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END TERM EVALUATION STUDY IN RESPECT OF THE IMPLEMENTATION OF BRINGING GREEN REVOLUTION TO EASTERN INDIA (BGREI) PROGRAM (CONSOLIDATED REPORT)

Edited By

Debanshu Majumder
Debajit Roy
Ranjan Kumar Biswas





AGRO-ECONOMIC RESEARCH CENTRE
VISVA-BHARATI, SANTINIKETAN, 2013

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Preface

India continues to be largely an agrarian economy where a large section of its rural population is still dependent on agriculture for their livelihood. Over the decades since independence, there have been efforts to improve the condition of the farmers through increasing production and productivity in the agricultural sector based on technological innovations.

The program of Bringing Green Revolution in Eastern India (BGREI) was initiated in the year 2010-11 with a view to address regional imbalances in growth, imparting stability to agricultural output and bringing the benefits of agricultural research technology to the resource poor farmers across all the regions of the country to ensure economic equity.

The present study entitled **"End-term Evaluation Study/Appraisal in respect of the Implementation of the Bringing Green Revolution in Eastern India (BGREI)"** was assigned by the Directorate of Economics and Statistics, Ministry of Agriculture, Government of India. The study was carried out in seven eastern states namely, Assam, Chhattisgarh, Eastern Uttar Pradesh, Bihar, Jharkhand, Odisha and West Bengal by the AER Centres situated in the states during 2012. AER Centre, Visva-Bharati, Santiniketan was entrusted with the responsibility of coordinating the study and preparing the present consolidated report.

The study was taken up by the then Director, AER Centre, Visva-Bharati who shouldered the responsibility of drafting the consolidated report. However, in March 2013 we were advised by the Ministry of Agriculture to revise, rewrite and improve upon the quality of the draft report. At this instance we had to take up the consolidation work afresh. But a common study design and analytical method had already been prepared (review meeting held at AERC, Visva-Bharati on 28th July, 2012) and followed by all the participating centres. In view of the situation, we had to re-edit the consolidated report afresh. Presentation of the present draft report was held on July 11, 2013 at AER Centre, Visva-Bharati in the valuable presence of Dr. S. Bhavani, Principal Advisor, Dr. B. S. Bhandari, Advisor and Dr. J. Sandhu, Agricultural Commissioner, Ministry of Agriculture, Government of India, representatives from State agricultural Directorate, University exparts and representatives from the participating centres (barring Allahabad centre). On the basis of the detailed comments from the experts the present report is being prepared.

On behalf of the centre, I take this opportunity to thank Mr. Satya Vir Singh, Consultant (Agronomy), BGREI Cell and Mr. Ashok Kumar Khanna, Program Manager, BGREI Cell, Ministry of Agriculture, Government of India for their valuable advice in course of the consolidation work. My sincere thanks to Dr. S. Bhavani, and Dr. J. Sandhu, Mnistry of Agriculture, Government of India for their invaluable comments during presentation of the draft report. I

express my deep sense of gratitude to Dr. B. S. Bhandari, Advisor, Ministry of Agriculture, Government of India for his continuous advice and guidance in course of the consolidation work. I thank the officials of State agricultural Directorate, our panel of experts for their valuable suggestions during the deliberation. I am also thankful to the research personnel of all the participating centres for their kind cooperation in conducting the study in respective states.

Preparation of the consolidated report was done by Debanshu Majumder, Debajit Roy and Ranjan Kumar Biswas. My sincere thanks to all of them. This research team worked very hard in this whole process of consolidation. I am also thankful to D. Mondal, D. Das, N. Maji, Munshi A. Khaleque and A. Patra for providing the secretarial assistance.

Santiniketan
31/10/2013

(Saumya Chakrabarti)
Hony. Director

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1.1 Background of the Program:

The spread of HYV technology resulting in the "Green Revolution in India" since mid sixties had been successful in enhancing the crop productivity and achieving self-sufficiency in food-grains production in the country.

However, the most widely debated issue about this "Green Revolution" was the growing income disparities between different regions and between different categories of farmers.

Therefore, it becomes particularly important to address regional imbalances in growth, imparting stability to agricultural output and bringing the benefits of agricultural research technology to the resource poor farmers across all the regions of the country to ensure economic equity.

A new technology based on hybrid variety of rice and wheat (the two staple crops in eastern region) seeds were thought of to make a dent in the existing level of productivity.

Furthermore, it is worth noting in this regard that the Green Revolution technology that was propagated in the mid 60's depended heavily on assured and controlled irrigation that was catered mostly by the tube wells. With the passage of time indiscriminate and over use of tube well irrigation has resulted in an acute depletion of sub-soil water table in the country. Hence, there had been a need for an alternative technology that could address the environmental issues in the process of pushing up the productivity frontier.

The program of **Bringing Green Revolution to Eastern India (BGREI)** is intended to address the underlying constraints for enhancing productivity of rice and wheat in seven states of eastern India (Assam, Bihar, Chhattisgarh, Jharkhand, Eastern Uttar Pradesh, Orissa and West Bengal) so that agricultural productivity is reasonably enhanced in these areas.

1.2 The program

The program takes care of needed technology in terms of assured provision for incentivized supply of recommended agricultural inputs to the farmers adopting cluster approach in order to ensure equity amongst farmers across selected locations in the BGREI States. The process of input **inducement under BGREI program differs from other crop development programs** in respect of the provision of cash doles for "Deep ploughing in rain-fed areas/land preparation & line sowing/transplanting for all ecologies" and making **provision of improved seed supply.** Besides this, the programme intended to **enhance supply of agriculture credit** and **procurement of agriculture commodities by the public sector agencies at the minimum support prices.**

The programme of **Bringing Green Revolution in Eastern India was** launched in the year 2010-11 to enhance the agriculture production in the states of Assam, Bihar, Chhattisgarh, Jharkhand, Orissa, Eastern U.P and West Bengal. It was conceived as a lateral to Rashtriya Krishi Vikas Yojna (RKVY).

The program included a bouquet of activities including three broad categories of interventions namely, organizing **Block demonstrations of rice and wheat** in different rice and wheat ecologies; **asset building** for water management such as construction of shallow tube wells/dug wells/bore wells, and distribution of pump sets, drum seeders, zero till seed drills and **site specific activities** such as construction/renovation of field/irrigation channels/electric power supply for agricultural purposes and institution building for inputs supply. The program envisaged adopting both medium and long term strategies for asset building activities relating to water conservation and utilization in combination with short term strategies pertaining to transfer of technology through block demonstration.

The program was implemented in a cluster approach. The size of cluster for the interventions was determined as 1000ha. Selection of villages/blocks was made based on ecology. From the ecologies beneficiary farmers were selected for each cluster. In each Block Demonstration one Progressive Farmer for every 100 ha of area was selected for providing handholding support to the beneficiary farmers.

In order to ensure effective implementation of the program, district-wise scientific resources drawn from ICAR-SAU system were roped besides 3-tier monitoring system put in place at National, State and District levels. Institutional support for technical backstopping has been arranged through Central Rice Research Institute (CRRI) besides provision of honorarium to Progressive farmers and field staff of State Department of Agriculture concerned as a stop gap arrangement for extension support at ground level.

1.3 Rationale for the Study: There was overwhelming response to the BGREI program at all the levels in the BGREI States and crop production prospects were reported to have made a breakthrough. Enthused with these reports, Department of Agriculture & Cooperation decided for conducting an “End Term Evaluation of BGREI program”.

The study would focus on evaluation of Block Demonstrations of rice & wheat to the extent possible besides understanding the planning & implementation strategies adopted by the BGREI States.

1.4. Objectives of the study: The specific objectives of the study are:-

- To identify gaps, if any, between recommended, promoted and implemented strategies;

- To explore effectiveness of technical backstopping;
- To examine the effectiveness of the provision of progressive farmers and SDA staff entrusted with BGREI program;
- To observe crop response to promoted technology; and
- To evaluate the impact of various interventions of Block demonstrations that tends to drive growth of rice and wheat yield.

1.5. Data Base: The sample units of demonstrations, for each of the BGREI states have been selected from 5 rice ecologies namely; rain-fed uplands, rain-fed shallow low land, rain-fed medium deep water, rain-fed deep water and irrigated. At the first stage of sampling, for each state, one district is selected from each of the ecologies considering the concentration of demonstrations in the district. In the second stage, one representative block from one Block Demonstration under each of the different ecologies is selected following the same procedure. In the third stage, a total number of 10 beneficiaries and 5 non-beneficiaries are selected at random from each selected block. In sum, a total number of 450 beneficiaries and 225 non-beneficiaries spread over 34 selected districts across all the seven BGREI States are covered in the study.

For secondary data on different aspects of BGREI program – financial allocation and utilization, we had to depend on various government sources including State Directorate of Agriculture in each BGREI states. Data on area, production and yield for rice and wheat at the state level (both NFSM and BGREI districts) were made available to us by the BGREI Cell, New Delhi.

1.6 Identification of Beneficiaries: A homogeneity test of the respondent farmers (both beneficiaries and non-beneficiaries) in respect of land holding size and level of education was carried out separately to probe into the characteristics of the respondents in respect of their position in economic and social ladder The results reveal that the respondents were more or less homogenous with little variations across ecologies and household characteristics. However, homogeneity test for the beneficiaries was not conducted in respect of Bihar, Jharkhand and Eastern Uttar Pradesh.

It is to be noted that the result of the test for homogeneity signifies that the two sections of respondent namely; beneficiaries and non-beneficiaries are alike in terms of their land holding sizes and educational attainments. Hence, it is possible to get an impression of the impact of an intervention like BGREI comparing the two groups.

1.7 Result and Discussions

1.7.1 Adoption of BGREI Program

The focus of BGREI program was on technology transfer with assured technical backstopping, water asset building and site specific needs. Accordingly, the entire program was sub-divided in the following three projects backed with the provision of their monitoring.

The allocation of funds among these three major interventions was: nearly **63 per cent** of the total funds for **block demonstrations**, **17 per cent** for **asset building activities** and **19 per cent** for **site specific activities.** About **1 per cent** of the funds were earmarked for **monitoring activities** at national level.

It appears from the data on fund allocation in the BGREI states that allocation of funds among these interventions within the state **did not maintain a strict compliance** with the prescribed norm. However, the proportions of allocation among the three interventions on the whole for all BGREI states had been rather successful in maintaining a **near proximity** to the prescribed norm.

1.7.2 Concentration ratio of Block Demonstration:

The statistic provides us with an estimate of outreach of the crop production technology. For all states taken together the concentration ratio for rice was 0.023 and for wheat it turned out to be 0.032 with variability across the states. One of the reasons behind this variability may be due to ecologically differentiated allocation of Block demonstrations.

1.7.3 Progressive Farmers under BGREI: The selected Progressive Farmers were entrusted with responsibility motivating the participating farmers in adoption of technology. The Progressive Farmers had the additional responsibility of acting as a liaison between the extension workers, scientists and the beneficiary farmers to assist in the technical backstopping and disseminating the technology at the grass-root. They were also entrusted to keep a detailed record of the agricultural operations with the help of “Information Card”.

1.7.4 Adoption of input package for rice during 2011-12:

This study revealed that the beneficiaries have not used entire recommended input package. In many cases, beneficiary farmers have not undertaken seed treatment; weed control through weedicides, application of micro-nutrients and plant protection measures. The farmers did not receive the inputs package specified in the BGREI guidelines uniformly across all the BGREI States. Deep ploughing and line sowing has not been adopted in several cases. This gets reflected from the primary survey across all ecologies.

1.7.5 Adequacy of input package during 2011-12:

There was mixed response of beneficiaries of Block demonstrations of rice and wheat regarding adequacy of Input packs for Block demonstrations.

1.7.6 Beneficiary farmers' perception towards BGREI program during 2011-12:

The farmers' opinion was solicited with regard to the overall rating of the BGREI program. There was mixed response of beneficiaries of Block demonstrations of rice and wheat in this regard**.** The overall 74 per cent beneficiaries rated the program as "Good" and 26 per cent rates it as "Average".

1.7.7 Medium and long term physical achievements in the BGREI States:

It is observed that in Assam, Chhattisgarh and Eastern Uttar Pradesh installation of shallow tube wells and pump sets had been widespread. In Bihar the achievement was substantially low in this regard. In Jharkhand, however, no target was set as to physical water asset building activities and no work has been done in this respect.

1.8 Technical Backstopping:

1.8.1 Performance Index in respect of Technical Backstopping during 2011-12:

So far as implementation of BGREI is concerned there had been Progressive Farmers, state extension workers, KVKs and SAUs, who had been entrusted to provide technical backstopping to the farmers. Performance index are percentages computed on the basis of responses from farmers as regards to their access to technical knowhow from sources mentioned above. Results indicate that 47 per cent beneficiaries accessed technical know-how from the local extension worker of State Department of Agriculture followed by 36 per cent from Progressive farmers, 11 per cent from *Krishi Vigyan Kendras* and 6 per cent from State Agricultural University.

1.8.2 Adequacy of Technical Backstopping (farmers' perception) during 2011-12:

The general opinion among the beneficiary farmers was that the provision of technical backstopping had been adequate. On the whole 73 per cent beneficiaries reported adequacy in technical backstopping.

It might be mentioned that the scientists of SAUs & ICAR (ICAR-SAU system) were identified for providing technical support to the BGREI beneficiaries during 2011-12 with the help of KVKs and extension workers from state department of agriculture. A sizeable majority of the respondents (68%) reported that extension workers of state department of agriculture provided the best technical support followed by Progressive Farmers (19%).

1.9 Monitoring:

A three tier monitoring structure has been put in place at National, State and District Levels. CRRI is the nodal agency for monitoring the program.

1.9.1 Monitoring status of the program by CRRI, Cuttack:

It appears from the official statistics that were made available, CRRI scientists have carried out the awareness meetings regarding implementation of BGREI program in general and provided necessary technical backstopping.

1.9.2 Monitoring by Central Steering Committee (CSC): The staff of BGREI Cell has visited the 61 BGREI districts out of 114 districts during *Kharif* -2011 and 14 districts during *Rabi*: 2011-12 out of 54 districts. All the States stood by the program and accomplished task of program formulation & implementation on time.

1.9.3 Monitoring by SLMTs:

Assam: There were 12 SLMT meetings in 2010-11 and 6 meetings in 2011-12.

Bihar: In Bihar the fifteen SLMT meeting was held.

Chhattisgarh: Only two meetings of SLMTs were conducted

Eastern Uttar Pradesh: only 5 meetings were organized at state level to monitor the BGREI program in Eastern Uttar Pradesh.

Jharkhand: One meeting for the year 2011-12 was held.

Odisha: Three SLMT meetings were held 2011-12.

West Bengal: No information regarding SLMT meeting was available from State Agricultural Directorate despite repeated requests.

1.9.4 Details about DLMTs:

No detailed account of composition of the DLMT. Neither the numbers of meetings, discussions and resolutions taken in such meeting was available from the reports of the participating centres barring the report prepared by AER Centre, Visakhapatnam.

1.10 Impact of BGREI program

1.10.1 BGREI program and changes in Cropping Intensity: The results of CI across rice ecologies indicate differentiated pattern between BGREI beneficiaries and non-beneficiaries. On the whole it can be said that there has been marginal changes over two years in cropping intensity for both beneficiary and non-beneficiary farmers with variations across states. The change in CI

in the states (as derived from sample survey results) cannot be attributed to the program of BGREI. There may have been some other factors influencing the cropping intensity in the states in the years of reference. Over and above, the BGREI program as conceived had focused on increasing the yield of crops of which we shall be discussing presently.

1.10.2 BGREI program and rise in grain yield:

It is revealed from the mean yield achieved by the beneficiaries and non-beneficiaries that there exists a difference in grain yield between them. In most of the states the average yield of crops among beneficiaries was substantially higher than their counterparts (i.e. non-beneficiaries).

1.10.3 Yield Gap analysis amongst BGREI beneficiaries and non- beneficiaries:

The ecology specific yield gap analysis in rice and wheat crops in BGREI States except eastern Uttar Pradesh reveals that wide gap exists across ecologies and districts within a state and between states too. This exercise, however, was not carried out by AER Centre, Allahabad. Normally yield gap is the difference between yield obtained at the farm level and the potential yield of a particular variety on the experiment station. Differences in yield gap between beneficiary and non-beneficiary farmers would suggest the impact of changes brought about in terms of yield enhancement. However, the yield gap analysis has been made differently for different states with differential benchmark. On the whole substantial yield gap is observed between beneficiaries and non-beneficiaries, the former registering higher yield.

Hence, it can be said that the beneficiary farmers in general in all the BGREI States had an edge over the non-beneficiaries in enhancing the yield of crop.

1.11 Conclusions

- The study revealed that there are certain gaps in varying extents between recommended, promoted and implemented strategies across different States due to lack of uniformity in input package/mode of implementation/documentation across the States.
- In case of technical backstopping, the scientists of SAUs, KVKs & ICAR (ICAR-SAU system) were identified for providing technical support to the BGREI beneficiaries during 2011-12.. Through a regular contact technology dissemination had been quite successful in the BGREI states.

- After a detailed analysis of yield rates across beneficiary and non-beneficiary farmers across different states, the study reveals a positive crop response to promoted technology under BGREI program. Though it seems too early to conclude strongly as to the definite impact of the program nonetheless there are signs towards a positive change.
- In course of the study, the impact of various interventions of Block demonstrations to drive growth in rice and wheat is reflected in changes in yield rates. The BGREI program, as conceived, addressed towards increasing the yield rather than the cropping intensity. Hence, the impact of intervention under block demonstration programs under BGREI is more prominent in increasing the yield rates for the beneficiary farms as compared to non-beneficiaries.

1.12 Recommendations and Policy Suggestions

- Efforts should be made to reduce the gaps between recommended, promoted and implemented strategies.
- In course of dissemination of technology, provision of Progressive Farmers and regular monitoring from State agriculture departments can play vital role. As such, such links between the beneficiaries and State machineries should be encouraged.
- Interventions through crop demonstrations has helped decline the gap between ecology specific potential and actual yields across beneficiary farms. Hence, such demonstration programs should be encouraged.
- Eastern India covered under the BGREI program has exhibited a glimpse of a high potential for yield enhancement of rice, wheat and *Rabi* pulses through a favourable positive crop response. There is a huge scope to exploit this potential through scientific and technological intervention like BGREI, and hence the program should continue with greater effort and coordination.
- An all round effort should be made to ensure the timeliness of input delivery system prescribed under the recommended technology.

***

Chapter 1: Introduction

1.1 Background of the Program:

India continues to be largely an agrarian economy with 68.8 per cent of its rural population subsisting on farming (Provisional estimates-2011). Over the decades since independence, Government of India has made concerted efforts to improve the lot of the farmers. By the mid sixties, it was realised that for India to achieve self-sufficiency in food-grains, there was no alternative to technological change in agricultural production and management. The spread of HYV technology resulting in the "Green Revolution in India" and achievement of self-sufficiency in food-grains represent a success story for the Science and Technology sector. The key to this revolution was new plant varieties which fully utilised improved fertilisers and other new agro-chemicals that had become available during this period. When planted using improved irrigation and crop management techniques, these new varieties resulted in dramatic increases in yield.

However, the most widely debated issue about this "Green Revolution" was the growing income disparities between different regions and between different categories of farmers. This was observed in the early phase of the "Green Revolution" until about the mid-seventies. These trends, however, got reversed after the mid-seventies which are typical of a diffusion process characterised by the spread of "Green Revolution" to new areas, and the increasing adoption of new technologies by the small/marginal farmers. Indeed the achievements in agricultural production so far do not fully reflect the strength of our agricultural research system to meet the specific requirements of Indian agriculture in diverse agro-climatic situation. **The gains from the "Green Revolution" have so far been limited largely to wheat and rice grown more or less in homogeneous tracts – both agro-climatically and socio-economically served with assured sources of irrigation.**

The limited spread of the Green Revolution can be explained partly by the nature of available technology itself and partly by the uneven development of infrastructure, physical as well as institutional which is pre-requisite for the adoption of improved farming practices. Against such a background, it is necessary to examine the needed changes in agricultural research strategy to boost up agricultural production in the light of emerging socio-economic challenges. Therefore, it becomes particularly important to address regional imbalances in growth, imparting stability to agricultural output and bringing the benefits of agricultural research technology to the resource poor farmers across all the regions of the country to ensure economic equity. These concerns necessitated widening the base of research involving evolution of seeds of high yielding crop varieties incorporating multiple resistances to the biotic

(insects and diseases) and abiotic stresses (like drought in rain-fed upland, saline/alkaline soil conditions) grown under diverse agro-climatic conditions.

Within the food grains crop, rice being the dominant staple food for millions of people in the country, agricultural scientists and policy makers are constantly making efforts to find solutions to various production problems through technological development. The rice research program in India has largely centred on shifting the yield frontier which contributed substantially to achieving food security through increased rice supplies. The rice output growth has been impressive during 1966-99. Yield improvements in rice were the major sources of output growth largely due to widespread adoption of modern rice varieties in favourable irrigated environment. The intensive rice growing states of Andhra Pradesh, Tamil Nadu, Punjab and Haryana performed significantly in terms of yield improvement while some other states, particularly eastern States lagged behind. The economically exploitable yield of existing high yielding varieties (HYVs) of rice has almost reached the technical optimum in irrigated rice systems with the universal adoption of HYVs. **Among various options available, policy makers and research scientists considered hybrid rice technology as a readily available option to shift the yield frontier upward.** It was thought that hybrid rice technology would bring about another rice revolution in the country. Although a number of rice hybrids have been released by public and private seed companies in the country, the extent of adoption of hybrid rice varieties in the country is too meagre to make an impact on rice production. Hence, a new technology based on hybrid variety of rice and wheat (the two staple crops in eastern region) seeds were thought of to make a dent in the existing level of productivity.

Furthermore, it is worth noting in this regard that the Green Revolution technology that was propagated in the mid 60's depended heavily on assured and controlled irrigation that was catered mostly by the tube wells. With the passage of time indiscriminate and over use of tube well irrigation has resulted in an acute depletion of sub-soil water table in the country. Hence, there had been a need for an alternative technology that could address the environmental issues in the process of pushing up the productivity frontier.

The program of **Bringing Green Revolution to Eastern India (BGREI)** is intended to address the underlying constraints for enhancing productivity of rice and wheat in seven states of eastern India (Assam, Bihar, Chhattisgarh, Jharkhand, Eastern Uttar Pradesh, Orissa and West Bengal) so that agricultural productivity is reasonably enhanced in these areas. These constraints are often described in terms of natural or ecological, technological and economic. In so far as natural or ecological constraints are concerned, these BGREI States are endowed with abundant rainfall needed for agricultural vocation. **The program takes care of needed technology in terms of assured provision** for incentivized supply of recommended agricultural inputs to the farmers

adopting cluster approach in order **to ensure equity amongst farmers across selected locations in the BGREI States.** The process of input **inducement under BGREI program differs from other crop development programs** in respect of the provision of cash doles for "Deep ploughing in rain-fed areas/land preparation & line sowing/transplanting for all ecologies" and making **provision of improved seed supply.** Besides this, inter-ministerial coordination was ensured to **enhance supply of agriculture credit** and **procurement of agriculture commodities by the public sector agencies at the minimum support prices** declared by Government of India in general and in the BGREI districts in particular.

The program of **Bringing Green Revolution in Eastern India was** launched in the year 2010-11 to enhance the agriculture production in the states of Assam, Bihar, Chhattisgarh, Jharkhand, Orissa, Eastern U.P and West Bengal based on action plans developed by these strategies. It was conceived as a lateral to Rashtriya Krishi Vikas Yojna (RKVY). The objective of the program is to increase the productivity of rice based cropping systems in the resource rich eastern region by intensive cultivation through promotion of recommended agriculture technology and package of practices by addressing the underlying constraints of different agro-climatic sub-regions. Initially, identified States were given free hand to choose the activities as per their requirements in conformity with the agreed framework under RKVY. However, in the subsequent year 2011-12, the program included a bouquet of activities including three broad categories of interventions namely, organizing **Block demonstrations of rice and wheat** in different rice and wheat ecologies; **asset building** for water management such as construction of shallow tube wells/dug wells/bore wells, and distribution of pump sets, drum seeders, zero till seed drills and **site specific activities** such as construction/renovation of field/irrigation channels/electric power supply for agricultural purposes and institution building for inputs supply. The program envisaged adopting both medium and long term strategies for asset building activities relating to water conservation and utilization in combination with short term strategies pertaining to transfer of technology through block demonstration.

The program was implemented in a cluster approach. The size of cluster for the interventions was determined as 1000ha. Selection of villages/blocks was made based on ecology. From the ecologies beneficiary farmers were selected for each cluster. In each Block Demonstration one Progressive Farmer for every 100 ha of area was selected for providing handholding support to the beneficiary farmers.

In order to ensure effective implementation of the program, district-wise scientific resources drawn from ICAR-SAU system were roped besides 3-tier monitoring system put in place at National, State and District levels. Institutional support for technical backstopping has been arranged through Central Rice Research Institute (CRRI) besides provision of honorarium to

Progressive farmers and field staff of State Department of Agriculture concerned as a stop gap arrangement for extension support at ground level.

1.2 Rationale for the Study: There was overwhelming response to the BGREI program at all the levels in the BGREI States and crop production prospects were reported to have made a breakthrough. Enthused with these reports, Department of Agriculture & Cooperation decided for conducting an "End Term Evaluation of BGREI program" through the expert official agencies namely; Agro-economic Research Centres (AERCs) located in the BGREI States. Besides, the program has completed 2 years of implementation by the terminal year of 11th Five Plan (2011-12).

The study was exclusively focused on evaluation of Block Demonstrations (an ecology specific input package adopted for transfer of technology) of rice & wheat to the extent possible besides understanding the planning & implementation strategies adopted by the BGREI States.

1.3. Objectives of the study: Terms of Reference of the "End Term Evaluation of BGREI program" set out by the Department of Agriculture & Cooperation, Union Ministry of Agriculture are annexed as ***Appendix I.*** The specific objectives of the study are:-

- To identify gaps, if any, between recommended, promoted and implemented strategies;
- To explore effectiveness of technical backstopping;
- To examine the effectiveness of the provision of progressive farmers and SDA staff entrusted with BGREI program;
- To observe crop response to promoted technology; and
- To evaluate the impact of various interventions of Block demonstrations that tends to drive growth of rice and wheat yield.

1.4. Data Base and Research Methodology:

1.4.1. Data Base: The sample units of demonstrations, for each of the BGREI states have been selected from 5 rice ecologies namely; rain-fed uplands, rain-fed shallow low land, rain-fed medium deep water, rain-fed deep water and irrigated (with differences in number of ecologies between the crops under consideration). At the first stage of sampling, for each state, one district is selected from each of the ecologies considering the concentration of demonstrations in the district. In the second stage, one representative block from one Block Demonstration under each of the different ecologies is selected following the same procedure. In the third stage, a total number of 10 beneficiaries and 5 non-beneficiaries are selected at random from each selected block. The e-mail message received from the Adviser, Directorate of Economics &

Statistics, Union Ministry of Agriculture relating to the methodology of sample selection by AERCs for this study is annexed at ***Appendix II***. In sum, a total number of 450 beneficiaries and 225 non-beneficiaries spread over 34 selected districts across all the seven BGREI States are covered in the study (**Table.1.1**).

Table.1.1: Ecology specific selected districts, Blocks and number respondents for "End Term evaluation of BGREI program".

1. Assam					
Ecology	**Rain-fed upland**	**Rain-fed Shallow low land**	**Rain-fed medium deep water low land**	**Rain-fed Deep water low land**	**Irrigated**
(A) Assam-*Kharif* rice					
Districts	**Kamrup**	**Udalguri**	**Golaghat**	**Karimganj**	**Jorhat**
Blocks	Rani	Udalguri	Dergaon	Ramkrishna Nagar	Ujani Majuli
Respondents	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB
Sample size	**50 beneficiaries + 25 Non-beneficiaries = 75**				
(B) Assam- Summer rice					
Ecology	**Rain-fed upland**	**Rain-fed Shallow low land**	**Rain-fed medium deep water low land**	**Rain-fed Deep water low land**	**Irrigated**
Districts	**Kamrup**	**Udalguri**	**Golaghat**	**Karimganj**	**Jorhat**
Blocks					
Respondents	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB
Sample size	**50 beneficiaries + 25 Non-beneficiaries = 75**				
(C) Assam-Pulses					
Ecology	**Rain-fed Shallow low land**	**Rain-fed medium deep water low land**	**Rain-fed Deep water low land**	**Irrigated**	
Districts	**Udalguri**	**Golaghat**	**Karimganj**	**Jorhat**	
Blocks					
Respondents	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB	
Sample size	**40 beneficiaries + 20 Non-beneficiaries = 60**				
Sample size-Total Assam	**140 beneficiaries + 70 Non-beneficiaries = 210**				
(2) Bihar					
Ecology	**Rain-fed upland**	**Rain-fed Shallow low land**	**Rain-fed medium deep water low land**	**Rain-fed Deep water low land**	**Irrigated**
Districts	**Lakhisarai**	**Patna**	**Gopalganj**	**Begusarai**	**Jahanabad**
Blocks					
Respondents	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB
Sample size	**50 beneficiaries + 25 Non-beneficiaries = 75**				
(3) Chhattisgarh					
Ecology	**Rain-fed upland**	**Rain-fed Shallow low**	**Irrigated hybrid**	**Irrigated HYV**	

		land			
Districts	**Bastar**	**Durg**		**Bastar**	**Bilaspur**
Blocks	**Bastar**	**Durg**		**Bastar**	**Bilaspur**
Respondents	10 B + 05 NB	10 B + 05 NB		10 B + 05 NB	10 B + 05 NB
Sample size	**40 beneficiaries + 20 Non-beneficiaries = 60**				
(4) Jharkhand					
Ecology	**Rain-fed upland**	**Rain-fed Shallow low land**	**Rain-fed medium deep water low land**	**Rain-fed Deep water low land**	**Irrigated**
Districts	**Pakur**	**Bokaro**	**Godda**	**Jamtara**	**Sahebganj**
Blocks	**Maheshpur**	**Petarwar**	**Basantrai**	**Fatehpur**	**Barharwa**
Respondents	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB
Sample size	**50 beneficiaries + 25 Non-beneficiaries = 75**				
(5) Odisha					
Ecology	**Rain-fed upland**	**Rain-fed Shallow low land**	**Irrigated HYV**		**Irrigated hybrid**
Districts	**Ganjam**	**Khurda**	**Rayagada**	**Koraput**	**Sambalpur**
Blocks	**Kallikote**	**Tangi**	**Padampur**	**Kotpadu**	**Manaswar**
Respondents	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB
Sample size	**50 beneficiaries + 25 Non-beneficiaries = 75**				
(6) Eastern Uttar Pradesh					
(A) *Kharif* rice					
Ecology	**Rain-fed upland**	**Rain-fed Shallow low land**	**Rain-fed medium deep water low land**	**Rain-fed Deep water low land**	**Irrigated**
Districts	**Jaunpur**	**Kushinagar**	**Maharajganj**	**Kushinagar**	**Allahabad**
Blocks	**Shahganj**	(1) Padrauna (2) Hata	Paniara	(1) Kapatganj (2) Khadd (3) Khukrauli	Kaurihar
Respondents	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB
Sample size	**50 beneficiaries + 25 Non-beneficiaries = 75**				
(B) Wheat-*Rabi* season					
Ecology	**Timely sown (Irrigated)**		**Late sown (Irrigated)**		
Districts	**Allahabad**		**Mirzapur**		
Blocks	Meza		Narainpur		
Respondents	10 B + 05 NB		10 B + 05 NB		
Sample size	**20 beneficiaries + 10 Non-beneficiaries = 30**				
Sample size-Total eastern Uttar Pradesh			**70 beneficiaries + 35 Non-beneficiaries = 105**		
(7) West Bengal					
Ecology	**Rain-fed upland**	**Shallow low land**	**Irrigated HYV**		**Irrigated**
Districts	**Birbhum**	**Bankura**	**Burdwan**	**Malda**	**Murshidabad**
Blocks	**Bolpur**	**Gangajalati-I**	**Memari-I**	**Gazole**	**Nabagram**
Respondents	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB	10 B + 05 NB
Sample size	**50 beneficiaries + 25 Non-beneficiaries = 75**				
All BGREI States					
Sample size	**450 beneficiaries + 225 Non-beneficiaries = 675**				

For secondary data on different aspects of BGREI program – financial allocation and utilization, we had to depend on various government sources including State Directorate of Agriculture in each BGREI states. Data on area, production and yield for rice and wheat at the state level (both NFSM and BGREI districts) were made available to us by the BGREI Cell, New Delhi.

1.4.2. Research Methodology: The BGREI evaluation has been planned to address the evaluation in terms of both qualitative and quantitative methods of analyses. The qualitative methods are especially important when historical data are not available and therefore, considered to be subjective and judgemental. On the other hand, the quantitative methods involve the determination of factors that might have impact on productivity of the crops. In this evaluation study we had adopted a combination of both the methods.

In evaluating the BGREI program a two-pronged methodology was adopted. First, it was necessary to estimate the level of adoption of the technology by the beneficiary farmers. This concerns the transfer of technology to the grass root level and how far the technical backstopping provided by the government and non-government machineries has been successful in disseminating the technology. Secondly, it would address to the questions regarding the benefits derived by the farmers resulting out of the technology transfer.

1.4.3. Method of Data Collection: Considering the diversity in rice production environment across the States, five districts representing each of the five agro-ecological regions were selected for obtaining farmers' response about the program. Farm household survey was conducted with the help of structured schedule. There were both structured and open ended questions in the schedule (***Appendix III***). The latter were used for collecting data on the perception of farmer on certain aspects of BGREI program. In order to collect secondary data on various aspects of the program, a list of variables were identified for data collection from the States, districts, CRRI, Cuttack and Department of Agriculture & Cooperation in the Union Ministry of Agriculture.

1.4.4 Identification of Beneficiaries: Once the sample were drawn, it was necessary to probe into the characteristics of the respondents in respect of their position in economic and social ladder. Whether there were any difference between the beneficiaries of BGREI and the non-beneficiaries. A Homogeneity test of the respondent farmers (both beneficiaries and non-beneficiaries) in respect of land holding size and level of education was carried out separately (***Appendix IV)***. The results reveal:

➨**Assam:** As per the report of AER Centre, Assam all respondents belonging to rainfed shallow low land, rainfed medium land and rainfed deep water rice ecologies and the state as a whole were found homogeneous in respect of land holding size and level of education. Whereas,

respondents belonging to rainfed upland and irrigated district were found heterogeneous to both of the parameters namely, land holding size and level of education. But the Rho values for level of education and land holding size had to be calculated separately for testing homogeneity of sample separately. Hence, it seems inconclusive from the Rho values whether the sample is homogeneous. A Chi-square test for homogeneity for the state as a whole was also in conformity with the above result, i.e all the respondents (beneficiaries and non-beneficiaries) taken together for the state as a whole seemed homogeneous.

➨**Chhattisgarh:** All respondents belonging to irrigated rice ecology were found homogenous in respect of land holding size and level of education whereas the respondents belonging to rainfed upland and rainfed shallow low land were found heterogeneous to both of the parameters namely; land holding size and level of education;

➨**Odisha:** All the respondents belonging to rainfed upland, rainfed shallow low land and irrigated rice ecology were found homogenous in respect of land holding size and level of education as well;

➨**West Bengal:** All respondents found homogenous in respect of level of education and heterogeneous for land holding size.

The homogeneity test of the beneficiaries was not conducted in respect of Bihar, Jharkhand and Eastern Uttar Pradesh.

It is to be noted that the result of the test for homogeneity signifies that the two sections of respondent namely; beneficiaries and non-beneficiaries are alike in terms of their land holding sizes and educational attainments. Hence, it is possible to get an impression of the impact of an intervention like BGREI comparing the two groups.

1.4.5. Statistical analysis of primary data: Data collected from farm household survey was analysed adopting following statistical and econometric tools:-

Mean Difference Test:

The particular form is: $z = (\bar{x}_1 - \bar{x}_2) / \sigma \left(\frac{1}{N_1} + \frac{1}{N_2}\right)^{½}$

Where, z = Standard Normal Variate

$\bar{x}_1$ = Mean of Series 1 (say of beneficiaries)

$\bar{x}_2$ = Mean of Series 2 (say of non-beneficiaries)

σ = Standard Deviation

N_1= Number of Observations in Series 1 (say of beneficiaries)

N_2= Number of Observations in Series 2 (say of non-beneficiaries)

Multiple Regression Analysis (Linear):

Form of Regression Model

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + b_7 X_7 + e;$$

Where, Y = Yield per hectare (productivity)

a = Constant

$b_1 – b_7$ = Coefficients

X_1 = Costs of Micro-nutrients (imputed value in case of beneficiary farms)

X_2 = Costs of Seeds (imputed value in case of beneficiary farms)

X_3= Other Costs (total costs *less* 1 & 2)

X_4= Dummy for Ecological Region 1

X_5 = Dummy for Ecological Region 2

X_6= Dummy for Ecological Region 3

X_7 = Dummy for Ecological Region 4

e = error term

Exponential Regression Analysis:

In order to estimate the compound growth rates of Area, Production and Yield for mandated crops in the BGREI states an exponential line was estimated.

$log(y_i)=a+bt_i+e_i$

where :- *y*= variable under consideration

a= constant

b=coefficient

t=time (1,2.....n)

Hence, $\Delta log(y_i)=(y_t-y_{t-1})/y_{t-1}$ is the growth rate. To turn the growth rate into a per cent, we simply multiply by 100.

Qualitative analysis: Analysis of the auxiliary information relating to input delivery mechanisms, monitoring mechanism at various levels, technical backstopping, yield gap analysis, homogeneity test (Rho), documentation, reporting and utilization of sanctioned funds has also been considered under the study.

1.5. Limitations:

The analytical methods to be adopted for the study were discussed at length by the participating Centres (AERC, Allahabad could not participate in the meeting) in the review meeting held at AERC, Visva-Bharati on 28th July, 2012 in the presence of Mr. Ashok Kumar Khanna, Program Manager, BGREI Cell, Ministry of Agriculture, Government of India and Mr. Satya Vir Singh, Consultant (Agronomy), BGREI Cell, Ministry of Agriculture. Prof. S. Chakrabarty and Prof. K.M.B. Rahim from Visva-Bharati, Santiniketan were present in the meeting as experts on the subject. After threadbare discussion a common design was arrived at on the basis of the deliberation of Mr. Satya Vir Singh. A common methodology with changes in the objectives of the study was also designed for all the participating Centres, which were duly communicated to Ministry of Agriculture, Government of India (***Appendix V***). It was felt that a suitable econometric analytical model need be devised for statistical analysis of primary data. All the Centres remodelled the study accordingly, focusing on TOR 17 only. A multiple regression analysis was sought for but for want of field level data on agricultural yield as dependent variable and various costs as independents, test for multicolinearity among the variables could not be carried out.

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Chapter 2: Trends in area, production and productivity of rice and wheat in BGREI States

In order to evaluate the performance of the BGREI program, area, production and productivity trend of rice and wheat of BGREI as well as NFSM districts over the last seven years have been analyzed. It should be mentioned at the outset that the BGREI program was introduced only in 2010-11, and hence it is quite premature to arrive at any concluding observations from the data at the state level only after two years of its implementation.

It is necessary to mention that the NFSM was launched in 2007-08 with a view to enhancing the production of rice, wheat, and pulses by the end of the Eleventh Plan. The approach was to bridge the yield gap in respect of these three crops through dissemination of improved technologies and farm management practices, while focusing on districts which have high potential but relatively low level of productivity at present. On the contrary, BGREI was conceptualized adopting focused approach on the medium and long term strategies for asset building and site specific activities in combination with the short term activities relating to technology dissemination in respect of crops in non-NFSM districts. Hence, at the very outset it is evident that the BGREI districts had an edge over the NFSM districts in the respective states in terms of agricultural productivity.

2.1: Trends in area, production and yield rate of rice and wheat in BGREI States: The area, production and yield trend of rice in the seven BGREI states taken together is annexed at ***Appendix VI*** **(A to C).** If one look into the trend in area of rice, one is faced with situation where there had been almost no difference as regards to trend in area under rice between the BGREI districts and NFSM districts over the years from 2005-6 to 2011-2 (**Figure.1**). Area under rice remained more or less constant during the reference period in both BGREI and NFSM districts. However, production trend reveals a clear advantage in favour of BGREI districts in the initial years till 2008-9 (**Figure. 2**). The gap between the two in terms of production that seemed to be declining since 2009-10 to 2010-11 appears to widen after 2010-11, where the BGREI districts exhibit a very marginal advantage over NFSM districts. It might have been due to a relative improvement in productivity of rice resulting from BGREI program (which gets corroborated from the trend in yield where the growth rate seems to be increasing since 2010-1 (**Figure.3**). But with only two years of its implementation, it seems too early to arrive at any such conclusion as regards to the impact of the program. However, there are evidences of increase in yield (which has crossed 2000 Kg/Ha) in the BGREI districts.

