (Anonymous, 2011)" which was constrained by some limitations as other crops were included in this model.

Through the technological intervention, this fallow land may be migrated in to productive adapting vegetable cultivation. Hence, vegetable production may be increased and their level of consumption and income may also be increased as the vegetable cultivation is more profitable compared to other crop production as it contributes higher net income from a unit area. The HYVs and hybrid vegetable varieties of BARI and other companies will be popularized in the project areas; improved production practices will be disseminated; new cropping pattern/model may be generated; and Empowered women raised their income through adoption of modern and more effective production practices. Therefore, trials were conducted for Patuakhali and Bandarban districts under the title "Activities-I and Activities-II respectively to popularize and to disseminate the selected vegetable varieties in the project areas.

However, Krishi Gobeshona Foundation (KGF) made a public call on priority research areas under different sub-sectors of agriculture, set by BARC, through the daily news paper (The Daily Star September 04, 2012) for awarding research grant under a Competitive Grants Program (CGP). In

response to that call, we submitted a research proposal using the guidelines and format supplied by KGF. All research proposals received by KGF were undergone a screening, review and an evaluation process through TAC and peer review as outlined by KGF. Upon rigorous review and rationalization of technical program and budget & suggested by KGF, we received an award letter and a MoU was signed between KGF and an authorized representative of our organization on 20.05.2013. As it is a coordinated project, SSURDA implemented activities at southern region of Bangladesh under the guidance of vegetable Division of HRC, BARI following all formalities as assigned by Krishi Gobeshona Foundation (KGF). However, in this project completion report, basic project information, specific project objectives, approaches and methods, expected project outputs/results, detailed activity, summary and detailed approved budgetary status have been widely discussed and appended as below.

D. Specific project objective(s): (As per FRP/PIR)

- To adapt HYV and hybrid vegetable varieties with package of production practices in winter and summer season for increasing year round production in Bandarban and Patuakhali districts;
- To scale-up the selected vegetable crop varieties and production practices in both winter and summer seasons in the project upazilas;
- To increase household consumption level of vegetables and cash income of the farmers of the project areas; and
- To improve knowledge and skill of the famers and extension workers on year round vegetable production in Bandarban and Patuakhali districts.

E. Detailed Technical Report:

a. Statement of the Researchable Problem: In Patuakhali district, cropping intensity and efficiency of agricultural land use is poor compared to other parts of the country. Salinity causes unfavorable environment and hydrological contamination that restrict the normal crop production throughout the year. The dominant crop grown in the saline areas is local transplanted Aman rice crop with low yields. The cropping patterns followed in the coastal areas are mainly Fallow-Fallow-Transplanted Amon rice (Uddin, *et al*., 2011). As of the survey report of Ali *et.al* (2008), some extent vegetables are being cultivated following “Lebukhali Model” at homestead level but its commercial approach have not started yet which should be innovated immediately. Virtually, huge land resources remain fallow in the southern (Patuakhali district) regions.

On the other hand, hilly region like Bandarban district is suffering from traditional cropping pattern, low cropping intensity along with degrading soil fertility resulting low productivity. About 52.15% land is used for Jhum cultivation and fruit plantation. The main crops like paddy, mustard, cotton, tobacco and vegetable are being cultivated (Banglapedia, 2013). A Little efforts have been given to produce vegetables at homestead level under a model is called “Khagrachori Model” which was constrained by some limitations as other crops were included in this model.

Base line survey (conducted in July-October, 2013) indicated that the farmers of aren't familiar with good vegetable variety and its modern production techniques. They are also unaware about vegetable consumption. This is why; vegetable production trend is low compared to other regions of Bangladesh. Vegetable production may be increased and their level of vegetable consumption and income may also be increased as the vegetable cultivation is more profitable compared to other crop production as it contributes higher net income from a unit area. Therefore, the present study has been under taken to popularize and to disseminate the selected vegetable varieties to fulfill the project objectives.

b. Research Approaches and Methodologies

i. Approaches:

There were 30 farmers selected for 30 trials in each of four upazilas of two districts (Bandarban Sadar upazila of Bandarban district and Bauphol, Dashmina and Golachipa upazilas of Patuakhali) for conducting trials accommodating proposed vegetable crops and varieties. Experimental trial at Bandarban and all trainings/workshops were conducted by HRC, BARI directly and remaining activities were conducted by SSURDA at Patuakhali under the supervision and monitoring of HRC, BARI too. The selected same crop and variety were allotted in 5 decimals of land in all selected areas. Each farmer was allowed to cultivate following specified farming system. After conducting same trial for successive two years (at the separate group of farmer's field) a decision were made for selecting suitable crop and variety based on adaptability and yield potentiality. Then only selected crop and variety were put into trial in third year at another new 30 farmer's field to confirm the results as up-scaling program. Prior to starting every cropping season, farmers were trained on those crop covering modern production technologies while each batch was consisted of 30 farmers that conducted by the vegetable scientists of HRC, BARI. Finally, after completing the validation trial, adapted suitable vegetable varieties/technologies will be recommended for further dissemination for that particular area. However, the trials having different vegetable and their varieties were conducted following predesigned two models/packages (Model/package-I for Bandarban and Model/package-II for Patuakhali district) as below.