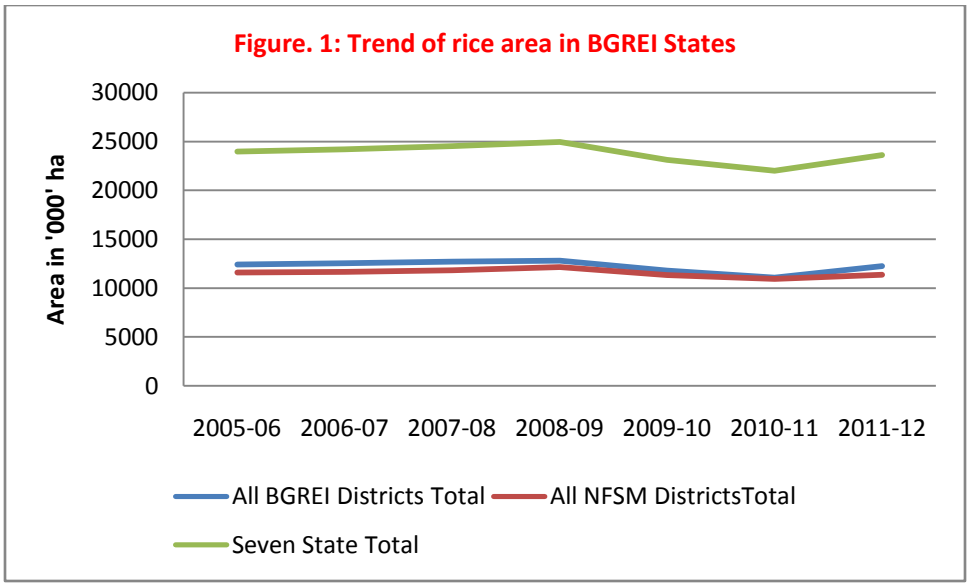


Figure. 1: Trend of rice area in BGREI States
Area in '000' ha
30000
25000
20000
15000
10000
5000
0
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
All BGREI Districts Total
All NFSM DistrictsTotal
Seven State Total

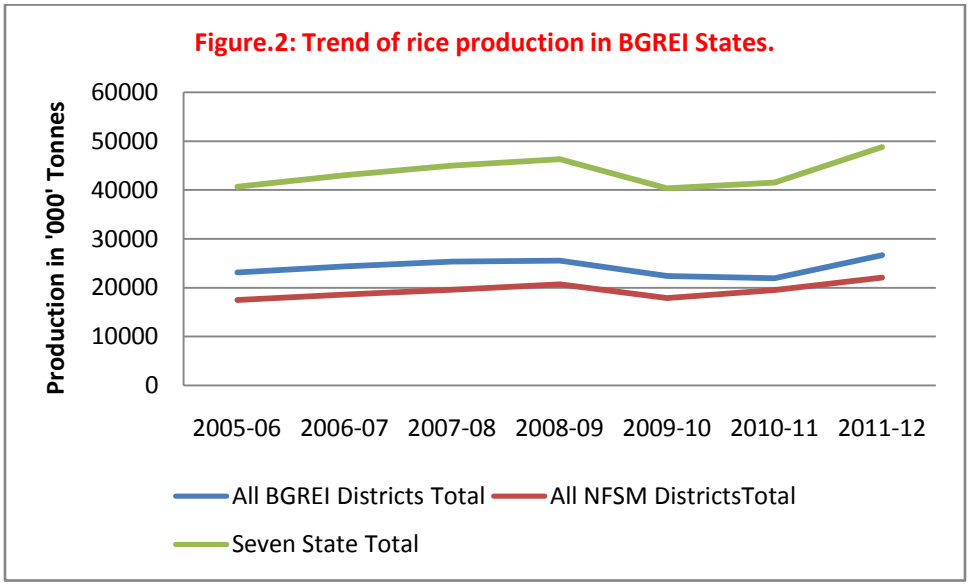
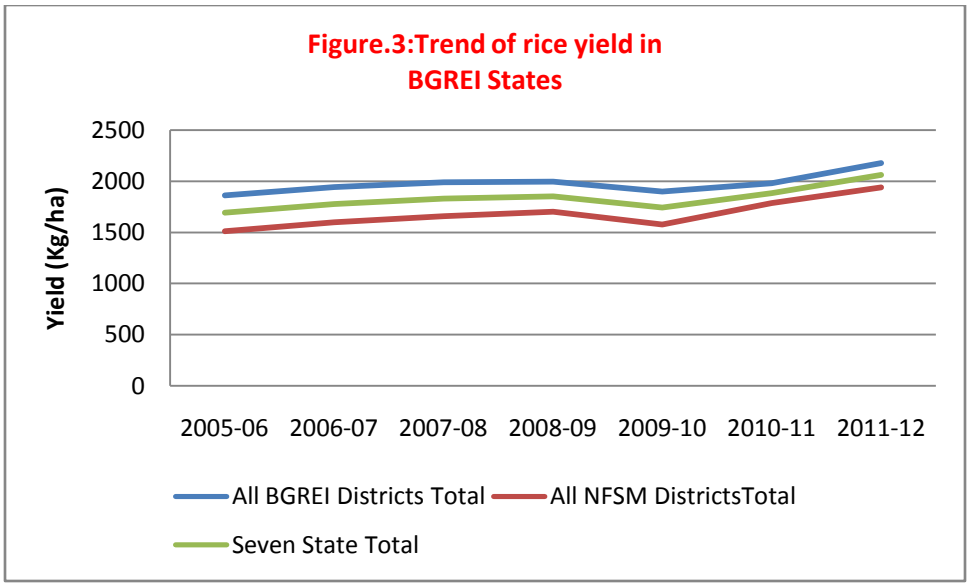
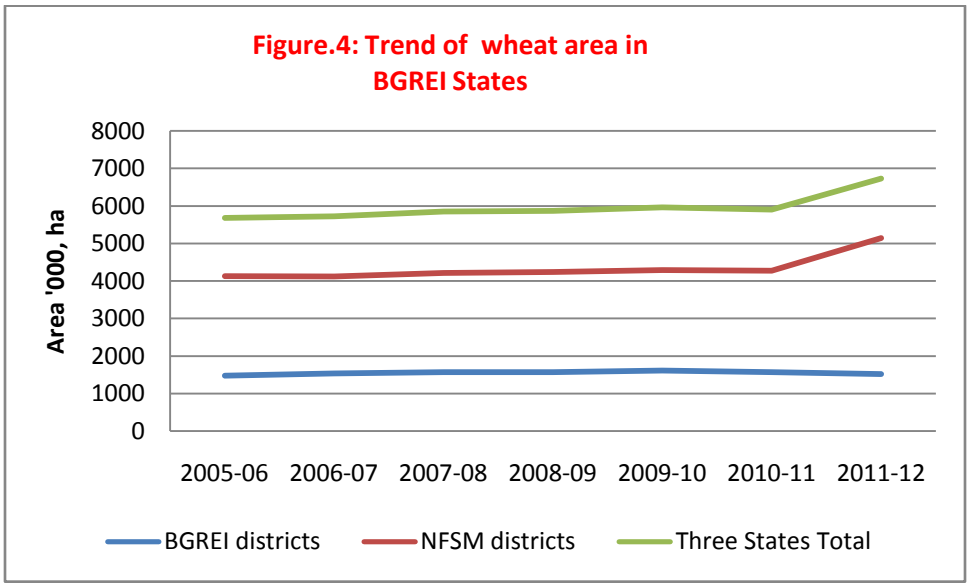
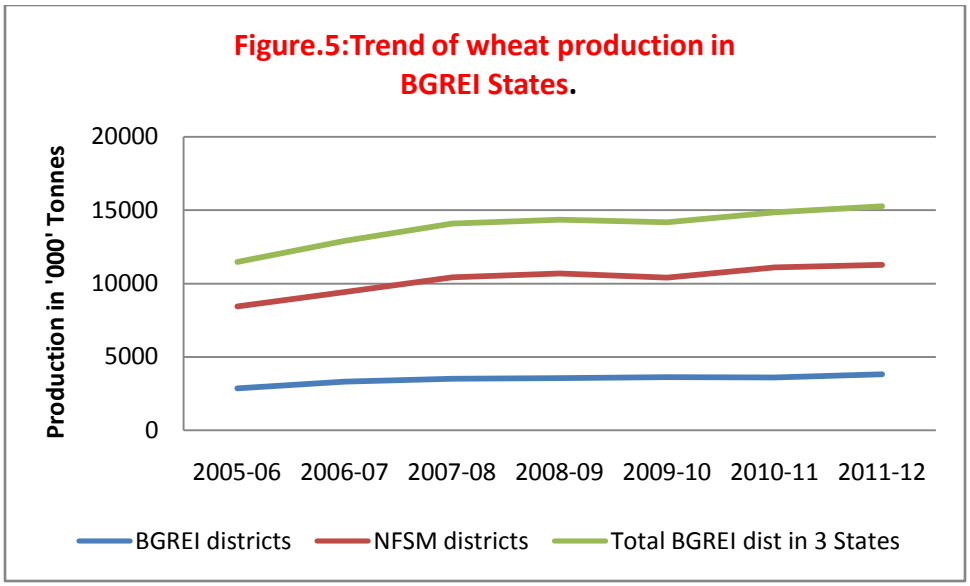


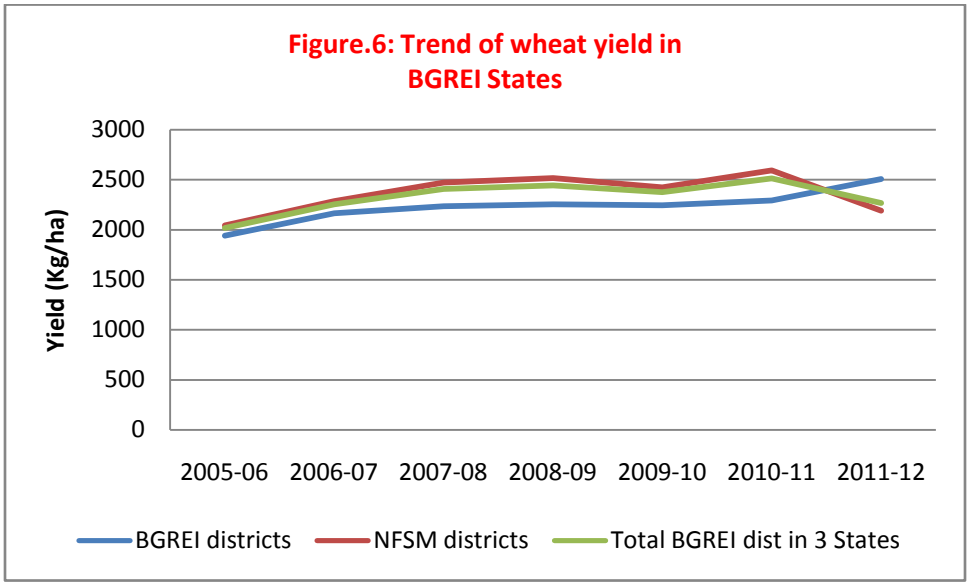
Figure.2: Trend of rice production in BGREI States.
Production in '000' Tonnes
60000
50000
40000
30000
20000
10000
0
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
All BGREI Districts Total
All NFSM DistrictsTotal
Seven State Total



On the contrary, wheat does not reveal any clear pattern over the years from 2005-6 to 2011-2 barring the fact that area under the crop increased in NFSM districts but remained more or less constant (with marginally declining during 2010-2 **(Figure.4**) in BGREI districts. On the other hand, production of wheat does not exhibit any appreciable increase in either NFSM districts or BGREI districts taken together (**Figure.5**). Marginal decline in area under the crop associated with a paltry increase in production exhibits an increase in yield of wheat in the BGREI districts (**Figure.6**).







2.2: Trends in area, production and yield rate of rice in BGREI *vis-à-vis* NFSM Districts in the States: The area, production and yield of rice of BGREI districts *vis-à-vis* non-BGREI districts (NFSM districts) has been graphically presented here as follows (**Appendix VI (D to I)**). It should be noted here that the BGREI program was supposed to be implemented in the non-NFSM districts. And we discussed earlier that the districts selected under NFSM program were those suffering from low yield.

Assam: In Assam, it is observed (**Figure.7**) that area and production of rice has shown a similar pattern between themselves over the years registering a decline since 2010-11, the year in which BGREI scheme was introduced. However, the yield rate stagnated to some extent since

2010-11 (**Figure.8**). The total production fell and the impact of fall in area could not be mitigated. Decline in area has been associated with decline in production too.

In terms of yield of rice, the NSFM districts experienced a sharp rise since 2008-09 to till 2010-11 that experienced stagnation afterwards. While growth in yield in the BGREI districts remained more or less constant since 2008-09 (**Figure.9**).

Figure.7:Trend of rice area in Assam

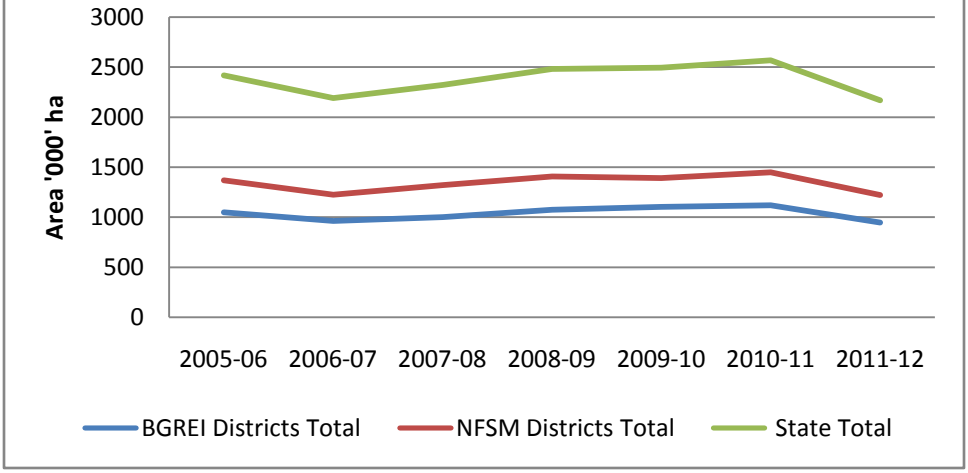
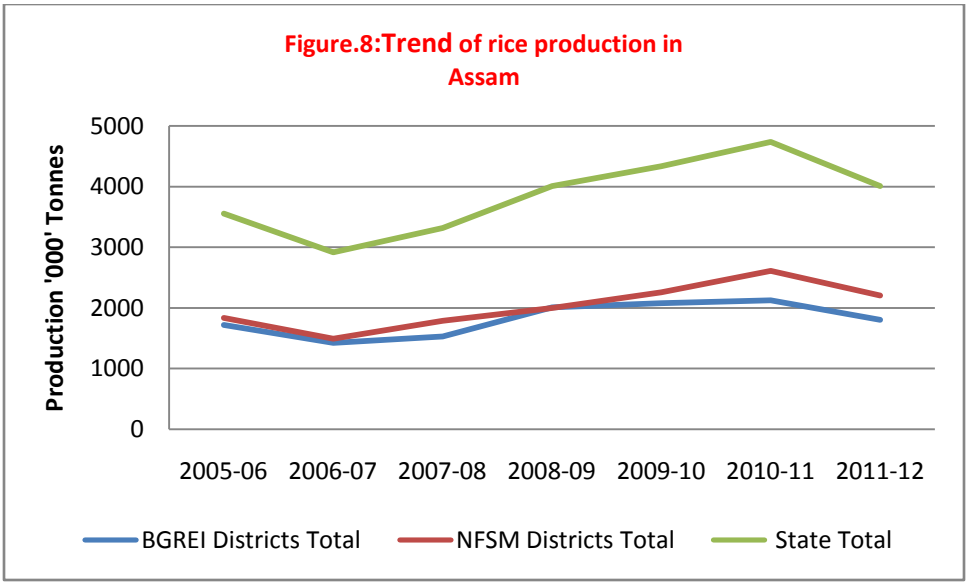
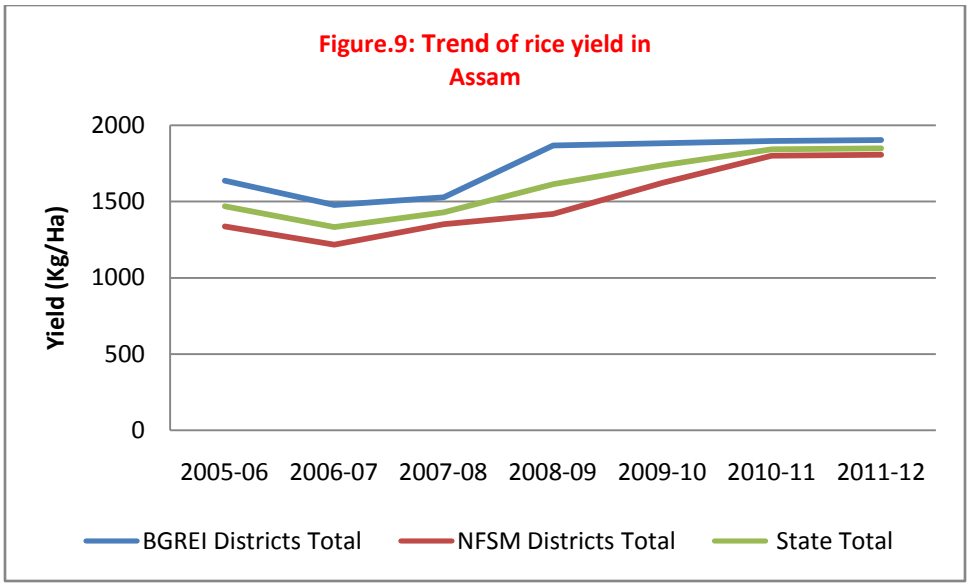
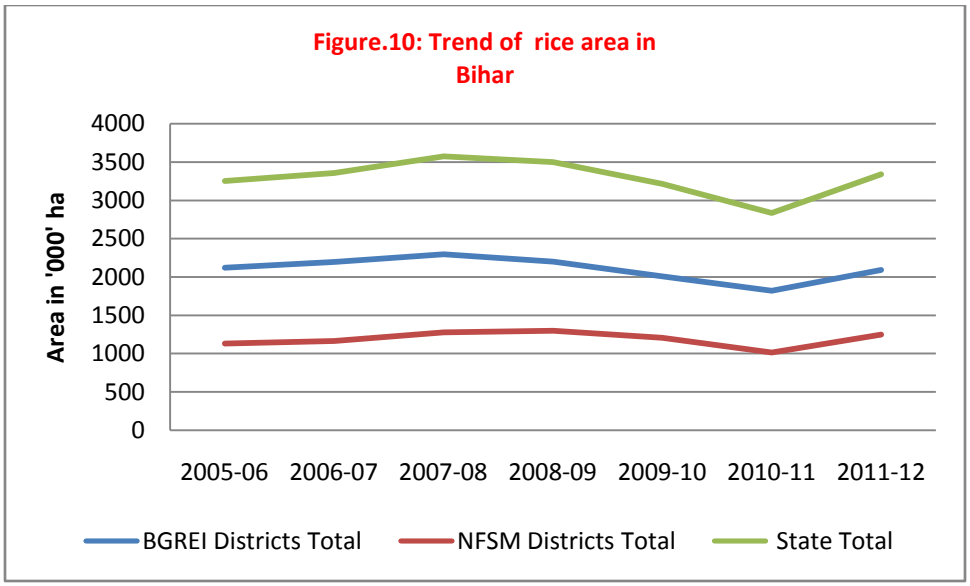


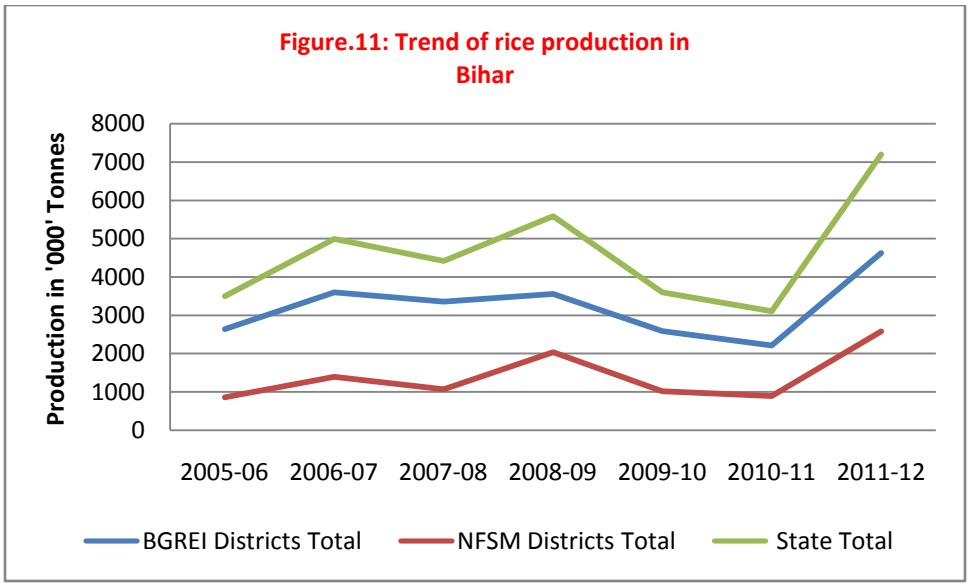
Figure.8:Trend of rice production in Assam

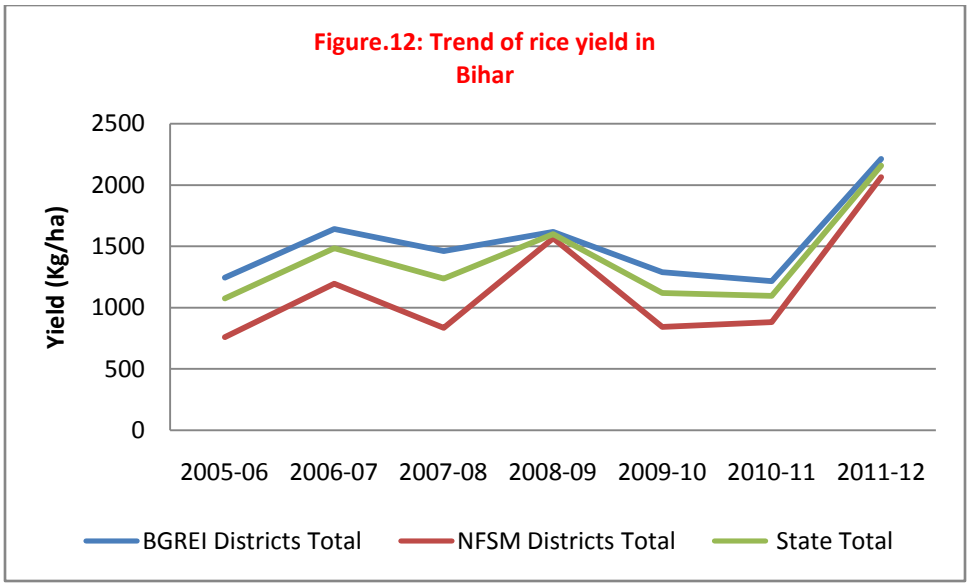




Bihar: In Bihar, it is observed that area, production and yield of rice registered a sharp increase in both BGREI as well as non-BGREI districts since 2010-11, the year of implementation of BGREI program (**Figure.10, 11 & 12**).







Chhattisgarh: In Chhattisgarh, though area under rice remained almost the same over the years, both production and yield rates of rice registered a decline since 2010-11 (**Figure.13, 14 & 15**), which is only true for yield rate of rice in BGREI districts. Since there was a slight rise in area in BGREI districts, the impact of sharp fall in productivity could be somewhat mitigated had there been an increase in production. However, production also declined, but not so sharply as the yield rate. On the contrary, the area under rice in NFSM districts remained constant while production and productivity increased considerably.

In Chhattisgarh the year 2011 had been a poor rainfall year. In July 2011 the total precipitation in the state was to the tune of 270.6 mm in contrast to the previous year's 413.9 mm exhibiting a shortfall of 34.6 per cent. July being the main sowing season for *Kharif* rice the production suffered. The shortfall of rain in July had been over 38 per cent in BGREI districts while the corresponding figure for NFSM districts was 31 per cent. Annual normal rainfall for 2010-11 in Chhattisgarh was 1363.8 mm while the actual rainfall in that year in BGREI and NFSM districts were 1222.6 mm and 1389.0 mm respectively which might be one of the reasons for such a scenario in production and productivity front.

Figure.13: Trend of rice area in Chhattisgarh

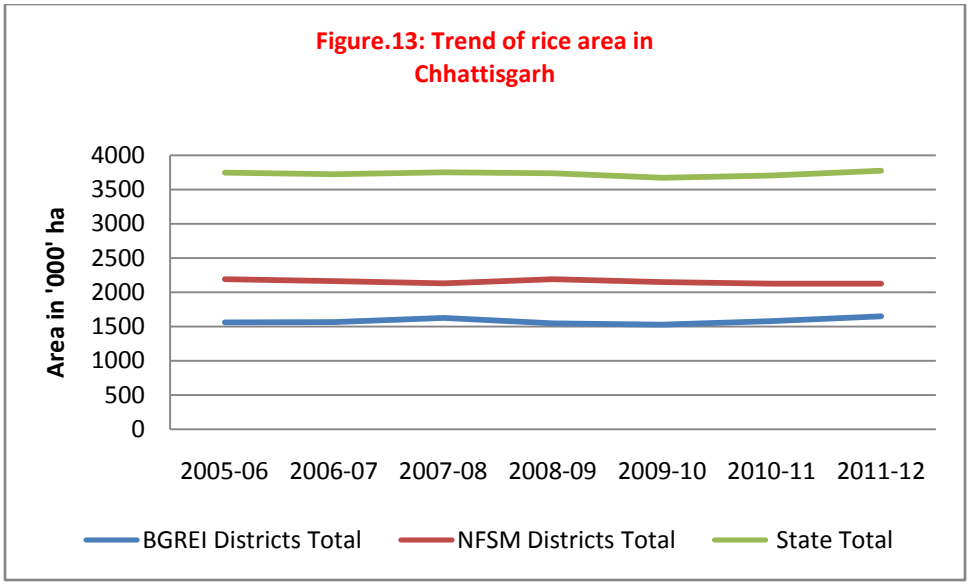
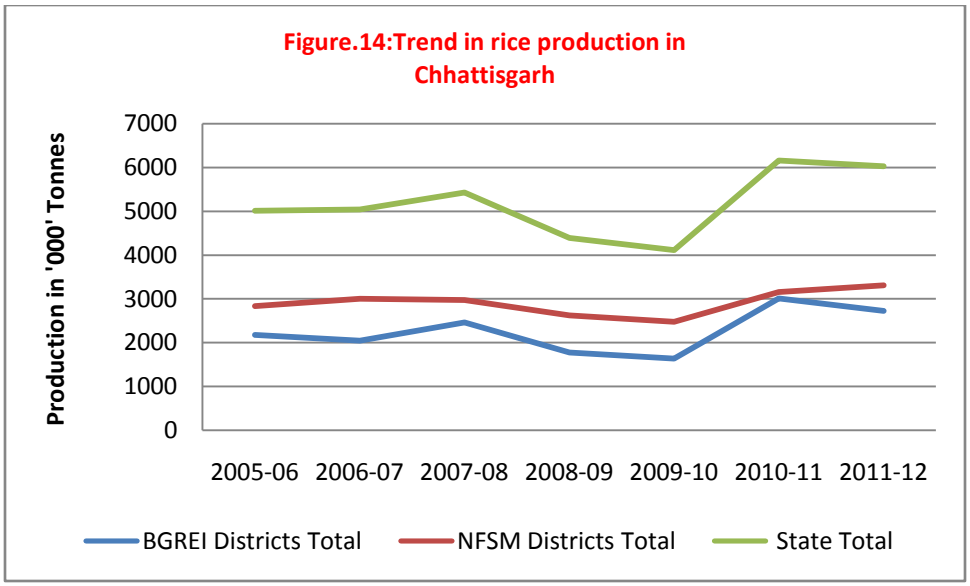
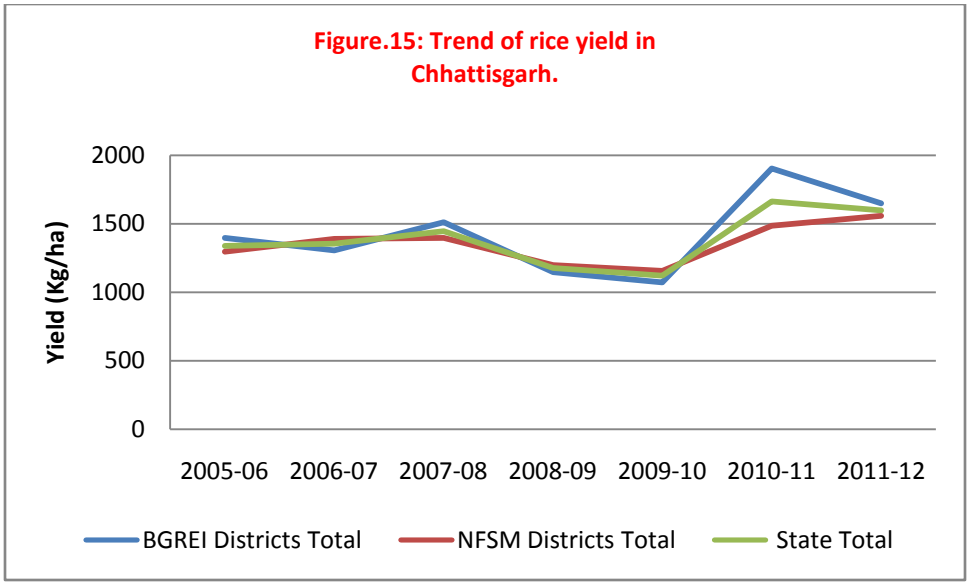


Figure.14:Trend in rice production in Chhattisgarh





Jharkhand: In Jharkhand area, production and yield rate of rice exhibited a consistent decline in both BGREI and non-BGREI districts during 2008-09 and 2009-10 (**Figure.16, 17 & 18**). After that there has been a sharp upward movement of area, production and yield rate of rice since 2010-11, which hold true for both BGREI and non-BGREI districts. The increase in area and production was more prominent in BGREI districts as compared to the non-BGREI districts.

Figure.16: Trend of rice area in Jharkhand.

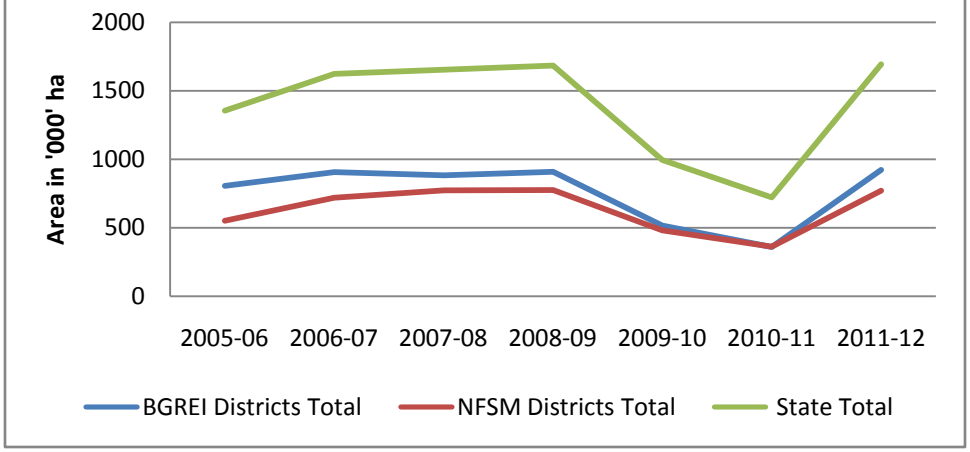
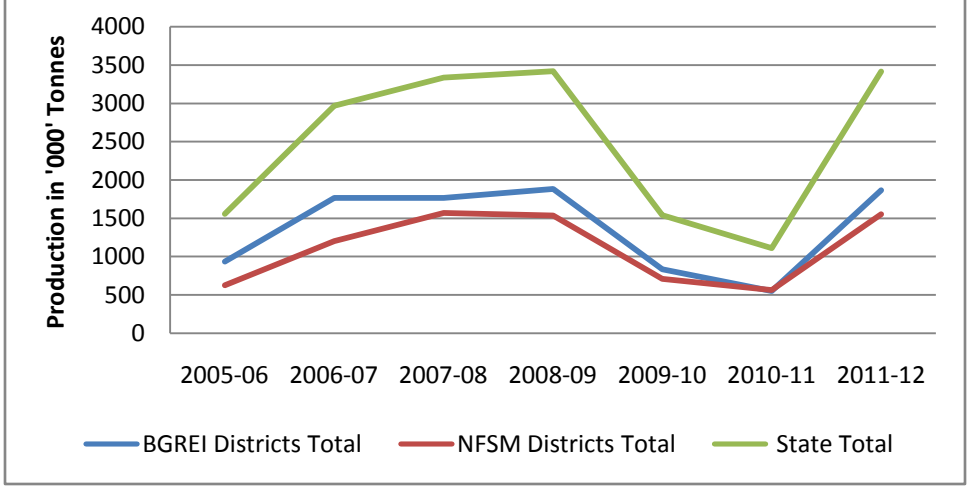
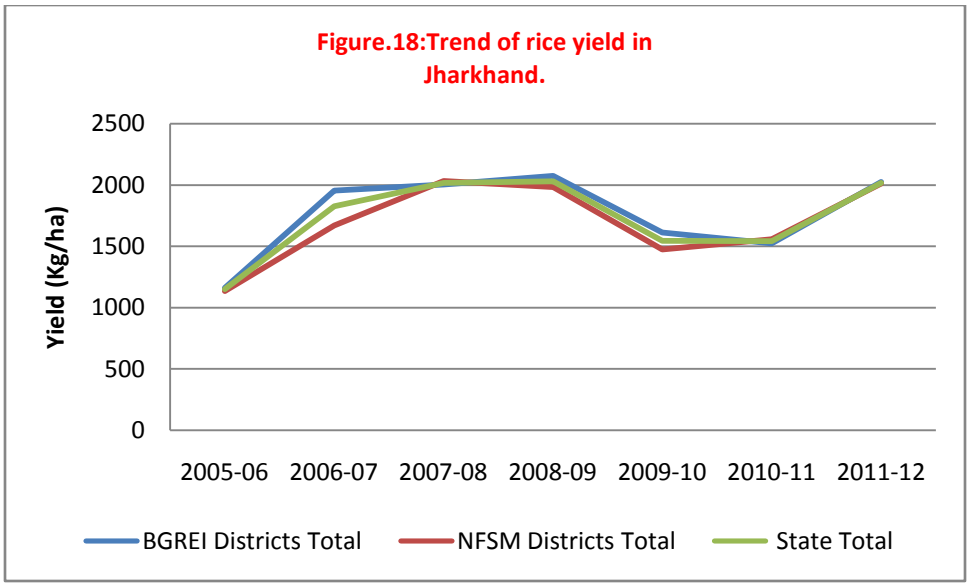
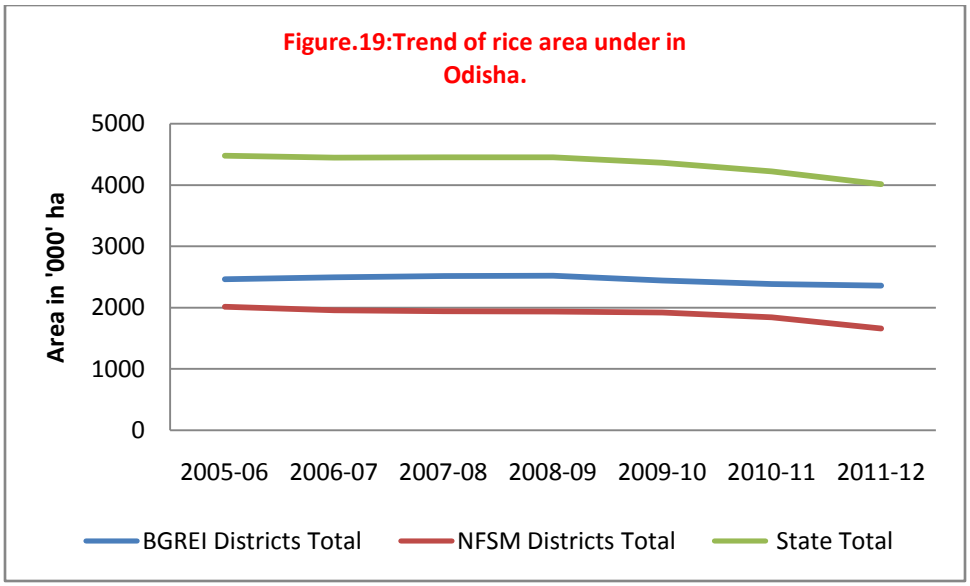


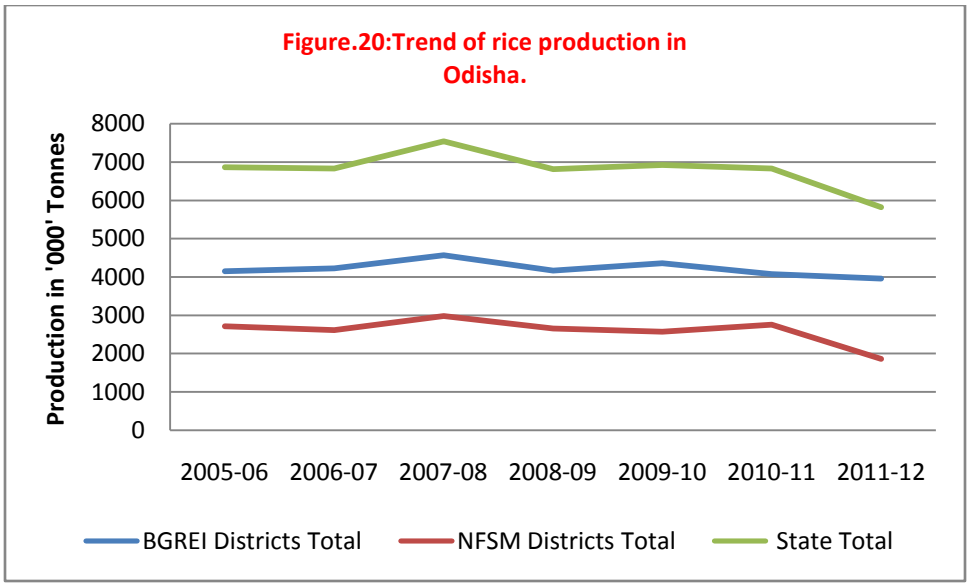
Figure.17:Trend of rice production in Jharkhand

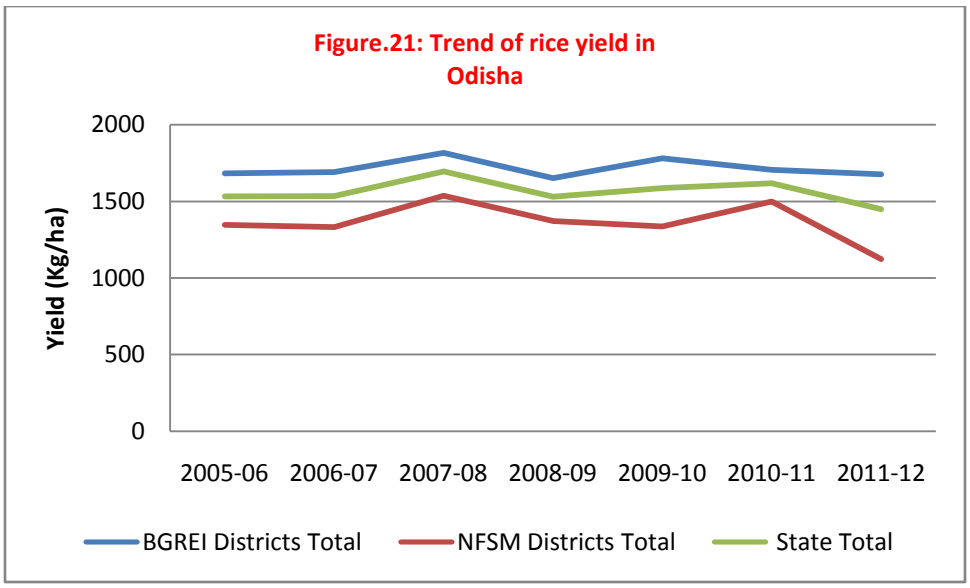




Odisha: In Odisha, area, production and yield rate of rice registered a decline since 2010-11 in non-BGREI district (**Figure.19, 20 & 21**). This might have been due to a poor rainfall situation in the month of July 2011 all over the state. Consequential to low precipitation the NSFM districts suffered more in comparison with the BGREI districts. Shortfall in precipitation in July 2011 over previous year in BGREI and NSFM districts were 19.7 per cent and 39.4 per cent respectively. Hence, the decline in area, production and yield rate of rice in BGREI districts was much less as compared to non-BGREI districts. Yield rate fell more sharply than area creating a negative impact on production.







Eastern Uttar Pradesh: Area, production and yield rate of rice in Easter Uttar Pradesh witnessed a consistent increase since 2008-09 in both BGREI and non-BGREI districts (**Figure.22, 23 & 24**). However, the increase in area, production and productivity of rice comes out to be slightly flatter in BGREI districts as compared to their counterparts, viz. the non-BGREI districts.