Model/Package-I (For Bandarban district)

Plot	Cropping season and crops with varieties								
	Year-I			Year-II			Year-III		
	Rabi/winter/ 2013	late winter/early summer/ 2014	Kharif/summer/ 2014	Rabi/winter/ 2014	Late winter/early summer/ 2015	Kharif/summer/ 2015	*Rabi/winter/ 2015 (up-scaling)	*Late winter/early summer/ 2016	*Kharif/summer/ 2016 (up-scaling)
Plot-1	Tomato (BARI Tomato 14 & Roma VF)	Spinach (Kopipalong & Shathi)	Summer Tomato (BARI Hybrid tomato 4 & Mintoo F_1)	Tomato (BARI Tomato 14 & Roma VF)	Spinach (Kopipalong & Shathi)	Summer Tomato (BARI Hybrid tomato 4 & Mintoo F_1)	i.Tomato: BARI Tomato 14, ii.Brinjal: BARI Begun 8 , iii.Garden pea: BARI Motor shuti 3, iv.French bean: BARI Jhar sheem 1 and v.Bottle gourd: BARI Lau 3	i. Red amaranth: BARI Lal shak 1, ii.Stem amaranth: BARI danta 1 and iii.Kangkong: BARI Gima kolmi 1	i.Tomato: BARI Hybrid Tomato 4 (summer); and ii.Bottle gourd: BARI Lau 4
Plot-2	Brinjal (BARI Begun 8 & Ufshi local)	Red amaranth (BARI Lal shak 1 & local)	Snake gourd (BARI Chichnga 1 & Dhaka green)	Brinjal (BARI Begun 8 & Ufshi local)	Red amaranth (BARI Lal shak 1 & local)	Snake gourd (BARI Chichinga 1 & Dhaka green)			
Plot-3	Garden pea (BARI Motorshuti 1 & BARI Motor shuti 3)	Kangkong (BARI Gimakolmi 1 & Bamboo leaf/local	Ridge gourd (BARI Jhinga 1 &Prince)	Garden pea (BARI Motorshuti 1 & BARI Motor shuti 3)	Kangkong (BARI Gimakolmi 1 & Bamboo leaf/local	Ridge gourd (BARI Jhinga 1 & Prince)			
Plot-4	French bean BARI Jhar shem 1 & Local)	Stem amaranth (BARI danta 1 & Ufshi bhutan)	Yard long bean (BARI Borboti 1 & Kegornatoki)	French bean BARI Jhar shem 1 & Local)	Stem amaranth (BARI danta 1 & Ufshi bhutan)	Yard long bean (BARI Borboti 1 & Kegornatoki)			
Plot-5	Bottle gourd (BARI Lau 3 & Ufshi local)	Indian spinach (Pui) BARI Pui shak 1 & Local	Bottle gourd (BARI Lau 4 & Loocal-khet Lau)	Bottle gourd (BARI Lau 3 & Ufshi local)	Indian spinach (Pui) BARI Pui shak 1 & Local	Bottle gourd (BARI Lau 4 & Local-khet Lau)			

**Under up-scaling program selected single crop and variety were grown by the individual farmer's whole plot*

Model/Package-II (For Patuakhali district)

Plot	Cropping season and crops with varieties								
	Year I			Year II			Year-III (up-scaling)		
	Rabi/winter/2013	late winter/early summer/2014	Kharif/summer/ 2014	Rabi/winter/ 2014	Late winter/early summer/ 2015	Kharif/summer/ 2015	*Rabi/winter/ 2015 (up-scaling)	*Late winter/early summer/ 2016	*Kharif/summer/ 2016 (up-scaling)
Plot-1	Tomato (BARI Tomato 15 & Roma VF)	Spinach (Kopipalong & Shathi)	Summer Tomato (BARI Hybrid tomato 4 & Mintoo hybrid)	Tomato (BARI Tomato 15 & Roma VF)	Spinach (Kopipalong & Shathi)	Summer Tomato (BARI Hybrid tomato 4 & Mintoo hybrid)	i.Tomato: BARI Tomato 15, ii.Brinjal: BARI Begun 8 , iii.Garden pea: BARI Motor shuti 3, iv.Bottle gourd: BARI Lau 3	i. Red amaranth: BARI Lal shak 1, ii.Stem amaranth: BARI danta 1 and iii.Kangkong: BARI Gima kolmi 1	i.Tomato: BARI Hybrid Tomato 4 (summer); 4 and ii.Bottle gourd: BARI Lau 4
Plot-2	Brinjal (BARI Begun 8 & Challenger)	Red amaranth (BARI Lal shak 1 & local)	Snake gourd (BARI Chichinga 1 & Dhaka green)	Brinjal (BARI Begun 8 & Chalenger)	Red amaranth (BARI Lal shak 1 & local)	Snake gourd (BARI Chichinga 1 & Dhaka green)			
Plot-3	Cabbage (Atlas 70 & KK cross)	Kangkong (BARI Gimakolmi 1 & Bamboo leaf/local	Ridge gourd (BARI Jhinga 1 & Prince)	Cabbage (Atlas 70 & KK cross)	Kangkong (BARI Gimakolmi 1 & Bamboo leaf/local	Ridge gourd (BARI Jhinga 1 & Prince)			
Plot-4	Cauliflower BARI Fulkopi 1 & Snow white)	Stem amaranth (BARI danta 1 & Ufshi bhutan)	Yard long bean (BARI Borboti 1& Kagornatoki)	Garden pea (BARI Motorshuti 1 & BARI Motor shuti 3)	Stem amaranth (BARI danta 1 & Ufshi bhutan)	Yard long bean (BARI Borboti 1& Kagornatoki)			
Plot-5	Bottle gourd (BARI Lau 3 & khet Lau)	Indian spinach (Pui) BARI Pui 1 & Local	Bottle gourd (BARI Lau 4 & Saint martin/ Local-khet Lau)	Bottle gourd (BARI Lau 3 & Khet Lau/local)	Indian spinach (Pui) BARI Pui 1 & Local	Bottle gourd (BARI Lau 4 & /saint martin/Local-khet Lau)			

**Under up-scaling program selected single crop and variety were grown by the individual farmer's whole plot*

ii. Methodologies:

Materials: In every cropping year, season wise vegetable crop and their varieties were allotted. For winter/rabi season Bottle gourd, Brinjal, Tomato, Garden pea, Cabbage, while, during kharif/summer season- summer Tomato, summer Bottle gourd, Ridge gourd, Snake gourd and Yard long bean, and for late winter/early summer season- Spinach, Indian spinach, Stem amaranth, Red amaranth and Kangkong were considered as materials. Each vegetable variety was divided into two groups one was BARI variety another one was company/local cultivars. (For details vide model/package I & II under approach).