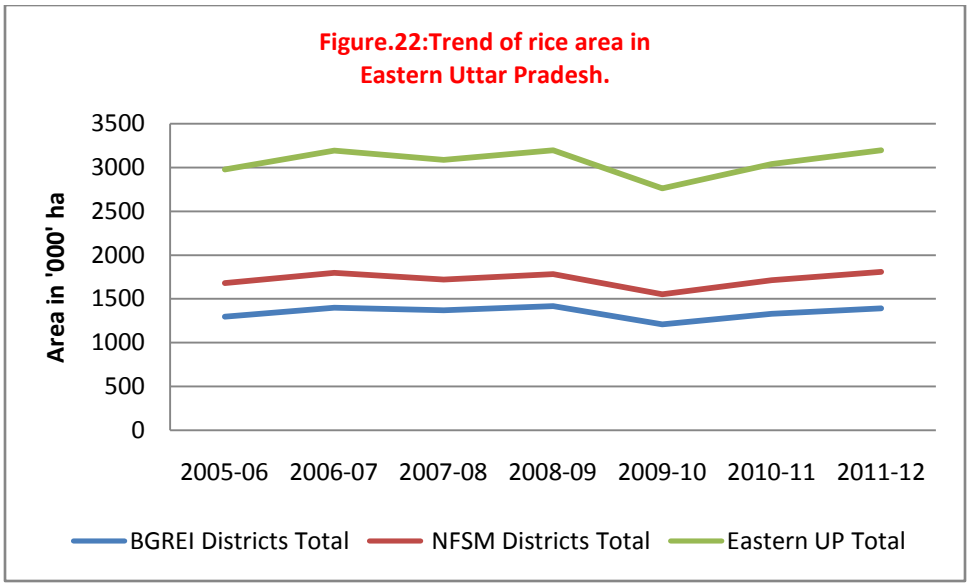


Figure.22:Trend of rice area in Eastern Uttar Pradesh.
Area in '000' ha
3500
3000
2500
2000
1500
1000
500
0
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
BGREI Districts Total
NFSM Districts Total
Eastern UP Total

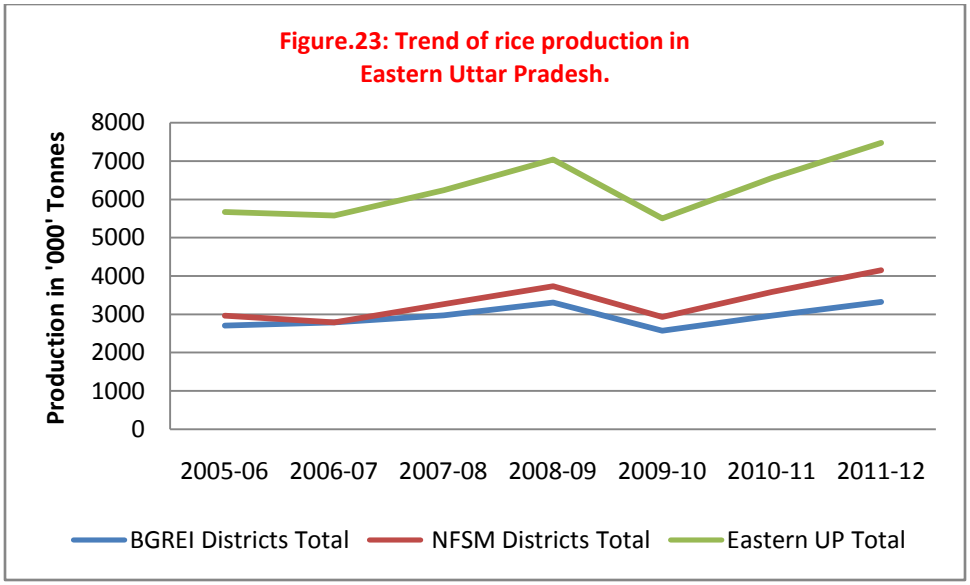
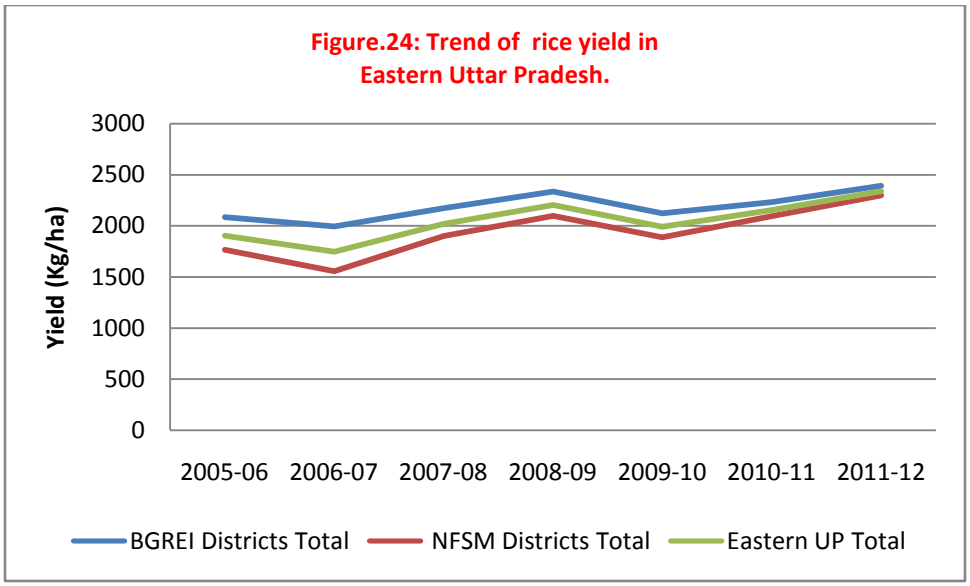
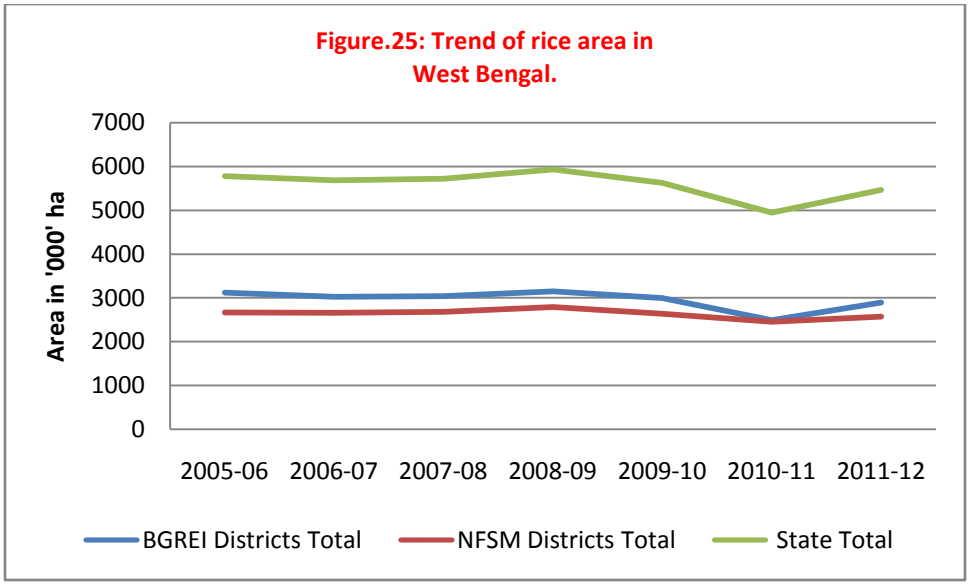
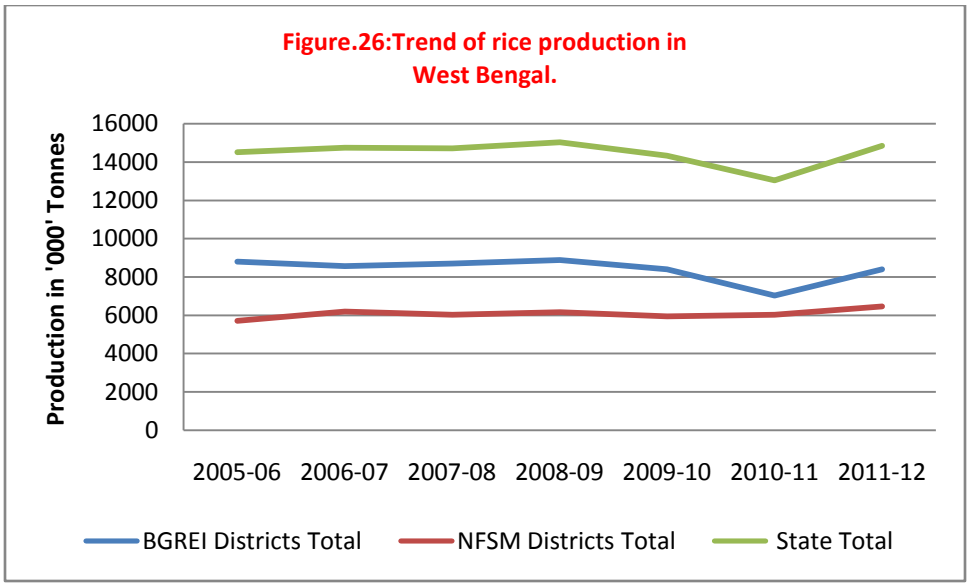


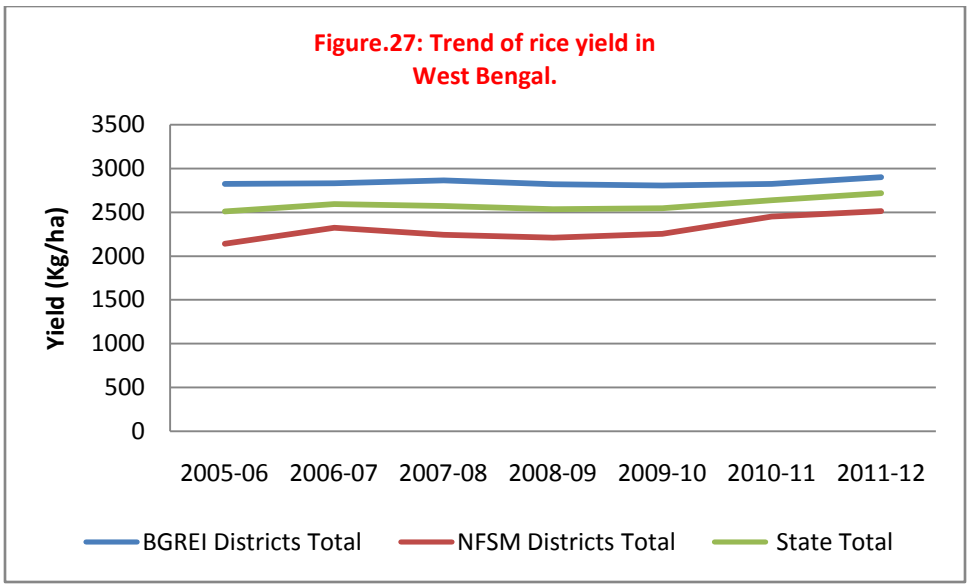
Figure.23: Trend of rice production in Eastern Uttar Pradesh.
Production in '000' Tonnes
8000
7000
6000
5000
4000
3000
2000
1000
0
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
BGREI Districts Total
NFSM Districts Total
Eastern UP Total



West Bengal: In West Bengal, area and production of rice exhibited a smooth decline in 2008-09 and 2009-10 in both BGREI and NON-BGREI districts (**Figure.25, 26 & 27**). However, since 2010-11, there has been an increase in area and production of rice, especially in the BGREI districts. For NFSM districts there has been almost no improvement in yield (Figure 2.9C) – production rise has been negligible and might have been due to the impact of rise in area. The BGREI districts show a better result compared to NFSM districts.







On the whole, **it can be said that the BGREI districts in spite of starting from a higher base in terms of yield of rice than their NFSM counterparts and barring a few exceptions like Chhatisgarh or Odisha are performing fairly in increasing production and yield since 2010-11.**

2.3: Trends in area, production and yield rate of wheat in BGREI vis-à-vis NFSM Districts in the States: The state level data on Area, Production and Productivity of Wheat in BGREI districts and non-BGREI districts has been graphically presented here as follows:

Bihar: In Bihar area, production and yield rate of wheat witnessed an increase since 2010-11in both BGREI and non-BGREI districts. Since 2005-6 area and production of wheat in NFSM

districts had been much higher in comparison with that in BGREI districts (**Figure.28, 29 & 30**). On the contrary, yield of wheat in BGREI districts of Bihar had been subject to annual fluctuations while NFSM districts exhibit rather smooth trend in respect of yield.

Figure.28:Trend of wheat area in Bihar.

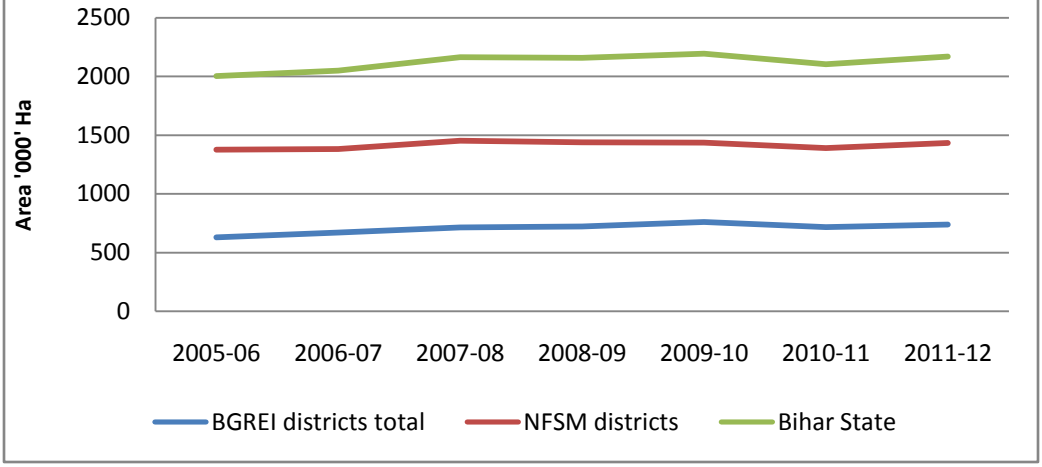
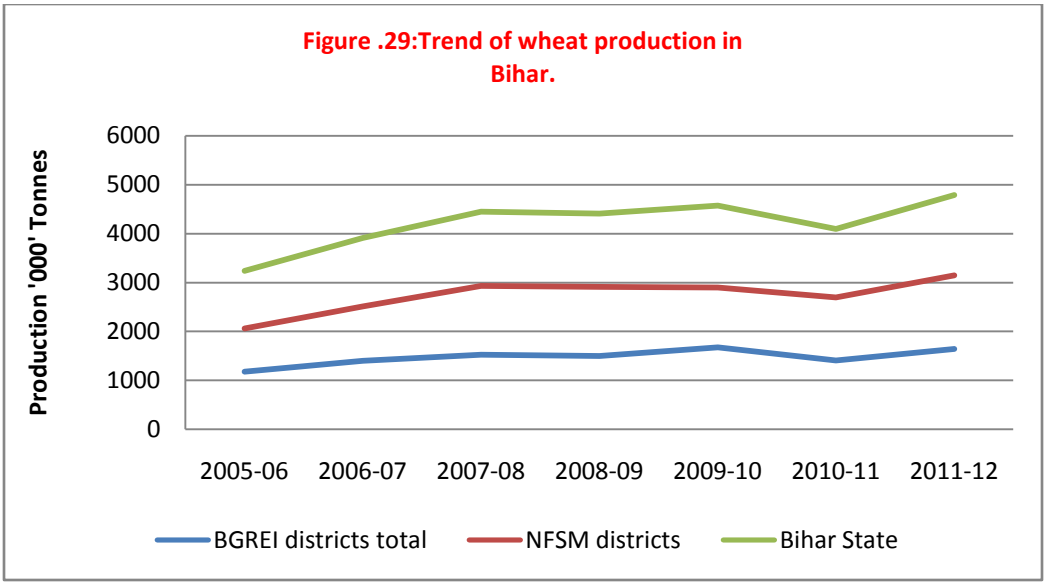
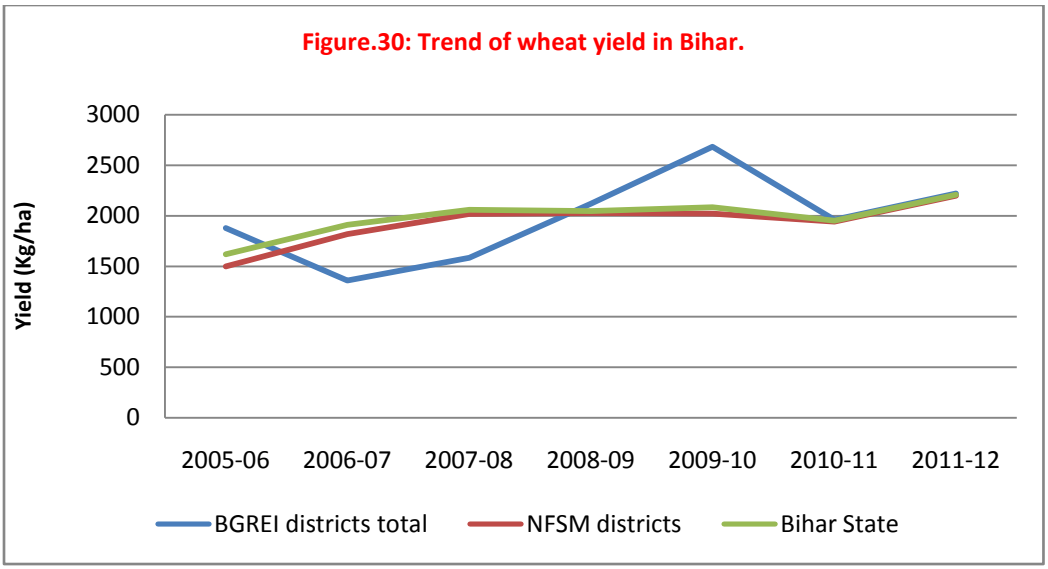
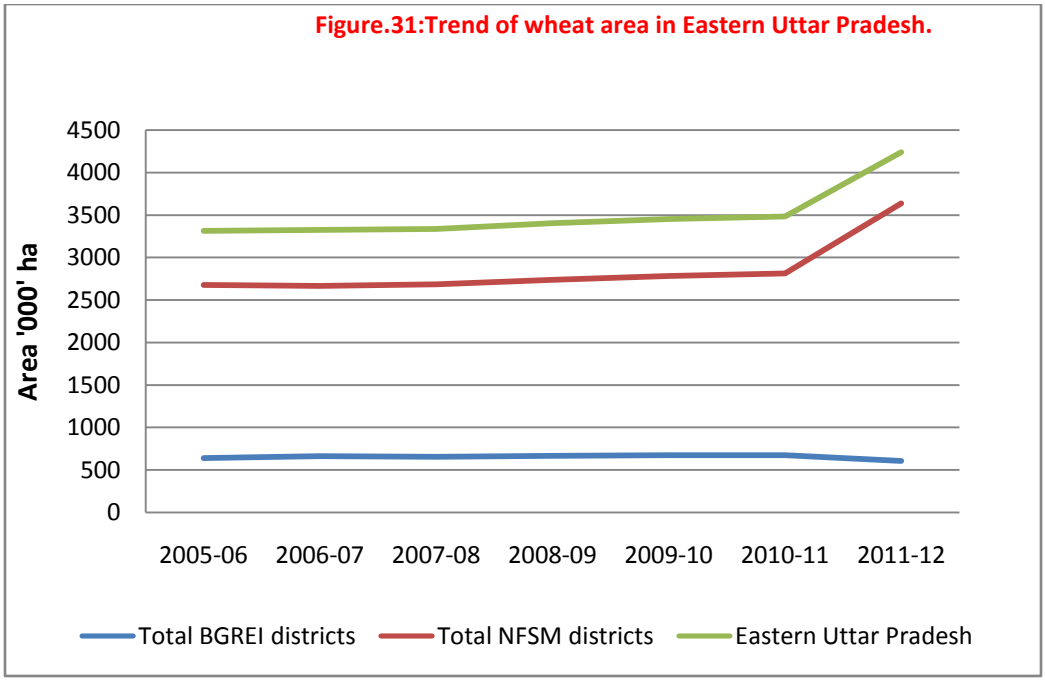


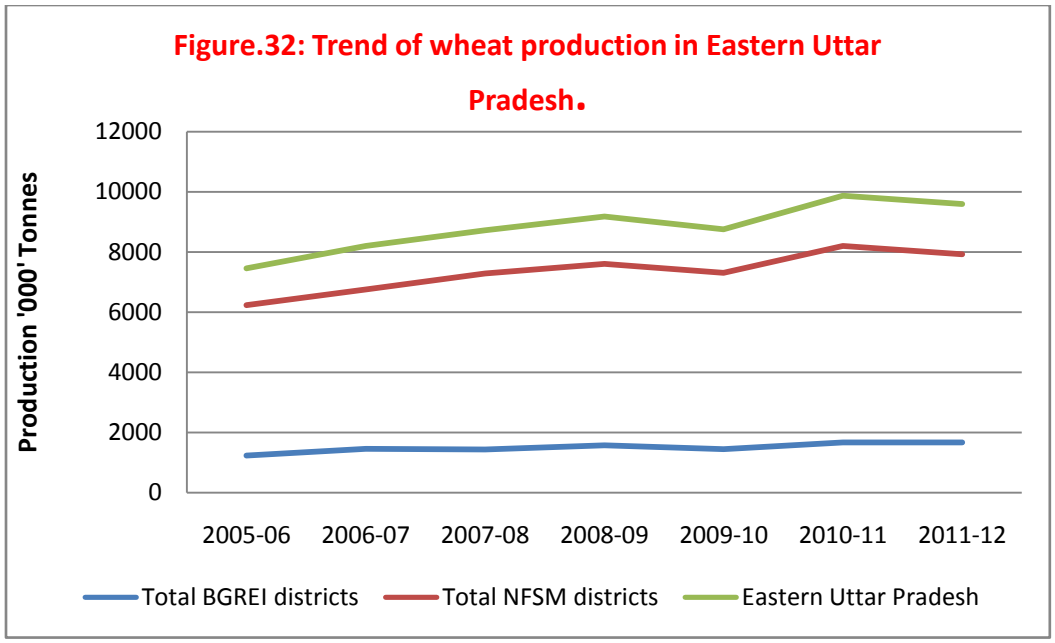
Figure .29:Trend of wheat production in Bihar.

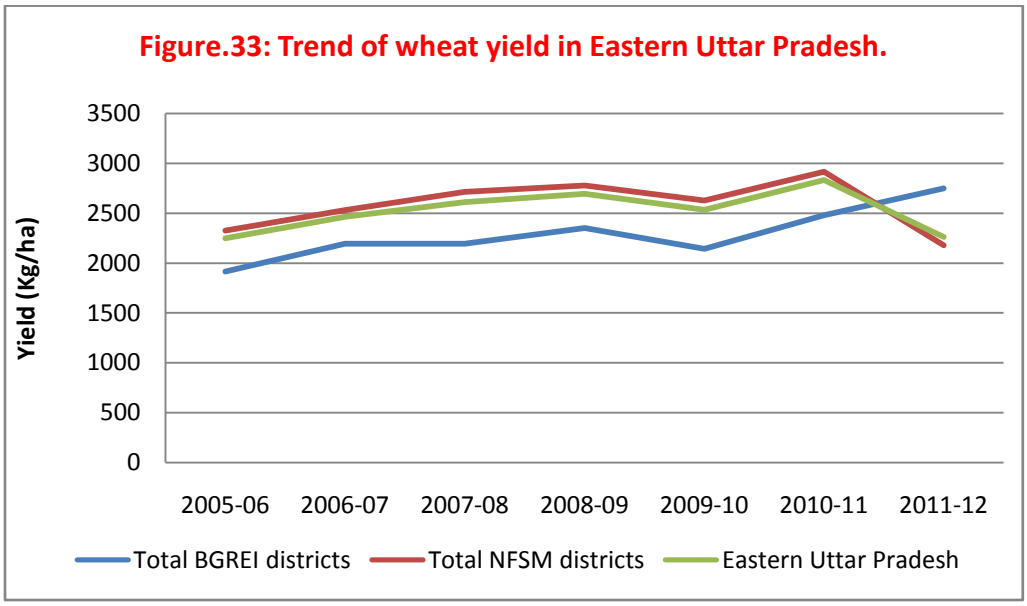




Eastern Uttar Pradesh: In Eastern Uttar Pradesh, it is observed that though area under wheat for non-BGREI districts (**Figure.31**) recorded a sharp increase since 2010-11, production and especially yield declined sharply over the same period (**Figure.32 & 33**), though both production and yield of wheat in NSFM districts was much higher than that of BHREI districts till that period. In sharp contrast, yield rate of wheat in BGREI districts increased sharply since 2009-10, so as to compensate for a marginal decline in area under wheat. As a result, production of wheat in BGREI district grew only marginally over 2009-10.







West Bengal: In west Bengal, it is observed that there is no major difference between the growth trend in yield rate of wheat between BGREI and non-BGREI districts (**Figure.34, 35 & 36**). However, in districts not covered under either NFSM or BGREI, there has been a sharp increase in the yield rate of wheat since 2010-11 resulting into a marginal increase in production, while area remaining almost the same.

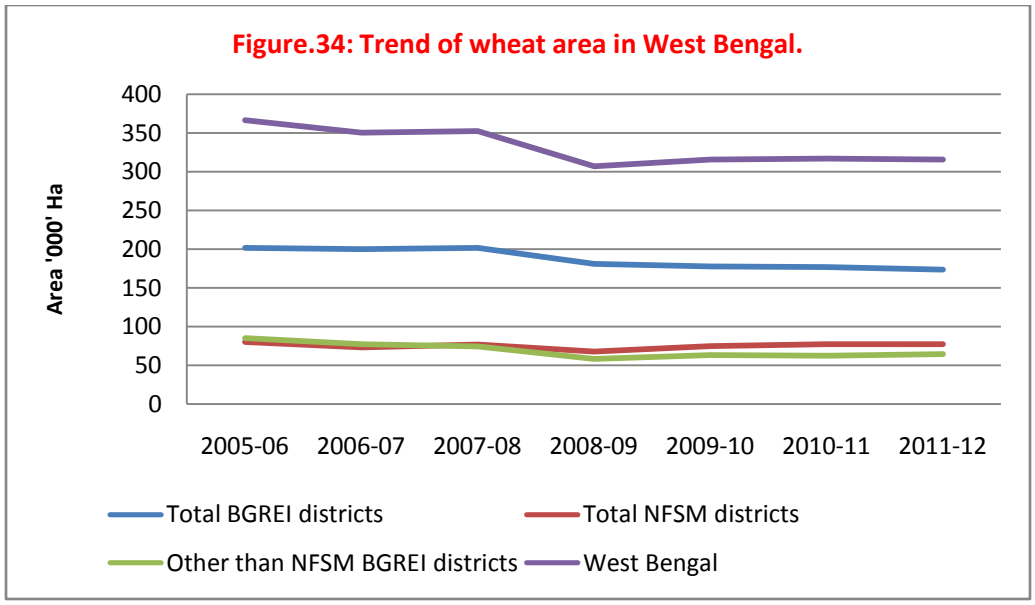


Figure.34: Trend of wheat area in West Bengal.
Area '000' Ha
400
350
300
250
200
150
100
50
0
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
Total BGREI districts
Total NFSM districts
Other than NFSM BGREI districts
West Bengal

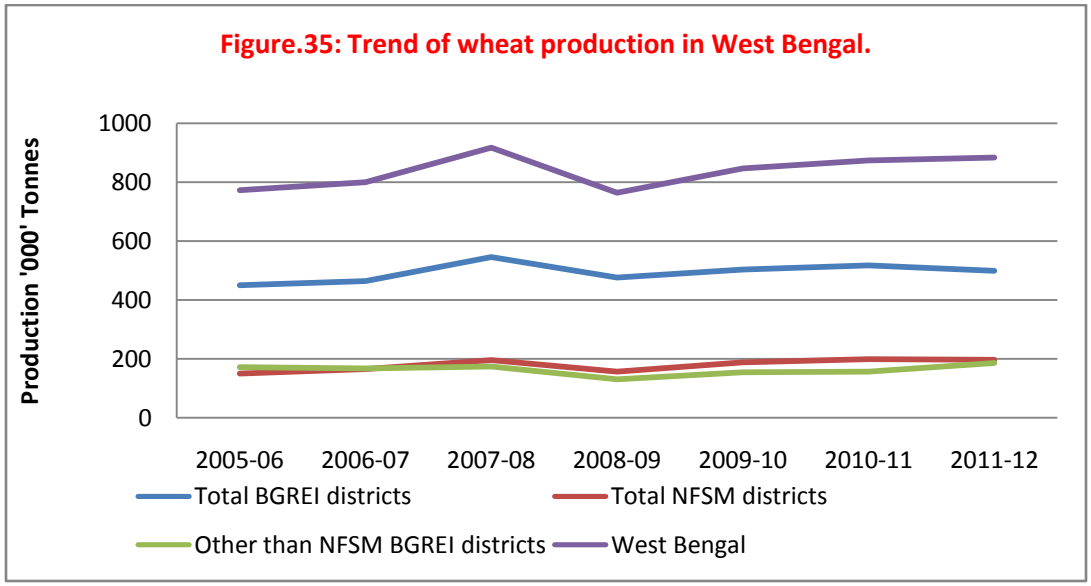
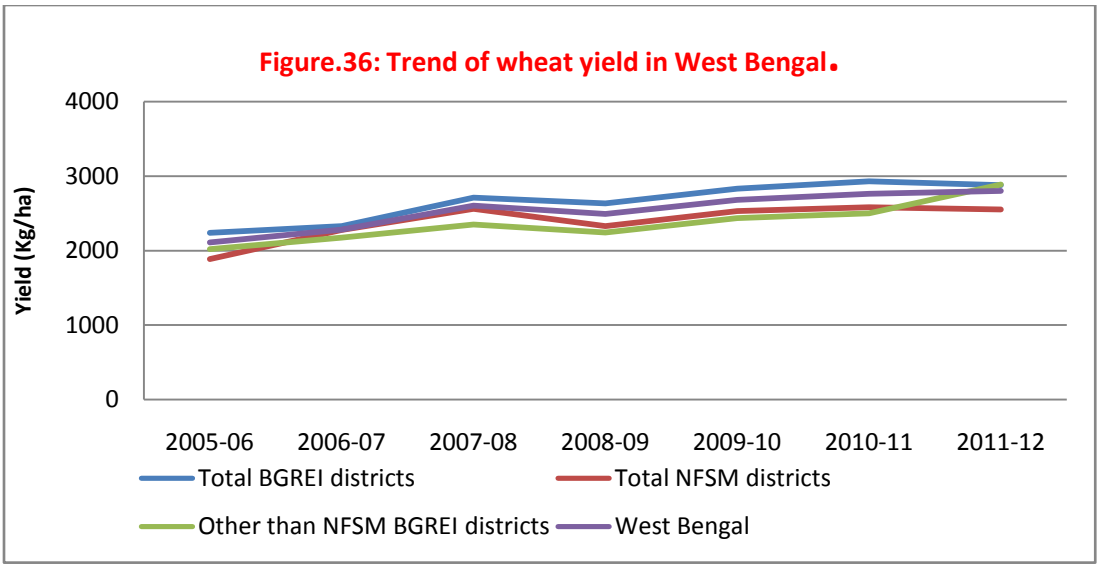


Figure.35: Trend of wheat production in West Bengal.
Production '000' Tonnes
1000
800
600
400
200
0
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
Total BGREI districts
Total NFSM districts
Other than NFSM BGREI districts
West Bengal



In analysing the trends of area, production and yield of rice and wheat we have so far taken up the districts under BGREI and the NFSM programmes together for the states where the said programmes were implemented. In the subsequent chapters, while analysing the impact of BGREI programme we had to restrict the analyses to the state level only due to dearth of sufficient secondary information regarding the programme implementation at the district level. Moreover, the sample size of the primary survey at the unit level (i.e. district level) was also inadequate for rigorous statistical exercises at disaggregate level. However, interested readers may refer to **Appendix VII (AA to BI)** for data pertaining to area, production and yield for the said crops at the district level.

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Chapter 3: Result and Discussions

3.1:Adoption of BGREI Program

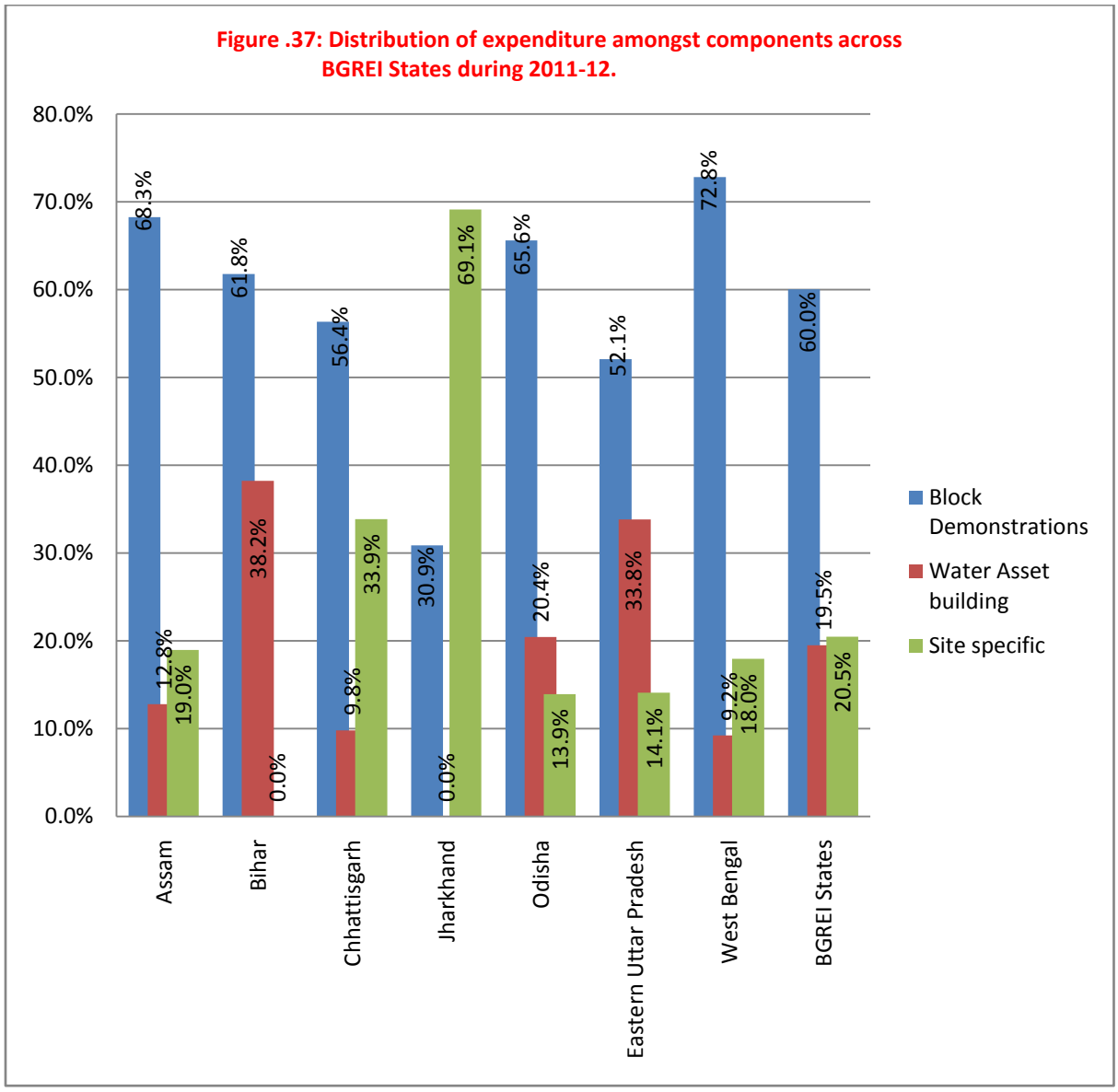
3.1.1: Structure of BGREI program in 2011-12:

As mentioned earlier, program of Bringing Green Revolution to Eastern India was initiated in 2010-11. However, the format of BGREI program was altogether changed during 2011-12 by way of major focus on technology transfer with assured technical backstopping, water asset building and site specific needs. Accordingly, the entire program was sub-divided in the following three projects backed with the provision of their monitoring:-

- Block Demonstrations of rice and wheat;
- Water asset building; and
- Site specific needs.

The provision of three tier monitoring system was also made in the program during 2011-12 besides creating a separate cell in the Crops Division of Department of Agriculture & Cooperation, Union Ministry of Agriculture to assist the senior officers in successful implementation of the program. The component specific and state specific structure of BGREI program of all the seven (7) BGREI States based on per cent share of total expenditure during 2011-12 is annexed as ***Appendix-VII (B & C)***, respectively**.** It should be mentioned at this point that the allocation of funds among these three major interventions was: nearly **63 per cent** of the total funds for **block demonstrations**, **17 per cent** for **asset building activities** and **19 per cent** for **site specific activities.** About **1 per cent** of the funds were earmarked for **monitoring activities** at national level. It appears from the data on fund allocation in the BGREI states (data was made available by the state agriculture directorates) that allocation of funds among these interventions within the state **did not maintain a strict compliance** with the prescribed norm. However, the proportions of allocation among the three interventions on the whole for all BGREI states had been rather successful in maintaining a near proximity to the prescribed norm. The component and state specific share of expenditure under BGREI program during 2011-12 is depicted below in **Figure.37**.

Figure .37: Distribution of expenditure amongst components across BGREI States during 2011-12.



3.1.2: The BGREI program interventions in the states during 2010-11: The formulation of BGREI program in 2010-11 was made by the state concerned in the first year of its implementation on the pattern of RKVY main Scheme being its lateral. The component specific structure of BGREI program of all the seven BGREI States based on per cent share of total expenditure during 2010-11 is annexed as ***Appendix VII (A)*****.** The specific structure of BGREI program during this period is discussed below**.**

BGREI program in Assam during 2010-11: The State had included the activities in the BGREI program during the year 2010-11 with undefined interventions in respect of Scientific Cultivation of HYV rice, hybrid maize, black gram and green gram crops. State had implemented the BGREI program sanctioned during 2010-11 in the next year during *Kharif* season.

The activity of Scientific Cultivation of HYV rice was implemented in thirteen (13) non-NFSM (here-in-after referred as BGREI districts) districts for rice. The activity of Scientific Cultivation of hybrid maize was implemented in eleven (11) districts (6 NFSM districts and 5 BGREI districts). The activity of Scientific Cultivation of black gram & green gram pulses was implemented in seventeen (17) districts (8 NFSM districts and 9 BGREI districts). The activity of "Supporting farmers for procuring hand compression sprayers" had been implemented in all the 26 districts (13 NFSM & 13 BGREI districts). The activity of "Amelioration of acidic soils" had also been implemented in all the 26 districts (13 NFSM and 13 BGREI districts).

BGREI program in Bihar during 2010-11: The State has included ten major activities (listed in ***Appendix III(A)*** in the BGREI program for the year 2010-11. This program was implemented in all the districts in the State. These activities included crop demonstrations, induced seed distribution, farmers and staff training, micro-nutrients, bio-pesticides, study tours & provision for contingencies. Over 60 per cent of the total expenditure during 2010-11 period had been addressed towards crop demonstration and related activities including farmers' training. About 18 per cent of total expenditure was towards water asset building activities.

BGREI program in Chhattisgarh during 2010-11: The State has included ten major activities namely; supply of fertilizer kits, Agricultural Technology Support (rice crop demonstrations) to forest land allottees, line sowing in paddy, supply of seed minikits of oilseeds & pulses, distribution of sugarcane plantlets, hybrid rice demonstrations, water asset building in public & private sector and contingencies in the BGREI program during the year 2010-11. These activities were implemented in all the districts of the State. The share of expenditure for water asset building was to the tune of 70.4 per cent. Crop demonstration accounted for the rest.

BGREI program in Jharkhand during 2010-11: The State has included three major activities in the BGREI program during the year 2010-11**.** The activity of maize & wheat development program consisted of seventeen interventions of which seed multiplication, seed distribution, technology demonstrations, conventional tillage method in wheat, zero tillage in wheat, induced supply of zero till seed drills, rotavators & rower rillers, induced supply of micro-nutrients were important. However, the share of crop demonstration in total expenditure was

meager in 2010-11. Supply of improved farm equipments and machineries accounted for 7.5 per cent of total expenditure. Activities related to water asset building constituted 89.3 per cent of total expenditure.

BGREI program in Odisha during 2010-11: The BGREI program in Odisha differed from other states with regard to mode of implementation. State Department of Agriculture, Odisha has forged "Private-Public Partnership" (PPP) in agriculture sector for the first time in the country on a large scale to enhance of the program. The private entities associated with the BGREI program were NGOs operating in the State. These NGOs have been engaged in the implementation of social sector programs of the State Government/Government of India and some of them are also actively associated with the international organizations. There were about seven (7) crops namely; rice, maize, black gram, green gram, *toria*, sunflower and sugarcane which were supported by BGREI program in 2010-11 besides promotion of SRI (System of Rice Intensification) method of rice cultivation, bio-fertilizers, capacity building of extension personnel, e-pest surveillance supply of improved farm equipments, pump sets and soil amelioration.

Components of major expenditure were crop demonstration - 73.7 per cent, water asset building – 9.3 per cent and expenditure on supply of improved equipments – 10.6 per cent.

BGREI program in Eastern Uttar Pradesh during 2010-11: The state had included five major activities in the BGREI program during the year 2010-11 with defined interventions. The rice promotion package consisted of Improved Package of Practices (IPP) demonstrations of rice, Hybrid rice demonstrations and SRI demonstrations, seed distribution of open pollinated rice varieties & hybrid rice in all the 27 districts of eastern Uttar Pradesh (*Purvanchal).* Supply of rotavator and cono-weeders (the improved farm implements), exposure visits, trainings, participation in *Krishi Mela,* supply of gypsum, micro-nutrients and provision for monitoring of the program at state level and district levels were also among the interventions. The wheat promotion package consisted of demonstrations, seed distribution, supply of sprinkler sets, supply of bio-fertilizer, rotavator and zero till seed drills (among improved farm implements), provision for custom hiring of zero till seed drills or seed drills, exposure visits, trainings, participation in *Krishi Mela*, incentive for line sowing, incentive for green manure and program monitoring at state and districts levels. The activity of enhancing irrigation potential consisting of induced supply of pump sets and bore wells was implemented by State Department of Minor Irrigation and a sum of Rs. 1,200 *Lakh* was placed at their disposal. Similarly, a sum of Rs. 286.4 *Lakh* was released to UP Seeds Corporation for tied supply of seed required for BGREI program. A sum of Rs. 4,240.41 *Lakhs* was placed at the disposal of the Director of Agriculture, Government of Uttar Pradesh for implementation of remaining interventions. The BGREI

program was implemented in twelve (12) districts of eastern Uttar Pradesh in the delineated rice ecologies namely: Upland, Shallow water, Medium water, Deep water and irrigated ecologies adopting cluster approach during 2010-11.

Out of the total expenditure 32.5 per cent was dedicated for crop demonstration including farmers' training and soil amelioration activities, while 51.8 per cent of expenditure was year marked for water asset building and 13.5 per cent towards supply of improved equipments.

BGREI program in West Bengal during 2010-11: The State has included six major activities in the BGREI program during the year 2010-11 with defined interventions. Typically, none of the activity relates to demonstration of crop production technology on the farmers' fields. Hence, no expenditure was made towards crop demonstration during the year. The activity of seed production of open-pollinated varieties has been implemented through "Seed Village" program. Seed multiplication of hybrid paddy and hybrid maize has been carried out through Institutional arrangement. Construction of Shallow Tube wells (STW) and masonry channel has been implemented by State Irrigation Department.

Framers' training, supply of inputs and soil amelioration activities consisted of 33.9 per cent of total expenditure in 2010-11. Water asset building activities including soil and water conservation accounted for 46.5 per cent of total expenditure, while supply of improved farm equipments was to the tune of 19 per cent.

3.1.3: Progress of allocation & utilization under BGREI during 2010-11 and 2011-12: The State/intervention specific physical & financial achievement of BGREI program during 2010-11 and 2011-12 is annexed at ***Appendix VIII (A to G)***. The comparative componential allocation of the funds under BGREI in both the years is given below in **Table.3.1**. The composition of the program in 2010-11 included about 35.6 per cent of total allocation for medium term interventions in water asset building. About 63.7 per cent of allocation was made for short term activities with lion's share (51.7%) of "production technology demonstrations including agricultural implements and other inputs" covering more than fifty interventions. These interventions included agriculture inputs distribution (seeds, micro-nutrients, weedicides and soil amendments, seed minikits, intercropping, line sowing); farmers and staff trainings, farmers' fair, farmers study visits; seed multiplication; soil amelioration; e-pest surveillance and soil & water resources conservation. About 0.7 per cent was assigned for program management and monitoring.

Table 3.1 Component specific allocation under BGREI during 2010-11 & 2011-12

Activities	2010-11	2011-12
	Allocation (%)	Allocation (%)
Block Demonstration	51.70	64.50
Water Asset Building	35.60	16.14
Site Specific Needs	12.00	19.11
Program Management	0.30	0.19
Monitoring	0.40	0.03
Evaluation	0.00	0.08
Total BGREI	100.00	100.00

Source: BGREI Cell, DAC, GOI.

The composition of the BGREI program in 2011-12 included lion's share for short term interventions namely; technology promotion through Block demonstrations to the tune of 64.5 per cent of total allocation. The site specific need, however, was allotted about 19.1 per cent of total outlay while water asset building activities comprised of about 16 per cent.

As to the utilization of the funds allocated under different components of BGREI program the overall utilization of funds in 2010-11 was to the tune of 95.8 per cent and in 2011-12, it was around 92 per cent..

The component/intervention specific comparison of the structure of BGREI program:

- It is revealed that in Assam, Bihar, Odisha and West Bengal the expenditure in Block Demonstration were over 60 per cent. However, in Chhattisgarh, Jharkhand and Eastern Uttar Pradesh expenditure in Block Demonstration were found less than 60 per cent (the proportion in Jharkhand was 30.9 per cent). However, for all the BGREI states taken together the proportion of expenditure in Block Demonstration was to the tune of 60 per cent of total outlay.
- The composition of the program in 2011-12 also included a separate provision for water asset building at farmers' level for on-farm water harvesting. Provisions were for dug wells in rainfed areas and shallow tube wells and bore wells in the areas with high water table for assured irrigation. Among the BGREI states Chhattisgarh and West Bengal seemed to have made fewer attempts in this respect. Expenditure towards water asset building is found to be quite high in Bihar and Eastern UP (registering over 30 per cent) in comparison with the other BGREI states. However, no water asset building activities were carried out in Jharkhand. On the contrary proportion of expenditure towards site specific activities was very high in Jharkhand (over 69 per cent) followed by Chhattisgarh. In Bihar, however, no site specific activities were taken up. In the other

states, viz. Assam, Odisha, Eastern UP and West Bengal the proportion of expenditure varied around 14 per cent to 19 per cent.

- Expenditure of total outlay under BGREI program in all the seven states taken together exhibits that **60 per cent** of the total fund was utilized for **block demonstration**, **19.5 per cent** for **water asset building** and **20.5 per cent** towards **site specific activities** in 2011-12. However, **between the states there had been wide differences as regards to proportion of expenditure as to the various interventions**.

- The extent of integration of input package for demonstrations on crop production technology differed State to State in the range from Rs. 2014/- per Improved Package of Practices demonstration in rice (area not defined) to Rs. 10,000/- per demonstration for SRI (area not defined) in Bihar State in 2010-11. Thus, composition of BGREI program in 2010-11 laid greater emphasis on incentivised supply of agricultural inputs with lesser emphasis on demonstration of crop production technology**.** In the amended BGREI program in 2011-12, **greater emphasis was laid on the demonstrations of crop production technology** with defined rice ecology specific recommended input package in the range from Rs. 6,852/- per ha (traditional varieties under irrigated conditions) to Rs. 7,912/- per ha for rainfed upland rice and Rs. 4,000/- per ha for wheat.

- All the BGREI States except Chhattisgarh and Uttar Pradesh have not included the provision of incentive towards custom based hiring of services from the service providers as an option for the beneficiaries of the program for certain agricultural operations like deep ploughing and sowing in lines using seed drill in 2010-11. The provisions of custom hiring of certain agricultural operations have been included in the BGREI program formulated for 2011-12.

3.1.4: Concentration ratio of Block Demonstration: The concentration ratio of demonstration clusters of rice was computed on the basis of 1,000 ha size of clusters in respect of five (5) BGREI states to assess the outreach of the crop production technology. In case of Assam, size of cluster was 100 ha whilst Bihar had followed "Dispersed" approach instead of cluster approach. The size of each demonstration was uniformly 0.40 ha throughout the State. All the demonstrations organized in Bihar were under SRI demonstration devoid of ecological consideration. For the sake of uniformity, the concentration ratio of demonstration clusters were calculated based on 1,000 ha size of cluster for all the six (6) BGREI States (***Table 3.2***).

Table 3.2: Concentration ratio of rice block demonstration clusters to Gross Cropped Area under BGREI in 2011-12

State	Total number of Block demonstration clusters	Gross Cropped area of ('000'ha)	Concentration ratio to Gross Cropped Area
(1) Rice Block demonstrations			
Assam	40.6	946.925	0.042875624
Bihar	33.476	2088.371	0.016029719
Chhattisgarh	39	1650.1	0.023634931
Jharkhand	17	921.818	0.018441818
Odisha	62	2358.52	0.026287672
Eastern UP	27	1388.101	0.019451034
West Bengal	64	2893.549	0.022118167
BGREI States	283.076	12247.384	0.023113181
(2) Wheat Block Demonstrations			
Bihar	22	738.264	0.029799638
Eastern UP	23.49	605.29	0.038807844
West Bengal	3	173.661	0.017275036
BGREI States	**48.49**	**1517.215**	**0.031959874**

Source: BGREI cell, DAC, MOA.

The statistic provides us with an estimate of outreach of the crop production technology. The Concentration ratios of the demonstration clusters of rice and wheat differed across states. One of the reasons behind this variability may be due to ecologically differentiated allocation of Block demonstrations.

3.1.5: Effectiveness of "Progressive Farmers": As we have discussed earlier that one of the main emphasis of the BGREI program had been transfer of technology at the farm level, the selected Progressive Farmers, who were supposed to play the crucial role in adoption, were entrusted with responsibility motivating the participating farmers. The Progressive Farmers had the additional responsibility of acting as a liaison between the extension workers, scientists and the beneficiary farmers to assist in the technical backstopping and disseminating the technology at the grass-root.

Educational qualification possessed by Progressive Farmers engaged under BGREI: A provision of engaging Progressive Farmers on contractual basis has been made under BGREI for the year 2011-12 to assist the field functionaries in land preparation and sowing/planting of crops under Block demonstration of rice and wheat. They were also entrusted to keep a detailed record of the agricultural operations carried out for conducting Block demonstrations of rice and wheat with the help of "Information Card". In order to appraise the ability of these Progressive Farmers, their qualification was also recorded during evaluation study. The same is reproduced below in **Table.3.3**:

Table 3.3: Educational attainment of the Progressive Farmers (% of total Progressive Farmers)

Qualification	Assam	Bihar	Chhattisgarh	Jharkhand	Odisha	Eastern Uttar Pradesh	West Bengal
Illiterate	0	0	0	0	0	0	0
Primary	0	0	5%	0	0	0	0
Middle	0	30%	5%	0	80%	0	0
Hr. Secondary	60%	60%	45%	67%	20%	52%	50%
Graduate	40%	10%	42.5%	34%	0	24%	50%
Post-graduate	0	0	2.5%	0	0	24%	0

Source: Field survey-2012.

In Bihar, Progressive Farmers have been designated as "*Krishi Salahkars*". Their emoluments are booked under RKVY main fund *instead* BGREI program. They are engaged for RKVY main Schemes also. About 60 per cent of Progressive Farmers possessed higher secondary qualification in Assam & Bihar, 45 per cent in Chhattisgarh, 67 per cent in Jharkhand, 20 per cent in Odisha, 52 per cent in eastern Uttar Pradesh and 50 per cent in West Bengal. Besides, about 40 per cent of Progressive Farmers were graduate in Assam, 10 per cent in Bihar, 42.5 per cent in Chhattisgarh, 34 per cent in Jharkhand, 24 per cent in eastern Uttar Pradesh and 50 per cent in West Bengal. There were 5 per cent progressive farmers of Chhattisgarh who possessed primary qualification. Therefore, most of the Progressive Farmers were literate enough to maintain the prescribed "Information Card" for the Block demonstrations.

The number of linked beneficiary farmers with the Progressive Farmers, area operated by the Progressive Farmers, documentation done by them, status and mode of payment of honorarium to them and status of supply of drum seeders to them was also assessed during the evaluation study. The same is reproduced below in **Table 3.4:**

Table 3.4: Activities carried out by progressive farmers under BGREI & status of payment of honorarium/supply of Drum Seeder to them during 2011-12

Kharif 2011 : Block Demonstration of Rice						
Assam	**Bihar**	**Chhattisgarh**	**Jharkhand**	**Odisha**	**Eastern Uttar Pradesh**	**West Bengal**
Number of Linked beneficiary farmers per progressive farmer						
214	203	153	218	501	140	196

Area operated by the Progressive farmers						
100 ha	100 ha	100 ha	107 ha	500 ha	100 ha	121ha
Maintenance of Information card/documentation by progressive farmers						
None	None	None	None	100%	None	None
Mode of payment of honorarium to the progressive farmers						
Cash	Cheque	Cheque	Cheque	Cheque	**Not paid**	**Not paid**
Supply of Drum seeders to the Progressive farmers						
Not supplied	Supplied-not used	Substituted with seed drill	Supplied – not used	Supplied	Not supplied	Not supplied
***Rabi:* 2011-12: Block demonstrations of wheat**						
Eastern Uttar Pradesh						
Number of Linked beneficiary farmers per progressive farmer						
104						
Area operated by the Progressive farmers						
100 ha						
Maintenance of Information card/documentation by progressive farmers						
None						
Mode of payment of honorarium to the progressive farmers						
Not paid						

Source: Field Survey-2012

The structure of handholding support through Progressive Farmers varied across States. There were 501 beneficiaries linked with one progressive farmer in Odisha who eventually operated highest acreage (500 ha) against the prescribed norms of 100 ha. In Chhattisgarh, there were 153 beneficiaries linked with one progressive farmer who operated 100 ha area. Surprisingly, none of the progressive farmer was involved in documentation of Information Card devised for Block demonstrations. The supply of drum seeders was also not made timely to the progressive farmers due to first year of introduction of this intervention. As a result, it could not be put to use during *Kharif*-2011 in Bihar and Jharkhand.

3.1.6: Input Package for Block demonstrations of rice adopted by BGREI beneficiaries *versus* non-beneficiaries during 2011-12 in BGREI States: The Inputs used by the BGREI beneficiaries of Block demonstrations and non-beneficiaries during *Kharif*-2011, *Rabi*-2011-12 & Summer-2012 are annexed as ***Appendix IX (A to D)***. This study revealed that the **beneficiaries have not used entire recommended input package**. In many cases, beneficiary farmers have not undertaken seed treatment; weed control through weedicides, application of micro-nutrients and plant protection measures. The farmers did not receive the inputs package specified in the BGREI guidelines uniformly across all the BGREI States being in RKVY format which provide for

approval by the State Level Sanctioning Committee (SLSC) chaired by the Chief Secretary of the concerned State.

Even deep ploughing and line sowing has not been adopted in several cases. This gets reflected from the primary survey across all ecologies. It may be worth noting at this juncture that in terms of usage of inputs, there was little difference in terms of expenditure on various components between beneficiaries and non-beneficiaries. But in terms of **quality seed** (that was supplied by the SDA to the beneficiaries, but non-beneficiaries had to purchase from the open market) and so far as use of micro nutrient such as **Zinc Sulphate** is concerned there had been a difference between the beneficiaries and the non-beneficiaries. Beneficiary farmers in most of the cases had received Zinc Sulphate and had put to use. In some ecologies the beneficiary farmers carried out **seed treatment** while the non-beneficiaries did not.

3.1.7: Adoption level of "Deep ploughing and Land preparation" by beneficiaries of Block demonstrations of rice and non-beneficiaries in BGREI districts during *Kharif*-2011: Deep ploughing and land preparation are integral part of innovative crop production technology that would have its impact on increasing the yield of the crop. Accordingly, both of these operations have been included as an intervention for the Block demonstrations of rice and wheat (land preparation only) under BGREI in 2011-12. The adoption level of "Deep ploughing & land preparation" by BGREI beneficiaries and non-beneficiaries has also been analyzed which is annexed as ***Appendix X***. A perusal of the same indicates that **"Deep ploughing & land preparation" was adopted by all the beneficiaries** of rice Block demonstrations whilst only 17 per cent non-beneficiaries did in fact sought to "Deep ploughing" during their cropping operations. In Assam 60 per cent and in Chhattisgarh 50 per cent of the non-beneficiary farmers adopted "Deep ploughing" in *Kharif*-2011. However, land preparation was done by both the beneficiaries and the non-beneficiaries in all the states.

3.1.8: Adequacy of input packs for Block demonstrations of rice & wheat under BGREI in 2011-12:

The farmers' opinion was solicited with regard to the adequacy of input packs included under Block demonstrations of rice & wheat by way of explaining the provision of the interventions made for Block demonstrations under BGREI program during 2011-12. This question did not relate to actual supply of the approved inputs to the beneficiaries. It was sought as a general opinion of the farmers as to the adequacy of input package.

There was mixed response of beneficiaries of Block demonstrations of rice and wheat regarding adequacy of Input packs for Block demonstrations. The satisfaction level in this regard was cent per cent in Odisha & eastern Uttar Pradesh followed by Chhattisgarh (95%), Assam (80%), West

Bengal (76%), Jharkhand (62%) and Bihar (60%). The overall satisfaction level was 81 per cent for all the BGREI States.

It is worth mentioning in this context that the beneficiary farmers were supplied with improved seed and Zinc Sulphate in most of the cases. In Chhattisgarh and Odisha they had access to better implements too. So, in a sense these responses from the beneficiary farmers centre around the quality of improved seed that they received as a part of the BGREI program and referring not to the whole input package as conceived in the strategy.

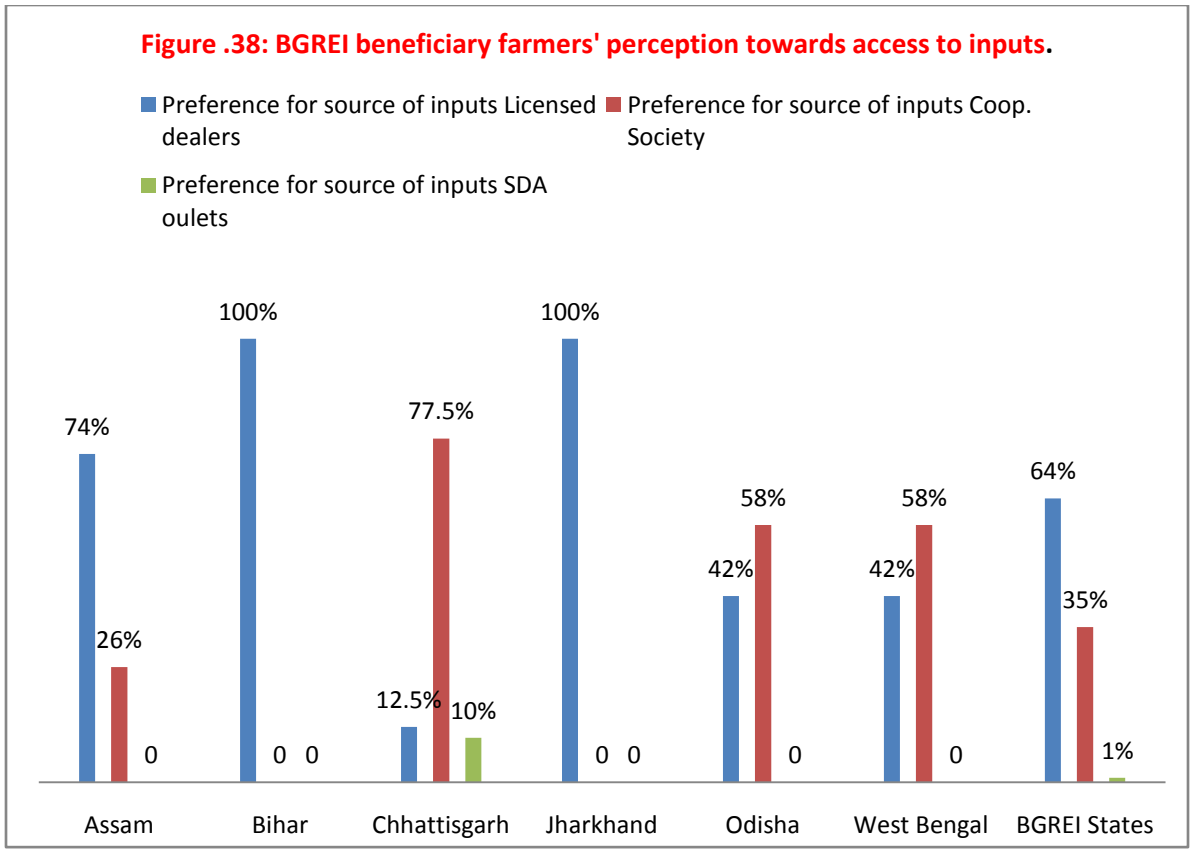
3.1.9: BGREI beneficiary farmers' perception towards rating of BGREI program during 2011-12: The farmers' opinion was solicited with regard to the overall rating of the BGREI program. There was mixed response of beneficiaries of Block demonstrations of rice and wheat in this regard**.**

In Assam, 70 per cent beneficiary farmers rated BGREI program as "Good" and 30 per cent rated it as "Average". In Bihar, 58 per cent beneficiary farmers rated BGREI program as "Good" and 42 per cent rated it as "Average". In Chhattisgarh, 55 per cent beneficiary farmers rated BGREI program as "Good", 42.5 per cent rated it as "Average" and 2.5 per cent as "Poor". In Jharkhand, 58 per cent beneficiary farmers rated BGREI program as "Good" and 42 per cent rated it as "Average". In Odisha, 88 per cent beneficiary farmers rated BGREI program as "Good" and 12 per cent rated it as "Average". In eastern Uttar Pradesh, 98 per cent beneficiary farmers rated BGREI program as "Good" and 2 per cent rated it as "Average". In West Bengal, 88% beneficiary farmers rated BGREI program as "Good" and 12 per cent rated it as "Average". The overall 74 per cent beneficiaries rated the program as "Good" and 26 per cent rates it as "Average".

3.1.10: BGREI beneficiary farmers' perception towards access to inputs: Often concern about the efficiency of delivery mechanism is expressed in the implementations of social programs. Accordingly, the farmers' opinion was solicited with regard to preference for the source for accessing the agricultural inputs (***Appendix XI***). There was mixed response from beneficiaries in this respect **(Figure.38).** A sizeable majority of beneficiaries (64% of the respondents) preferred "Licensed Inputs Dealers" for the incentivized supply of agriculture inputs in kind under crop development programs followed by "Cooperative outlets" (35%) and by "SDA outlets" (1%). However, this perception also varied from state to state. The respondents from Bihar and Jharkhand preferred cent percent supply of agriculture Inputs under Crop Development programs through "Licensed Inputs Dealers" followed by Chhattisgarh (77.5%), Assam (74%), West Bengal (58%) and Odisha (42%). This study was not carried out in eastern Uttar Pradesh.

The benefit of accessing input supply from licensed Input dealers has several advantages including efficiency in delivery and regulatory pricing mechanism that helps the farmers.

Figure .38: BGREI beneficiary farmers' perception towards access to inputs.



3.1.11. Medium and long term physical achievements in the BGREI States: It is observed that in Assam a target of setting up of 5000 shallow tube wells and installation of 500 pump sets had been the target in 2011-12 (Ref. report of AERC, Jorhat). Achievement figures reveal that 5000 shallow tube wells had been installed during the period under reference and installation of pump sets are in progress.

In Chhattisgarh against a target of 8545 shallow tube wells, 4000 pump set and 600 dug/bore wells the achievement was to the tune of 3637 shallow tube wells, 3002 pump sets and 113 dug/bore well.

In Eastern Uttar Pradesh also, water asset building activities like installation of shallow tube wells and pump set exhibited a substantial achievement (target for STW was 24427 of which 19081 were physically installed and success story for pump set installation was over 85 per cent of respective target of 10286 in number.

In Bihar the physical target for site specific activities (no detailed break up available) was 18600 of which only 23.14 percent was realized in 2011-12.

In Jharkhand, however, no target was set as to physical water asset building activities and no work has been done in this respect.

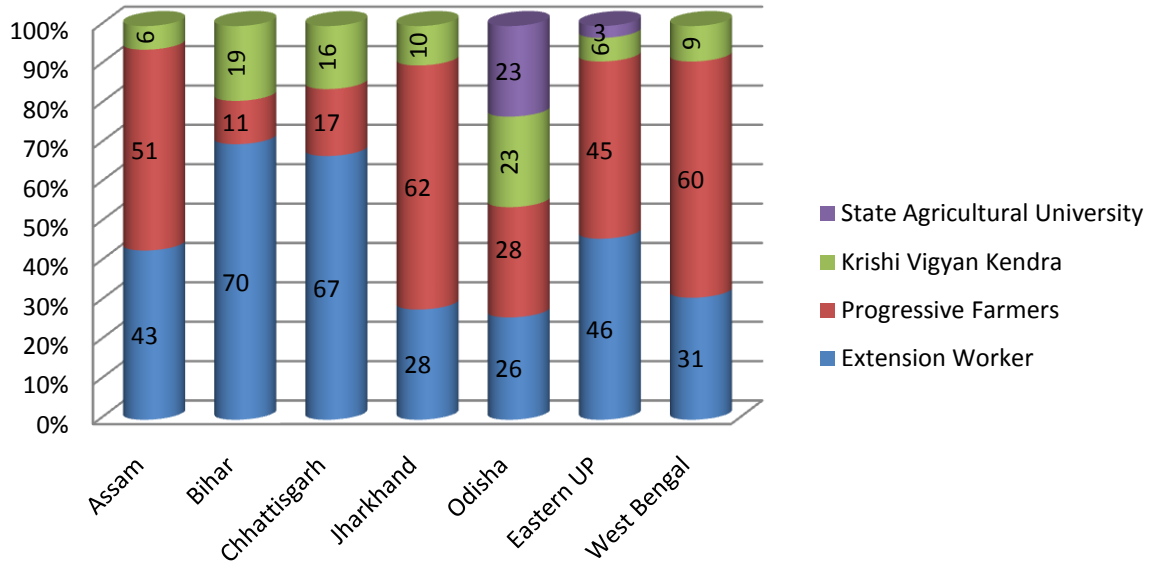
3.2: Technical Backstopping: The provision of technical backstopping, as has been conceived in BGREI program, was made through the state extension workers and *Krishi Vigyan Kendras* with back-up from experts of Agricultural Universities. Progressive farmers were entrusted with the responsibility of keeping liaison between the technical personnel and the farmers. Hence, the day to day technical guidance was provided by the progressive farmers and local extension workers. Hence, they had to keep a close contact with the participating farmers. The state agricultural universities had to play a pivotal role in disseminating the technology with assistance from the technical personnel at the bottom end.

3.2.1: Evaluation of Technical Backstopping-Performance Index in respect of Technical Backstopping across interventions under BGREI program during 2011-12: The State wise and consolidated Performance Index for all BGREI States as well as agricultural operations is annexed as ***Appendix XII (A to H)*****.** So far as implementation of BGREI is concerned there had been Progressive Farmers, state extension workers, KVKs and SAUs, who had been entrusted to provide technical backstopping to the farmers. Performance index are percentages computed on the basis of responses from farmers as regards to their access to technical knowhow from sources mentioned above. The consolidated state wise Performance Index for all the agriculture operation put together is depicted in **Figure.39.** A perusal of the same indicates that 47 per cent beneficiaries accessed technical know-how from the local extension worker of State Department of Agriculture followed by 36 per cent from Progressive farmers, 11 per cent from *Krishi Vigyan Kendras* and 6 per cent from State Agricultural University.

☛ **Assam:** 51 percent beneficiaries accessed technical support from the Progressive Farmers followed by 43 per cent from the local extension worker and 6 per cent from the *Krishi Vigyan Kendras*.

☛ **Bihar:** 11 percent beneficiaries accessed technical support from the Progressive Farmers (*Krishi Salahkars* appointed on contractual basis under RKVY) followed by 70 per cent from the local extension worker and 19 per cent from the *Krishi Vigyan Kendras*.

Figure.39: Performance Index of agency specific access to Technical backstopping under BGREI in 2011-12



☛ **Chhattisgarh:** 17 percent beneficiaries accessed technical support from the progressive farmers followed by 67 per cent from the local extension worker and 16 per cent from the *Krishi Vigyan Kendras*.

☛ **Jharkhand:** 62 percent beneficiaries accessed technical support from the Progressive Farmers followed by 28 per cent from the local extension worker and 10 per cent from the *Krishi Vigyan Kendras.*

☛ **Odisha:** 28 percent beneficiaries accessed technical support from the Progressive Farmers followed by 26 per cent from the local extension workers, 23 per cent from the *Krishi Vigyan Kendra*s and 23 per cent from State Agricultural University.

☛ **Eastern Uttar Pradesh:** 45 percent beneficiaries accessed technical support from the Progressive Farmers followed by 46 per cent from the local extension worker, 6 per cent from the *Krishi Vigyan Kendra*s and 3 per cent from State Agricultural University.

☛ **West Bengal:** 60 percent beneficiaries accessed technical support from the Progressive Farmers followed by 31 per cent from the local extension worker and 9 per cent from the *Krishi Vigyan Kendras.* From the primary data (sample survey) for West Bengal it is revealed 18 beneficiary farmers and 5 progressive farmers had acquired the soft skill and 27 of the extension workers from the state departments had regular contact with the beneficiary farmers.

3.2.2: BGREI beneficiary farmers' perception towards adequacy of Technical Backstopping made available under BGREI program during 2011-12:

The farmers' opinion was solicited with regard to status of availability of technical backstopping to the beneficiary farmers under BGREI program ***(Appendix XI)***. The general opinion among the beneficiary farmers was that the provision of technical backstopping had been adequate.

In Assam, 60 per cent beneficiary farmers reported that technical backstopping under BGREI program was "adequate". It was reported adequate by 72 per cent in Bihar. In Chhattisgarh the corresponding figure was 100 per cent, in Jharkhand 80 per cent, in Odisha 52 per cent, in eastern Uttar Pradesh 100 per cent and in West Bengal 52 per cent. On the whole 73 per cent beneficiaries reported adequacy in technical backstopping.

It might be mentioned that the scientists of SAUs & ICAR (ICAR-SAU system) were identified for providing technical support to the BGREI beneficiaries during 2011-12 with the help of KVKs and extension workers from state department of agriculture. Accordingly, the farmers' opinion was solicited with regard to the agency which guided the best. A sizeable majority of the respondents (68%) reported that extension workers of state department of agriculture provided the best technical support followed by Progressive Farmers (19%). It seems quite trivial that the agency or technical personnel who had close contact with the farmers have performed their best in providing technical backstopping. Among the state departments of agriculture, rank of Chhattisgarh was highest (90%) followed by Assam (74%), Bihar (70%), Odisha & West Bengal (56%), Eastern Uttar Pradesh (54%) and Jharkhand (50%).

3.3: Monitoring:

3.3.1: The Monitoring Process: The program involves a strong mechanism of monitoring of activities. A three tier monitoring structure has been put in place at National, State and District Levels. The monitoring structure involves Central Steering Committee (CSC) under the chairmanship Secretary (A&C), State Level Monitoring Team (SLMT) for the state under the chairmanship of an Additional Secretary/Joint Secretary of the State Department of Agriculture and District Level Monitoring Team (DLMT) headed by District Agriculture Officer. CRRI is the nodal agency for monitoring the program.

3.3.2: Monitoring status of the program by CRRI, Cuttack: Monitoring of BGREI program for extending technical backstopping was decided to be carried out by the nominated scientists of ICAR-SAU formations under overall supervision of CRRI-Cuttack. The outcome of the field visits based on the reports received from ICAR-SAU formations reproduced below in **Table.3.5**:-

Table 3.5: Field visits undertaken by the Scientists of ICAR-SAU formations for monitoring of BGREI program during 2011-12.

Sl.	State	Total districts	Number of districts visited by ICSR-SAU formations/Central Universities						
			CRRI	ICAR NEH Complex	DSR-Mau	DRR-Hyderabad	SAUs	BHU	Total
1.	Assam	21	4	NR	NR	NR	NR	NR	4
2	Bihar	29	1	NR	NR	NR	NR	NR	1
3	Chhattisgarh*	18	6	NR	NR	NR	NR	NR	6
4	Jharkhand	17	3	NR	NR	NR	NR	NR	3
5	Odisha	15	11	NR	NR	NR	NR	NR	11
6	Uttar Pradesh	15	0	NR	NR	NR	NR	NR	0
7	West Bengal	10	0	NR	NR	NR	NR	NR	0
Total		**125**	**25**	NR	NR	**NR**	NR	**NR**	**25**

Source: BGREI cell, DAC, GOI; **NR: Not Reported**

Observations:

- Awareness meetings about program implementation, documentation, monitoring and reporting were conducted in all the BGREI States except Bihar State by the CRRI scientists;
- Technological backstopping was carried out by CRRI scientists in five (5) BGREI States namely; Assam, Bihar, Chhattisgarh, Jharkhand & Odisha;
- SAU scientists & ICAR Institutes' scientists were supposed to have undertaken field visits in BGREI States but their monitoring reports were not received despite repeated persuasion;
- Post-*Kharif* Awareness Workshops were successfully organized in all the BGREI States except Bihar, Jharkhand & West Bengal States;

It appears from the official statistics that were made available, CRRI scientists have carried out the awareness meetings regarding implementation of BGREI program in general and provided necessary technical backstopping. However, in course of our field visit during the primary household survey we encountered certain issues and were able to make some observations as regard to technical backstopping at the field level that requires mentioning.

- Gaps in adoption of recommended technologies pertaining to nutrient management, crop protection (seed treatment) and stress management (weed management in rainfed

uplands & contingency cropping in drought prone areas) were observed during field visits.

- Ensuring supply of quality seeds of ecology specific HYVs hybrids as well in rice and HYVs in wheat.
- Timely delivery of agricultural inputs at farmers' door step.
- Ensuring need based nutrient management based on soil test instead blanket recommendation.
- Conducting crop cutting experiments of demonstration plots of all Schemes along with general crop cutting by Revenue Department appropriately.
- Documentation of yield data & timely reporting to all the concerns in order to assess reflection of the productivity trend in the states' total production & productivity.

3.3.3: Monitoring by Central Steering Committee (CSC): The staff of BGREI Cell has visited the 61 BGREI districts out of 114 districts during *Kharif* -2011 and 14 districts during *Rabi*: 2011-12 out of 54 districts as per details given below in **Table 3.6**:-

Table 3.6: Field visits by BGREI Cell for monitoring of BGREI program during 2011-12.

Sl. No.	State	*Kharif*-2011			*Rabi*: 2011-12		
		Total districts	Visited districts	% visited districts	Total districts	Visited districts	% visited districts
1.	Assam	21	0	-	12	4	43%
2	Bihar	20	19	95%	21	0	0
3	Chhattisgarh*	18	9	50%	0	-	-
4	Jharkhand	17	9	53%	0	-	-
5	Odisha	15	15	100%	6	3	50%
6	Uttar Pradesh	13	7	54%	6	3	50%
7	West Bengal	10	2	20%	9	4	44%
Total		**114**	**61**	**54%**	**54**	**14**	**26%**

***Some BGREI components across all the districts in Chhattisgarh State.**

Source: BGREI cell, DAC, GOI.

Observations:

- All the States stood by the program and accomplished task of program formulation & implementation on time.
- Assam promoted rice, maize & pulses through BGREI program during *Kharif*-2011 and rice & maize during *Rabi*: 2011-12.
- Program prescription varied in Assam, Bihar, Chhattisgarh and West Bengal.
- Bihar preferred promotion of SRI devoid of rice ecologies and SWI through BGREI.

- Bihar opted for supply of inputs/incentive amount in cash to the beneficiaries in a single go by organizing "*Krishi Utsav*" at identified Blocks in both seasons.
- Remaining states opted for staggered supply of inputs/incentive amount to the beneficiaries.
- Overall production & productivity gains of rice have been witnessed in all BGREI states except Assam, Chhattisgarh and Odisha.
- New records of productivity of rice have been set in all the BGREI states in Block demonstrations.

3.3.4: Monitoring by SLMTs: The State Level Monitoring Team (SLMT) is set up under the Chairmanship of Addl. Secretary/Joint Secretary of the Department of Agriculture & Cooperation. The team includes CRRI representative of the State, the Director of Agriculture and personnel as proposed by the Director as members. The team meets once in every month to review the district-wise progress of implementation of various interventions. This monitoring team acts as the main bridge between the CSC (Central Steering Committee), SLMT and the District Level Monitoring Team (DLMT). The compositions of SLMTs in different States are as under (**Table 3.7**).

Table 3.7: State-wise State level Monitoring Teams

STATE	AS/JS(Chairman of SLMC)*	Technical expert	State Representative	Partner Institute of CRRI@
Assam	Joint Secretary	Addl. Comm. (Crops), DAC	Director of Agriculture	VC/Scientist, AAU, Jorhat
Bihar	Joint Secretary	Director, DRD, Patna	Director of Agriculture	VC/Scientist, RAU Samastipur
Chhattisgarh	Joint Secretary	DC (TMOP)	Director of Agriculture	VC/Scientist,IGKVV, Raipur
Jharkhand	Addl. Secretary	DC (INM)	Director of Agriculture	VC/Scientist, BAU, Ranchi
Orissa	Addl. Secretary	DC (RFS)	Director of Agriculture	VC/Scientist,OUAT, Bhubaneshwar
Uttar Pradesh	Joint Secretary	DC (NRM)	Director of Agriculture	VC/Scientist,BHU, Varanasi
West Bengal	Joint Secretary	Director, DJD, Kolkata	Director of Agriculture	VC/Scientist,BCKVV, Mohanpur, Nadia

* Chairman of the concerned State team may induct more members to the team, if desired;
@ The vice chancellors of the concerned Agricultural Universities also be the members of the team for their state:

Assam: The SLMT meets once in every month to review the district-wise progress of implementation of various interventions. As per report of the departmental officials, there were 12 SLMT meetings in 2010-11 and 6 meetings in 2011-12.

The meetings reviewed all ongoing programs in the State of Assam and recommended remedial measures to be adopted for proper implementation of the program where there were gaps. The meetings also emphasized on constant supervision of all the activities and proper coordination with the farmers.

Bihar: In Bihar the fifteen SLMT meeting including crop cutting field visit for the year 2011-12 was held. There had been detailed discussions regarding the progress of BGREI program in the state. General remarks were "good" in the monitoring meetings.

Chhattisgarh: Only two meetings of SLMTs were conducted on November 12, 2010 for the year 2010-11 and August 11, 2011 for the year 2011-12.

The agenda and proceedings of the meetings were not made available, hence unable to mention the details of these meetings.

Eastern Uttar Pradesh: As to SLMT meeting during 2011-12 only 3 meetings on 24-6-11, 19.04.2011 and 19.05.2011 were organized at state level to monitor the BGREI program in Eastern Uttar Pradesh for Rice and only two meetings were held i.e. on 21.07.2011 and 13.04.2012 in total for Wheat during the year 2011-12. The SLMTs for Rice and Wheat in Eastern Uttar Pradesh is the same team which is entrusted for monitoring the two crops.

Jharkhand: SLMT meeting for the year 2011-12 was held on May 24-25, 2011. No detailed information regarding the meeting was available.

Odisha: As per the records three SLMT meetings were held till January 1, 2012. On September 28, 2010; June 20, 2011 and January 1, 2012. A detailed account of the discussions and resolutions are presented by AER Centre, Visakhapatnam.

West Bengal: No information regarding SLMT meeting was available from State Agricultural Directorate despite repeated requests.

3.3.5: Details about DLMTs: It has been observed that there was a 5 member District Level Monitoring Team (DLMT) with DAO/Deputy Director, Agriculture of the concerned district as the Chairman to monitor all the activities under BGREI.

No detailed account of composition of the DLMT. Neither the numbers of meetings, discussions and resolutions taken in such meeting was available from the reports of the participating centres barring the report prepared by AER Centre, Visakhapatnam.

In Odisha 14 DLMT meetings were held in 2011-12 across four districts under the present study – 3 meetings in Khorda District, 3 in Ganjam, 5 in Sambalpur and 3 in Koraput Districts. Details of the discussions in such meetings were presented by them.

AER, Uttar Pradesh reported such meetings were held only once in a year for the districts.

3.4: Impact of BGREI program

3.4.1: BGREI program and changes in Cropping Intensity: The BGREI program was conceived in a manner to take into account the varying ecologies within the state. Moreover, the program had the strategic emphasis on increasing yield rates resulting from technology dissemination particularly in rainfed areas. On the other hand, increase in cropping intensity (CI) depends on assured and controlled irrigation, the source in most of the cases is the shallow tube wells. But the experience of Green Revolution propagated in the mid 60s, which depended heavily on sub soil water, had raised skepticism among agricultural scientists and environmentalists regarding the technology itself. Heavy dependence on sub soil water had been contributing in rapid depletion of sub soil water table. A new strategy was thus conceived that could thrive on surface water, rainfall and water conservation.

The results of CI across rice ecologies (mentioned earlier in Chapter 1) indicate differentiated pattern between BGREI beneficiaries and non-beneficiaries ***Appendix XIII (A to G)***. The state wise changes in CI on the farms of BGREI beneficiaries' vis-à-vis non-beneficiaries during 2011-12 over 2010-11 are presented below:

☛**Assam:** There has been marginal change (up to 3%) in the CI of BGREI beneficiaries (2.09%) and non-beneficiaries (2.99%) for the state as a whole.

☛**Bihar:** A marginal change (up to 3%) in the CI is observed among BGREI beneficiaries (2.09%) and non-beneficiaries (1.13%) in the state.

☛**Chhattisgarh:** The average CI for all ecologies in aggregate has shown significant increase in respect of BGREI beneficiaries (9.6%) as compared to non-beneficiaries (1.52%).

☛**Jharkhand:** There has been marginal change (up to 3%) in the CI of BGREI beneficiaries (2.6%) whereas CI has shown declining trend amongst non-beneficiaries (-1.2%) in Jharkhand.

☛**Odisha:** The pooled average of CI for all ecologies has shown significant decrease in respect of BGREI beneficiaries (-19.8%) as compared to non-beneficiaries (-12.7%).

☛ **Eastern Uttar Pradesh:** The average CI for the state for rice Block demonstrations was less in respect of BGREI beneficiaries (201%) as compared to non-beneficiaries (221%). In case of

wheat also the average CI was lower among beneficiaries (169%) as compared to non-beneficiaries (179%).

☛**West Bengal:** Average CI for all ecologies taken together shows marginal increase for both BGREI beneficiaries and non-beneficiaries.

On the whole it can be said that there has been marginal changes over two years in cropping intensity for both beneficiary and non-beneficiary farmers with variations across states. Moreover, no substantial difference is observed among beneficiary and non-beneficiary farms in terms of their cropping intensity. Hence, the change in CI in the states (as derived from sample survey results) cannot be attributed to the program of BGREI. There may have been some other factors (e.g. rainfall) influencing the cropping intensity in the states in the years of reference. Over and above, the BGREI program as conceived had focused on increasing the yield of crops of which we shall be discussing presently.

3.4.2: BGREI program and rise in grain yield:

In all the states data was collected as to the yield of crops among the sample beneficiaries and non-beneficiary farms. In Chapter 1 we had discussed about the sample across the states with respect to their homogeneity in terms of land size and level of education. Land size was conceived as one of the main determinants of household's position in the economic hierarchy within the village and level of education had been thought as an important attribute that could have an impact on adoption of the new technology under BGREI program.

Result of the primary survey as regard to differences in yield between sample beneficiary and non-beneficiary farms are discussed (**Table 3.8**). We had also carried out Mean Difference Test of yield of paddy, pulses and wheat between BGREI beneficiaries and non-beneficiaries. But the results of the mean difference test should be analysed with caution for the fact that the total sample size for such an exercise was small. Moreover, there had been an imbalance between the number of beneficiaries and non-beneficiaries within the sample resulting out of the design of the survey.

It is revealed from the mean yield achieved by the beneficiaries and non-beneficiaries that there exists a difference in grain yield between them. In most of the states the average yield of crops among beneficiaries was substantially higher than their counterparts (i.e. non-beneficiaries). For *Kharif* paddy the difference is more pronounced in the states under consideration. In Assam, however, for *Rabi* pulses the difference between the yield rate of beneficiaries and non-beneficiaries seems to be less prominent.

With all its limitations (as we had discussed in Chapter 1) the results of the mean difference test also reveal a similar pattern of differences in average grain yield between beneficiaries and non-beneficiaries, with better performance for the former group.

Assam: The test results clearly indicates that the difference in yield rates for the *Kharif* paddy, Summer paddy & *Rabi* pulses in Assam across beneficiary and non-beneficiary farmers is found to be statistically significant at 1 per cent level, having bias in favour of the former group.

Table 3.8: Mean difference Test of Grain yield of Paddy, Wheat & Pulses between BGREI beneficiaries and non-beneficiaries in 2011-12.