Methods:

A quick or base line survey was conducted following a predesigned questioner covering use of vegetable crops and their varieties, production technology, availability of vegetable, price, income, consumption level of vegetable, etc. Based on the findings of the base line survey field trials were conducted. Before starting any crop season, selected farmers are trained in light to improve awareness and knowledge on seedling raising and modern vegetable production techniques on seasonal selected vegetable crops followed by inputs were supplied for conducting trials. The selected vegetable crops and their varieties were sown/transplanted in 200 m^2 (5 decimals) of land

for each farmer during three seasons (Winter-late winter/early summer- summer) in each year (Two years conducted). In third year up-scaling experiment was conducted with farmer's accepted and consumer preferred vegetable crops and their varieties. The selected vegetable crops and their varieties for Rabi/ winter season were sown/planted in October-November/cropping and harvested during mid January to early February of next year, while, for late winter/early summer's seed were sawn during late January-early February/cropping year and harvested in late April to first week of May. In respect of summer/kharif season seeds were sown on last week of April to mid May/cropping year. In each upazila, 30 trials were conducted covering 30 farmers' field while each farmer was considered as treatment hence treatment combination was T_1.....T_{30} with non-replicated RCB design. Plant spacing as of specification of production guide of selected crops was allowed. Manure and fertilizer was applied maintaining recommended dose of concern crops as has been stated in- Fertilizer recommended guide, 2012, BARC (Anonymous, 2012). Intercultural operations, irrigation schedule and plant protection measure (IPM approach performed) were performed as and when necessary (Karim, *et al*., 2010). Plot yield was recorded and converted to hectare yield to analysis of data following standard statistical procedure (R program-version 1.3.2 program, anonymous, 2015) as below:

Yield per plot: A pan scale balance was used to take the weight of all marketable produce harvested from each plot, and the yield per plot was recorded in kilogram.

Yield per hectare: The yield produce per hectare was estimated from the per plot yield of marketable produce, and was calculated as follows:

$$\text{Yield (t/ha)} = \frac{\text{Yield /plot (kg) x 10000}}{\text{Size of the plot (m}^2\text{)x1000}}$$

Finally, collected data were analyzed statistically following R software and cost benefit ratio was also calculated maintain following formula:

$$\text{Benefit cost ratio (cash cost basis)} = \frac{\text{Gross return (Tk/ha)}}{\text{Total cash cost of production (Tk/ha)}}$$

c. Results and Benefits:

(i). List of objective wise activities and specific output(s)

Specific Project Objective(s)	Planned activities performed against each objective	State progress made clearly during the reporting period against each activity	Outputs/results achieved during this period
1. To adapt HYV vegetable varieties with package of production practices in winter and summer seasons for increasing year round production in Bandarban and Patuakhali district;	1.1 Selection of project sites and farmers with land area/farmer; 1.2 Conducting a quick survey on existing (baseline) vegetable crop varieties with production practices, yield, income, availability and household consumption. etc.; 1.3 Project Inception Report (PIR) & Project Brief (PB) preparation for submission to KGF; 1.4 Conducting on-farm participatory adaptive trials for selecting suitable winter and summer vegetable crops varieties with package of production practices; 1.5 Collection of relevant data & their analysis.	1.1Project sites with area and farmers were selected; 1.2 Quick survey (baseline) have been conducted by BARI; 1.3 PIR and PB have been submitted to KGF by BARI; 1.4 Adaptive trials have been completed with selected vegetable varieties; 1. 5 Data were collected and analyzed.	• Four upazila and 30 farmers from each with 200 sqm, (0.02 ha) of land per farmer and total 2.4 ha/ season were selected; • Vegetables production oriented problem and nutritional status have been identified; • Through PIR with detailed methods, plan of activities have been determined much people/visitors were able to know about project trough PB; • Farmers have learnt practically about modern seedling raising techniques; • Data used for report preparation.
2. To scale up the selected vegetable crop varieties and production practices in both winter and summer seasons in the project upazilas;	2.1 Establishing participatory on-farm production plot with the selected vegetable crop varieties (winter & summer) and production practices under block farming approach; 2.2 Carrying out cost and return analysis.	2.1 Sixteen different vegetables varieties of BARI with five company/local cultivars/varieties were included in trial. 2.2 All cost and return were recorded.	• Tomato, brinjal, garden pea, french bean, stem and red amaranth, kangkong and Bottle gourd have become familiar with BARI vegetable varieties; • Information on production cost and return (Cost and benefit) are available
3. To increase household consumption level of vegetable and cash income of the farmers of the project areas;	3.1 Conduction of household survey on participating farmers about vegetable production, consumption and income; 3.2 Status of consumption and scaling up of income.	3.1 Assessed status of vegetable production, consumption and income; 3.2 Vegetables, other food consumption status and income were recorded.	• Information on status of vegetable production, consumption and income will be available at project area.
4. To improved knowledge and skill of the farmers and extension workers on year round vegetable production in Bandarban and Patuakhali district.	4.1 Organizing training of the participatory and associate farmers on production practices of the selected vegetable crops; 4.2 Arranging field days and workshop with selected and associate farmers; 4.3 Preparation and distribution of leaflet/production manual among the relevant farmers.	4.1. Twenty nine farmers training conducted at Bandarban and Patuakhali ; 4.2 Two field day and one workshop arranged; and 4.3 Vegetable production manual for winter and summer season have published.	• 870 farmers received training on modern seedling raising techniques and production packages on selected winter and summer vegetables; • Surrounding farmers and policy maker extension personnel have learned about project activities; and • Vegetable production manuals are available among farmer.