State	Farmer Groups	Yield in Kg/ha		
		N	Mean Yield (Kg/Ha)	t values
***Kharif*-2011: Paddy**				
Assam*	**Beneficiary**	50	4708.85	8.014
	Non-beneficiary	25	3769.10	
Bihar*	**Beneficiary**	50	3874.30	8.468
	Non-beneficiary	25	3448.60	
36garh*	**Beneficiary**	40	4287.30	3.097
	Non-beneficiary	20	3740.00	
Jharkhand*	**Beneficiary**	50	2977.30	6.751
	Non-beneficiary	25	2691.20	
Odisha*	**Beneficiary**	50	5576.86	31.353
	Non-beneficiary	25	3880.92	
UP*	**Beneficiary**	50	7164.80	2.554
	Non-beneficiary	25	3884.00	
WB*	**Beneficiary**	50	5059.25	3.125
	Non-beneficiary	25	4743.00	
***Rabi:* 2011-12: Pulses**				
Assam	**Beneficiary**	40	695.76	1.489
	Non-beneficiary	20	614.57	
***Rabi:* 2011-12: Wheat**				
Eastern UP*	**Beneficiary**	20	7564.25	1.767
	Non-beneficiary	10	4269.10	
Summer-2012: Paddy				
Assam*	**Beneficiary**	50	5733.75	9.878
	Non-beneficiary	25	4594.21	

Data Source: Field Survey-2012.

* Mean Difference Significant at 0.01 level

Bihar, Chhattisgarh, Jharkhand, Odisha & West Bengal: The test results clearly indicates that the difference in yield rates for *Kharif* paddy in these states across beneficiary and non-

beneficiary farmers is found to be statistically significant at 1 per cent level, again having bias in favour of the former group.

Eastern Uttar Pradesh: There is clear indication from the results that the difference in yield rates of *Kharif* paddy and of wheat in eastern Uttar Pradesh across beneficiary and non-beneficiary farmers is found to be statistically significant at 1 per cent level; beneficiaries reaping the benefits of the program.

3.4.3: Yield Gap analysis amongst BGREI beneficiaries and non- beneficiaries: Yield gap analysis is often used as a tool for planning the crop development strategies. The ecology specific yield gap analysis in rice and wheat crops in BGREI States except eastern Uttar Pradesh reveals that wide gap exists across ecologies and districts within a state and between states too ***(Appendix XIV (A*** to ***F))***. This exercise, however, was not carried out by AER Centre, Allahabad. Normally yield gap is the difference between yield obtained at the farm level and the potential yield of a particular variety on the experiment station. Differences in yield gap between beneficiary and non-beneficiary farmers would suggest the impact of changes brought about in terms of yield enhancement. It also suggests the scope of yield enhancement across ecologies. However, the yield gap analysis has been made differently for different states with differential benchmark as indicated in the annexed details.

In case of **Assam**, no yield gap was witnessed in *Kharif* paddy in respect of BGREI beneficiaries as well as non-beneficiaries in all the rice ecologies except rainfed medium deep water low land and irrigated land in which there is wide yield gap in the range from 15% to 34%. The reason, in case of Assam, for not showing the yield gap in general may be that farmers' yield were compared with the quinquennial mean yield fixed at the preceeding year. In fact, the farmers' yield should have been compared with *potential* yield of the varieties used by the farmers.

In **Bihar**, the yield gap among the beneficiary farms is 44.71 per cent and 50.73 per cent in respect of non-beneficiary farms.

The yield gap reported in **Chhattisgarh** is in the range of 4 to 47 per cent across ecologies. The extent of yield gap of paddy in Chhattisgarh was found to be comparatively low (12.8%) for beneficiary farmers as compared to the non beneficiary farmers (31.8%). The actual yield of paddy in the state was found to be 4148 kg/ha and 3239 kg/ha, respectively for beneficiary and non beneficiary farmers as against its potential yield of 4750 kg/ha.

In **Jharkhand,** the yield gap among the beneficiary farms is 42.71 per cent and 58.13 per cent in respect of non-beneficiary farms. This signifies that beneficiaries enjoy higher yield rate than their counterpart.

In case of **Odisha**, the yield gap of paddy is compared with potential yield of paddy across *Kharif* & summer seasons amongst the selected BGREI beneficiary & non-beneficiary farmers. Accordingly, the yield gap In Odisha was in the range from 0.3 per cent in Irrigated ecology in Rayagada district in respect of BGREI beneficiaries to 76 per cent in rainfed ecology in Ganjam district in respect of non-beneficiaries during *Kharif*-2010. The yield gap of paddy in *Kharif*-2011 was in the range from 0.6 per cent in irrigated ecology in respect of BGREI beneficiaries in Rayagada district to 78 per cent in respect of non-beneficiaries of rainfed ecology in Ganjam district. Thus, rainfed systems are more vulnerable to yield fluctuations than the irrigated areas among other things. However, in most of the district the yield gap for beneficiaries was substantially lower than their non-beneficiary counterparts.

In **West Bengal**, yield gap was calculated by comparing the potential yield with the farmers' yield. It shows that yield gap varied from 12 per cent to 27 per cent across ecologies in respect of BGREI beneficiaries. In respect of non-beneficiary farmers, the yield gap is 15 per cent to 31 per cent across all five rice ecologies. Thus, there is almost same trend in respect of yield gap in rice amongst BGREI beneficiaries as well as non-beneficiaries.

Hence, it can be said that the **beneficiary farmers in general in all the BGREI States had an edge over the non-beneficiaries in enhancing the yield of crop**.

We also carried out an exercise regarding operation specific cost and returns of the beneficiary and non-beneficiary farmers in the states in view of the BGREI programme. It is revealed that the beneficiary farmers reap a higher than their non-beneficiary counterpart. However, interested reader may refer to ***Appendix XV (A to J)*** for detailed results in this regard.

3.4.4: Determinants of yield: In order to determine the impact of various inputs on the total yield, an analysis has also been made to find out the factors determining yield of paddy, pulses and wheat. For this purpose, multiple regression exercise has been carried out. Yield per hectare has been taken as "dependent variable" and the "predictor (independent) variables" include both continuous and dummy variables. The continuous variables are value of seeds used per hectare, value of micro-nutrients used per hectare and other costs (inclusive of fertilizers, plant protection chemicals etc.) per hectare. The dummy variables include ecological dummies for rain-fed upland, rain-fed medium, rain-fed deep water and irrigated ecology.

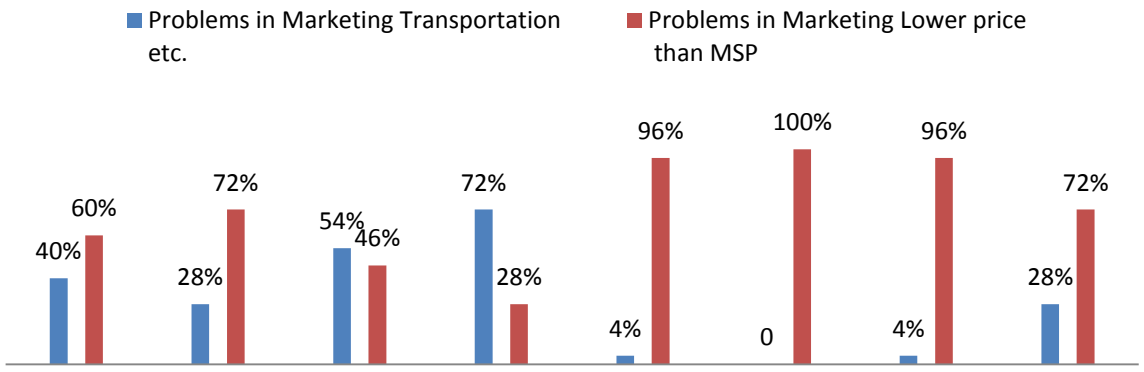
It would be judicious at this juncture to submit that the sample size for such an analysis have been extremely small. Moreover, as the value of seed, value of micro-nutrients and other costs were taken together as independent variables, one should have carried out a multicolinearity exercise to ascertain independence between the variables. But such an exercise was not carried out.

The results of such a regression exercise did not, however, point toward any conclusive evidences of causal relationship between "dependent" and "predictor" variables (***Appendix XVI (A to D)***).

3.5: Farmers and problems in marketing of agriculture produce: In course of our study in West Bengal as well as in other states one had to come across repeated complain from the respondents regarding the problems they are faced with as regards to marketing of agricultural produce. Two main problems as identified by the respondents were "low price of the agricultural output in the market" and "problem of transporting the output to the market".

The opinion of the beneficiary farmers of the BGREI program was secured relating to problems faced in marketing of agriculture produce. The arrangement of assured procurement of agriculture produce is as essential as promotion of technology.
A sizeable proportion of respondents (72%) reported that farm gate prices are always lower than MSP due to non-existence of the provision of market intervention for cereals **(Figure 40).** Rest of the farmers (28%) reported that there is problem of transportation of harvested produce to the markets due to poor rural roads, remotely located markets and lack of transport facility.

Figure.40: BGREI beneficiary farmers' perception towards problems faced in marketing of agriculture produce.



Chapter-4: Conclusions, Recommendations & Policy Suggestions

4.1: Conclusions: The conclusions derived from the study are as under:

4.1.1: The study revealed that there are certain gaps in varying extents between recommended, promoted and implemented strategies across different States due to lack of uniformity in input package/mode of implementation/documentation across the States.

- **Assam** - Some of the asset building activities and site specific activities could not be taken up on account of administrative and financial delays.
- **Bihar-** Sole emphasis on SRI method of cultivation across all ecologies in contravention to technical recommendations.
- **Jharkhand** –Larger emphasis on Check dams including in the non-project area also;
- **Chhattisgarh** - The achievements of the physical as well as financial targets in conducting block demonstrations were quite satisfactory under BGREI program in Chhattisgarh. Water Asset Building component has been implemented in non-BGREI districts also.
- **Eastern UP** – Water Asset Building component has been implemented in non-BGREI districts also.
- **Odisha** - On the whole the package of practices in block demonstrations was adopted by beneficiaries. Asset building activities and site specific activities were more or less adequate. All the beneficiary farmers have adopted the Deep Ploughing and Land preparation activities. On the other hand, the non-beneficiary farmers have adopted only the Land Preparation activity.
- **West Bengal** – There have been gaps in adoption of technology transfer among the beneficiaries. Achievement in respect of water asset building and site specific activities was inadequate.

4.1.2: In case of technical backstopping, the scientists of SAUs, KVKs & ICAR (ICAR-SAU system) were identified for providing technical support to the BGREI beneficiaries during 2011-12. It is revealed from the study that SDA staffs of the concerned State Departments of Agriculture provided technical backstopping the best, followed by the Progressive Farmers under BGREI program. Through a regular contact technology dissemination had been quite successful in the BGREI states. Moreover, about 73 per cent of beneficiaries perceived activities undertaken for technical backstopping to be adequate. Respondents seemed to be satisfied with the program.

- **Assam** - All the beneficiaries accessed technical backstopping mostly from progressive farmers and state extension personnel.
- **Bihar and Jharkhand** - Technical backstopping was largely extended by State Extension Workers in Bihar and Progressive Farmers in Jharkhand. Progressive Farmers in Jharkhand and state extension workers (SMS + KS) in Bihar proved the most viable link between extension machinery and linked beneficiary farmers.

- **Chhattisgarh** - Performance index as well as farmers reporting regarding technical backstopping revealed that service provided by the Identified Extension Workers was remarkably higher than Progressive Farmers and KVK.
- **Eastern UP –** Progressive farmers were identified as the main source of information on modern rice and wheat technology, as all the sample beneficiaries had reported to get information from them under BGERI program.
- **Odisha** - Highest place is assigned to extension worker followed by progressive farmer by performance index of technical backstopping, though some lacunae remain in respect of supervision and guidance of the extension staff while implementing the package of practices under this program.
- **West Bengal –** Major role was played by state extension personnel and the Progressive Farmers.

It comes out from the study that provision of progressive farmers and staffs from State Departments of Agriculture of the concerned states acted as important sources of technology dissemination and technical guidance. Though responsibilities assigned to the Progressive Farmers in terms of coverage of cropped area and linked beneficiary farmers differed from state to state, but feedback from beneficiary farmers during the study revealed their (progressive farmers and SDA staff) effectiveness as a crucial link between the program implementing agencies and actual beneficiaries.

4.1.3: After a detailed analysis of yield rates across beneficiary and non-beneficiary farmers across different states, the study reveals a positive crop response to promoted technology under BGREI program. In particular, in case of crops like *kharif* paddy, summer paddy, wheat & *Rabi* pulses in different states, it is observed that yield rates for the beneficiary farmers are significantly higher than the non-beneficiary farmers. Though it seems too early to conclude strongly as to the definite impact of the program nonetheless there are signs towards a positive change.

- **Assam** - It may be concluded that there were no significant changes in cropping pattern in the state during the period of study. There was a significant difference in yield rate of each crop between beneficiary and non-beneficiary farmers. The beneficiary farmers obtained higher yield than the State's average yield.
- **Bihar and Jharkhand** - Significant increase in grain yield in both the States is observed.
- **Chhattisgarh** - The area under high yielding varieties and hybrid paddy increased during the year 2011-12 as against 2010-11. Also, there was significant yield gap between beneficiary and non beneficiary farmers.
- **Eastern UP** - Value of produce at both the levels i.e on per farm as well as per hectare was higher in case of beneficiaries as compared to that in case of non-

beneficiaries. The yield rates of grain as well as straw were also higher in case of the beneficiaries as compared to the same in case of non-beneficiaries.

- **Odisha -** There was a sharp decline in yield gap for beneficiary farmers as compared to the non-beneficiaries.
- **West Bengal** – Marginal change in overall cropping intensity is observed. Yield gap seems to be lower for beneficiaries than their counterpart.

4.1.4: In course of the study, the impact of various interventions of Block demonstrations to drive growth in rice and wheat is reflected in changes in yield rates. This gets reflected in the Yield Gap analysis. Though cropping intensity in 2011-12 over 2010-11 increased marginally across most of the states, but this might not be due to the transfer of technology under BGREI program. There might have been some other reasons too. **Because the BGREI program, as conceived, addressed towards increasing the yield rather than the cropping intensity. Hence, the impact of intervention under block demonstration programs under BGREI is more prominent in increasing the yield rates for the beneficiary farms as compared to non-beneficiaries.**

4.2: Recommendations and Policy Suggestions: On the basis of the findings of this study and concluding observations, the following recommendations and policy suggestions are proposed:-

- Efforts should be made to reduce the gaps between recommended, promoted and implemented strategies. For this, coordinated effort to disseminate technology to the beneficiary farmers is needed through.
- In course of dissemination of technology, provision of Progressive Farmers and regular monitoring from State agriculture departments can play vital role. As such, such links between the beneficiaries and State machineries should be encouraged.
- Interventions through crop demonstrations has helped decline the gap between ecology specific potential and actual yields across beneficiary farms. Hence, such demonstration programs should be encouraged.
- Eastern India covered under the BGREI program has exhibited a glimpse of a high potential for yield enhancement of rice, wheat and *Rabi* pulses through a favourable positive crop response. There is a huge scope to exploit this potential through scientific and technological intervention like BGREI, and hence the program should continue with greater effort and coordination.
- An all round effort should be made to ensure the timeliness of input delivery system prescribed under the recommended technology.

***

APPENDIX-I

Terms of reference of 'The End Term Evaluation of BGREI program'

1. Adequacy of formulation of the BGREI program (Program interventions/sub-interventions) to enhance the productivity of rice & wheat crops in BGREI states commensurate to their needs relating:
   I. Block demonstration of rice;
   II. Block demonstration of wheat;
   III. Water asset building;
   IV. Site specific interventions;
   V. Technical backstopping by extension wings of State Department of Agriculture, Krishi Vigyan Kendras (KVKs) & State Agricultural Universities; and
   VI. Monitoring mechanism.
2. Preparedness of the States to the challenge of the BGREI program;
3. Timeliness of formulation and approvals of the program by State Level Sanctioning Committees (SLSCs);
4. Timeliness of issue of administrative & financial sanctions of the approved program (s) by RKVY division;
5. Timeliness of release of funds by RKVY division to participating States;
6. Timeliness of release of funds by States' Finance Departments to the implementing departments (Director of agriculture, Irrigation Department etc.) in each State;
7. Timeliness of communication of the district wise allocation of the program by the implementing departments;
8. Timeliness of release of funds by the implementing departments in the States to the implementing districts;
9. Adequacy of pre-positioning of agricultural inputs by the implementing departments at state/district level in the BGREI states;
10. Adequacy of the proposed monitoring mechanism and response thereto i.e. state Level monitoring Teams (SLMTs), District Level Monitoring Teams (DLMTS), CRRI-Cuttack, Krishi Vigyan Kendras (KVKs) & SAU scientists;
11. Review of the impact of functional support by BGREI cell to the program as a whole;
12. Efficacy of delivery mechanism of agricultural inputs, incentive for deep ploughing/land preparation, direct seeding in lines/line transplanting and honorarium to progressive farmers/SDA staff by the implementing states/districts;
13. Adequacy & efficacy of reporting system in terms of timeliness, factuality of data in physical & financial (actual expenditure not committed expenditure) terms by districts to states and states to BGREI cell;

14. Status and impact of implementation of various interventions i.e. gaps, if any, between recommended (contained in guidelines), promoted (planned) and implemented strategies (actually implemented on the ground at farmers' level) on the productivity of mandate crops in general and cropping system in particular;
15. Effectiveness of SLMTs/DLMTs in program implementation;
16. Effectiveness of institutional support provided by CRRI for Program monitoring; and
17. Farmers (beneficiary & non-beneficiary) response to the program as a whole.

***

Appendix-II

Dear Dr D Sarkar,

I have gone through the questionnaire. My comments are as under:

The third stage of selection of the 40 respondents from each block should be random, i.e. out of the selected respondents some may turn out to be benificiaries while others may be non-beneficiaries in the identified block where demonstrations were carried out. So the 20B+20NB is not necessarily required. What proportion of the respondents selected on random basis were the beneficiaries of intervention (i), i.e. demonstrations of rice and or wheat; (ii) Asset building activities for water conservation & utilization; such as construction of shallow tube wells, dug well/bore wells and distribution of pump sets, drum seeders, Zero till seed drills or (iii) Site Specific Activities such as construction/renovation of field/irrigation channels/electric power supply for agriculture purposes, institutional building for inputs supply etc. and what proportion of the selected respondent did not get any benefit from the scheme, can be commented on better based on a purely random process

The questionnaire is still too long, seeking information on many variables which are not part of the TOR, like family particulars of the respondent, his education level, land tenure - owned or leased, etc. If these are not part of the identification process by which the beneficiaries are envisaged to be selected as per the guidelines of the Scheme, there is no point to collect informaton on these variables We are not doing a Socio-eco survey.

On site specific and assets building activities, simlpe questions like whether the respondent has received any assistence from the govt and if yes the nature and amount of assistence received may suffice. Questions like make and brand names seem to be unnecessary.

Please note that every AERC has to write on each bullet of the objectives and on each point of the TOR for each block and then it has to be consolidated for the state and finally for the entire Eastern region (by you) where BGREI is being implemented. Therefore, pl keep the questionnaire short (not more than 2-3 page or 20-22 questions), simple and to the point - addressing to the ToR only.

Rgds,

BSB

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Department of Agriculture & Cooperation,
Ministry of Agriculture, Krishi Bhawan,
New Delhi 110001
Tel. 23387541, 9311182024

----- Original Message -----
From: Debashis Sarkar <debashis.sarkar@visva-bharati.ac.in>
Date: Saturday, January 28, 2012 6:04 pm
Subject: Final Research Proposal and Methodology of the study entitled "End-term Evaluation Study/Appraisal in respect of the Implementation of the Bringing Green Revolution to Eastern India (BGREI) Programme"
To: "Dr. B S Bhandari" <badris@nic.in>
Cc: neerajasastry@gmail.com, "byasadev.naik" <byasadev.naik@nic.in>, ggrao333@gmail.com, basantkrjha@hotmail.com, aerc_jbp@yahoo.co.in, director <director@aercbhagalpur.org>, ramendu_roy@rediffmail.com, anup_aau@yahoo.com

> Dr. B. S. Bhandari
> Adviser
> Ministry of Agriculture
> *Government of India*
>
>
> Dear Dr. Bandari,

File

2/2/12

Agro-Economic Research Centre (West Bengal)

End-term Evaluation Study/Appraisal in respect of the Implementation of the Bringing Green Revolution to eastern India (BGERI) Programme

Farmers Schedule/Questionnaire

A. General Information

1. State:
2. District:
3. Sub-division:
4. Block:
5. Gram Panchayet:
6. Village
7. Name of the Respondent & mobile No.:
8. Father's/Husband Name
9. Education:
10. Occupation:
11. Season & year of enrolment as beneficiary/non-beneficiary: *Kharif*-2010/2011; *Rabi*: 2010-11/2011-12; Summer: 2011/2012.
12. BGERI Programme (Give tick mark) Beneficiary/Non-beneficiary/Progressive farmer

B. Cropping pattern followed by the respondent during 2010-11

Demonstration Plot/non-demonstration Plot	Season I (*Kharif*)			Season II (*Rabi*)			Season III (Summer)		
	Crop	Variety (Hyvs or hybrid)	Cropped Area (ha)	Crop	Variety (Hyvs or hybrid)	Cropped Area (ha)	Crop	Variety (Hyvs or hybrid)	Cropped Area (ha)

C. Cropping pattern followed by the respondent during 2011-12

Demonstration Plot/non-demonstration Plot	Season I (*Kharif*)			Season II (*Rabi*)			Season III (Summer)		
	Crop	Variety (Hyvs or hybrid)	Cropped Area (ha)	Crop	Variety (Hyvs or hybrid)	Cropped Area (ha)	Crop	Variety (Hyvs or hybrid)	Cropped Area (ha)

D

(A). Type of interventions adopted by the respondent's (farmer's) under BGREI Program in 2010-11:

Type of intervention (See list below)	Whether the benefit received during the year			Amount of incentive received (Rs.)	Expenditure incurred by the beneficiary (Rs.)	If hired, cost of hiring charges (Rs)	Area covered	
	Year of receipt	Nature of receipt					Name of the crop	Area
In respect of		Held / hired	indirect					
1								
(i)								
(ii)								
(iii)								
2								
(i)								
(ii)								
3								
(i)								
(ii)								
(iii)								
(iv)								
(v)								
(vi)								

(vii)								
(viii)								
(ix)								

List of interventions in West Bengal: 2010-11

1	**Seed production and distribution:-**
(i)	Seed Village
(ii)	Hybrid paddy & maize seed
(iii)	Varietal replacement
2	**Creation of minor Irrigation facilities:**
(i)	Construction of STW (D) clusters having approximately 6 STW per unit of cluster
(ii)	Construction of Masonry Channel with the unit of RMT
3	**Construction of Land & Water Resources:**
(i)	Development of cultivable wasteland
(ii)	Development of waste land through plantation
(iii)	Development of sand laden/ revering areas
(iv)	Water resources Development
(v)	Re-excavation of existing water bodies, farm ponds
(vi)	Construction of Dug-well/Ring wells/Indara
(vii)	Clearance of Drainage congestion
(vii)	Strengthening of Drainage Lines
(viii)	Providing water lifting devices to SHG/WC
(ix)	Development of Cultivable Waste Land of Purulia Dist.

D.(B). Type of interventions adopted by the respondent's (farmer's) under BGREI Program in 2011-12:

Type of intervention (See the list below)	Whether the benefit received during the year			Amount of incentive received (Rs.)	Expenditure incurred by the beneficiary (Rs.)	If hired, cost of hiring charges (Rs)	Area covered	
	Year of receipt	Nature of receipt					Name of the crop	Area
In respect of		Held / hired	indirect					
1								
2								
3								
4								
5.								
6.								
7.								

List of interventions in West Bengal: 2011-12

Sl.	Interventions
1	Block demonstrations-rice (Numbers)
2	Block demonstrations-wheat (Numbers)
3	Zero till seed drill (Numbers)
4	Shallow Tube wells (Numbers)
5	Pump-set (Numbers)
6	Cost of Asset building activities
7	Site specific needs (yet to be reported)

E. Access to Rice/Wheat/Sugarcane Technology including converge from other programs:

Sl. no.	Source	Name of Scheme, if converged	Whether accessed? (yes-1, no-2)	If yes, frequency of contact (code)	Type of information received (code)	Quality of information received (good-1, satisfactory -2, poor-3)	Whether received information was tried by yourself? (yes-1, no-2)	Whether recommended practice has been adopted? (yes-1, no-2)	If not, reasons for not adopting recommended practice (code)	Suggestions if any for improvement in extension services (code)
1.	Participation in training programme conducted under BGREI									
2.	Participation in demonstration as progressive farmer under BGREI programme									
3.	Identified extension worker									
4.	Krishi vigyan Kendra									
5.	SAU Scientists									
6.	Government demonstration other than conducted under BGREI									
7.	Progressive farmer									
8.	Others									

Codes

(A) Frequency of contact: daily – 1, weekly – 2, monthly – 3, seasonally – 4, need based – 5, casual contact – 6

(B) Type of information received: improved seed/variety–1, fertilizer application–2, plant protection (pesticide etc)–3, farm machinery–4, harvesting/marketing–5, management– 6, others – 7

(C) Reasons for not adopting: lack of financial resources – 1, non-availability of input and physical resources – 2, lack of technical advice for follow-up – 3, difficulty in storage, processing and marketing of products – 4, not useful – 5

(D) Suggestion for improvement in extension services: improvement in quality of information – 1, timeliness of information – 2, increase in frequency of demonstration – 3, others – 4

F. Package of practices adopted for cultivation of HYV rice, hybrid rice, wheat, sugarcane promoted under BGREI program

Activity	Whether adopted (Yes/No)	Name of the implement used/brand name of input used	Type of land (rain fed upland, low land/irrigated)	Area covered (ha)	Quantity used		Amount of incentive received from Govt.		Expenditure incurred at his own (Rs.)
					Item	Quantity with units	Mode of payment	Amount (Rs)	
Scientific crop management practices									
For Rice:									
(i) Deep ploughing and land preparation									
(ii) Seeds									
(iii) Seed treatment									
(iv) Weed management									
(v) Micro nutrient									
(vi) Direct seeding (line sowing by drum seeder)/ transplanting									
(vii) Plant protection									

(viii) Other inputs used by the farmer at his own cost:									
a) Manures									
b) Soil amendments									
c) Fertilizers									
d) Bio-fertilizers									
e) Irrigation									
f) Weeding									
g) Harvesting									
h) Threshing									
(ix) Land revenue paid									
(x) Interest on capital paid									
(xi) Grain yield (Kg/ha)									
(xii) Straw yield (Tons/ha)									
(xiii) Value of grain									
(xiiv Value of straw									
(xvi) Net Return									
For Wheat:									
(i) Seed									
(ii) Seed treatment									
(iii) Sowing operation									
(iv) Weedicide									
(v) Other inputs used by the farmer at his own cost:									
a)) Land preparation									
b) Manure									
c) Pre-sowing irrigation									
d) Soil amendments									
e) Fertilizers									
f) Micro nutrients									
g) Weeding									
h) Irrigation									
i) Harvesting									
j) Threshing									
(vi) Land revenue paid									
(vii) Interest on capital paid									
(viii) Grain yield (Kg/ha)									
(ix) Straw yield (Tons/ha)									
(x) Value of grain									
(xii) Value of straw									
(xiii) Net Return									

G. Effectiveness of Progressive farmers, NGOs & SDA staff engaged on honorarium for BGREI program:

Sl. No.	Activities assigned	Progressive farmers	SDA staff	NGOs
1	Educational qualification			
2	Area of the cluster assigned for supervision (ha)			
3	Number of linked farmers			
4	Whether amount of honorarium received (Yes/No)			
5	If yes, indicate amount (Rs) along with of date of receipt.			
6	Mode of payment of honorarium (Cheque/Online/Cash)			
7	Whether Drum seeder was received (Yes/No)			
8	If yes, date of receipt of Drum seeder			
9	How many farmers have used the Drum seeder during *Kharif*-2011			
10	How many farmers have used the Drum seeder during *Rabi-Summer*: 2011-12			
11	Whether documentation of Information Card was done (To be verified on spot)			
12	If not, reasons therefore.			

NB: Adequacy of Travel cost to be adjudged from the pattern of expenditure incurred by the district.

Questionnaire

Reaction of beneficiaries:

66. Whether the inputs supplied under BGREI program were adequate? (Yes/No):
67. If, yes. How do you rate this program on 0-10 scale?
68. If no, what are your suggestions?
69. Whether the necessary technical guidance was available from SDA/KVK/SAU/CRRI?
70. If yes, who guided the best and on what problem?
71. If no, what are your expectations?
72. Whether there was any problem in supply/availability of agriculture inputs?
73. If yes, name the input (s)- (Indicate cropping season along with name of inputs).
74. How do you source your inputs (Direct from Input dealer/Cooperative society/Agriculture Deptt. Outlets).
75. Did you face any problem in marketing of your produce, please specify.
76. What price you got (Rs/quintal) for your produce (crop wise rate be noted).
77. Would you adopt the cultural practices followed under BGREI for rice/wheat with your own resources next season/year (Yes/No).
78. If no, reasons therefore.

Reaction of Non-participants/Beneficiaries

6. Have you heard about the Government BGREI Program undertaken in your area ? (Yes-1, No-2)
26. If yes, what are they? (name the components)
27. Have you heard of any of the new hybrid /HYV variety of rice promoted under BGREI Programme ? (Yes-1, No-2)
28. Have you seen any standing crop of this variety in your area? (Yes-1, No-2)
29. Did anybody suggest you to technology being demonstrated under BGREI programme? (Yes-1, No-2)
30. If yes, state who suggested?

(f) K.V.K (b) SAU Scientist (c) AEO (d) VLW (e) CRRI Scientists (f) DRR-Hyderabad (g) Relative (h) Local Leader (f) Other cultivators (g) Known from government's BGREI demonstration (h) newspaper (i) Radio (j)Television (k) Anybody else (Specify)

6. Will you be growing the variety as demonstrated under BGREI next year? (Yes-1, No-2)
9. Are you ready to accept new hybrid rice varieties promoted under BGREI Programme in future considering superior grain quality, resistance to insect pests and higher yield potential? (Yes-1, No-2)
10. If no, reasons therefor.

***

APPENDIX-IV

Test of homogeneity of the respondent farmers: beneficiary *versus* non-beneficiary.

Sl.	Factor	Rho value						
		Assam*	Bihar	Chhattisgarh	Jharkhand	Odisha	Eastern UP	West Bengal
(1) Rainfed uplands								
1	Level of education	0.337	0.410	0.340	0.250	0.730	-	0.600
2	Land holding size		0.260	0.050	0.313	0.700	-	0.250
(2) Rainfed shallow lowlands								
1	Level of education	0.516	0.528	0.200	0.818	0.910	-	0.943
2	Land holding size		0.610	0.050	0.650	0.650	-	0.550
(3) Rainfed medium deep water lowlands								
1	Level of education	0.644	0.661	-	0.714	0.440#	-	0.386
2	Land holding size		0.512	-	0.592	0.550#	-	0.400
(4) Rainfed deep water lowlands								
1	Level of education	0.611	0.703	0.530**	0.570	0.990##	-	0.443
2	Land holding size		0.520	0.350**	0.643	0.880##	-	0.650
(5) Irrigated lands								
1	Level of education	0.381	0.719	0.660	0.417	0.090+	-	0.386
2	Land holding size		0.503	0.500	0.318	0.650+	-	0.950
Total of all ecologies								
1	Level of education	0.558	0.624	0.560	0.603	0.800	-	0.657
2	Land holding size		0.509	0.800	0.521	0.650	-	0.400

Source: Field Survey. Homogeneous: ≥ 0.500; Heterogeneous: < 0.500

***The Rho values for Level of Education and Land Holding Size have not been calculated separately by AER Centre, Assam.**

****** **Irrigated Traditional Ecology**

 # HYV Rice Koraput District; ## HYV Rice Rayagada District; + Hybrid Rice Sambalpur District

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Appendix -V

Proceedings of the "Review Meeting of AERCs" held on 28th July, 2012 at AERC-Visva-Bharati, Santiniketan.

A review meeting of AERCs was held on 28th July, 2012 at AERC, Visva-Bharati, Santiniketan. The following were present in the meeting:-

1. Dr. Debashis Sarkar, Director, AERC- Visva-Bharati, Santiniketan;
2. Dr. K. M. B. Rahim, Professor of Agricultural Economics, Institute of Agriculture, Visva-Bharati, Sriniketan;
3. Dr. S. Chakraborty, Professor of Agricultural Statistics, Institute of Agriculture, Visva-Bharati, Sriniketan;
4. Dr. Jiban Kumar Ghosh, Senior Research Officer, AERC- Visva-Bharati, Santiniketan;
5. Prof. Basant Kumar Jha, Hony. Director, AERC-Bhagalpur;
6. Dr. Ranjan Kumar Sinha, Research Officer, AERC, Bhagalpur;
7. Dr. Deepak Rathi, Dy. Director, AERC-Jabalpur;
8. Dr. A. Das, Director (In-charge), AERC-Jorhat;
9. Dr. Jotin Bordoloi, Research Officer, AERC, Jorhat;
10. Prof. G. G. Rao, Director, AERC-Waltair;
11. Shri Ashok Kumar Khanna, Program Manager, BGREI cell, Department of Agriculture & Cooperation, Ministry of Agriculture, New Delhi;
12. Shri Satya Vir Singh, Consultant (Agronomy), BGREI cell, Department of Agriculture & Cooperation, Ministry of Agriculture, New Delhi.

(2) The AERC, Allahabad could not participate in the meeting due to their preoccupation with other research studies.

(3) At the outset, participants introduced themselves. Thereafter, all the centres presented their evaluation reports. The observations made on these presentations are as follows:-

1. AERC, Andhra University, Waltair for Odisha BGREI.

1. The source-wise irrigation need be incorporated for the BGREI sample districts and State as a whole;

2. Latest Intervention specific physical and financial allocation *vis-a-vis* achievements for the State as whole would be provided by the BGREI cell in respect of Odisha.

3. Effectiveness of DLMT need be incorporated in the report for the BGREI sample districts only.

4. Econometric analysis model devised by AERC-Visva Bharati for analysis of the primary data is enclosed at ***Annexure-I***.

2. AERC, Assam Agricultural University, Jorhat for BGREI- Assam.

1. Objectives should be clearly spelt out. This relates to the terms of reference of the study as circulated by the Ministry.

2. Method of sampling adopted for the study is to be described.

3. In Table- 4.1, the Centre should include the number of villages covered under the program in place of number of mouzas.

5. The term, number of block demonstrations should be replaced with number of clusters of block demonstrations.

6. The concentration of block D/C needs to be calculated by dividing the demonstration area with the total area of sample direct during relevant season (*Kharif* or *Rabi* or Summer as the case may be).

7. Access of the participating farmers to technical backstopping has to be assessed on the basis of information received from the sample beneficiaries.

9. In case of non-availability of data of input supply in physical units, the Centre may use the data in value terms.

10. Regarding analysis of changes in cropping pattern, the Centre needs to provide reasons for change in cropping pattern.

11. With regard to perception profiling, the centre need to clarify the abbreviations used in the Table.

12. Regarding cost of cultivation and gross & net returns along with total production data. Accordingly, cost per hectare and net return per hectare may be incorporated.

13. Latest Intervention specific physical and financial allocation *vis-a-vis* achievements for the State as whole would be provided by the BGREI cell in respect of Assam.

14. Econometric analysis model devised by AERC-Visva Bharati for analysis of the primary data is enclosed at ***Annexure-I***.

3. AERC, JN Krishi Viswa Vidyalaya, Jabalpur for BGREI-Chhattisgarh.

1. The term, number of block demonstration should be replaced with number of clusters of block demonstrations.
2. The concentration of block D/C needs to be calculated by dividing the demonstration area with the total area of sample direct during relevant season (*Kharif* or *Rabi* or Summer as the case may be).
3. Access of the participating farmers to technical backstopping has to be assessed on the basis of information received from the sample beneficiaries.
4. Latest Intervention specific physical and financial allocation *vis-a-vis* achievements for the State as whole would be provided by the BGREI cell in respect of Chhattisgarh.
5. Econometric analysis model devised by AERC-Visva Bharati for analysis of the primary data is enclosed at ***Annexure-I***.
6. All the Tables need be re-checked.

4. AERC, TM Bhagalpur University, Bhagalpur for BGREI-Bihar & Jharkhand.

1. AERC, Bhagalpur could not present the evaluation report as tabulation and report writing is being done in respect of Bihar State whereas, the collection of primary data through field survey is yet to be completed in respect of Jharkhand.
2. Latest Intervention specific physical and financial allocation *vis-a-vis* achievements for the State as whole would be provided by the BGREI cell in respect of Bihar & Jharkhand.
3. Econometric analysis model devised by AERC-Visva Bharati for analysis of the primary data is enclosed at ***Annexure-I***.

5. AERC, Allahabad for BGREI-Eastern Uttar Pradesh.

1. AERC, Allahabad should forward the copy of Table. 1.1 to 1.3: Distribution of respondents and rank position according to level of education & size of holding & Test of Homogeneity (Rho) of sample farmers (beneficiary & non-beneficiaries), "Table. 3.5: Perception profile" and "Table. 6.4: Cost of cultivation" as per common format along with primary raw data in soft copy (MS Excel).

2. The econometric analysis of the primary data of eastern Uttar Pradesh would be made by AERC-Viswa Bharati provided primary raw data in MS Excel is made available in soft copy.

5. AERC, Viswa Bharati, Santiniketan for BGREI-West Bengal.

1. AERC report is complete in all aspect including econometric analysis of the primary data except computation of secondary data relating to APY for the year 2011-12 is yet be received from Government of West Bengal.

2. Latest Intervention specific physical and financial allocation *vis-a-vis* achievements for the State as whole would be provided by the BGREI cell in respect of West Bengal.

(4) Shri Satya Vir Singh in his presentation described the methodology for analysing secondary data on area, production and productivity. The period relates to 2005-06 to 2011-12. He suggested that the Centres are required to calculate quinquennial mean (five year average) for the period to 2005-06 to 2009-10 and then compare with QE: 2010-11, quinquennial mean (five year average) for the period to 2006-07 to 2010-11 and then compare with QE: 2011-12. This exercise needs to be done separately for area, production and yield for BGREI districts across mandate crops as well as State & Country as a whole. The level of productivity achieved by the farmers (based on primary data) needs to be compared with the productivity level obtained from secondary data. He further mentioned that BGREI cell would help to procure the APY data of rice & wheat from the States from which it could not yet be received.

During the course of discussion, it was felt that a suitable econometric analytical model need be devised for statistical analysis of primary data for mean difference in yield and factors responsible there for should be employed to validate the results and findings. Dr. Sibaji Chakraborty, Professor of Agricultural Statistics, Institute of Agriculture, Visva-Bharati has suggested modern statistical techniques namely; mean difference and multiple regression considering given sample size.

(5) It was further stressed that evaluation report need be finalized and soft copy thereof be mailed to AERC-Visva Bharat by all the Centres before 31st August, 2012.

Meeting ended with thanks to all the participants.

APPENDIX-VI(A)

Trend in rice area in BGREI & NFSM Districts of BGREI States *vis-à-vis* All India.

Sl	District	Rice area('000' ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
1	BGREI districts	12414.1	12540.8	12722.5	12808.4	11798.7	11081.5	12247.4	-2.1	-1.3
2	NFSM districts	11599.1	11679.9	11837.1	12174.5	11334.9	10954.6	11397.4	-1.0	-0.8
Total BGREI districts of all 7 States		24013.2	24220.8	24559.6	24982.9	23133.6	22036.1	23644.8	-1.6	-1.0
All India		43659.8	43813.6	43914.4	45537.4	41918.3	42862.4	43974.4	-0.5	-0.2

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**
2. 2011-12$: 4th Advance estimate.

Trend of rice production in BGREI & NFSM Districts of BGREI States *vis-à-vis* All India.

Sl	District	Rice production('000' tons)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
1	BGREI districts	23121.7	24395.4	25338.6	25563.2	22442.4	21957.2	26682.3	-1.4	0.3
2	NFSM districts	17532.6	18661.2	19654.5	20733.7	17899.7	19573.1	22111.5	1.4	2.5
Total BGREI districts of all 7 States		40654.3	43056.6	44993.0	46296.9	40342.1	41530.3	48793.8	-0.2	1.3
All India		91793.4	93355.3	96692.9	99182.4	89093	95979.8	104322.0	0.3	1.3

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**
2. 2011-12$: 4th Advance estimate.

APPENDIX-VI (B)

Trend in rice yield in BGREI & NFSM Districts of BGREI States *vis-à-vis* All India.

Sl	District	Rice yield (Kg/ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
1	BGREI districts	1863	1945	1992	1996	1902	1981	2178.6	0.7	1.7
2	NFSM districts	1512	1598	1660	1703	1579	1787	1940	2.4	3.3
Total BGREI districts of all 7 States		1693	1778	1832	1853	1744	1885	2064	1.4	2.4
All India		2102	2131	2202	2178	2125	2239	2372	0.9	1.5

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**
2. 2011-12$: 4th Advance estimate.

Trend in wheat area in BGREI & NFSM Districts of BGREI States *vis-à-vis* All India.

Sl	District	Wheat area ('000' ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
1	BGREI districts	1469.7	1530.3	1567.6	1570.7	1611.5	1565.5	1517.2	1.4	0.6
2	NFSM districts	4130.4	4119.9	4212.2	4242.1	4289.5	4276.3	5146.5	0.9	2.7
Total BGREI districts of all 3 States		5685.3	5727.7	5854.1	5871.1	5964.4	5904.5	6728.4	0.9	2.1
All India		26483.6	27994.5	28038.6	27752.4	28457.4	29068.6	29902.2	1.5	1.6

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate; 2. 2011-12$: 4th Advance estimate.**

APPENDIX-VI(C)

Trend of wheat production in BGREI & NFSM Districts of BGREI States *vis-à-vis* All India.

Sl	District	Wheat production ('000' tons)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
1	BGREI districts	2856.0	3317.3	3505.7	3545.4	3619.4	3592.2	3805.3	4.1	3.8
2	NFSM districts	8438.8	9427.5	10410.6	10678.8	10396.9	11093.6	11270.0	4.9	4.3
Total BGREI districts of all 3 States		11466.9	12912.9	14090.8	14354.6	14170.9	14842.3	15261.9	4.6	4.2
All India		69354.5	75806.7	78570.2	80679.4	80803.6	86874	93903.6	3.9	4.4

Source: DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**
2. 2011-12$: 4th Advance estimate.

Trend in wheat yield in BGREI & NFSM Districts of BGREI States *vis-à-vis* All India.

Sl	District	Wheat yield Kg/ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
1	BGREI districts	1943	2168	2236	2257	2246	2295	2508.1	2.7	3.2
2	NFSM districts	2043	2288	2472	2517	2424	2594	2190	4.0	1.6
Total BGREI districts of all 7 States		2017	2254	2407	2445	2376	2514	2268	3.7	2.0
All India		2619	2708	2802	2907	2839	2989	3140	2.4	2.7

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**
2. 2011-12$: 4th Advance estimate.

Appendix-VI(D)

Trend in Area, Production and Yield of Rice in Assam

	Area ('000 Ha)			Production ('000 Tonnes)			Yield (Kg/Ha)		
	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total
2005-06	1049.7	1370.6	2420.3	1719.6	1832.8	3552.4	1638	1337	1468
2006-07	964.2	1224.8	2189	1425.4	1490.6	2916	1478	1217	1332
2007-08	1002.3	1321.7	2324	1532	1787	3319	1528	1352	1428
2008-09	1076.7	1407.4	2484.2	2011.9	1996.6	4008.5	1869	1419	1614
2009-10	1103.5	1392.3	2495.8	2078.1	2257.7	4335.8	1883	1622	1737
2010-11	1120.3	1450	2570.3	2126.3	2610.3	4736.6	1898	1800	1843
2011-12	946.9	1221.1	2168	1802.8	2206.2	4009	1904	1807	1849
CGR: 2010-11	2.3	2.1	2.2	7.3	9.3	8.4	4.9	7.1	6.0
CGR: 2011-12	0.3	0.2	0.2	4.6	7.1	5.9	4.2	6.9	5.6

Trend in Area, Production and Yield of Rice in Bihar

	Area ('000 Ha)			Production ('000 Tonnes)			Yield (Kg/Ha)		
	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total
2005-06	2120.8	1131.6	3252.4	2636.4	859.1	3495.5	1243	759	1075
2006-07	2192.3	1164.9	3357.1	3598.5	1390.8	4989.3	1641	1194	1486
2007-08	2294.6	1278	3572.6	3350.3	1067.8	4418.1	1460	836	1237
2008-09	2196.5	1299.4	3496	3553.6	2036.6	5590.3	1618	1567	1599
2009-10	2007.8	1205.8	3213.7	2583.4	1016	3599.3	1287	843	1120
2010-11	1818.1	1014.4	2832.5	2208.5	893.6	3102.1	1215	881	1095
2011-12	2088.4	1248.8	3337.2	4622.2	2578.8	7201	2213	2065	2158
CGR: 2010-11	-3	-1.2	-2.4	-5.1	-0.3	-3.8	-2.1	0.9	-1.4
CGR: 2011-12	-2	-0.1	-1.3	1.6	8.8	3.7	3.6	9	5.1

Appendix-VI(E)

Trend in Area, Production and Yield of Rice in Chhattisgarh

	Area ('000 Ha)			Production ('000 Tonnes)			Yield (Kg/Ha)		
	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total
2005-06	1560.2	2187	3747.2	2177.4	2834.2	5011.6	1396	1296	1337
2006-07	1563.8	2159.8	3723.6	2042.1	2999.4	5041.4	1306	1389	1354
2007-08	1625	2127.4	3752.4	2456.9	2969.7	5426.6	1512	1396	1446
2008-09	1544.8	2189.2	3734	1769.2	2622.6	4391.8	1145	1198	1176
2009-10	1525	2145.7	3670.7	1633.2	2477.2	4110.4	1071	1155	1120
2010-11	1579.8	2122.7	3702.5	3007.7	3151.3	6159	1904	1485	1663
2011-12	1650.1	2123.7	3773.8	2721.9	3306.5	6028.4	1650	1557	1597
CGR: 2010-11	-0.2	-0.4	-0.3	1.8	-0.5	0.6	2	-0.1	0.9
CGR: 2011-12	0.4	-0.4	-0.04	3.8	1.4	2.4	3.3	1.8	2.5

Trend in Area, Production and Yield of Rice in Jharkhand

	Area ('000 Ha)			Production ('000 Tonnes)			Yield (Kg/Ha)		
	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total
2005-06	804.9	549.8	1354.7	933.9	624.1	1558	1160	1135	1150
2006-07	904.6	719	1623.6	1767	1200.8	2967.8	1953	1670	1828
2007-08	881.6	772.1	1653.7	1767.2	1569.2	3336.4	2004	2032	2018
2008-09	908	775.6	1683.6	1882.9	1537.3	3420.2	2074	1982	2031
2009-10	515.3	479.7	995	831.4	707	1538.4	1613	1474	1546
2010-11	359.9	360.4	720.3	548.7	561.3	1110	1524	1558	1541
2011-12	921.8	772	1693.8	1865.5	1552.6	3418.1	2024	2011	2018
CGR: 2010-11	-15	-9.1	-12.3	-13	-5.9	-9.9	2.4	3.4	2.8
CGR: 2011-12	-6.8	-3	-5.1	-3.6	1.5	-1.4	3.5	4.6	3.9

Appendix-VI(F)

Trend in Area, Production and Yield of Rice in Odisha

	Area ('000 Ha)			Production ('000 Tonnes)			Yield (Kg/Ha)		
	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total
2005-06	2464	2015	4479	4147.3	2711.8	6859	1683	1346	1531
2006-07	2493.3	1957	4450.3	4218.4	2606.3	6824.7	1692	1332	1534
2007-08	2513.1	1938.7	4451.8	4563.6	2977.1	7540.7	1816	1536	1694
2008-09	2519.4	1935.3	4454.7	4161.2	2651.5	6812.7	1652	1370	1529
2009-10	2443.1	1922	4365.1	4351.6	2565.8	6917.5	1781	1335	1585
2010-11	2385.9	1839.8	4225.7	4072.4	2755.3	6827.7	1707	1498	1616
2011-12	2358.5	1656.6	4015.1	3955.7	1859.5	5815.2	1677	1122	1448
CGR: 2010-11	-0.6	-1.4	-1	-0.3	-0.2	-0.2	0.4	1.2	0.8
CGR: 2011-12	-0.9	-2.5	-1.6	-0.9	-4.1	-2.1	0	-1.6	-0.5

Trend in Area, Production and Yield of Rice in Eastern Uttar Pradesh

	Area ('000 Ha)			Production ('000 Tonnes)			Yield (Kg/Ha)		
	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total
2005-06	1298.1	1678.6	2976.7	2705.5	2961.5	5667	2084	1764	1904
2006-07	1396.1	1794	3190.1	2782.7	2788.8	5571.5	1993	1555	1747
2007-08	1367.3	1718.1	3085.4	2968.6	3264.1	6232.7	2171	1900	2020
2008-09	1415	1779.8	3194.8	3306.3	3729.8	7036.1	2337	2096	2202
2009-10	1210.1	1553.1	2763.2	2569.4	2930.7	5500.1	2123	1887	1990
2010-11	1328.6	1711.9	3040.5	2965.4	3583.6	6549	2232	2093	2154
2011-12	1388.1	1806.2	3194.3	3319.9	4149.2	7469.1	2392	2297	2338
CGR: 2010-11	-0.8	-0.9	-0.8	0.9	3.6	2.3	1.7	4.5	3.2
CGR: 2011-12	-0.1	0.1	0	2.2	5.1	3.7	2.2	5.1	3.7

Appendix-VI(G)

Trend in Area, Production and Yield of Rice in West Bengal

	Area ('000 Ha)			Production ('000 Tonnes)			Yield (Kg/Ha)		
	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total
2005-06	3116.4	2666.5	5783	8801.6	5709.1	14510.8	2824	2141	2509
2006-07	3026.5	2660.5	5687	8561.3	6184.6	14745.9	2829	2325	2593
2007-08	3038.5	2681.2	5719.7	8700	6019.5	14719.5	2863	2245	2573
2008-09	3148	2787.7	5935.7	8877.9	6159.3	15037.2	2820	2209	2533
2009-10	2993.9	2636.2	5630.1	8395.4	5945.2	14340.7	2804	2255	2547
2010-11	2488.7	2455.5	4944.2	7028.2	6017.7	13045.9	2824	2451	2639
2011-12	2893.5	2569.1	5462.6	8394.3	6458.7	14853	2901	2514	2719
CGR: 2010-11	-3.2	-1.1	-2.2	-3.3	0.5	-1.7	-0.1	1.6	0.5
CGR: 2011-12	-2.2	-1	-1.7	-2	1.1	-0.7	0.2	2.1	1

Appendix-VI(H)

Trend in Area, Production and Yield of Wheat in Eastern Uttar Pradesh

	Area ('000 Ha)			Production ('000 Tonnes)			Yield (Kg/Ha)		
	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total
2005-06	640.2	2674.7	3314.9	1226.9	6227.5	7454.4	1916	2328	2249
2006-07	662.4	2665	3327.4	1454.9	6746.8	8201.6	2196	2532	2465
2007-08	654.4	2684.6	3339	1437.2	7285.9	8723.1	2196	2714	2612
2008-09	668.5	2737.3	3405.8	1572.8	7607.3	9180.1	2353	2779	2695
2009-10	674.3	2781	3455.2	1444.8	7308.6	8753.4	2143	2628	2533
2010-11	673	2811.1	3484.2	1670.1	8200.2	9870.3	2481	2917	2833
2011-12	605.3	3637.3	4242.6	1665.3	7925.3	9590.6	2751	2179	2261
CGR: 2010-11	0.9	1.1	1.1	4.7	4.9	4.8	3.7	3.7	3.7
CGR: 2011-12	-0.4	3.9	3.1	4.4	4.1	4.1	4.8	0.2	0.9

Trend in Area, Production and Yield of Wheat in Bihar

	Area ('000 Ha)			Production ('000 Tonnes)			Yield (Kg/Ha)		
	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total	BGREI Districts Total	NFSM Districts Total	State Total
2005-06	628	1375.7	2003.7	1178.6	2060.4	3239	1877	1498	1617
2006-07	667.8	1381.9	2049.7	1397.2	2514.2	3911.4	1359	1819	1908
2007-08	711.6	1450.9	2162.5	1522.2	2928.2	4450.4	1583	2018	2058
2008-09	721.2	1437.2	2158.3	1496.2	2913.9	4410	2118	2028	2043
2009-10	759.4	1433.9	2193.3	1671.4	2899.4	4570.8	2683	2022	2084
2010-11	715.6	1387.9	2103.5	1403.7	2693.9	4097.6	1962	1941	1948
2011-12	738.3	1431.8	2170.1	1640	3147.3	4787.3	2221	2198	2206
CGR: 2010-11	3.1	0.4	1.3	4.1	5.2	4.8	7.6	4.7	3.5
CGR: 2011-12	2.5	0.4	1.1	4	5.1	4.7	6.5	4.7	3.6

Appendix-VI (I)

Trend in Area, Production and Yield of Wheat in West Bengal

	Area ('000 Ha)				Production ('000 Tonnes)				Yield (Kg/Ha)			
WEST BENGAL	BGREI Districts Total	NFSM Districts Total	Other than NFSM BGREI districts	State Total	BGREI Districts Total	NFSM Districts Total	Other than NFSM BGREI districts	State Total	BGREI Districts Total	NFSM Districts Total	Other than NFSM BGREI districts	State Total
2005-06	201.5	80	85.2	366.7	450.6	150.9	172	773.5	2236	1887	2019	2109
2006-07	200.1	73.1	77.4	350.6	465.2	166.5	168.2	799.9	2325	2278	2172	2281
2007-08	201.6	76.7	74.3	352.6	546.2	196.5	174.5	917.3	2710	2561	2350	2602
2008-09	181.1	67.7	58.3	307	476.4	157.6	130.5	764.5	2631	2329	2240	2490
2009-10	177.9	74.6	63.4	315.9	503.3	188.9	154.5	846.7	2830	2531	2436	2680
2010-11	176.9	77.3	62.6	316.8	518.4	199.5	156.5	874.4	2930	2582	2499	2760
2011-12	173.7	77.3	64.7	315.7	500	197.4	186.6	884	2879	2553	2884	2800
CGR: 2010-11	-3.1	-0.7	-6.6	-3.3	2.3	4.5	-2.9	1.7	5.6	5.2	4	5.2
CGR: 2011-12	-2.9	-0.1	-4.9	-2.7	1.6	4.1	-0.1	1.8	4.6	4.2	5.1	4.6

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APPENDIX-VI(AA)

Trend in rice area in Assam by districts

Sl	District	Rice area('000' ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	Baksa	96.0	91.2	87.2	94.8	92.0	103.2	86.1	1.4	-0.1
2	Cachar	109.9	102.1	99.7	111.5	110.1	106.1	89.5	0.5	-1.6
3	Hailakandi	46.8	42.6	47.2	49.9	47.0	48.8	43.4	1.6	0.1
4	Karimganj	75.4	74.1	76.4	76.3	76.7	74.6	62.6	0.2	-1.9
5	Dhubri	93.3	89.0	89.1	88.5	95.1	95.4	81.4	0.9	-0.7
6	Kamrup(R)	124.4	90.2	118.2	122.2	117.9	120.2	105.0	1.9	0.2
7	Chirang	43.1	51.5	53.6	51.4	51.8	53.6	44.3	3.1	0.5
8	Kamrup(M)	19.2	23.3	25.2	29.5	27.7	29.7	25.4	8.5	5.2
9	Udalguri	77.7	79.6	73.0	94.3	88.9	96.2	80.4	4.8	2.4
10	Jorhat	88.2	75.0	86.6	86.9	97.0	94.2	78.3	3.2	0.8
11	Golaghat	80.3	62.8	79.3	80.0	106.6	111.1	90.6	9.6	6.6
12	Sivasagar	101.3	97.2	93.5	106.4	101.6	94.6	81.7	-0.2	-2.2
13	Dibrugarh	79.8	71.9	58.8	70.5	75.1	77.3	65.2	0.4	-0.8
14	N.C. Hills	14.5	14.0	14.5	14.5	16.0	15.5	13.2	2.1	0.0
Total BGREI		1049.7	964.2	1002.3	1076.7	1103.5	1120.3	946.9	2.3	0.3
NFSM districts:										
1	Goalpara	77.7	72.2	78.4	83.3	81.4	84.0	70.3	2.3	0.1
2	Bongaigaon	76.5	63.3	66.0	68.4	65.1	62.4	53.4	-2.5	-3.9
3	Nalbari	81.3	81.3	80.5	80.4	76.6	77.2	64.8	-1.2	-2.9
4	Barpeta	118.2	111.0	104.2	164.3	171.4	167.5	135.1	10.5	6.3
5	Darrang	75.2	50.3	58.7	73.6	79.1	86.3	69.4	6.7	4.1
6	Dhemaji	82.7	77.8	74.4	72.2	71.9	78.1	67.4	-1.6	-2.3
7	K.Anglong	127.2	124.7	122.7	125.9	126.4	128.0	102.5	0.3	-2.0
8	Lakhimpur	121.4	121.3	121.6	123.6	135.5	142.5	123.4	3.3	1.7
9	Sonitpur	169.3	127.3	167.1	173.4	156.0	170.6	147.5	2.0	0.4
10	Nagaon	213.7	169.2	192.6	195.2	181.1	186.3	168.8	-1.3	-2.0
11	Tinsukia	59.3	60.4	62.9	65.7	67.5	65.6	54.6	2.6	0.0
12	Morigaon	58.5	67.9	84.0	76.8	77.8	90.7	78.1	7.4	5.0
13	Kokrajhar	109.8	98.2	108.5	104.6	102.8	110.9	85.7	0.4	-2.0
Total NFSM		1370.6	1224.8	1321.7	1407.4	1392.3	1450.0	1221.1	2.1	0.2
Assam State		**2420.3**	**2189.0**	**2324.0**	**2484.2**	**2495.8**	**2570.3**	**2168.0**	**2.2**	**0.2**
All India		**43659.8**	**43813.6**	**43914.4**	**45537**	**41918**	**42862.4**	**43974.4**	**-0.5**	**-0.2**

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI (AB)

Trend of rice production in Assam by districts

Sl	District	Rice production('000' tons)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	Baksa	125.7	116.8	107.9	162.9	144.9	151.6	141.2	**5.9**	4.2
2	Cachar	218.8	165.6	98.8	234.6	222.7	211.9	163.6	**4.7**	1.6
3	Hailakandi	91.2	83.4	92.4	115.6	114.8	102.2	88.2	**5.1**	1.9
4	Karimganj	120.5	143.4	118.6	184.0	176.4	141.9	158.8	**5.5**	4.4
5	Dhubri	145.8	151.0	160.7	148.6	159.2	214.0	221.0	**5.9**	7.2
6	Kamrup(R)	211.3	138.0	218.4	226.3	224.0	264.3	213.9	**7.7**	5.0
7	Chirang	49.4	63.4	51.8	49.0	68.2	73.3	51.7	**6.3**	2.5
8	Kamrup(M)	34.3	37.2	46.2	52.1	55.1	66.6	53.3	**14.1**	10.0
9	Udalguri	88.4	64.2	91.2	121.6	95.5	115.2	106.0	**8.3**	6.5
10	Jorhat	140.8	86.6	116.1	137.3	184.6	171.4	136.3	**10.3**	6.4
11	Golaghat	156.1	100.9	151.3	158.2	217.7	231.1	187.2	**13.1**	9.6
12	Sivasagar	185.5	145.3	158.3	260.4	234.2	209.7	169.6	**7.5**	3.1
13	Dibrugarh	127.2	111.0	93.7	135.7	152.3	152.6	83.3	**6.6**	-0.5
14	N.C. Hills	24.5	18.6	26.7	25.5	28.3	20.4	28.7	**0.9**	2.6
Total BGREI		**1719.6**	**1425.4**	**1532.0**	**2011.9**	**2078.1**	**2126.3**	**1802.8**	**7.3**	**4.6**
NFSM districts:										
1	Goalpara	118.6	100.7	124.9	148.6	137.7	185.5	158.2	**10.0**	8.1
2	Bongaigaon	87.6	60.2	69.6	81.0	75.5	94.8	87.4	**3.6**	3.6
3	Nalbari	105.0	108.0	130.0	138.8	128.9	157.4	111.8	**7.8**	3.4
4	Barpeta	135.6	114.3	119.6	219.7	261.5	295.2	267.3	**22.1**	18.3
5	Darrang	108.8	67.9	96.7	129.6	127.4	177.5	159.9	**14.1**	12.7
6	Dhemaji	90.5	93.5	94.2	75.8	91.5	93.0	90.2	**-0.4**	-0.2
7	K.Anglong	185.3	179.5	190.5	193.3	250.0	222.7	139.2	**5.7**	-0.6
8	Lakhimpur	126.3	84.1	91.8	74.5	173.9	232.3	205.4	**15.4**	15.9
9	Sonitpur	236.7	129.6	220.0	252.4	236.9	337.9	262.1	**11.2**	8.5
10	Nagaon	338.7	271.7	316.8	312.5	373.7	331.5	287.6	**2.4**	0.3
11	Tinsukia	79.9	75.7	86.9	94.4	95.0	121.2	93.7	**8.5**	5.5
12	Morigaon	89.2	92.7	114.7	139.0	150.4	180.1	189.1	**15.9**	14.8
13	Kokrajhar	130.6	112.7	131.4	137.2	155.3	181.2	154.3	**7.8**	5.9
Total NFSM		1832.8	1490.6	1787.0	1996.6	2257.7	2610.3	2206.2	**9.3**	7.1
Assam State		**3552.4**	**2916.0**	**3319.0**	**4008.5**	**4335.8**	**4736.6**	**4009.0**	**8.4**	**5.9**
All India		**91793.4**	**93355.3**	**96692.9**	**99182**	**89093**	**95979.8**	**104322.0**	**0.3**	**1.3**

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI(AC)

Trend in rice yield in Assam by districts

Sl	District	Rice yield (Kg/ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	Baksa	1310	1281	1236	1749	1581	1469	1639	**4.5**	4.3
2	Cachar	1991	1622	991	2104	2022	1997	1828	**4.2**	3.2
3	Hailakandi	1949	1960	1959	2319	2445	2097	2034	**3.5**	1.7
4	Karimganj	1599	1935	1551	2411	2299	1902	2539	**5.4**	6.4
5	Dhubri	1563	1697	1803	1679	1674	2243	2715	**5.0**	7.9
6	Kamrup(R)	1699	1530	1847	1851	1900	2200	2037	**5.7**	4.7
7	Chirang	1146	1232	965	954	1318	1367	1168	**3.1**	2.1
8	Kamrup(M)	1788	1598	1836	1768	1990	2244	2098	**5.1**	4.5
9	Udalguri	1138	807	1250	1290	1075	1197	1319	**3.3**	3.9
10	Jorhat	1597	1154	1341	1581	1904	1820	1741	**6.9**	5.6
11	Golaghat	1943	1607	1909	1977	2042	2080	2068	**3.2**	2.8
12	Sivasagar	1832	1496	1693	2447	2305	2217	2075	**7.8**	5.4
13	Dibrugarh	1594	1544	1593	1924	2028	1975	1277	**6.1**	0.2
14	N.C. Hills	1692	1326	1839	1754	1772	1319	2182	**-1.2**	2.6
Total BGREI		**1638**	**1478**	**1528**	**1869**	**1883**	**1898**	**1904**	**4.9**	**4.2**
NFSM districts:										
1	Goalpara	1527	1395	1593	1783	1692	2208	2250	**7.5**	7.9
2	Bongaigaon	1145	952	1053	1183	1159	1519	1636	**6.2**	7.8
3	Nalbari	1292	1329	1616	1727	1683	2040	1726	**9.1**	6.5
4	Barpeta	1148	1030	1147	1337	1526	1762	1978	**10.4**	11.3
5	Darrang	1448	1349	1647	1790	1618	2057	2304	**7.0**	8.2
6	Dhemaji	1095	1203	1266	1068	1274	1191	1338	**1.2**	2.1
7	K.Anglong	1456	1445	1552	1533	1978	1740	1357	**5.3**	1.4
8	Lakhimpur	1040	690	754	613	1288	1630	1665	**11.8**	14.0
9	Sonitpur	1398	1018	1317	1481	1524	1981	1777	**9.2**	8.2
10	Nagaon	1585	1605	1645	1629	2071	1780	1704	**3.9**	2.4
11	Tinsukia	1348	1253	1383	1437	1408	1847	1718	**5.8**	5.6
12	Morigaon	1525	1366	1365	1810	1934	1986	2422	**7.9**	9.3
13	Kokrajhar	1189	1147	1212	1312	1511	1634	1800	**7.4**	8.1
Total NFSM		**1337**	**1217**	**1352**	**1419**	**1622**	**1800**	**1807**	**7.1**	**6.9**
Assam State		1468	1332	1428	1614	1737	1843	1849	**6.0**	**5.6**
All India		**2102**	**2131**	**2202**	**2178**	**2125**	**2239**	**2372**	**0.9**	**1.5**

Source:DES, State/GOI.NB: 1. 2010-11*: Final estimate.
2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI(AD)

Trend in rice area in Bihar by districts

Sl	District	Rice area('000' ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts (*Kharif* season)										
1	ARWAL	26.9	0	33.5	35.6	23.6	26.8	26.4	-	-
2	AURANGABAD	118.1	171.1	169.9	166.0	121.4	132.2	176.9	-1.4	1.3
3	BHAGALPUR	47.9	48.2	41.7	41.5	40.5	31.7	26.8	-7.1	-8.9
4	BEGUSARAI	24.5	24.5	25.3	21.2	29.6	29.8	29.3	4.0	4.0
5	BHABHUA	108.1	133.1	133.1	136.5	81.7	98.7	111.3	-5.3	-3.5
6	BHOJPUR	85.2	85.5	106.5	106.2	103.9	110.6	106.8	5.5	4.3
7	BUXAR	78.3	82.5	86.5	76.7	62.3	56.9	73.6	-7.1	-4.4
8	GOPALGANJ	91.0	75.8	91.8	86.5	90.0	92.5	90.8	1.6	1.3
9	JAHANABAD	46.4	84.7	52.7	57.8	11.3	12.0	53.9	-30.5	-16.4
10	KHAGARIA (K+S)	19.3	22.2	25.6	23.6	19.8	25.5	20.5	2.8	0.8
11	LAKHISARAI	31.6	24.5	37.2	39.6	36.5	3.6	17.2	-23.9	-18.3
12	MONGHYR	24.8	30.0	31.5	31.7	29.5	27.0	29.5	1.0	0.8
13	NAWADHA	44.7	73.3	75.0	75.0	51.5	46.2	66.5	-2.5	-0.4
14	PATNA	85.9	88.0	86.0	88.3	45.9	49.7	60.4	-12.5	-9.6
15	PURNIA (K+S)	120.2	120.9	116.6	112.3	108.3	85.2	98.4	-5.8	-4.8
16	ROHTAS	195.6	166.7	195.8	166.2	189.0	181.3	170.9	-0.5	-1.0
17	SARAN	87.4	86.8	87.1	81.5	76.4	74.0	78.0	-3.6	-2.8
18	SHEOHAR	21.8	23.7	23.5	22.2	21.6	28.8	29.9	3.1	4.6
19	SHEIKHPURA	22.5	39.3	32.2	30.6	14.0	9.2	31.1	-19.6	-9.4
20	Vaishali	59.6	59.6	57.4	57.6	52.9	32.9	46.3	-9.1	-7.0
***Kharif* BGREI Total**		1340.1	1440.4	1509.0	1456.6	1209.6	1154.8	1344.3	-3.7	-2.3
BGREI Districts (Summer season)										
1	ARARIA	122.0	138.6	132.2	132.2	137.5	123.3	139.4	0.1	0.7
2	KATIHAR	112.7	106.5	106.1	104.3	102.4	58.2	77.0	-9.3	-8.2
3	KISHANGANJ	102.5	82.8	80.8	84.0	92.2	36.8	79.3	-12.7	-7.8
4	MADHUBANI	169.1	158.9	190.4	191.0	183.1	184.7	179.8	2.5	1.6
5	MADHEPURA	78.4	78.3	84.9	53.1	84.3	79.3	71.5	-0.5	-0.9
6	SAHARSA	84.2	84.7	82.1	77.7	92.3	93.3	98.8	2.1	2.9
7	SUPAUL	111.6	102.1	109.1	97.6	106.3	87.7	98.4	-3.4	-2.5
8	KHAGARIA (K+S)	19.3	22.2	25.6	23.6	19.8	25.5	20.5	2.8	0.8
9	PURNIA (K+S)	120.2	120.9	116.6	112.3	108.3	85.2	98.4	-5.8	-4.8
Summer BGREI		920.2	895.0	927.8	875.9	926.3	774.1	863.0	-2.3	-1.7
BGREI TOTAL		2120.8	2192.3	2294.6	2196.5	2007.8	1818.1	2088.4	-3.0	-2.0

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Sl	District	Rice area ('000' ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
NFSM Districts										
1	ARARIA (C*)	122.0	138.6	132.2	132.2	137.5	123.3	139.4	0.1	0.7
2	BANKA	96.9	99.4	100.5	97.0	116.1	83.5	100.2	-0.9	-0.4
3	CHAMPARAN(E)	193.4	212.9	213.7	216.4	215.1	137.5	194.1	-4.6	-3.0
4	CHAMPARAN(W)	167.3	168.9	178.7	178.3	147.8	132.0	173.9	-4.4	-2.0
5	DARBHANGA	86.5	74.9	96.7	100.5	108.0	79.0	63.7	2.0	-2.5
6	GAYA	54.3	54.6	134.0	124.6	54.6	50.8	88.6	-1.2	1.5
7	JAMUI	38.7	50.3	48.2	41.6	44.5	37.2	49.3	-2.0	0.2
8	KATIHAR (C*)	112.7	106.5	106.1	104.3	102.4	58.2	77.0	-9.3	-8.2
9	KISHANGANJ (C*)	102.5	82.8	80.8	84.0	92.2	36.8	79.3	-12.7	-7.8
10	MADHUBANI (C*)	169.1	158.9	190.4	191.0	183.1	184.7	179.8	2.5	1.6
11	MADHEPURA (C*)	78.4	78.3	84.9	53.1	84.3	79.3	71.5	-0.5	-0.9
12	MUZAFFARPUR	124.9	139.4	159.7	156.8	133.2	124.9	133.2	-0.4	-0.7
13	NALANDA	102.8	95.0	98.2	87.3	96.8	75.4	127.0	-4.5	0.6
14	SAHARSA (C*)	84.2	84.7	82.1	77.7	92.3	93.3	98.8	2.1	2.9
15	SAMASTIPUR	83.3	70.2	82.3	104.0	77.4	91.1	109.7	2.8	4.7
16	SITAMARHI	72.1	92.5	53.7	82.1	103.2	111.8	105.3	8.8	8.1
17	SIWAN	111.4	106.8	112.3	111.0	109.2	91.1	103.7	-2.7	-2.0
18	SUPAUL (C*)	111.6	102.1	109.1	97.6	106.3	87.7	98.4	-3.4	-2.5
Total NFSM		1131.6	1164.9	1278.0	1299.4	1205.8	1014.4	1248.8	-1.2	-0.1
Bihar State		3252.4	3357.1	3572.6	3496.0	3213.7	2832.5	3337.2	-2.4	-1.3
All India		43659.8	43813.6	43914.4	45537.4	41918.3	42862.4	43974.4	-0.5	-0.2

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**
2. 2011-12$: 4th Advance estimate.

C*: Common districts across BGREI & NFSM;
K+S: *Kharif* +Summer rice

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APPENDIX-VI(AE)

Trend of rice production in Bihar by districts

Sl	District	Rice production ('000' tons)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts (*Kharif* season)										
1	ARWAL	41.0	0	62.0	62.215	33.0	48.9	70.9	-	-
2	AURANGABAD	150.6	442.7	423.4	240.569	161.8	189.0	511.8	-6.8	3.7
3	BHAGALPUR	48.8	113.7	42.2	56.193	58.7	30.6	71.3	-10.9	-4.0
4	BEGUSARAI	6.7	33.6	1.4	24.619	17.6	10.5	44.9	9.6	23.6
5	BHABHUA	213.3	309.4	317.4	267.235	76.8	183.0	340.7	-13.6	-3.7
6	BHOJPUR	195.6	225.8	271.2	314.218	123.5	230.7	308.2	-2.4	2.2
7	BUXAR	177.9	186.1	246.6	180.533	89.9	101.9	227.0	-14.0	-5.2
8	GOPALGANJ	46.5	89.1	71.5	105.826	75.0	89.3	162.3	9.4	14.6
9	JAHANABAD	38.4	153.1	90.8	145.344	17.1	16.0	133.3	-25.9	-8.4
10	KHAGARIA (K+S)	18.6	18.9	3.9	12.225	5.6	14.2	26.4	-10.5	3.1
11	LAKHISARAI	24.3	56.0	115.2	80.603	45.3	1.6	28.9	-33.8	-23.4
12	MONGHYR	33.3	59.3	56.6	46.881	33.4	12.3	54.8	-17.9	-7.5
13	NAWADHA	25.7	146.9	152.4	148.475	58.2	48.9	171.3	1.2	9.4
14	PATNA	130.3	144.3	89.8	135.438	50.3	65.5	147.2	-16.2	-6.2
15	PURNIA (K+S)	116.4	116.8	113.9	137.775	146.5	104.0	172.0	0.9	4.3
16	ROHTAS	464.2	466.1	439.7	459.975	446.8	305.2	647.5	-6.0	0.6
17	SARAN	112.2	96.7	121.2	117.461	81.7	95.2	119.7	-3.8	-0.8
18	SHEOHAR	13.8	12.1	8.4	20.108	12.8	8.1	66.9	-4.5	16.9
19	SHEIKHPURA	19.7	93.8	56.3	69.65	12.6	4.5	61.3	-31.5	-13.9
20	Vaishali	59.6	46.1	32.2	91.06	50.6	21.9	91.9	-10.0	1.0
***Kharif* BGREI Total**		1936.8	2810.6	2716.4	2716.4	1597.1	1581.4	3458.5	-7.4	0.2
BGREI Districts (Summer season)										
1	ARARIA	85.9	140.9	59.1	159.432	155.9	130.0	238.4	10.1	14.8
2	KATIHAR	139.8	137.7	87.9	144.205	155.2	82.4	139.5	-5.0	-1.7
3	KISHANGANJ	91.1	74.6	59.8	91.223	62.3	34.7	148.1	-13.2	-0.1
4	MADHUBANI	66.3	139.7	83.6	220.113	277.6	103.8	257.5	16.3	18.2
5	MADHEPURA	91.9	88.8	122.5	45.778	97.1	64.3	88.1	-6.9	-3.5
6	SAHARSA	86.0	85.5	72.4	71.363	110.0	102.8	167.8	4.8	10.5
7	SUPAUL	138.5	120.7	148.5	105.126	128.2	109.3	124.3	-3.8	-2.4
8	KHAGARIA (K+S)	18.6	18.9	3.9	12.225	5.6	14.2	26.4	-10.5	3.1
9	PURNIA (K+S)	116.4	116.8	113.9	137.775	146.5	104.0	172.0	0.9	4.3
Summer BGREI		834.6	923.6	751.7	987.2	1138.3	745.3	1362.1	1.0	5.3
BGREI TOTAL		2636.4	3598.5	3350.3	3553.6	2583.4	2208.5	4622.2	-5.1	1.6

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Sl	District	Rice production('000' tons)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
NFSM Districts										
1	ARARIA (C*)	85.9	140.9	59.1	159.432	155.9	130.0	238.4	10.1	14.8
2	BANKA	123.9	256.9	239.8	215.838	204.1	169.8	343.6	2.2	7.7
3	CHAMPARAN(E)	174.0	163.6	50.6	299.973	108.2	88.0	338.3	-7.9	5.6
4	CHAMPARAN(W)	195.4	166.0	86.8	352.642	186.5	166.2	366.4	2.7	9.9
5	DARBHANGA	84.9	64.6	41.5	129.588	92.8	76.0	100.7	4.9	6.0
6	GAYA	13.2	80.0	293.0	220.397	60.5	56.6	250.0	19.2	26.4
7	JAMUI	14.4	88.1	80.6	71.441	28.6	15.9	90.0	-8.2	3.8
8	KATIHAR (C*)	139.8	137.7	87.9	144.205	155.2	82.4	139.5	-5.0	-1.7
9	KISHANGANJ (C*)	91.1	74.6	59.8	91.223	62.3	34.7	148.1	-13.2	-0.1
10	MADHUBANI (C*)	66.3	139.7	83.6	220.113	277.6	103.8	257.5	16.3	18.2
11	MADHEPURA (C*)	91.9	88.8	122.5	45.778	97.1	64.3	88.1	-6.9	-3.5
12	MUZAFFARPUR	72.2	94.0	13.0	205.195	47.3	63.8	265.8	0.2	17.1
13	NALANDA	40.8	226.2	117.6	121.5	90.4	83.4	305.8	2.5	14.5
14	SAHARSA (C*)	86.0	85.5	72.4	71.363	110.0	102.8	167.8	4.8	10.5
15	SAMASTIPUR	20.1	40.9	8.3	157.294	77.1	49.1	196.1	30.5	40.1
16	SITAMARHI	24.8	63.4	27.2	121.023	93.3	40.0	148.6	15.5	22.5
17	SIWAN	95.6	147.2	109.4	141.748	27.1	84.8	173.6	-14.3	-2.5
18	SUPAUL (C*)	138.5	120.7	148.5	105.126	128.2	109.3	124.3	-3.8	-2.4
Total NFSM		859.1	1390.8	1067.8	2036.6	1016.0	893.6	2578.8	-0.3	8.8
Bihar State		3495.5	4989.3	4418.1	5590.3	3599.3	3102.1	7201.0	-3.8	3.7
All India		91793.4	93355.3	96692.9	99182.4	89093	95979.8	104322.0	0.3	1.3

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

C*: Common districts across BGREI & NFSM;

K+S: *Kharif* +Summer rice

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APPENDIX-VI(AF)

Trend in rice yield in Bihar by districts

Sl	District	Rice yield (Kg/ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts (*Kharif* season)										
1	ARWAL	1524	2000	1853	1747	1395	1822	2686	-0.7	4.5
2	AURANGABAD	1275	2587	2493	1449	1332	1429	2894	-5.4	2.3
3	BHAGALPUR	1020	2358	1013	1354	1450	966	2665	-4.0	5.3
4	BEGUSARAI	272	1376	55	1164	593	353	1531	5.4	18.9
5	BHABHUA	1973	2324	2384	1958	940	1855	3060	-8.8	-0.2
6	BHOJPUR	2295	2643	2546	2960	1189	2085	2887	-7.5	-1.9
7	BUXAR	2271	2255	2850	2355	1443	1790	3087	-7.5	-0.8
8	GOPALGANJ	511	1175	779	1223	833	965	1788	7.7	13.0
9	JAHANABAD	828	1807	1723	2513	1511	1337	2472	6.6	9.5
10	KHAGARIA (K+S)	966	850	151	517	282	556	1287	-12.9	2.3
11	LAKHISARAI	767	2284	3093	2033	1244	455	1683	-12.9	-6.2
12	MONGHYR	1343	1976	1797	1478	1134	457	1859	-18.7	-8.3
13	NAWADHA	575	2004	2033	1980	1129	1058	2574	3.8	9.8
14	PATNA	1516	1640	1044	1534	1095	1319	2438	-4.3	3.8
15	PURNIA (K+S)	968	967	977	1227	1352	1220	1748	7.1	9.6
16	ROHTAS	2373	2797	2245	2768	2363	1683	3790	-5.6	1.6
17	SARAN	1283	1115	1391	1441	1070	1288	1535	-0.2	2.0
18	SHEOHAR	630	510	359	904	594	281	2237	-7.3	11.8
19	SHEIKHPURA	879	2388	1748	2279	905	484	1974	-14.8	-4.9
20	Vaishali	999	773	562	1580	957	666	1986	-1.0	8.6
***Kharif* BGREI Total**		1445	1951	1800	1865	1320	1369	2573	-3.9	2.6
BGREI Districts (Summer season)										
1	ARARIA	704	1017	447	1206	1134	1054	1711	10.0	14.0
2	KATIHAR	1240	1293	829	1382	1515	1415	1812	4.8	7.1
3	KISHANGANJ	889	902	740	1086	676	943	1869	-0.5	8.3
4	MADHUBANI	392	879	439	1152	1516	562	1432	13.4	16.3
5	MADHEPURA	1173	1134	1443	861	1151	811	1232	-6.4	-2.6
6	SAHARSA	1021	1008	883	919	1191	1101	1698	2.7	7.4
7	SUPAUL	1241	1183	1361	1077	1205	1246	1264	-0.4	0.1
8	KHAGARIA (K+S)	966	850	151	517	282	556	1287	-12.9	2.3
9	PURNIA (K+S)	968	967	977	1227	1352	1220	1748	7.1	9.6
Summer BGREI		907	1032	810	1127	1229	963	1578	3.3	7.2
BGREI TOTAL		1243	1641	1460	1618	1287	1215	2213	-2.1	3.6

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Sl	District	Rice yield (Kg/ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
NFSM Districts										
1	ARARIA (C*)	704	1017	447	1206	1134	1054	1711	10.0	14.0
2	BANKA	1278	2584	2385	2225	1758	2034	3429	3.2	8.1
3	CHAMPARAN(E)	900	769	237	1386	503	640	1743	-3.4	8.8
4	CHAMPARAN(W)	1168	983	486	1978	1262	1258	2107	7.5	12.2
5	DARBHANGA	981	863	429	1289	860	962	1580	2.9	8.7
6	GAYA	243	1465	2187	1769	1109	1114	2822	20.6	24.5
7	JAMUI	372	1753	1672	1719	643	427	1825	-6.3	3.6
8	KATIHAR (C*)	1240	1293	829	1382	1515	1415	1812	4.8	7.1
9	KISHANGANJ (C*)	889	902	740	1086	676	943	1869	-0.5	8.3
10	MADHUBANI (C*)	392	879	439	1152	1516	562	1432	13.4	16.3
11	MADHEPURA (C*)	1173	1134	1443	861	1151	811	1232	-6.4	-2.6
12	MUZAFFARPUR	577	674	81	1309	355	511	1995	0.7	18.0
13	NALANDA	397	2381	1197	1392	934	1107	2408	7.3	13.8
14	SAHARSA (C*)	1021	1008	883	919	1191	1101	1698	2.7	7.4
15	SAMASTIPUR	241	582	101	1513	996	539	1788	26.9	33.8
16	SITAMARHI	344	685	507	1474	904	358	1411	6.2	13.4
17	SIWAN	858	1379	974	1277	248	931	1673	-12.0	-0.5
18	SUPAUL (C*)	1241	1183	1361	1077	1205	1246	1264	-0.4	0.1
Total NFSM		759	1194	836	1567	843	881	2065	0.9	9.0
Bihar State		1075	1486	1237	1599	1120	1095	2158	-1.4	5.1
All India		2102	2131	2202	2178	2125	2239	2372	0.9	1.5

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**
2. 2011-12$: 4th Advance estimate.