(ii). Outputs/Results:

Season wise adaptive trials were conducted for three consecutive years. Before commencing trials a quick or base line survey was conducted at project areas. However, findings of base line survey along with season/year wise (winter/rabi-late winter/early summer-summer) results and cumulative research findings are appended below:

Findings of base line survey

The base line/quick survey report indicated that commercial vegetable production was the higher at Bandarban area than that of the Patuakhali area. More or less, all types of vegetables were grown in all locations. The use of hybrid vegetable variety was less than HYV and local one. Yield gap found to be higher at Patuakhali compared to Bandarban area. Availability of BARI released vegetables variety was not found to be cultivated by the farmers of both locations. The nutritional awareness was very poor. The vegetable consumption was also poor and they didn't quantify their daily vegetable consumption. The untrained farmers were not familiar with modern vegetables production technology. Farmers of all location used fertilizer but they didn't maintain recommended dosages. Irrigating water scarcity exists at Bandarban area while prolonged water stagnation reported to be at Patuakhali. Considering above scenario, BARI released vegetable variety along with more other HYV of different seed companies may be included providing proper training for farmers that may conducive for increasing production of vegetable in the project areas (For details vide base line survey report: Annexure VII)

Research findings during 2013-14: (Details tables and data- vide annexure V)

Results of model/package-I during winter/rabi 2013-14 (Bandarban district)

Mean results have been presented. The results indicated that in each plot BARI variety perform better and produced higher yield (Table 1). On an average each farmer harvested tomato 180.0kg, Brinjal 100.0kg, French bean 39.0kg, Garden pea 55.0kg, Bottle gourd 140.0kg and in total 514.0 kg of from the whole plot. Benefit cost ratio (BCR) was also higher in all the BARI vegetable varieties. The BCR was ranged from 2.62 to 3.82 in BARI varieties, while the lower BCR (1.62-2.06) was obtained from the company or local variety (Table 2). All the farmers were benefited with the cultivation of BARI varieties. Farmers of Bandarban sader consume some parts of produced vegetables, some were distributed among neighbor and relatives and rests of vegetables were sold (Table 3). Vegetable consumption of each farmer families was increased than earlier intake of vegetables as of information provided in base line survey.

Results of winter/rabi season-2013-14 under model/package II (Vide results of component Annexure-IX)

Results of Late winter/early summer-2014: Crops were damaged due to natural disaster (tidal surge in both locations)

Results of model/package- I during Kharif/summer season-2014: (Details tables and data- vide annexure V)

The results of Kharif/summer season, 2014 has been presented in table 4.a, 4.b and 4.c. The findings revealed that BARI varieties of Tomato and Bottle gourd showed better performance compared to company varieties and the yield was recorded 8.87 and 34.56mt respectively. Yield performance of others crops like Snake gourd, Ridge gourd and Yard long bean were showed statistically insignificant results that means yield potentiality of both the varieties of each crop appeared at per yield (Table 4.a). Therefore, both the varieties may be cultivated over there. Though, the obtained yield couldn't attain potential yield as because tomato crop was severely affected by bacterial wilt and all the crops were some extent damaged due to natural disaster (tidal surge). The benefit cost ratio (BCR) revealed that all the BARI varieties contributed higher BCR (Table 4.b). The scenario of production, consumption, distribution and sold per plot indicated that 20.83 percent of produced vegetables were consumed by the growers and 11.80 percent vegetables were distributed among neighbor and relatives, while remaining 67.47 percent vegetables were sold by which the growers earned hard currency to mitigate other expenditure (Table 4.c).

Results of summer/kharif season-2014 under model/package II (Vide results of component Annexure-IX)

Cumulative results during 2013-14 for both locations.

The research findings indicated that most of the BARI varieties perform better in winter season and produced higher yield. But in summer season, summer tomato and summer bottle gourd perform better while remaining three BARI varieties perform at par with company/local variety/cultivar. Farmers have acquainted with BARI vegetable varieties, like Tomato, Brinjal, garden pea, French bean, summer Bottle gourd and summer Tomato more specifically, BARI Hybrid Tomato 4, BARI Tomato 14, BARI Motorshuti 1 & 3, BARI Jharsheem 1, BARI Lau 3 & 4, BARI Begun 8. BARI varieties also posses higher BCR compared to company/local varieties. Therefore, all the farmers were benefited with the cultivation of BARI varieties. Farmers of both locations consume some parts of produced vegetables, some were distributed among neighbor and relatives and lion share of produced vegetables was sold for betterment of their livelihood.

Research findings during 2014-15: (Details tables and data- vide annexure V)

Results of model/package- I during winter/rabi, 2014-15

The findings of trials have been discussed in table 5.a, 5.b and 5.c. Statistically significant difference was observed between BARI and company or local vegetables varieties. It was revealed that all BARI varieties contributed higher yield compared to company or local variety/cultivar. Yield of BARI varieties of Tomato, Brinjal, Garden pea, French bean and Bottle gourd was recorded 55.50, 30.51, 12.36, 12.45 and 47.50mt respectively (Table 5.a). Such higher yield may be obtained

due to its genetic potentiality. The benefit cost ratio (BCR) revealed that all the BARI varieties performed higher BCR. The highest BCR (3.80) was obtained from Garden pea as it is short duration crop having low input cost and deserves high market price. Tomato and Bottle gourd also exhibited the higher BCR which was 2.93 and 3.17 respectively (Table 5.b). The scenario of production, consumption, distribution and sold per plot indicated that 20.27 percent of produced vegetables were consumed by the growers and 7.80 percent vegetables were distributed among neighbor and relatives, while remaining 72.33 percent vegetables were sold by which the growers earned hard currency to mitigate other expenditure to enrich their livelihood (Table 5.c).