C*: Common districts across BGREI & NFSM;
K+S: *Kharif* +Summer rice

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APPENDIX-VI(AG)

Trend in rice area in Chhattisgarh by districts

Sl	District	Rice area('000' ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	Kanker	162.6	162.7	166.3	158.6	160.5	163.8	173.5	-0.2	0.6
2	Bilaspur	314.2	309.3	314.6	298.3	285.0	297.6	312.5	-1.6	-0.7
3	Dhamtari	145.5	156.0	169.3	140.7	134.4	169.7	131.7	0.4	-1.3
4	Narayanpur	0.0	0.0	0.0	0.0	0.0	0.0	24.1	-	-
5	Beejapur	0.3	0.0	59.1	56.5	54.2	50.3	59.2	-	-
6	Mahasamund	242.9	244.8	233.9	240.4	245.4	246.8	243.6	0.3	0.3
7	Durg	441.5	439.4	450.2	428.6	421.4	426.0	451.1	-1.0	-0.2
8	Jagdalpur	253.2	251.7	231.7	221.7	224.2	225.7	254.4	-2.7	-0.8
Total BGREI		1560.2	1563.8	1625.0	1544.8	1525.0	1579.8	1650.1	-0.2	0.4
NFSM districts:										
1	Raipur	504.7	509.5	522.3	488.1	487.3	477.9	495.6	-1.3	-0.9
2	Rajnandgaon	254.4	253.6	259.3	271.3	269.3	269.5	269.6	1.5	1.2
3	Kawardha	90.6	88.5	90.7	95.1	96.5	75.5	75.6	-1.7	-2.8
4	Jajgir	246.5	265.9	246.0	288.9	254.0	255.9	249.6	0.6	0.0
5	Korba	106.5	104.7	106.2	109.7	109.2	110.2	108.7	0.9	0.7
6	Raigarh	233.4	229.3	233.8	242.4	240.1	256.3	230.3	1.9	0.7
7	Jashpur	175.5	171.9	175.5	180.9	180.6	178.8	182.9	0.8	0.8
8	Sarguja	303.3	299.3	301.5	311.9	307.7	309.5	307.7	0.6	0.5
9	Koriya	68.8	67.8	66.9	70.7	68.3	61.6	72.6	-1.4	0.0
10	Dantewara	203.3	169.4	125.2	130.3	132.6	127.6	131.1	-8.3	-6.3
Total NFSM		2187.0	2159.8	2127.4	2189.2	2145.7	2122.7	2123.7	-0.4	-0.4
Chhattisgarh State		3747.2	3723.6	3752.4	3734.0	3670.7	3702.5	3773.8	-0.3	-0.04
All India		43659.8	43813.6	43914.4	45537.4	41918.3	42862.4	43974.4	-0.5	-0.25

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI(AH)

Trend of rice production in Chhattisgarh by districts

Sl	District	Rice production ('000' tons)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	Kanker	255.1	244.1	269.8	200.0	197.5	367.8	245.9	2.6	1.4
2	Bilaspur	460.2	368.0	445.5	400.4	285.8	509.2	591.0	-1.0	3.5
3	Dhamtari	238.6	335.0	328.4	240.2	239.0	402.9	326.5	3.8	3.6
4	Narayanpur	0.0	0.0	0.0	0.0	0.0	0.0	27.1	-	-
5	Beejapur	0.0	0.0	77.3	38.4	60.9	95.5	85.8	-	-
6	Mahasamund	230.6	277.4	314.8	261.8	268.6	444.9	339.4	9.0	7.2
7	Durg	664.4	562.1	693.5	376.9	326.2	780.8	829.1	-4.0	2.0
8	Jagdalpur	328.6	255.4	327.6	251.6	255.2	406.5	277.1	2.3	0.6
Total BGREI		2177.4	2042.1	2456.9	1769.2	1633.2	3007.7	2721.9	1.8	3.8
NFSM districts:										
1	Raipur	713.3	656.1	764.9	619.4	691.0	681.6	597.9	-0.8	-2.0
2	Rajnandgaon	366.5	360.8	290.4	211.9	210.5	408.5	453.7	-3.9	2.0
3	Kawardha	104.3	130.0	105.0	100.5	78.5	113.9	123.5	-3.1	-0.2
4	Jajgir	446.2	614.2	539.5	484.5	557.8	618.9	654.5	3.6	4.4
5	Korba	135.2	95.8	120.6	110.4	102.0	124.9	154.5	-0.8	2.8
6	Raigarh	293.6	324.4	312.3	296.8	277.5	343.0	323.8	0.7	1.0
7	Jashpur	167.8	189.0	220.3	204.0	193.2	235.7	279.5	4.9	6.8
8	Sarguja	361.3	351.1	380.5	365.9	221.6	314.8	435.8	-5.8	-0.7
9	Koriya	65.4	66.9	55.1	84.4	49.1	67.1	111.6	-1.1	5.5
10	Dantewara	180.6	211.1	181.0	144.9	96.0	242.9	171.7	-3.1	-1.8
Total NFSM		2834.2	2999.4	2969.7	2622.6	2477.2	3151.3	3306.5	-0.5	1.4
Chhattisgarh State		5011.6	5041.4	5426.6	4391.8	4110.4	6159.0	6028.4	0.6	2.4
All India		91793.4	93355.3	96692.9	99182.4	89093	95979.8	104322	0.3	1.3

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI(AI)

Trend in rice yield in Chhattisgarh by districts

Sl	District	Rice yield (Kg/ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	Kanker	1568	1501	1622	1261	1231	2246	1417	2.7	0.8
2	Bilaspur	1465	1190	1416	1342	1003	1711	1891	0.6	4.2
3	Dhamtari	1640	2148	1940	1707	1779	2374	2479	3.4	4.9
4	Narayanpur	0	0	0	0	0	0	1124	-	-
5	Beejapur	4	1000	1310	680	1123	1899	1449	-	-
6	Mahasamund	949	1133	1346	1089	1095	1803	1393	8.6	6.9
7	Durg	1505	1279	1540	879	774	1833	1838	-3.0	2.3
8	Jagdalpur	1297	1015	1414	1135	1138	1801	1089	5.2	1.5
Total BGREI		1396	1306	1512	1145	1071	1904	1650	2.0	3.3
NFSM districts:										
1	Raipur	1413	1288	1464	1269	1418	1426	1206	0.5	-1.1
2	Rajnandgaon	1440	1423	1120	781	782	1516	1683	-5.3	0.8
3	Kawardha	1152	1468	1158	1058	814	1508	1634	-1.5	2.7
4	Jajgir	1811	2310	2193	1677	2196	2419	2622	3.0	4.4
5	Korba	1269	915	1135	1006	934	1134	1421	-1.8	2.1
6	Raigarh	1258	1415	1336	1225	1155	1338	1406	-1.1	0.3
7	Jashpur	956	1099	1256	1128	1069	1319	1528	4.1	5.9
8	Sarguja	1191	1173	1262	1173	720	1017	1416	-6.4	-1.2
9	Koriya	950	987	824	1192	719	1090	1537	0.3	5.5
10	Dantewara	889	1246	1445	1112	724	1904	1310	5.6	4.8
Total NFSM		1296	1389	1396	1198	1155	1485	1557	-0.1	1.8
Chhattisgarh State		1337	1354	1446	1176	1120	1663	1597	0.9	2.5
All India		2102	2131	2202	2178	2125	2239	2372	0.9	1.5

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI(AJ)

Trend in rice area in Jharkhand by districts

Sl	District	Rice area('000' ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	Chatra	16.3	28.5	33.7	33.0	14.9	6.1	33.1	-17.8	-6.1
2	Deoghar	49.8	49.3	49.5	49.4	32.8	24.6	49.1	-12.7	-6.4
3	Dhanbad	44.2	45.7	51.1	51.1	21.5	18.7	53.5	-17.1	-7.2
4	Dumka	119.8	130.0	103.1	104.8	62.2	44.2	102.7	-18.5	-10.6
5	Godda	69.8	68.0	46.5	47.1	32.2	20.5	42.0	-21.2	-14.2
6	Koderma	8.6	14.1	14.3	15.2	7.3	5.5	14.0	-11.3	-3.9
7	Latehar	20.2	21.4	20.4	47.6	1.0	6.9	22.8	-32.4	-16.1
8	Pakur	46.9	48.1	48.3	47.7	38.2	32.2	46.8	-7.1	-3.6
9	Palamau	28.5	40.6	34.7	44.8	7.1	4.0	42.2	-34.4	-16.4
10	Singhbhoom-E	90.5	107.8	121.4	113.3	84.1	38.5	127.3	-13.5	-4.9
11	Garhwa	37.9	49.1	26.3	20.8	15.0	13.3	52.3	-22.8	-7.6
12	Saraikela	78.5	84.0	92.5	92.0	76.5	56.9	91.0	-5.3	-1.9
13	Lohardagga	27.8	39.2	43.5	43.4	11.3	11.0	46.8	-21.3	-8.0
14	Giridih	62.1	69.2	78.4	76.1	28.2	21.0	77.1	-20.7	-9.4
15	Bokaro	17.5	26.4	29.8	30.5	15.1	6.8	31.2	-16.6	-5.7
16	Jamtara	44.3	39.2	42.7	44.5	34.8	16.0	44.0	-14.3	-6.9
17	Sahebganj	42.2	44.1	45.4	46.7	33.0	33.7	45.9	-5.5	-2.1
Total BGREI		804.9	904.6	881.6	908.0	515.3	359.9	921.8	-15.0	-6.8
NFSM districts:										
1	Ranchi	118.5	198.0	223.6	230.5	83.8	34.1	159.9	-22.2	-12.1
2	Khunti	0.0	0.0	0.0	0	38.2623	18.2	70.0	-52.4	35.3
3	Gumala	127.7	178.1	183.1	178.7	99.743	93.8	176.0	-9.0	-3.3
4	Simdega	95.6	86.0	87.4	89.8	75.9	56.1	88.2	-8.3	-4.3
5	Singhbhoom-W	151.7	162.7	175.3	168.3	151.642	122.1	170.8	-3.8	-1.3
6	Hajaribagh	56.3	94.2	102.7	108.3	15.5083	26.1	78.1	-23.1	-11.7
7	Ramgarh	0.0	0.0	0.0	0	14.894	10.0	29.1	-32.5	39.7
Total NFSM		549.8	719.0	772.1	775.6	479.7	360.4	772.0	-9.1	-3.0
Jharkhand State		1354.7	1623.6	1653.7	1683.6	995.0	720.3	1693.8	-12.3	-5.1
All India		43659.8	43813.6	43914.4	45537.4	41918.3	42862.4	43974.4	-0.5	-0.2

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI(AK)

Trend of rice production in Jharkhand by districts

Sl	District	Rice production ('000' tons)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	Chatra	17.1	68.4	70.6	42.7	23.3	11.2	88.3	-15.4	0.7
2	Deoghar	13.2	94.8	92.0	131.2	66.6	46.9	69.2	17.5	12.3
3	Dhanbad	43.2	121.1	117.3	109.5	32.7	20.0	113.2	-20.1	-6.8
4	Dumka	178.1	300.5	241.6	224.9	101.8	62.4	197.9	-21.7	-12.4
5	Godda	194.9	171.3	112.2	125.8	74.2	38.4	80.8	-25.9	-19.4
6	Koderma	8.8	31.8	29.7	31.8	5.2	7.6	24.8	-15.9	-5.1
7	Latehar	14.2	42.6	48.4	65.3	1.9	8.3	52.8	-28.6	-8.8
8	Pakur	79.2	96.8	94.2	126.2	52.9	76.0	69.5	-4.8	-5.1
9	Palamau	23.2	109.3	66.6	60.9	14.0	5.2	97.4	-32.4	-11.3
10	Singhbhoom-E	80.7	150.8	327.6	266.1	116.5	49.2	297.6	-9.4	2.3
11	Garhwa	16.6	55.7	46.2	29.6	22.7	16.9	100.5	-8.3	8.6
12	Saraikela	64.3	121.6	164.3	179.8	84.4	54.3	176.2	-5.2	2.7
13	Lohardagga	45.0	67.4	77.4	62.6	19.5	15.9	110.8	-23.0	-5.4
14	Giridih	30.1	172.7	107.2	201.0	47.9	38.1	169.5	-5.6	5.0
15	Bokaro	10.1	40.5	42.1	40.9	22.8	6.5	47.5	-10.6	1.4
16	Jamtara	39.8	58.7	62.8	103.5	82.3	30.0	83.7	0.3	4.2
17	Sahebganj	75.4	63.1	67.0	81.0	62.6	61.6	85.5	-2.4	0.9
Total BGREI		933.9	1767.0	1767.2	1882.9	831.4	548.7	1865.5	-13.0	-3.6
NFSM districts:										
1	Ranchi	177.8	396.3	455.2	566.6	143.7	54.9	294.7	-22.0	-12.0
2	Khunti	0.0	0.0	0.0	0.0	38	32.8	195.4	-13.6	126.8
3	Gumala	121.5	192.7	350.3	360.0	93.2	174.1	323.1	-1.0	5.2
4	Simdega	157.8	157.2	218.1	220.1	274.5	148.6	167.6	4.0	1.1
5	Singhbhoom-W	110.8	242.0	311.5	179.0	126.7	100.0	314.5	-8.2	1.7
6	Hajaribagh	56.2	212.6	234.1	211.5	17.2	36.9	182.4	-24.3	-8.8
7	Ramgarh	0.0	0.0	0.0	0.0	13.7	14.0	74.9	2.6	133.9
Total NFSM		624.1	1200.8	1569.2	1537.3	707.0	561.3	1552.6	-5.9	1.5
Jharkhand State		1558.0	2967.8	3336.4	3420.2	1538.4	1110.0	3418.1	-9.9	-1.4
All India		91793.4	93355.3	96692.9	99182.4	89093.0	95979.8	104322	0.3	1.3

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI(AL)

Trend in rice yield in Jharkhand by districts

Sl	District	Rice yield (Kg/ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	Chatra	1049	2396	2095	1294	1558	1828	2671	2.9	7.3
2	Deoghar	265	1924	1860	2656	2030	1910	1412	34.6	19.9
3	Dhanbad	977	2650	2297	2144	1523	1073	2115	-3.5	0.3
4	Dumka	1487	2312	2343	2145	1638	1410	1927	-3.9	-2.0
5	Godda	2792	2519	2412	2673	2302	1874	1924	-6.0	-6.1
6	Koderma	1023	2247	2077	2093	712	1400	1775	-5.2	-1.3
7	Latehar	703	1996	2368	1372	1845	1204	2313	5.6	8.6
8	Pakur	1689	2014	1951	2644	1383	2359	1484	2.5	-1.5
9	Palamau	814	2692	1920	1360	1973	1287	2309	2.9	6.2
10	Singhbhoom-E	892	1398	2698	2350	1385	1276	2339	4.8	7.6
11	Garhwa	438	1134	1754	1424	1507	1275	1922	18.7	17.5
12	Saraikela	819	1448	1776	1954	1103	954	1936	0.1	4.6
13	Lohardagga	1619	1722	1781	1442	1731	1447	2365	-2.1	2.8
14	Giridih	485	2496	1366	2643	1702	1812	2199	19.1	15.8
15	Bokaro	577	1533	1410	1340	1511	958	1523	7.2	7.6
16	Jamtara	898	1498	1471	2324	2363	1875	1902	17.0	12.0
17	Sahebganj	1787	1431	1478	1735	1896	1830	1864	3.3	3.1
Total BGREI		1160	1953	2004	2074	1613	1524	2024	2.4	3.5
NFSM districts:										
1	Ranchi	1500	2002	2036	2458	1716	1610	1844	0.2	0.0
2	Khunti	0	0	0	0	993	1802	2791	81.5	67.7
3	Gumala	951	1082	1913	2015	934	1856	1836	8.8	8.7
4	Simdega	1651	1828	2495	2449	3618	2650	1901	13.4	5.6
5	Singhbhoom-W	730	1487	1777	1064	835	819	1841	-4.7	3.0
6	Hajaribagh	998	2258	2280	1953	1111	1414	2335	-1.5	3.2
7	Ramgarh	0	0	0	0	919	1397	2577	52.0	67.5
Total NFSM		1135	1670	2032	1982	1474	1558	2011	3.4	4.6
Jharkhand State		1150	1828	2018	2031	1546	1541	2018	2.8	3.9
All India		2102	2131	2202	2178	2125	2239	2372	0.9	1.5

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI(AM)

Trend in rice area in Odisha by districts

Sl	District	Rice area('000' ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	BALASORE	246.8	251.3	241.1	245.5	240.9	239.6	236.0	-0.7	-0.8
2	BHADRAK	177.5	170.5	176.8	179.4	172.5	158.2	176.8	-1.5	-0.7
3	SONEPUR	119.4	133.2	125.5	125.6	127.5	127.9	129.2	0.6	0.6
4	CUTTACK	152.2	137.8	151.7	133.1	141.2	135.8	138.3	-1.8	-1.4
5	JAGATSINGPUR	91.3	92.8	88.4	91.1	83.3	88.0	82.7	-1.3	-1.6
6	KENDRAPARA	139.6	135.6	140.9	143.0	143.1	135.2	139.2	0.0	0.0
7	GANJAM	247.5	274.9	272.4	275.9	278.3	273.8	262.0	1.6	0.7
8	GAJAPATI	33.6	38.6	39.9	36.1	33.3	38.4	37.2	0.4	0.4
9	KORAPUT	137.8	131.9	129.8	130.8	117.2	134.4	119.4	-1.3	-1.8
10	RAYAGADA	50.9	64.1	71.8	63.1	71.0	60.0	59.5	2.9	1.2
11	MAYURBHANJ	316.3	317.5	344.8	345.2	328.6	284.6	299.9	-1.2	-1.5
12	PURI	189.1	179.9	171.8	170.8	141.5	153.4	159.7	-4.9	-3.6
13	KHURDA	121.1	121.8	110.1	123.1	113.6	100.7	98.9	-2.9	-3.4
14	SAMBALPUR	150.6	144.0	147.4	151.3	139.7	152.7	131.5	0.0	-1.2
15	BARGARH	290.3	299.5	300.9	305.4	311.7	303.2	288.4	1.0	0.1
Total BGREI		2464.0	2493.3	2513.1	2519.4	2443.1	2385.9	2358.5	-0.6	-0.9
NFSM districts:										
1	Bolangir	228.8	214.5	216.7	214.9	220.8	212.7	175.3	-0.8	-2.8
2	Jajpur	138.5	132.9	134.1	138.9	142.8	125.4	122.9	-0.7	-1.5
3	Dhenkanal	122.5	113.7	117.2	112.1	109.8	92.3	93.7	-4.4	-4.5
4	Angul	113.6	112.7	104.9	98.9	104.7	83.9	79.1	-5.0	-5.8
5	Kalahandi	287.8	262.5	273.0	268.3	279.8	275.7	218.0	-0.1	-2.5
6	Nuapara	107.4	108.9	109.3	105.6	100.4	104.8	101.9	-1.1	-1.1
7	Keojhar	201.1	191.9	206.7	207.2	195.5	181.6	172.3	-1.3	-2.2
8	Malkangiri	95.0	88.4	91.5	93.9	93.8	97.7	94.9	1.0	0.8
9	Nawarangpur	168.5	164.3	150.8	158.9	161.0	147.0	140.3	-2.0	-2.5
10	Phulbani	55.9	55.3	54.5	53.8	48.4	53.2	37.5	-1.9	-4.9
11	Boudh	68.1	70.9	64.3	71.0	64.3	64.4	64.6	-1.3	-1.2
12	Nayagarh	99.8	101.7	96.6	94.7	102.9	94.4	85.6	-0.7	-1.9
13	Deogarh	54.2	53.4	44.2	45.0	43.2	42.2	38.8	-5.2	-5.2
14	Jharsuguda	61.4	61.3	58.4	53.9	48.5	52.7	38.4	-4.3	-6.5
15	Sundargarh	212.5	224.5	216.4	218.4	206.2	211.8	193.4	-0.7	-1.6
Total NFSM		2015.0	1957.0	1938.7	1935.3	1922.0	1839.8	1656.6	-1.4	-2.5
Odisha State		4479.0	4450.3	4451.8	4454.7	4365.1	4225.7	4015.1	-1.0	-1.6
All India		43659.8	43813.6	43914.4	45537.4	41918.3	42862.4	43974.4	-0.5	-0.2

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI(AN)

Trend of rice production in Odisha by districts

Sl	District	Rice production ('000' tons)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	BALASORE	374.5	358.7	389.1	346.3	381.3	437.1	492.1	2.4	4.4
2	BHADRAK	336.5	298.0	307.0	339.3	323.3	288.9	297.9	-1.2	-1.3
3	SONEPUR	252.1	275.3	250.6	243.1	294.6	308.5	249.6	3.4	1.3
4	CUTTACK	300.7	205.1	252.5	186.4	290.1	245.4	261.7	-0.8	0.3
5	JAGATSINGPUR	169.2	136.6	154.7	176.4	164.4	136.9	199.4	-1.1	2.0
6	KENDRAPARA	234.4	150.1	195.8	197.9	238.7	167.1	214.4	-0.8	0.5
7	GANJAM	339.4	571.2	611.8	467.5	562.8	432.2	151.6	2.6	-10.4
8	GAJAPATI	47.0	68.0	73.9	43.0	48.3	75.0	38.3	2.2	-3.0
9	KORAPUT	222.8	220.9	245.0	209.5	156.6	250.0	176.1	-1.7	-3.2
10	RAYAGADA	71.4	108.6	130.7	97.3	126.9	126.0	75.0	9.0	1.5
11	MAYURBHANJ	465.2	493.9	566.3	534.5	451.9	261.4	560.7	-8.8	-3.3
12	PURI	283.8	242.9	259.3	203.0	241.1	258.9	264.4	-2.1	-0.6
13	KHURDA	206.2	196.4	176.7	160.7	209.9	169.0	156.2	-2.5	-3.4
14	SAMBALPUR	294.2	288.6	316.0	332.1	180.6	221.3	224.0	-7.6	-6.6
15	BARGARH	549.9	603.9	634.2	624.3	681.1	694.8	594.4	4.4	2.1
Total BGREI		4147.3	4218.4	4563.6	4161.2	4351.6	4072.4	3955.7	-0.3	-0.9
NFSM districts:										
1	Bolangir	301.0	315.4	389.6	307.0	338.7	397.9	76.7	4.0	-12.6
2	Jajpur	239.4	178.6	204.2	209.1	256.5	173.2	138.9	-1.4	-5.1
3	Dhenkanal	227.4	162.2	220.4	182.6	169.0	127.2	195.0	-8.1	-4.2
4	Angul	173.9	151.9	88.2	132.1	103.3	48.1	77.2	-18.5	-15.1
5	Kalahandi	306.9	289.4	355.7	344.7	424.9	635.3	218.0	14.6	2.6
6	Nuapara	103.1	118.6	199.0	148.5	118.7	191.8	84.2	8.4	-0.6
7	Keojhar	282.5	261.0	335.8	273.9	278.0	192.1	292.0	-5.4	-2.5
8	Malkangiri	128.9	122.6	140.4	110.7	110.0	201.3	55.4	4.9	-6.2
9	Nawarangpur	203.8	215.5	227.3	192.8	215.1	283.7	97.6	4.3	-5.9
10	Phulbani	72.3	76.2	72.8	72.9	64.6	70.3	42.3	-1.8	-6.5
11	Boudh	104.0	111.9	106.8	91.8	117.8	77.7	76.4	-4.1	-5.4
12	Nayagarh	158.3	150.5	175.2	131.2	155.2	156.5	54.8	-0.7	-10.9
13	Deogarh	67.8	66.8	58.8	57.3	46.5	29.9	62.8	-13.8	-7.1
14	Jharsuguda	101.8	112.8	102.3	100.9	21.5	32.3	46.0	-26.4	-20.6
15	Sundargarh	240.8	272.8	300.6	296.1	146.1	138.1	342.1	-12.5	-3.6
Total NFSM		2711.8	2606.3	2977.1	2651.5	2565.8	2755.3	1859.5	-0.2	-4.1
Odisha State		6859.0	6824.7	7540.7	6812.7	6917.5	6827.7	5815.2	-0.2	-2.1
All India		91793.4	93355.3	96692.9	99182.4	89093.0	95979.8	104322	0.3	1.3

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI(AO)

Trend in rice yield in Odisha by districts

Sl	District	Rice yield (Kg/ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	BALASORE	1517	1428	1614	1410	1583	1824	2085	3.2	5.2
2	BHADRAK	1895	1748	1737	1891	1874	1827	1685	0.3	-0.7
3	SONEPUR	2112	2067	1997	1935	2310	2412	1932	2.8	0.7
4	CUTTACK	1976	1489	1665	1401	2055	1807	1893	1.0	1.7
5	JAGATSINGPUR	1854	1473	1751	1938	1975	1555	2411	0.3	3.7
6	KENDRAPARA	1679	1107	1390	1384	1669	1236	1540	-0.9	0.5
7	GANJAM	1371	2078	2246	1694	2022	1578	579	1.0	-10.9
8	GAJAPATI	1401	1764	1855	1191	1453	1952	1029	1.8	-3.4
9	KORAPUT	1616	1674	1888	1601	1336	1861	1475	-0.4	-1.4
10	RAYAGADA	1404	1694	1821	1543	1787	2100	1260	5.9	0.3
11	MAYURBHANJ	1471	1556	1642	1548	1375	918	1870	-7.6	-1.8
12	PURI	1501	1350	1510	1189	1705	1687	1656	3.0	3.1
13	KHURDA	1702	1612	1604	1306	1848	1678	1579	0.4	0.0
14	SAMBALPUR	1954	2004	2144	2195	1293	1449	1703	-7.6	-5.4
15	BARGARH	1894	2016	2108	2044	2185	2292	2061	3.4	2.0
Total BGREI		1683	1692	1816	1652	1781	1707	1677	0.4	0.0
NFSM districts:										
1	Bolangir	1316	1470	1798	1429	1534	1871	438	4.9	-10.1
2	Jajpur	1729	1344	1522	1505	1797	1381	1130	-0.8	-3.7
3	Dhenkanal	1857	1427	1882	1629	1539	1378	2081	-3.9	0.3
4	Angul	1531	1347	840	1335	987	573	976	-14.3	-9.8
5	Kalahandi	1066	1102	1303	1285	1518	2305	1000	14.7	5.3
6	Nuapara	960	1089	1821	1407	1182	1830	826	9.6	0.6
7	Keojhar	1405	1360	1624	1322	1422	1058	1695	-4.2	-0.3
8	Malkangiri	1356	1386	1534	1179	1173	2060	584	3.9	-6.9
9	Nawarangpur	1209	1311	1507	1213	1336	1931	696	6.4	-3.5
10	Phulbani	1292	1379	1335	1354	1335	1322	1128	0.1	-1.7
11	Boudh	1529	1578	1663	1293	1832	1207	1183	-2.8	-4.2
12	Nayagarh	1586	1479	1813	1386	1508	1657	640	0.0	-9.1
13	Deogarh	1251	1251	1331	1275	1075	708	1618	-9.1	-2.1
14	Jharsuguda	1660	1841	1752	1872	444	612	1198	-23.1	-15.0
15	Sundargarh	1133	1215	1389	1355	709	652	1769	-11.8	-2.1
Total NFSM		1346	1332	1536	1370	1335	1498	1122	1.2	-1.6
Odisha State		1531	1534	1694	1529	1585	1616	1448	0.8	-0.5
All India		2102	2131	2202	2178	2125	2239	2372	0.9	1.5

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI(AP)

Trend in rice area in eastern Uttar Pradesh by districts

Sl	District	Rice area('000' ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	ALLAHABAD	160.0	173.6	170.4	172.8	119.4	141.9	155.9	-4.8	-2.9
2	KAUSHAMBI	41.1	44.6	43.1	47.4	34.6	40.3	46.0	-2.2	-0.3
3	PRATAPGARH	97.6	98.7	93.2	99.0	89.5	97.1	97.7	-0.7	-0.2
4	VARANASI	47.6	50.6	50.1	50.5	40.7	42.2	51.2	-3.5	-1.3
5	CHANDAULI	106.6	125.0	113.2	121.1	87.5	98.8	112.3	-3.9	-2.0
6	GHAZIPUR	144.7	154.7	150.4	153.4	134.8	150.0	154.7	-0.6	0.1
7	JAUNPUR	133.6	144.5	141.2	148.6	130.3	140.5	139.8	0.0	0.0
8	S. RAVI DAS NGR	25.4	27.3	26.1	27.1	23.9	22.2	27.8	-2.9	-0.9
9	MHARAJGANJ	159.1	169.4	163.0	167.9	155.0	168.2	167.5	0.1	0.3
10	KUSHI NAGAR	116.9	124.6	121.5	123.4	116.1	126.0	127.7	0.5	0.9
11	SANT KABIR NGR	87.3	93.0	89.5	91.5	83.7	90.4	91.1	-0.3	0.0
12	Faizabad	67.0	73.2	91.6	96.7	88.9	97.5	99.7	7.5	6.4
13	Ambedkarnagar	111.1	116.9	114.0	115.6	105.9	113.5	116.8	-0.5	0.1
Total BGREI		1298.1	1396.1	1367.3	1415.0	1210.1	1328.6	1388.1	-0.8	-0.1
NFSM districts:										
1	MIRZAPUR	87.5	102.7	96.3	103.6	65.1	64.5	92.3	-7.7	-4.1
2	SONBHADRA	41.4	46.5	30.6	45.9	27.5	27.6	33.1	-8.7	-6.3
3	AZAMGARH	203.3	218.4	217.6	224.8	187.6	204.5	211.8	-1.1	-0.6
4	MAU	87.0	92.7	89.2	92.2	77.8	84.4	92.1	-1.8	-0.5
5	BALLIA	114.2	123.7	120.3	117.0	102.8	109.1	117.6	-2.3	-1.1
6	GORAKHPUR	143.7	153.4	151.5	153.9	142.4	154.7	152.8	0.5	0.5
7	DEORIA	124.2	132.5	128.3	131.4	120.2	128.9	131.2	-0.2	0.2
8	BASTI	107.8	114.4	110.7	112.4	102.5	102.8	122.7	-1.6	0.3
9	SIDDHARTH NGR	177.3	182.4	168.7	175.1	160.1	175.9	170.6	-1.1	-0.9
10	SULTANPUR	148.4	159.3	157.3	161.4	145.6	90.4	94.0	-7.5	-8.8
11	GONDA	124.7	126.1	114.8	124.2	108.6	117.9	121.9	-1.8	-0.9
12	BALRAMPUR	99.4	107.1	104.5	106.0	99.2	106.1	107.6	0.3	0.6
13	BAHRAICH	154.6	165.3	158.0	162.7	147.8	159.8	160.4	-0.4	-0.1
14	SHRAVASTI	65.1	69.6	70.0	69.3	65.9	71.5	75.3	0.8	1.5
15	CSM Nagar	0.0	0.0	0.0	0.0	0.0	113.8	122.7	-	-
Total NFSM		1678.6	1794.0	1718.1	1779.8	1553.1	1711.9	1806.2	-0.9	0.1
East. Uttar Pradesh		2976.7	3190.1	3085.4	3194.8	2763.2	3040.5	3194.3	-0.8	0.0
Whole Uttar Pradesh		5578.2	5920.6	5709.0	6034.0	5186.7	5657.0	5948.0	-0.8	0.0
All India		43659.8	43813.6	43914.4	45537.4	41918.3	42862.4	43974.4	-0.5	-0.2

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

APPENDIX-VI(AQ)

Trend of rice in eastern UttarPradesh by districts

Sl	District	Rice production ('000' tons)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR : 2011-12
BGREI Districts										
1	ALLAHABAD	324.6	369.9	369.0	424.5	268.5	330.0	398.8	**-2.1**	**0.3**
2	KAUSHAMBI	68.2	68.1	68.6	100.0	62.7	80.3	111.6	**2.8**	**6.3**
3	PRATAPGARH	175.1	183.5	179.7	216.2	189.1	194.7	226.5	**2.3**	**3.4**
4	VARANASI	72.6	79.8	85.6	108.4	60.2	85.3	113.4	**0.6**	**4.1**
5	CHANDAULI	228.9	324.7	297.8	317.7	176.4	272.2	300.8	**-2.5**	**-0.2**
6	GHAZIPUR	278.9	299.5	326.4	341.7	248.8	315.7	338.3	**0.3**	**1.5**
7	JAUNPUR	255.9	268.2	273.2	319.0	256.1	293.5	312.7	**2.0**	**2.6**
8	S. RAVI DAS NGR	42.3	42.7	43.9	54.0	46.8	45.1	67.4	**2.3**	**5.8**
9	MHARAJGANJ	371.5	393.1	362.3	388.4	374.7	365.2	401.0	**-0.5**	**0.4**
10	KUSHI NAGAR	296.8	282.8	306.2	318.3	248.9	294.2	305.3	**-1.1**	**-0.2**
11	SANT KABIR NGR	159.6	131.6	168.5	177.1	160.9	174.6	191.4	**3.2**	**3.9**
12	Faizabad	165.6	126.8	195.6	228.7	202.6	215.2	237.8	**8.6**	**8.1**
13	Ambedkarnagar	265.5	212.0	291.7	312.3	273.6	299.4	314.8	**4.2**	**4.1**
Total BGREI		2705.5	2782.7	2968.6	3306.3	2569.4	2965.4	3319.9	0.9	2.2
NFSM districts:										
1	MIRZAPUR	127.9	199.6	136.5	213.5	100.4	133.5	200.8	**-3.9**	**0.9**
2	SONBHADRA	37.0	30.5	32.3	61.7	32	42.2	67.6	**4.3**	**9.2**
3	AZAMGARH	356.4	323.4	420.5	443.5	326.8	419.4	471.4	**2.6**	**4.0**
4	MAU	152.7	96.6	161.3	184.0	112.9	156.6	219.7	**2.1**	**6.3**
5	BALLIA	166.6	165.9	224.1	232.4	202.6	207.9	299.0	**5.1**	**7.8**
6	GORAKHPUR	260.1	261.1	283.4	299.8	259.9	313.5	333.5	**2.8**	**3.7**
7	DEORIA	225.4	227.8	256.2	282.3	171.5	257.5	289.0	**-0.3**	**2.1**
8	BASTI	180.7	172.7	205.5	226.6	217.7	216.4	318.2	**5.0**	**8.2**
9	SIDDHARTH NGR	294.1	254.8	352.4	413.2	335.0	417.2	437.4	**8.1**	**7.9**
10	SULTANPUR	316.1	285.7	324.8	353.5	329.0	217.8	228.2	**-3.8**	**-5.2**
11	GONDA	247.0	197.5	228.8	267.5	237.0	265.1	280.9	**3.1**	**3.7**
12	BALRAMPUR	187.9	194.9	215.1	272.5	168.9	231.2	236.1	**2.4**	**2.8**
13	BAHRAICH	292.1	275.2	292.3	319.5	296.3	331.0	354.0	**2.7**	**3.5**
14	SHRAVASTI	117.7	103.1	131.0	159.8	140.3	136.3	140.1	**5.4**	**4.2**
15	CSM Nagar	0.0	0.0	0.0	0.0	0.0	238.0	273.4	-	-
Total NFSM		2961.5	2788.8	3264.1	3729.8	2930.7	3583.6	4149.2	3.6	5.1
East. Uttar Pradesh		5667.0	5571.5	6232.7	7036.1	5500.1	6549.0	7469.1	2.3	3.7
Whole Uttar Pradesh		11133.7	11124.0	11780.0	13097.0	10807.1	11992.0	14025.0	1.1	2.7
All India		91793.4	93355.3	96692.9	99182.4	89093.0	95979.8	104322.0	0.3	1.3

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

APPENDIX-VI(AR)

Trend in rice yield in eastern Uttar Pradesh by districts

Sl	District	Rice yield (Kg/ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	ALLAHABAD	2029	2131	2165	2457	2249	2325	2558	2.8	3.3
2	KAUSHAMBI	1659	1528	1591	2112	1816	1994	2426	5.0	6.7
3	PRATAPGARH	1795	1860	1928	2184	2114	2005	2318	3.1	3.7
4	VARANASI	1525	1576	1708	2145	1480	2020	2215	4.2	5.4
5	CHANDAULI	2146	2597	2631	2624	2017	2756	2679	1.4	1.9
6	GHAZIPUR	1928	1936	2170	2228	1845	2105	2186	0.9	1.4
7	JAUNPUR	1915	1856	1935	2147	1965	2089	2237	2.1	2.6
8	S. RAVI DAS NGR	1662	1567	1682	1991	1962	2031	2428	5.4	6.7
9	MHARAJGANJ	2335	2321	2223	2313	2417	2171	2394	-0.6	0.1
10	KUSHI NAGAR	2538	2270	2520	2579	2145	2335	2390	-1.6	-1.0
11	SANT KABIR NGR	1828	1415	1883	1935	1922	1930	2102	3.5	3.9
12	Faizabad	2472	1733	2135	2366	2279	2206	2384	1.0	1.6
13	Ambedkarnagar	2391	1813	2560	2700	2584	2638	2694	4.7	4.1
Total BGREI		2084	1993	2171	2337	2123	2232	2392	1.7	2.2
NFSM districts:										
1	MIRZAPUR	1462	1943	1417	2061	1542	2069	2174	4.1	5.1
2	SONBHADRA	893	656	1054	1345	1176	1531	2039	14.3	16.5
3	AZAMGARH	1753	1481	1932	1973	1742	2051	2225	3.8	4.6
4	MAU	1755	1041	1809	1996	1453	1855	2384	4.0	6.8
5	BALLIA	1458	1341	1863	1987	1971	1906	2542	7.6	9.1
6	GORAKHPUR	1809	1703	1871	1948	1825	2027	2183	2.4	3.2
7	DEORIA	1815	1719	1997	2148	1427	1997	2203	0.0	2.0
8	BASTI	1676	1509	1855	2017	2124	2106	2593	6.6	7.8
9	SIDDHARTH NGR	1659	1397	2088	2361	2092	2371	2564	9.3	8.8
10	SULTANPUR	2130	1794	2064	2191	2260	2408	2426	4.0	3.9
11	GONDA	1980	1567	1993	2153	2182	2248	2303	5.0	4.6
12	BALRAMPUR	1890	1820	2058	2571	1702	2179	2195	2.1	2.2
13	BAHRAICH	1889	1665	1849	1964	2005	2071	2207	3.1	3.6
14	SHRAVASTI	1809	1481	1870	2304	2130	1907	1860	4.6	2.6
15	CSM Nagar	0	0	0	0	0	2091	2227	-	-
Total NFSM		1764	1555	1900	2096	1887	2093	2297	4.5	5.1
East. Uttar Pradesh		1904	1747	2020	2202	1990	2154	2338	3.2	3.7
Whole Uttar Pradesh		1996	1879	2063	2171	2084	2120	2358	1.9	2.7
All India		2102	2131	2202	2178	2125	2239	2372	0.9	1.5

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance.

APPENDIX-VI(AS)

Trend in rice area in West Bengal by districts

Sl	District	Rice area('000' ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	Darjeeling	34.5	31.4	32.2	32.5	32.3	32.3	32.5	-0.7	-0.5
2	DakshinDinajpur	211.7	185.1	197.9	205.3	190.4	189.7	183.5	-1.2	-1.5
3	Malda	218.6	154.3	147.3	221.8	216.8	200.8	206.0	2.9	2.7
4	Murshidasbad	404.3	395.1	398.4	399.5	373.1	304.2	352.9	-4.4	-3.5
5	Nadia	265.4	250.3	240.7	277.2	238.8	235.7	253.5	-1.7	-0.9
6	24-Parganas(N)	277.1	278.1	273.6	274.5	235.1	223.7	222.7	-4.4	-4.3
7	Hooghly	310.3	299.2	301.8	305.7	299.9	292.4	278.7	-0.8	-1.3
8	Burdwan	639.0	642.8	635.8	666.5	672.5	562.9	596.0	-1.3	-1.5
9	Birbhum	368.5	383.4	394.0	393.8	357.6	249.0	388.9	-6.0	-2.8
10	Bankura	386.9	406.9	416.8	371.2	377.3	198.0	379.0	-10.0	-5.6
Total BGREI		3116.4	3026.5	3038.5	3148.0	2993.9	2488.7	2893.5	-3.2	-2.2
NFSM districts										
1	Jalpaiguri	248.5	229.7	236.1	235.4	227.5	224.1	225.8	-1.6	-1.3
2	Coochbehar	280.5	239.5	293.5	309.8	274.0	275.3	274.7	1.1	0.5
3	Uttar Dinajpur	280.1	256.3	281.1	284.5	256.4	249.5	236.8	-1.6	-2.3
4	24-Parganas(S)	396.0	415.0	392.5	416.0	384.0	372.0	391.0	-1.4	-1.0
5	Howrah	125.6	116.8	117.9	115.3	114.0	115.5	107.6	-1.5	-1.8
6	Purulia	267.0	280.6	313.7	301.0	265.6	152.9	272.0	-8.2	-4.6
7	Midnapur West	654.0	692.4	650.2	718.9	674.3	616.7	659.2	-0.8	-0.6
8	Midnapur East	414.9	430.2	396.3	406.7	440.4	449.5	401.8	1.4	0.3
Total NFSM		2666.5	2660.5	2681.2	2787.7	2636.2	2455.5	2569.1	-1.1	-1.0
West Bengal		5783.0	5687.0	5719.7	5935.7	5630.1	4944.2	5462.6	-2.2	-1.7
All India		43659.8	43813.6	43914.4	45537.4	41918.3	42862.4	43974.4	-0.5	-0.2

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

APPENDIX-VI(AT)

Trend of rice production in West Bengal by districts

Sl	District	Rice production ('000' tons)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	Darjeeling	58.6	58.7	59.4	68.7	75.4	75.8	72.5	6.4	5.1
2	DakshinDinajpur	519.3	446.4	492.0	501.6	463.8	546.3	477.4	1.1	0.3
3	Malda	636.1	470.6	480.5	656.8	614.5	614.3	622.3	2.7	2.6
4	Murshidasbad	1189.5	1030.7	1142.4	1123.7	1040.4	839.6	973.5	-4.8	-3.9
5	Nadia	732.4	677.7	683.0	799.5	664.9	633.8	757.1	-1.8	-0.2
6	24-Parganas(N)	717.4	726.0	744.7	737.0	658.4	591.0	607.6	-3.6	-3.6
7	Hooghly	849.9	846.8	845.1	876.3	861.3	880.9	820.5	0.8	0.0
8	Burdwan	1968.5	1967.0	1858.6	1876.2	2051.3	1623.2	1778.9	-2.3	-2.1
9	Birbhum	1116.3	1199.4	1220.7	1212.4	960.5	728.8	1145.9	-7.7	-4.1
10	Bankura	1013.4	1138.0	1173.5	1025.8	1004.9	494.5	1138.5	-11.0	-5.1
	Total BGREI	8801.6	8561.3	8700.0	8877.9	8395.4	7028.2	8394.3	-3.3	-2.0
NFSM districts:										
1	Jalpaiguri	394.6	419.0	372.4	391.2	435.3	481.1	477.6	3.4	3.7
2	Coochbehar	545.6	445.8	518.8	500.4	561.0	640.0	610.9	4.2	4.2
3	Uttar Dinajpur	692.4	589.7	683.5	660.0	559.0	638.6	646.6	-1.7	-0.9
4	24-Parganas(S)	845.3	911.1	796.8	919.9	805.4	834.4	918.4	-0.8	0.3
5	Howrah	286.0	243.5	259.1	206.9	191.2	296.9	229.1	-2.2	-2.0
6	Purulia	528.9	731.4	768.2	744.2	598.8	255.0	744.7	-11.5	-4.6
7	Midnapur West	1629.6	1798.8	1798.9	1856.7	1756.5	1674.4	1804.0	0.3	0.5
8	Midnapur East	786.7	1045.3	821.8	880.0	1038.1	1197.3	1027.3	6.3	4.8
	Total NFSM	5709.1	6184.6	6019.5	6159.3	5945.2	6017.7	6458.7	0.5	1.1
	West Bengal	14510.8	14745.9	14719.5	15037.2	14340.7	13045.9	14853.0	-1.7	-0.7
	All India	91793.4	93355.3	96692.9	99182.4	89093.0	95979.8	104322.0	0.3	1.3

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

APPENDIX-VI(AU)

Trend in rice yield West Bengal by districts

Sl	District	Rice yield (Kg/ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	Darjeeling	1698	1866	1844	2115	2335	2350	2235	7.2	5.6
2	DakshinDinajpur	2453	2412	2486	2443	2436	2879	2602	2.3	1.8
3	Malda	2910	3051	3261	2962	2834	3060	3021	-0.2	-0.1
4	Murshidasbad	2942	2609	2867	2813	2788	2760	2759	-0.4	-0.4
5	Nadia	2760	2707	2837	2884	2784	2689	2987	-0.1	0.7
6	24-Parganas(N)	2589	2611	2722	2685	2800	2642	2729	0.9	0.8
7	Hooghly	2739	2830	2800	2866	2872	3013	2944	1.6	1.3
8	Burdwan	3081	3060	2923	2815	3050	2884	2985	-1.1	-0.6
9	Birbhum	3029	3128	3098	3078	2686	2927	2946	-1.8	-1.3
10	Bankura	2619	2797	2815	2764	2663	2497	3004	-1.1	0.5
	Total BGREI	2824	2829	2863	2820	2804	2824	2901	-0.1	0.2
NFSM districts:										
1	Jalpaiguri	1588	1824	1578	1662	1913	2147	2115	5.0	5.0
2	Coochbehar	1945	1862	1768	1615	2047	2324	2223	3.1	3.6
3	Uttar Dinajpur	2472	2301	2432	2320	2180	2560	2730	-0.1	1.4
4	24-Parganas(S)	2135	2195	2030	2211	2098	2243	2349	0.6	1.3
5	Howrah	2278	2084	2199	1795	1678	2571	2129	-0.7	-0.2
6	Purulia	1981	2607	2449	2472	2254	1668	2738	-3.6	0.0
7	Midnapur West	2492	2598	2767	2583	2605	2715	2737	1.1	1.1
8	Midnapur East	1896	2429	2074	2163	2357	2664	2556	4.8	4.4
	Total NFSM	2141	2325	2245	2209	2255	2451	2514	1.6	2.1
	West Bengal	2509	2593	2573	2533	2547	2639	2719	0.5	1.0
	All India	2102	2131	2202	2178	2125	2239	2372	0.9	1.5

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

APPENDIX-VI (BA)

Trend in wheat area in Bihar by districts

Sl	District	Wheat area ('000' ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	ARWAL	11.3	11.0	11.3	11.2	10.8	11.1	11.4	-0.4	0.04
2	AURANGABAD	47.9	50.6	65.3	95.4	101.6	56.2	58.0	9.8	4.5
3	BEGUSARAI	52.6	52.0	53.8	53.4	62.2	52.8	54.4	1.6	1.0
4	BHOJPUR	55.3	74.2	77.2	77.7	76.6	77.3	79.7	5.2	4.3
5	BUXAR	62.2	59.5	83.9	77.6	81.1	83.0	85.6	6.8	5.8
6	GAYA	60.7	72.7	60.1	60.2	63.7	50.9	52.6	-3.6	-3.8
7	GOPALGANJ	82.5	83.0	82.9	78.8	83.5	83.6	86.2	0.1	0.6
8	JAHANABAD	20.7	32.4	28.5	32.8	33.3	34.1	35.2	8.1	6.8
9	LAKHISARAI	21.4	29.6	28.5	30.7	27.3	49.8	51.4	12.3	13.8
10	PATNA	60.0	56.9	61.1	56.6	61.6	61.6	63.6	0.8	1.2
11	SAHARSA	42.6	42.0	43.4	41.0	41.9	44.2	45.6	0.3	1.0
12	SIWAN	95.4	90.1	99.0	95.4	105.6	94.6	97.6	1.1	0.8
13	SHEOHAR	15.5	13.9	16.6	10.4	10.3	16.4	17.0	-3.0	0.5
BGREI districts total		628.0	667.8	711.6	721.2	759.4	715.6	738.3	3.1	2.5
NFSM districts:										
1	ARARIA	50.7	56.8	51.4	58.0	48.7	57.5	59.3	0.8	1.6
2	BHAGALPUR	46.0	43.6	47.8	41.9	41.5	43.8	45.2	-1.5	-0.7
3	BANKA	23.3	28.4	32.4	31.5	27.1	23.7	24.4	-0.3	-1.4
4	BHABHUA	65.7	60.2	65.9	58.5	68.0	69.6	71.8	1.5	2.1
5	CHAMPARAN(E)	98.4	97.3	106.6	107.9	100.5	102.8	106.0	0.9	1.0
6	CHAMPARAN(W)	78.7	82.5	81.7	80.6	81.6	71.7	74.0	-1.4	-1.7
7	DARBHANGA	64.0	66.3	82.3	79.8	80.8	61.1	63.0	0.9	-0.8
8	JAMUI	9.6	11.6	14.0	14.1	11.7	7.6	7.8	-3.3	-5.8
9	KATIHAR	44.7	34.8	36.2	38.4	35.1	30.4	31.3	-5.2	-4.8
10	KHAGARIA	37.4	31.8	34.6	34.3	33.8	33.9	35.0	-0.9	-0.3
11	KISHANGANJ	22.6	21.4	21.8	22.1	20.3	20.5	21.1	-1.8	-1.3
12	MADHUBANI	87.7	81.0	90.7	94.1	102.2	95.3	98.4	3.3	2.9
13	MADHEPURA	36.2	36.1	42.1	35.7	26.7	35.6	36.7	-3.3	-1.6
14	MONGHYR	19.2	18.0	19.0	19.1	17.4	15.5	16.0	-3.3	-3.3
15	MUZAFFARPUR	85.9	84.4	102.2	97.8	102.2	94.2	97.2	2.9	2.1
16	NALANDA	82.3	81.1	68.3	67.0	70.0	69.2	71.4	-3.7	-2.5
17	NAWADHA	38.8	44.6	52.4	51.9	52.2	59.5	61.3	7.7	7.2
18	PURNIA	46.6	45.7	42.7	39.1	46.8	42.1	43.5	-1.5	-1.0
19	ROHTAS	131.1	134.0	127.8	131.1	130.6	132.1	136.3	0.0	0.4
20	SAMASTIPUR	51.9	50.7	52.3	61.1	60.3	61.8	63.7	4.5	4.2
21	SARAN	87.7	86.9	94.5	95.4	93.9	78.5	81.0	-0.9	-1.6
22	SHEIKHPURA	15.8	20.2	21.1	20.0	22.3	21.2	21.8	5.0	4.1
23	SITAMARHI	53.2	67.3	66.2	67.1	61.2	62.6	64.6	1.6	1.3

contd…

Sl	District	Wheat area('000' ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-10	CGR: 2011-12
NFSM Districtscontd…										
24	SUPAUL	53.9	50.1	52.0	42.8	48.7	50.5	52.1	-1.7	-0.5
25	VAISHALI	44.2	47.2	44.8	48.1	50.1	47.4	48.9	1.7	1.5
NFSM districts		**1375.7**	**1381.9**	**1450.9**	**1437.2**	**1433.9**	**1387.9**	**1431.8**	**0.4**	**0.4**
Bihar State		**2003.7**	**2049.7**	**2162.5**	**2158.3**	**2193.3**	**2103.5**	**2170.1**	**1.3**	**1.1**
All India		**26483.6**	**27994.5**	**28038.6**	**27752.4**	**28457.4**	**29068.6**	**29902.2**	**1.5**	**1.6**

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI (BB)

Trend of wheat production in Bihar by districts

Sl	District	Wheat production ('000' tons)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	ARWAL	25.8	25.3	23.5	20.0	23.4	15.5	18.1	-8.1	-7.09
2	AURANGABAD	63.5	98.4	109.0	107.2	123.4	90.9	106.2	7.3	5.5
3	BEGUSARAI	104.4	107.6	106.7	105.2	119.1	112.5	131.5	1.9	3.2
4	BHOJPUR	163.6	178.6	223.9	211.1	256.8	161.2	188.4	2.8	1.3
5	BUXAR	139.9	115.7	218.9	221.4	196.5	195.4	228.3	9.8	9.0
6	GAYA	82.4	147.5	126.4	132.6	141.5	89.9	105.1	1.0	-0.5
7	GOPALGANJ	153.5	195.6	141.1	123.1	165.9	227.5	265.7	3.9	7.8
8	JAHANABAD	35.1	67.8	59.2	72.3	64.5	54.0	63.1	6.5	5.1
9	LAKHISARAI	40.1	69.6	66.2	55.8	45.2	70.5	82.4	3.9	6.7
10	PATNA	146.0	116.3	132.8	146.9	122.5	115.5	135.0	-2.6	-1.2
11	SAHARSA	33.6	77.2	75.6	70.4	84.6	81.8	95.6	14.2	12.8
12	SIWAN	183.9	179.6	215.1	208.2	300.0	152.9	178.6	1.7	-0.3
13	SHEOHAR	6.7	18.0	23.7	22.0	27.9	36.1	42.1	31.7	28.6
BGREI districts total		**1178.6**	**1397.2**	**1522.2**	**1496.2**	**1671.4**	**1403.7**	**1640.0**	**4.1**	**4.0**
NFSM districts:										
1	ARARIA	36.8	37.7	81.8	64.7	90.9	112.5	131.4	25.6	24.4
2	BHAGALPUR	63.3	69.5	84.4	79.8	99.7	90.6	105.8	8.4	8.3
3	BANKA	31.9	49.9	70.0	88.0	52.8	34.2	40.0	2.1	-1.3
4	BHABHUA	151.8	124.0	122.7	125.3	151.8	134.9	157.6	0.1	1.8
5	CHAMPARAN(E)	121.4	187.2	263.2	157.3	74.0	249.9	292.0	0.9	7.2
6	CHAMPARAN(W)	95.7	150.1	177.8	230.6	171.0	154.6	180.6	9.1	7.1
7	DARBHANGA	82.3	119.0	195.0	184.3	171.8	114.6	133.8	8.0	4.6
8	JAMUI	10.8	16.6	21.7	13.1	19.4	9.1	10.6	-2.6	-4.8
9	KATIHAR	23.5	41.7	53.7	67.7	65.3	74.5	87.1	23.4	20.8
10	KHAGARIA	70.2	44.8	65.3	26.8	113.7	46.9	54.8	-0.3	-0.3
11	KISHANGANJ	19.1	26.2	19.6	26.5	22.9	20.0	23.4	0.4	0.8
12	MADHUBANI	68.8	123.6	147.2	148.3	221.0	181.7	212.3	20.8	17.7
13	MADHEPURA	41.4	50.0	59.7	79.0	60.3	55.1	64.3	6.7	5.6
14	MONGHYR	30.7	31.7	37.8	34.4	34.9	22.5	26.2	-3.8	-4.3
15	MUZAFFARPUR	128.2	154.0	241.8	190.4	176.0	186.2	217.5	6.0	6.1
16	NALANDA	149.6	147.7	122.0	108.4	108.7	116.3	135.9	-6.3	-3.1
17	NAWADHA	56.5	91.3	117.3	112.7	99.0	96.7	113.0	8.6	7.5
18	PURNIA	45.3	58.5	59.8	62.8	101.9	66.5	77.7	10.9	9.0
19	ROHTAS	326.0	310.5	309.8	335.6	312.6	311.9	364.4	-0.3	1.3
20	SAMASTIPUR	105.0	134.6	122.0	140.9	162.7	131.7	153.9	5.4	5.1
21	SARAN	172.1	193.9	210.8	234.9	217.8	175.3	204.8	1.6	1.3
22	SHEIKHPURA	32.3	39.3	40.8	42.4	52.4	27.6	32.3	0.3	-1.6
23	SITAMARHI	70.3	111.1	113.4	137.9	106.4	91.5	106.9	4.0	2.9

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Sl	District	Wheat production ('000' tons)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
NFSM Districtscontd…										
24	SUPAUL	49.7	88.4	85.0	79.4	90.2	62.5	73.1	3.3	1.9
25	VAISHALI	77.8	113.0	105.7	142.7	122.3	126.5	147.8	8.8	8.5
NFSM districts		2060.4	2514.2	2928.2	2913.9	2899.4	2693.9	3147.3	5.2	5.1
Bihar State		3239.0	3911.4	4450.4	4410.0	4570.8	4097.6	4787.3	4.8	4.7
All India		69354.5	75806.7	78570.2	80679.4	80803.6	86874.0	93903.6	3.9	4.4

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI (BC)

Trend in wheat yield in Bihar by districts

Sl	District	Wheat yield (Kg/ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	ARWAL	2285	2305	2364	1790	2150	1397	1582	-8.1	-7.56
2	AURANGABAD	1327	1945	1889	1124	1210	1617	1831	-2.7	0.5
3	BEGUSARAI	1986	2068	2106	1969	1908	2133	2415	0.1	2.0
4	BHOJPUR	2960	2407	3261	2717	3337	2087	2363	-2.7	-3.3
5	BUXAR	2249	1946	2964	2853	2410	2355	2667	2.4	2.5
6	GAYA	1357	2030	2391	2201	2204	1765	1999	4.3	2.9
7	GOPALGANJ	1861	2358	1931	1563	1968	2722	3083	3.3	6.7
8	JAHANABAD	1692	2095	2362	2207	1930	1584	1794	-1.8	-2.1
9	LAKHISARAI	1878	2348	2641	1817	1652	1416	1603	-7.8	-6.7
10	PATNA	2434	2046	2472	2594	1981	1875	2124	-3.8	-2.8
11	SAHARSA	787	1836	1977	1717	2009	1849	2094	13.4	11.2
12	SIWAN	1928	1993	2468	2187	2820	1616	1830	0.1	-1.6
13	SHEOHAR	435	1295	1583	2118	2683	2195	2486	35.3	27.6
BGREI districts total		1877	1359	1583	2118	2683	1962	2221	7.6	6.5
NFSM districts:										
1	ARARIA	726	698	1665	1116	1858	1956	2215	23.9	21.8
2	BHAGALPUR	1375	1675	2702	1906	2391	2069	2343	8.2	7.0
3	BANKA	1369	1846	2452	2794	1940	1445	1636	1.6	-0.7
4	BHABHUA	2310	2160	2117	2150	2221	1939	2196	-2.2	-1.1
5	CHAMPARAN(E)	1234	2018	2795	1458	733	2432	2754	-0.8	5.3
6	CHAMPARAN(W)	1216	1910	2382	2862	2074	2156	2442	9.9	8.2
7	DARBHANGA	1285	1883	2947	2311	2118	1876	2124	5.9	4.3
8	JAMUI	1127	1498	1758	929	1654	1202	1361	-0.1	0.2
9	KATIHAR	525	1257	1687	1762	1854	2455	2781	29.0	25.8
10	KHAGARIA	1876	1479	2144	783	3345	1382	1565	-0.2	-0.8
11	KISHANGANJ	844	1287	996	1200	1122	977	1107	1.4	1.4
12	MADHUBANI	785	1601	1842	1576	2146	1906	2159	15.9	13.5
13	MADHEPURA	1142	1452	1613	2217	2253	1548	1753	9.4	6.4
14	MONGHYR	1601	1853	2260	1798	1998	1453	1645	-1.4	-1.9
15	MUZAFFARPUR	1493	1825	2365	1946	1721	1976	2238	3.0	3.8
16	NALANDA	1816	1821	1786	1619	1552	1681	1904	-2.7	-0.6
17	NAWADHA	1455	2048	2238	2170	1895	1627	1842	0.8	0.3
18	PURNIA	972	1280	1403	1606	2179	1578	1787	12.6	10.1
19	ROHTAS	2487	2317	2423	2560	2393	2361	2674	-0.3	0.9
20	SAMASTIPUR	2025	2657	2332	2305	2696	2132	2414	0.8	0.8
21	SARAN	1963	2231	2231	2463	2319	2233	2529	2.5	2.9
22	SHEIKHPURA	2042	1942	1934	2124	2347	1305	1478	-4.4	-5.5
23	SITAMARHI	1321	1651	1712	2055	1739	1461	1655	2.4	1.6

contd…

Sl	District	Wheat yield (Kg/ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
NFSM Districtscontd…										
24	SUPAUL	922	1765	1634	1857	1852	1239	1403	5.1	2.4
25	VAISHALI	1760	2394	2359	2965	2442	2666	3020	7.0	6.9
NFSM districts		**1498**	**1819**	**2018**	**2028**	**2022**	**1941**	**2198**	**4.7**	**4.7**
Bihar State		**1617**	**1908**	**2058**	**2043**	**2084**	**1948**	**2206**	**3.5**	**3.6**
All India		**2619**	**2708**	**2802**	**2907**	**2839**	**2989**	**3140**	**2.4**	**2.7**

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI (BD)

Trend in wheat area in eastern Uttar Pradesh by districts

Sl	District	Wheat area('000' ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	ALLAHABAD	208.3	207.7	205.0	211.6	208.4	210.6	191.4	0.3	-0.7
2	CHANDAULI	92.1	99.2	99.0	94.7	97.2	95.6	82.2	0.2	-1.5
3	GHAZIPUR	165.3	164.9	164.5	167.9	169.7	171.2	153.2	0.8	-0.4
4	MIRZAPUR	96.2	95.5	92.1	95.1	94.2	97.1	87.0	0.1	-0.9
5	SONBHADRA	32.3	49.3	48.6	52.9	56.7	53.9	49.6	9.1	5.9
6	S. RAVI DAS NGR	46.0	45.9	45.2	46.3	48.1	44.6	42.0	0.1	-0.9
Total BGREI districts		**640.2**	**662.4**	**654.4**	**668.5**	**674.3**	**673.0**	**605.3**	0.9	-0.4
NFSM districts:										
1	KAUSHAMBI	64.7	64.6	66.1	69.6	70.7	71.6	64.3	2.4	0.9
2	PRATAPGARH	144.1	142.6	141.8	144.1	145.0	147.8	131.7	0.6	-0.6
3	VARANASI	68.1	67.9	67.0	68.2	71.0	70.6	61.6	1.0	-0.6
4	JAUNPUR	193.8	193.1	200.3	204.5	201.3	208.2	182.1	1.5	-0.1
5	AZAMGARH	224.6	224.4	226.1	232.3	234.7	232.6	204.4	1.0	-0.6
6	MAU	92.3	91.7	91.3	92.1	94.8	93.1	84.0	0.4	-0.8
7	BALLIA	135.2	135.7	137.2	138.7	140.3	138.8	1233.4	0.7	27.0
8	GORAKHPUR	183.8	182.2	182.1	143.4	189.2	190.4	167.3	0.1	-0.6
9	MHARAJGANJ	146.8	145.3	142.3	186.8	147.1	150.7	132.3	1.3	-0.7
10	DEORIA	143.9	143.1	136.1	145.2	147.5	148.7	131.2	0.9	-0.4
11	KUSHI NAGAR	111.9	110.1	110.8	112.7	115.8	119.1	106.2	1.4	0.2
12	BASTI	111.2	110.6	106.6	111.2	114.9	115.6	102.9	1.0	-0.2
13	SIDDHARTH NGR	164.4	169.5	160.5	163.9	166.6	159.3	139.5	-0.5	-2.0
14	SANT KABIR NGR	89.6	88.6	88.4	89.4	91.7	90.8	81.1	0.5	-0.8
15	FAIZABAD	80.2	81.9	99.3	104.6	108.0	109.0	96.5	7.1	4.4
16	AMBEDKAR NGR	116.0	114.8	114.6	115.8	116.2	113.5	104.5	-0.2	-1.1
17	SULTANPUR	164.8	164.7	162.1	165.0	169.3	103.2	92.3	-6.2	-9.0
18	GONDA	147.8	142.4	148.7	156.5	159.3	160.0	142.5	2.3	0.7
19	BALRAMPUR	80.4	80.9	93.4	81.1	81.8	82.9	73.7	0.1	-1.2
20	BAHRAICH	153.0	152.7	151.7	154.9	157.5	159.7	135.3	0.9	-0.9
21	SHRAVASTI	58.4	58.3	58.2	57.3	58.3	62.3	59.4	0.9	0.7
22	CSM Nagar	0.0	0.0	0.0	0	0	83.1	111.0	-	-
Total NFSM districts		2674.7	2665.0	2684.6	2737.3	2781.0	2811.1	3637.3	1.1	3.9
Eastern Uttar Pradesh		**3314.9**	**3327.4**	**3339.0**	**3405.8**	**3455.2**	**3484.2**	**4242.6**	1.1	3.1
Whole UP (DES, GOI)		**9163.9**	**9197.6**	**9115.0**	**9513.0**	**9668.0**	**9637.0**	**9731.0**	1.3	1.2
All India		**26483.6**	**27994.5**	**28038.6**	**27752.4**	**28457.4**	**29068.6**	**29902.2**	1.5	1.6

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI (BE)

Trend of wheat production in eastern Uttar Pradesh by districts

Sl	District	Wheat production ('000' tons)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	ALLAHABAD	410.9	475.6	457.8	524.0	445.8	519.1	517.7	3.2	3.0
2	CHANDAULI	161.6	221.2	225.8	220.2	201.3	243.0	242.3	5.1	4.7
3	GHAZIPUR	368.1	392.0	401.0	446.9	394.8	462.2	460.8	3.7	3.6
4	MIRZAPUR	157.4	190.7	174.6	182.1	187.5	224.8	224.2	5.2	5.4
5	SONBHADRA	32.5	65.0	78.0	78.7	107.9	92.9	92.6	21.4	16.1
6	S. RAVI DAS NGR	96.3	110.3	100.0	121.0	107.6	128.1	127.7	4.5	4.4
Total BGREI districts		**1226.9**	**1454.9**	**1437.2**	**1572.8**	**1444.8**	**1670.1**	**1665.3**	4.7	4.4
NFSM districts:										
1	KAUSHAMBI	137.0	137.9	137.9	181.3	168.3	192.8	192.2	7.7	7.0
2	PRATAPGARH	299.9	342.2	330.7	392.3	345.2	415.6	414.4	5.4	5.1
3	VARANASI	148.5	168.9	171.2	192.8	178.4	198.0	197.4	5.0	4.4
4	JAUNPUR	469.3	506.9	534.4	584.3	547.8	594.0	592.3	4.4	3.8
5	AZAMGARH	547.1	540.9	590.1	633.7	607.1	650.7	648.9	3.7	3.3
6	MAU	222.8	218.8	236.2	252.9	227.5	262.9	262.1	2.9	3.0
7	BALLIA	290.1	329.4	359.3	374.2	355.9	407.3	262.1	5.8	0.4
8	GORAKHPUR	409.7	452.3	525.5	404.2	501.3	557.4	555.8	4.6	4.7
9	MHARAJGANJ	210.8	396.7	424.4	507.6	432.7	479.0	477.6	13.9	10.7
10	DEORIA	319.3	352.7	376.6	394.3	374.6	440.8	439.6	5.4	5.1
11	KUSHI NAGAR	219.7	303.3	343.8	323.4	302.7	345.8	290.9	6.5	3.6
12	BASTI	258.2	257.9	257.9	309.0	283.0	319.7	318.8	4.5	4.2
13	SIDDHARTH NGR	443.3	417.0	362.8	410.6	388.4	500.0	498.6	1.5	2.8
14	SANT KABIR NGR	193.2	213.6	225.1	241.7	252.9	251.9	197.4	5.6	1.8
15	FAIZABAD	212.5	215.7	275.4	294.4	282.5	307.1	306.3	8.1	6.8
16	AMBEDKAR NGR	351.5	333.8	374.2	384.2	363.7	380.5	379.5	2.0	1.7
17	SULTANPUR	431.9	440.7	455.8	466.7	462.1	327.0	326.1	-3.4	-5.0
18	GONDA	373.2	382.7	415.7	456.4	433.3	469.0	467.7	4.7	4.1
19	BALRAMPUR	180.7	188.7	335.3	230.1	236.2	235.3	234.6	4.7	3.2
20	BAHRAICH	374.5	396.5	419.2	440.0	409.5	464.0	462.7	3.5	3.4
21	SHRAVASTI	134.3	150.2	134.5	133.1	155.6	169.2	168.7	3.6	3.9
22	CSM Nagar	0.0	0.0	0.0	0	0	232.1	231.5	-	-
Total NFSM districts		6227.5	6746.8	7285.9	7607.3	7308.6	8200.2	7925.3	4.9	4.1
Eastern Uttar Pradesh		**7454.4**	**8201.6**	**8723.1**	**9180.1**	**8753.4**	**9870.3**	**9590.6**	4.8	4.1
Whole UP (DES, GOI)		**24073.8**	**25031.0**	**25679.0**	**28554.0**	**27518.0**	**30001.0**	**30292.6**	4.4	4.1
All India		69354.5	75806.7	78570.2	80679.4	80803.6	86874.0	93903.6	3.9	4.4

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI (BF)

Trend in wheat yield in eastern Uttar Pradesh by districts

Sl	District	Wheat yield (Kg/ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	ALLAHABAD	1972	2290	2233	2476	2139	2465	2705	2.9	3.8
2	CHANDAULI	1755	2231	2281	2326	2070	2543	2947	4.8	6.3
3	GHAZIPUR	2227	2378	2437	2662	2327	2699	3009	2.9	4.0
4	MIRZAPUR	1636	1997	1895	1914	1991	2315	2578	5.1	6.3
5	SONBHADRA	1006	1318	1605	1487	1904	1723	1869	11.2	9.6
6	S. RAVI DAS NGR	2095	2404	2213	2613	2234	2869	3042	4.4	5.4
Total BGREI districts		**1916**	**2196**	**2196**	**2353**	**2143**	**2481**	**2751**	**3.7**	**4.8**
NFSM districts:										
1	KAUSHAMBI	2118	2136	2087	2607	2381	2693	2991	5.1	6.0
2	PRATAPGARH	2081	2400	2332	2723	2381	2812	3146	4.8	5.8
3	VARANASI	2181	2487	2557	2827	2513	2803	3204	4.0	5.0
4	JAUNPUR	2422	2625	2668	2857	2721	2853	3253	2.9	3.9
5	AZAMGARH	2436	2411	2610	2729	2587	2797	3175	2.7	3.9
6	MAU	2415	2387	2587	2745	2400	2823	3121	2.5	3.7
7	BALLIA	2146	2428	2618	2699	2537	2934	213	5.1	-21.0
8	GORAKHPUR	2229	2482	2885	2819	2650	2927	3322	4.5	5.3
9	MHARAJGANJ	1437	2729	2983	2717	2941	3178	3611	12.4	11.5
10	DEORIA	2220	2464	2767	2715	2540	2965	3350	4.4	5.6
11	KUSHI NAGAR	1964	2755	3103	2871	2614	2904	2738	5.0	3.4
12	BASTI	2322	2332	2419	2779	2462	2766	3099	3.4	4.5
13	SIDDHARTH NGR	2696	2460	2260	2505	2331	3138	3573	2.0	5.0
14	SANT KABIR NGR	2156	2412	2545	2704	2757	2775	2434	5.0	2.6
15	FAIZABAD	2649	2634	2775	2815	2615	2819	3173	0.9	2.2
16	AMBEDKAR NGR	3029	2908	3267	3317	3130	3352	3632	2.1	2.8
17	SULTANPUR	2622	2676	2812	2828	2730	3168	3532	2.9	4.4
18	GONDA	2526	2688	2796	2917	2720	2931	3283	2.4	3.4
19	BALRAMPUR	2248	2334	3589	2838	2889	2839	3183	4.6	4.4
20	BAHRAICH	2448	2596	2764	2840	2600	2905	3419	2.6	4.3
21	SHRAVASTI	2301	2577	2309	2323	2671	2716	2839	2.7	3.2
22	CSM Nagar	0	0	0	-	-	2793	2086	-	-
Total NFSM districts		2328	2532	2714	2779	2628	2917	2179	3.7	0.2
Eastern Uttar Pradesh		**2249**	**2465**	**2612**	**2695**	**2533**	**2833**	**2261**	**3.7**	**0.9**
Whole UP (DES, GOI)		**2627**	**2721**	**2817**	**3002**	**2846**	**3113**	**3113**	**3.0**	**2.9**
All India		**2619**	**2708**	**2802**	**2907**	**2839**	**2989**	**3140**	**2.4**	**2.7**

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI (BG)

Trend of wheat area in West Bengal by districts

Sl	District	Wheat area ('000' ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	Birbhum	30.1	31.7	32.1	34.9	33.7	33.0	33.0	2.1	1.4
2	Malda	45.9	42.9	46.9	44.4	44.1	47.6	43.5	0.6	0.0
3	Murshidasbad	125.5	125.5	122.6	101.8	100.1	96.4	97.1	-6.1	-5.2
Total BGREI districts		201.5	200.1	201.6	181.1	177.9	176.9	173.7	-3.1	-2.9
NFSM districts:										
1	Jalpaiguri	18.5	16.1	16.8	15.9	16.0	18.0	17.1	-0.5	-0.2
2	Coochbehar	14.0	12.9	13.4	10.2	12.4	10.6	10.7	-5.0	-4.5
3	Uttar Dinajpur	38.2	35.2	36.5	30.4	34.4	36.0	36.9	-1.6	-0.4
4	DakhinDinajpur	9.3	8.9	10.1	11.1	11.8	12.6	12.6	7.5	6.6
Total NFSM districts		80.0	73.1	76.7	67.7	74.6	77.3	77.3	-0.7	-0.1
Other than NFSM/BGREI districts										
1	Darjeeling	2.2	2.2	2.2	2.0	2.0	2.0	2.0	-2.3	-2.0
2	Nadia	47.1	46.9	47.5	35.9	37.2	38.7	40.3	-5.4	-3.8
3	24-Parganas (N)	7.4	7.0	7.0	8.6	7.4	7.4	7.2	0.8	0.1
4	24-Parganas (S)	3.3	1.6	2.4	0.4	2.1	2.5	2.5	-6.0	-0.1
5	Howrah	0.2	0.5	0.5	0.1	0.0	0.2	0.1	-	-
6	Hooghly	0.3	1.2	0.4	1.5	0.4	0.3	0.2	-5.6	-15.8
7	Burdwan	2.2	2.6	2.2	2.0	1.6	1.1	2.7	-13.8	-5.1
8	Bankura	6.8	6.0	3.5	3.9	4.1	3.0	2.7	-13.4	-13.1
9	Purulia	3.2	1.8	1.6	0.9	1.7	2.0	1.9	-8.9	-4.8
10	Midnapur (W)	12.1	7.1	6.5	2.4	6.5	4.7	4.7	-15.7	-12.2
11	Midnapur (E)	0.5	0.5	0.5	0.5	0.5	0.6	0.5	1.0	-0.1
Other than NFSM BGREI districts		85.2	77.4	74.3	58.3	63.4	62.6	64.7	-6.6	-4.9
West Bengal		366.7	350.6	352.6	307.0	315.9	316.8	315.7	-3.3	-2.7
All India		26483.6	27994.5	28038.6	27752.4	28457.4	29068.6	29902.2	1.5	1.6

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI (BH)

Trend of wheat production in West Bengal by districts

Sl	District	Wheat production ('000' tons)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	Birbhum	75.6	83.8	94.9	98.2	89.2	88.1	87.3	**2.8**	**1.7**
2	Malda	101.8	111.1	137.9	119.9	129.4	144.0	133.5	**6.0**	**4.6**
3	Murshidasbad	273.1	270.3	313.4	258.3	284.6	286.4	279.2	**0.6**	**0.3**
Total BGREI districts		**450.6**	**465.2**	**546.2**	**476.4**	**503.3**	**518.4**	**500.0**	**2.3**	**1.6**
NFSM districts:										
1	Jalpaiguri	31.8	33.1	39.2	33.1	36.3	41.5	43.3	**4.2**	**4.7**
2	Coochbehar	23.6	25.2	29.3	16.6	24.7	21.5	23.9	**-3.1**	**-1.6**
3	Uttar Dinajpur	77.8	86.3	98.2	75.7	92.6	98.3	90.3	**3.3**	**2.4**
4	DakhinDinajpur	17.7	21.9	29.8	32.2	35.3	38.2	39.9	**16.5**	**14.2**
Total NFSM districts		**150.9**	**166.5**	**196.5**	**157.6**	**188.9**	**199.5**	**197.4**	**4.5**	**4.1**
Other than NFSM/BGREI districts										
1	Darjeeling	2.9	3.2	3.9	2.8	3.3	3.5	4.2	**2.1**	**4.2**
2	Nadia	100.4	102.6	110.6	84.3	94.9	98.3	125.5	**-1.7**	**1.5**
3	24-Parganas (N)	16.2	16.9	17.8	19.0	20.9	19.7	20.5	**4.9**	**4.3**
4	24-Parganas (S)	5.0	3.3	4.7	0.6	4.4	6.5	7.7	**0.0**	**9.5**
5	Howrah	0.3	0.7	1.1	0.2	0.0	0.5	0.1	**-**	**-**
6	Hooghly	0.7	2.7	0.8	3.6	0.9	0.9	0.4	**-0.1**	**-12.1**
7	Burdwan	4.8	5.8	6.0	4.7	3.9	2.3	6.6	**-13.7**	**-4.7**
8	Bankura	12.5	12.9	7.8	7.8	9.9	6.8	6.6	**-10.3**	**-10.0**
9	Purulia	7.1	3.7	3.8	1.7	2.7	5.2	4.3	**-9.1**	**-4.2**
10	Midnapur (W)	21.0	15.3	16.6	4.6	12.5	11.3	9.5	**-13.3**	**-11.0**
11	Midnapur (E)	1.1	1.2	1.4	1.3	1.2	1.5	1.2	**4.0**	**2.0**
Total NFSM districts		**172.0**	**168.2**	**174.5**	**130.5**	**154.5**	**156.5**	**186.6**	**-2.9**	**-0.1**
West Bengal		**773.5**	**799.9**	**917.3**	**764.5**	**846.7**	**874.4**	**884.0**	**1.7**	**1.8**
All India		**69354.5**	**75806.7**	**78570.2**	**80679.4**	**80803.6**	**86874.0**	**93903.6**	**3.9**	**4.4**

Source:DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VI (BI)

Trend in wheat yield in West Bengal by districts

Sl	District	Wheat yield (Kg/ha)								
		2005-06	2006-07	2007-08	2008-09	2009-10	2010-11*	2011-12$	CGR: 2010-11	CGR: 2011-12
BGREI Districts										
1	Birbhum	2511	2643	2952	2816	2649	2672	2645	0.8	0.2
2	Malda	2220	2591	2942	2704	2938	3027	3068	5.4	4.7
3	Murshidasbad	2175	2154	2557	2537	2843	2971	2874	7.0	5.8
Total BGREI districts		2236	2325	2710	2631	2830	2930	2879	5.6	4.6
NFSM districts:										
1	Jalpaiguri	1723	2055	2329	2086	2269	2301	2524	4.8	4.9
2	Coochbehar	1683	1956	2192	1622	1985	2034	2242	2.0	3.0
3	Uttar Dinajpur	2034	2448	2694	2486	2696	2731	2445	4.9	2.8
4	DakhinDinajpur	1910	2476	2958	2898	2982	3019	3176	8.4	7.1
Total NFSM districts		1887	2278	2561	2329	2531	2582	2553	5.2	4.2
1	Darjeeling	1332	1428	1764	1371	1673	1730	2110	4.5	6.3
2	Nadia	2135	2188	2328	2348	2549	2536	3117	3.9	5.6
3	24-Parganas (N)	2178	2397	2562	2218	2823	2679	2872	4.0	4.2
4	24-Parganas (S)	1550	2051	2015	1405	2079	2557	3100	6.4	9.5
5	Howrah	1622	1551	2234	1566	-	2040	1202	-	-
6	Hooghly	1994	2149	2186	2320	2528	2656	2442	5.8	4.3
7	Burdwan	2199	2278	2718	2327	2443	2193	2444	0.1	0.5
8	Bankura	1842	2151	2227	1991	2390	2270	2403	3.6	3.5
9	Purulia	2187	2047	2345	2029	1614	2559	2266	-0.2	0.6
10	Midnapur (W)	1742	2143	2539	1926	1931	2393	2002	2.9	1.3
11	Midnapur (E)	2136	2323	2599	2432	2449	2570	2462	2.9	2.1
Total NFSM districts		2019	2172	2350	2240	2436	2499	2884	4.0	5.1
West Bengal		**2109**	**2281**	**2602**	**2490**	**2680**	**2760**	**2800**	5.2	4.6
All India		**2619**	**2708**	**2802**	**2907**	**2839**	**2989**	**3140**	2.4	2.7

Source: DES, State/GOI.**NB: 1. 2010-11*: Final estimate.**

2. 2011-12$: 4th Advance estimate.

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APPENDIX-VII (A)

Component specific structure of BGREI program during the Year: 2010-11 based on per cent share in total expenditure.

Sl.	Components	Bihar	Chhattisgarh	Jhakhand	Odisha	Eastern Uttar Pradesh	West Bengal	Total BGREI States
1	Crop demonstrations	30.5%	15.2%	1.2%	70.4%	7.3%	0.0%	22.5%
2	Induced Agricultural Inputs supply	27.0%	14.1%	1.3%	3.3%	18.4%	16.3%	14.7%
3	Farmers & Staff trainings, Farmers fair, farmers study visits.	4.6%	0.0%	0.5%	1.7%	1.2%	0.5%	1.4%
4	Water asset building	17.9%	70.4%	89.3%	9.3%	51.8%	24.4%	35.5%
5	Improved farm equipments & machinery.	0.0%	0.0%	7.5%	10.6%	13.5%	19.0%	9.7%
6	Seed multiplication	0.0%	0.0%	0.2%	0.0%	0.0%	8.1%	2.2%
7	Soil amelioration	11.8%	0.0%	0.0%	0.1%	5.5%	9.0%	5.1%
8	e-pest surveillance	0.0%	0.0%	0.0%	3.3%	0.0%	0.0%	0.7%
9	Soil & water resources conservation	0.0%	0.0%	0.0%	0.0%	0.0%	22.1%	6.1%
10	Sugarcane Industry Department	6.8%	0.0%	0.0%	1.3%	0.0%	0.0%	1.3%
11	Contingencies	1.4%	0.0%	0.0%	0.0%	0.0%	0.6%	0.4%
12	Monitoring	0.0%	0.3%	0.0%	0.0%	2.3%	0.0%	0.4%
	Total	100%	100%	100%	100%	100%	100%	100%

Source: BGREI cell, DAC, MOA.

APPENDIX-VII (B)

Component specific structure of BGREI program during the Year: 2011-12 based on per cent share in the total expenditure.

Sl	Components	Assam	Bihar	Chhattisgarh	Jharkhand	Odisha	Eastern UP	West Bengal	Total BGREI States
1	Block Demonstrations	68.2%	61.8%	56.3%	30.9%	65.7%	52.1%	72.8%	59.85%
2	Water asset building	12.8%	38.2%	9.8%	69.1%	20.4%	33.8%	9.2%	25.25%
3	Site specific needs	19.0%	0.0%*	33.9%	0.0%*	13.9%	14.1%	18.0%	14.59%
4	BGREI cell under Crops Division, Department of Agriculture & Cooperation, Union Ministry of Agriculture.								0.19%
5	Central Rice Research Institute (CRRI), Indian Council of Agricultural Research, Cuttack for monitoring.								0.03%
6	Six AERCs located in Assam, Andhra Pradesh, Bihar, Madhya Pradesh, Uttar Pradesh & West Bengal.								0.09%
Total States		**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

*Expenditure earmarked for Site specific needs was made on Water Asset building in these States.

Source: BGREI cell, DAC, MOA.

APPENDIX-VII(C)

State specific composition of BGREI program during the year: 2011-12

Sl.	State	Block Demonstrations	Water Asset building	Site specific activities
1	Assam	68.3%	12.8%	19.0%
2	Bihar	61.8%	38.2%	0.0%
3	Chhattisgarh	56.4%	9.8%	33.9%
4	Jharkhand	30.9%	0.0%	69.1%
5	Odisha	65.6%	20.4%	13.9%
6	Eastern Uttar Pradesh	52.1%	33.8%	14.1%
7	West Bengal	72.8%	9.2%	18.0%
8	BGREI States	60.0%	19.5%	20.5%

Source: BGREI cell, DAC, MOA.

APPENDIX-VIII(A)

Physical & Financial achievement under BGREI in Assam during 2011-12

Unit: Financial: Rs. In Lakhs.

Sl. No.	Interventions	Physical		Financial	
		Target	**Achiev.**	**Target**	**Achiev.**
***RABI*:2011-12** (Amount released by DAC in 2011-12: Rs. 3332 Lakhs)					
1	Block demonstrations-rice (200 ha clusters)	156	156	1968.624	1968.524
2	Shallow Tube wells (Numbers)	5000	5000	600.00	600.00
3	Pump-set	500	500	50.00	50.00
4	**Site specific needs:**				
4.1	Power line connection to crop field with 10 numbers of STW installation per connected field	35	35	404.60	404.60
4.2	Thresher with prime mover to individual farmer	40	40	18.00	18.00
4.3	H. C. Sprayer	10092	10092	127.16	127.16
4.4	Water Harvesting Tanks/Farm ponds	38	38	159.24	159.24
4.5	Trainings	-	-	-	4.376
	Grand Total	**-**	**-**	**3327.624**	**3327.624**
Amount released by GOI excluding unspent balance of 2010-11					**3332.00**
% Financial achievement				**99.91%%**	
Unspent amount as on 31.03.2012				**4.376 