Results of model/package II during winter/rabi season- 2014-15 (vide results of component in Annexure IX)

Results of model/package-I during late winter/early summer, 2015(Details tables and data- vide annexure V)

The research results conducted during late winter/early summer, 2015 has been shown in table 6.a, 6.b and 6.c. There was statistical significant difference was observed between BARI and company or local vegetables varieties studied in this experiment. It was revealed that all BARI varieties contributed higher yield compared to company or local variety. Yield of BARI varieties of Red amaranth, Kangkong, Stem amaranth and Indian spinach was recorded 3.96, 15.62, 20.71 and 15.63mt respectively (Table 6.a). As BARI doesn't have any released variety of Spinach, therefore, spinach variety of BADC and company was used and compression was done, while, BADC variety performs better. Such higher yield may be obtained due to its higher genetic potentiality. The benefit cost ratio (BCR) also revealed that all the BARI and BADC varieties indicated higher BCR (Table 6.b). The scenario of production, consumption, distribution and sold per plot indicated that 17.16 percent of produced vegetables were consumed by the growers and 9.40 percent vegetables were distributed among neighbor and relatives, while remaining 73.44 percent vegetables were sold by which the growers earned hard currency to mitigate other expenditure to enrich their livelihood (Table 6.c).

Results of model/package II during late winter/early summer-2015 (vide results of component in Annexure IX)

Results of model/package-I during kharif/summer 2015: (Details tables and data- vide annexure V)

The results of Kharif/summer season, 2015 has been presented in table 7.a, 7.b and 7.c. The findings revealed that BARI varieties of tomato and bottle gourd showed significantly better performance compared to company varieties and the yield was recorded 9.78 and 36.56 mt respectively. Yield performance of other vegetable crops like Snake gourd, Ridge gourd and Yard long bean were showed statistically insignificant results that means yield potentiality of both the varieties of each crop appeared as *at per* yield (Table 7.a). Therefore, both the varieties may be cultivated over there. Though, the obtained yield couldn't attain potential yield as because tomato crop was severely affected by bacterial wilt (causes acidic soil with high temperature-above 31^0 C soil temp.) and all the crops were some extent damaged due to natural disaster (tidal surge with

high rainfall). The benefit cost ratio (BCR) indicated that all the BARI varieties contributed higher accept summer tomato (Table 7.b). The scenario of production, consumption, distribution and sold per plot indicated that 24.73 percent of produced vegetables were consumed by the growers and 10.67 percent vegetables were distributed among neighbor and relatives, while remaining 64.50 percent vegetables were sold by which the growers earned hard currency to mitigate other expenditure (Table 7.c) for better livelihood.

Results of model/package II during summer-2015 (vide results of component in Annexure IX)

Cumulative findings for both locations during 2014-15 (winter/rabi 2014-15, late winter/ early summer- 2015 and kharif/summer-2015)

There were six cropping seasons have already been completed. The research findings indicated that most of the BARI varieties perform better in every season and produced higher yield and income. Farmers of both locations have acquainted with BARI vegetable varieties like- garden pea, french bean (Bandarban), summer bottle gourd and summer tomato more specifically, BARI Hybrid tomato 4, BARI Tomato 14, BARI Tomato 15, BARI Motorshuti 1 & 3, BARI Jharsheem 1, BARI Lau 3 & 4, BARI Begun 8, BAR Lalshak 1, BARI Danta 1 and BARI Gimakolmi 1. BARI vegetable varieties also possessed higher BCR compared to company/local varieties/cultivars. The BCR of summer tomato at Bandarban is lower than Patuakhali due to bacterial wilt incidence very acute at hilly region. However, all the farmers were benefited with the cultivation of BARI vegetable varieties. The trend of vegetable consumption has increased compared to initial stage of project commencement. Not only that some parts of produced vegetables were distributed among neighbor and relatives and lion share of produced vegetables was sold to improve their livelihood. The farmers of both locations started to save seeds of OP varieties of BARI vegetable varieties like Brinjal, Tomato, Garden pea, French bean and Bottle gourd.

Results of up-scaling activities during 2015-16 (winter/rabi 2015-16, late winter/ early summer- 2016 and kharif/summer-2016):

Results of model/package-I during winter/rabi 2015-16

The results indicated that the winter vegetable exhibited satisfactory yield, though the yield was some extent lower than the potential yield per hectare. The yield was recorded 56.25, 30.64, 10.03, 12.57 and 47.50 mt in BARI Tomato 14, BARI Begun 8, BARI Motorshuti 3, BARI Jharsheem 1 and BARI Lau 3 respectively. Such was obtained due to timely sowing, and better management. The benefit cost ratio (BCR) indicated that all the vegetable cultivation was profitable as the farmer got satisfactory yield and better price (Table 8).

8. Yield performance and benefit cost ratio of selected vegetables at Bandarban Sadar upazila of Bandarban hill district during winter/rabi season 2015-16

Treat.	Varieties	Yield/plot (kg)	Yield/ha (t)	Unit price (TK kg^{1})	Gross return (Tk ha^{1})	Variable cost (Tk ha^{1})	Gross margin (Tk ha^{1})	BCR
Tomato	BARI Tomato 14	2250.00	56.250	32.50	1828125.0	637500.00	1190625.00	2.87
Brinjal	BARI Begun 8	1225.5	30.637	18.75	574453.1	235000.00	339453.13	2.44
Garden pea	BARI Motorshuti 3	401.25	10.031	45.75	458929.7	165000.00	293929.69	2.78
French bean	BARI Jharshem-1	502.75	12.568	36.00	452475.0	178750.00	273725.00	2.53
Bottle gourd	BARI Lau 3	1900.15	47.503	12.50	593796.9	233750.00	360046.88	2.54

Results of model/package-II during winter/rabi 2015-16 (Vide results of component Annexure-IX)

Results of model/package-I during late winter/early summer 2016

The results of late winter/early summer season are presented in table 9. The recorded findings indicated that the leafy vegetable exhibited satisfactory yield, though the yield was lower than the potential yield per hectare. The yield of Red amaranth was recorded 4.03 mt. The cause of low yield due to irrigation crisis during growing stage as it very short duration crop. There were 15.63 mt leaf was harvested from BARI Gimakalmi 1. Such satisfactory yield was obtained in Kangkong due to moderate rainfall in the month of April-May. The yield of stem amaranth (21.26 mt) was recorded which was satisfactory yield. The benefit cost ratio (BCR) indicated that Kangkong (2.14) and stem amaranth (2.35) cultivation was profitable as the farmer harvested these crop sequentially and got good price during lean season.

9. Yield performance and benefit cost ratio of selected vegetables at Bandarban Sadar upazila of Bandarban hill district during late winter/early summer season-2015

Treat.	Varieties	Yield/plot (kg)	Yield/ha (t)	Unit price (TK kg^{1})	Gross return (Tk ha^{1})	Variable cost (Tk ha^{1})	Gross margin (Tk ha^{1})	BCR
Red amaranth	BARI lalshak 1	161.5	4.037	21.75	87815.6	83750.00	4065.63	1.05
Kangkong	BARI Gimakolmi 1	625.15	15.628	18.50	289131.9	135000.00	154131.88	2.14
Stem amaranth	BARI Danta1	850.5	21.262	15.45	328505.6	140000.00	188505.63	2.35

Results of model/package-II during late winter/early summer 2016 (Vide results of component in Annexure-IX)

Results of model/package-I during summer 2016

The results are presented in table 10. The recorded yield of summer tomato was 15.27 mt which was less than half of its yield potential due to high bacterial wilt incidence in hilly regions. It is reported that bacterial wilt infection severely occurred causes acidic soil with high temperature-above 31^{0} C soil temp. Therefore, BCR was also low in spite of high price tomato during summer season. There were 36.89 mt bottle gourd harvested in the farmers field. This new heat tolerant bottle gourd variety was very suitable for this area. The benefit cost ratio (BCR) indicated that bottle gourd cultivation was profitable as the farmer harvested this crop for long time and got good price during lean season.

10. Yield performance and benefit cost ratio of selected vegetables at Bandarban Sadar upazila of Bandarban hill district during summer season-2015

Treat.	Varieties	Yield/plot (kg)	Yield/ha (t)	Unit price (TK kg^{-1})	Gross return (Tk ha^{-1})	Variable cost (Tk ha^{-1})	Gross margin (Tk ha^{-1})	BCR
Tomato	BARI Tomato 4 (F_1)	610.75	15.268	72.65	1109274.7	950625.00	158649.69	1.17
Bottle gourd	BARI Lau 4	1475.5	36.887	17.50	645531.3	237506.25	408025.00	2.72

Results of model/package-II during summer 2016 (Vide results of component Annexure-IX)

Cumulative results of up-scaling activities during 2015-16 (winter/rabi 2015-16, late winter/ early summer- 2016 and kharif/summer-2016)

The cumulative findings revealed that during winter season BARI Tomato 14, BARI Jharsheem 1 are suitable for cultivation having high profitability at Bandarban, while BARI Tomato 15 is well adapted at Patukhali region and BARI Begun 8, BARI Tomato 4, BARI Lau 3, BARI Lau 4, BARI Motorshuti 3, BARI Gimakolmi 1, BARI Danta 1 and BARI Lalshak are suitable for cultivating at both hilly and southern regions. The farmers of both areas have saved some seeds for next season and of course for selling. It may be mentioned here that MS. Amir (lady farmer) had produced 20 kg of garden pea seed and 10 kg of French bean seed at Bandarban site.

Special findings/ over all out put:

The farmers of both locations have learnt the followings:

- Acquainted with new BARI vegetable varieties;
- Modern seedling raising techniques;
- Improved cultural management practices (Pruning techniques of tomato, brinjal and bottle gourd);
- IPM techniques of crop protection;
- grafting technology for summer tomato production at hilly region to combat bacterial wilt disease;
- Vegetables consumption habit increased; and
- Self seed savings of OP varieties and dissemination of technologies through FARMER to FARMER seed exchange approach.

(iii). Benefit/Outcome:

- The HYVs and hybrid vegetable varieties of BARI and other companies have popularized in the project areas;
- Optimum use of fallow land has increased, hence vegetable production has also increased
- Cropping intensity is increasing;
- New cropping pattern/model has generated;
- Empowered women raised their income through adoption of modern and more effective production practices;
- Higher net profit per unit area of land and reducing malnutrition; and
- Awareness of vegetable cultivation and nutritional knowledge has increased.

d. Technology Developed:
Two commercial cropping patterns have developed for the Patuakhali region during this project period as below:

i. Winter tomato - Stem amaranth/Kangkong - Summer Tomato
ii. French bean/Garden pea – Red amaranth- Summer Bottle gourd

e. Publications made/under process: Not applicable

f. Training/workshop organized:
Total 29 farmers training (21-Patuakhali and 8-Bandarban), two field days (one at each location) and one workshop conducted (details in annexure- II)

g. Graduate Studies: Not applicable

h. Linkages Developed: Linkage developed among DAE, seed companies and local NGOs

i. Equipment/Appliances Purchased: One desktop computer with printer and scanner, one camera and five knapsack hand sprayer.

F. Highlight of Research Findings:

- Farmers have learnt about healthy seedling raising techniques;
- They have acquainted with BARI vegetable varieties, especially garden pea, french bean , amaranth, Kangkong, winter and summer tomato and bottle gourd for both seasons;
- Farmers have learnt to practices IPM techniques for safe vegetable production (Especially pheromone trap for brinjal and cucurbitaceous vegetable);
- Farmers have acquired knowledge about modern vegetable production techniques and better management (pruning of tomato & bottle gourd, etc);
- Women involvement/ participation in vegetable production activities have strengthened (33.45%);
- Increased their level of vegetable consumption (21%) and income through vegetables solding (75.8%); and
- Social and family integrity has increased (7-8%) through exchange of vegetables.

G. Conclusion:
During conducting base line survey it was reported that the selected farmers couldn't provide information about healthy seedling raising and modern vegetable production procedure, safe vegetable production techniques and management of vegetable crops (pruning of tomato and cucurbits), what quantity of vegetable they are consuming?, nutritional value of vegetable, familiarity with BARI vegetable varieties like-summer Tomato, summer Bottle gourd, French bean, Garden pea etc. They also reported about unavailability of good quality seeds. However, after involving with project, situation is being started to improve. Now, the fallow land is being used for

vegetable production, participation of women towards vegetable production is being increased, they are able to raise healthy seedling, applying modern vegetable production techniques, trying to produce vegetable around the year, increasing habit of vegetables consumption and enhancing nutritional security, selling produced vegetables and improving their livelihood.

H. Recommendation:

Realizing the situation, following recommendations are made to sustain year round vegetable production in southern areas and these are:

- More motivational works need to be done other areas of southern belt;
- Availability of good quality seeds of good vegetable varieties to be ensured;
- More applied and practical oriented farmers training to be conducted on vegetable production and nutritional awareness;
- Irrigation facilities (surface irrigation) to be strengthened; and
- Marketing facilities to be improved so that vegetable growers may have the actual price of their produced products.

I. Financial Statement: Fund received and Expenditure made during the project period.

(In thousand Tk)

i. Total expenditure (BARI + SSURDA)

Particulars/Line Items				Actual Fig. in Tk.					
A. Fund Received in Installment									
1st install.	**2nd Install.**	**3rd install.**	**4th Install.**	**5th install.**	**6th install.**	**7th install.**	**8th install.**	**9th install.**	**Total**
4,95,200/-	**7,42,800/-**	9,90400/-	9,26,200/-	9,04,800/-	4,52,400/-	6,78,600/-	9,04,800/-	6,78,600/-	67,73,800/-

Particulars/Line Items		Approved Total Budget	Exp. Upto previous Report (From July'13 to April '16)	Current Exp. (Reporting period) From 13th April, '16 to Sept., '16	Cumulative Exp.	Rest of Budgeted Amount
Sl. No	**B. I. Expenditure: Recurring (Operational cost)**	1	2	3	4=(2+3)	5=(1-4)
1.	1.1 Remuneration for Contractual Staff (Expert Professionals; Research Fellow/Res. Associate, Res. Asstt./Field Asstt; if justified- consolidated)	1080.000	970.000	110.000	1080.000	0.000
	1.2 Remuneration of Accounting /Typing Support Service, if any (part time basis- consolidated)	72.000	60.000	12.00	72.000	0.000
2.	2.1 Research & Development (R&D) related cost i.e. all inputs, lab./ farm chemicals & other necessary supplies etc. 2.2 Contractual Services (special nature, if any, i.e. soil, plant & fertilizer analysis; pesticide residue analysis etc.)	3567.000	3098.451	374.740	3473.191	93.809
3.	Maintenance and repairing of lab. /field equipment, etc.	0.000	0.000	0.000	0.000	0.000
4.	Training	762.000	660.000	102.00	762.000	0.000
5.	Workshop/Seminar/Meeting etc.	135.000	60.000	75.000	135.000	0.000
6.	6.1 Travel expenses (TA/DA) as per own organizational rules (Public Sector)	705.000	512.797	115.947	628.744	76.256
	or as per KGF Rules (Non-govt.Org). 6.2 Vehicle hiring/oil & fuel for organization's vehicle for travel, if justified.	255.000	206.650	41.184	247.834	7.166
7.	Office supplies and contingency (not exceeding 15% of the total cost for stationeries, publications, printing of reports, internet, service, mailing etc.)	294.000	167.120	68.805	235.925	58.123
8.	Any other items (please specify with justification)	0.000	0.000	0.000	0.000	0.000
9.	Institutional Overhead Charge (if any, max 10% of total operating cost)	0.000	0.000	0.000	0.000	0.000
B.I. Sub-total B.I (1-9)		**6870.000**	**5735.018**	***899.676***	***6634.694***	***235.354***
B. II:	**Non-recurring (Capital cost)**					
10.	Equipment & Appliances (upon approval of KGF)					
	10.1. Lab. and Field Equipment	15.000	5.000	10.000	15.000	0.000
	10.2. Office Equipment	85.000	74.950	9.000	83.950	1.050
11.	Books, Journals, etc.	30.000	10.000	20.000	30.000	0.000
B.II. Sub-total (10-11)		**130.000**	***89.950***	***39.000***	***128.950***	***1.050***
Grand Total Expenditure: GT(B.I+B.II)		**7000.000**	**5824.968**	**938.676**	**6763.641**	**236.404**

Balance (A-GT)= (6773800.00-6763641.50) = 10155.50 as per Bank Statement = BARI-9944.50 ; SSURDA-214.50

Financial Progress: (a) Fund Received in Tk 6773800.00 (b) Fund utilized as per 6763641.50

SoE in Tk. 6763596.50 .; % achieved = 99.85

Committed expenditure: 226000.00 (BARI-126000.00 and SSURDA-100000.00)

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Signature of PI with seal

ii. Financial progress during reporting period in BARI (in thousand Tk)

Particulars/Line Items	Actual Fig. in Tk.								
A. Fund Received in Installment									
1st install.	**2nd Install.**	**3rd install.**	**4th Install.**	**5th install.**	**6th install.**	**7th install.**	**8th install.**	**9th install.**	**Total**
2,95,200/-	**4,42,800/-**	5,90,400/-	5,26,200/-	5,04,800/-	2,52,400/-	3,78,600/-	5,04,800/-	3,78,600/-	38,73,800/-

Particulars/Line Items		Approved Total Budget	Exp. Upto previous Report (From20.5.13 to 17.4.16)	Current Exp. (Reporting period) From 18.04.116.to 30.09.16	Cumulative Exp.	Rest of Budgeted Amount
Sl. No	**B. I. Expenditure: Recurring (Operational cost)**	1	2	3	4=(2+3)	5=(1-4)
1.	1.1 Remuneration for Contractual Staff (Expert Professionals; Research Fellow/Res. Associate, Res. Asstt./Field Asstt; if justified- consolidated) 1.2 Remuneration of Accounting /Typing Support Service, if any (part time basis- consolidated)	360.00 36.00	330.000 28.000	30.000 8.000	360.000 36.000	00.000 00.000
2.	2.1 Research & Development (R&D) related cost i.e. all inputs, lab./ farm chemicals & other necessary supplies etc. 2.2 Contractual Services (special nature, if any, i.e. soil, plant & fertilizer analysis; pesticide residue analysis etc.)	1536.00	1377.060	158.940	1536.00	00.000
3.	Maintenance and repairing of lab. /field equipment, etc.	0.000	0.000	0.000	0.000	0.000
4.	Training	762.00	660.000	102.000	762.00	0.000
5.	Workshop/Seminar/Meeting etc.	90.00	15.000	75.000	90.00	0.000
6.	6.1 Travel expenses (TA/DA) as per own organizational rules (Public Sector) or as per KGF Rules (Non-govt.Org). 6.2 Vehicle hiring/oil & fuel for organization's vehicle for travel, if justified.	630.00 225.00	437.797 176.650	115.947 41.184	553.744 217.834	76.256 7.166
7.	Office supplies and contingency (not exceeding 15% of the total cost for stationeries, publications, printing of reports, internet, service, mailing etc.)	231.00	111.621	67.707	179.328	51.672
8.	Any other items (please specify with justification)	0.000	0.000	0.000	0.000	0.000
9.	Institutional Overhead Charge (if any, max 10% of total operating cost)	0.000	0.000	0.00	0.000	
	B.I. Sub-total B.I (1-9)	**3870.00**	**3136.127**	598.778	3734.904	**135.094**
B. II:	**Non-recurring (Capital cost)**					
10.	Equipment & Appliances (upon approval of KGF) 10.1. Lab. and Field Equipment 10.2. Office Equipment	 15.000 85.000	 5.000 74.950	 10.000 9.000	 15.000 83.950	 00.000 1.050
	Books and journal	30.000	**10.000**	**20.000**	**30.000**	0.000
	B.II. Sub-total (10)	**130.000**	**89.950**	39.000	**128.950**	**1.050**
	Grand Total Expenditure: GT(B.I+B.II)	**4000.00**	**3226.077**	637.778	3863.855	**136.144**

Balance (A-GT)= (3873800**.00 - 3863855.50) = 9944.50 as per Bank Statement=9944.50**

G. (1) Financial Progress: (a) Fund Received in Tk 3873800**.00 (b) Fund utilized as per SoE in Tk 3863855.50**

% achieved = **99.74%**

Committed expenditure: 126000.00

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Signature of PI with seal

J. Self Assessment of the Project:

1. Have you been able to achieve all specific objectives of your project? Yes.
   Who is/are the target beneficiary group/s of your project output/result? Farmers and vegetable consumers are beneficiaries.
2. How the project outputs/results obtained would benefit the target beneficiary group/s?
   The motivated beneficiary (farmers) will use their uncultivated fallow land, they will use good vegetable variety, vegetable production will be increased simultaneously consumption habit will be changed and finally they will be benefited through selling produced vegetable products.
3. Do you think that you have successfully completed the project? Yes
   Farmers were unable to grow healthy seedling raising and modern vegetable production procedure, safe vegetable production techniques and management of vegetable crops (pruning of tomato and cucurbits), unknown of quantity of vegetable consumption, unaware of nutritional value of vegetable, unfamiliar with BARI vegetable varieties like-summer Tomato, summer Bottle gourd, French bean, Garden pea etc. They didn't have idea about availability of good quality seeds. However, after involving with project, situation is being started to improve. Now, the fallow land is being used for vegetable production, participation of women towards vegetable production is being increased, they are able to raise healthy seedling, applying modern vegetable production techniques, trying to produce vegetable around the year, increasing habit of vegetables consumption and enhancing nutritional security, selling produced vegetables and improving their livelihood.
4. Please describe briefly the outcome/benefit and likely impact of your project on the productivity, policy, society, economy and environment.
   After commencing this project, a positive impact found to occur in the project areas towards increasing productivity as the previous fallow lands are being used for vegetable cultivation and trained farmers applying modern production techniques, therefore, production level is increasing. Famers are expected to have good quality seeds therefore seed sector/vender thinking about new seed market. Due to involvement of unemployed men and women in vegetable cultivation, they exchanging or presenting vegetable among themselves, hence, family and social harmony or integrity is improving. Since, the farmers are selling their produced products (75% sold) and earning money that helping to improve their livelihood. Integrated pest management (IPM) is being practiced by the farmer that plays a vital role for growing safe vegetable without disturbing environment.

K. Acknowledgement:
Vegetable division of HRC intends to strongly acknowledge all concerns especially BARI authority for providing us untiring necessary technical assistance, helpful instructions and coordinating facilities. We are also expressing cordial acknowledgment to KGF and BARC authority for providing available fund for successful completion of this project timely.

L. Endorsement:

Principal Investigator (PI)
Name:
Signature:
Seal:
Date:

Head of Organization/Authorized Person
Name:
Signature:
Seal:
Date: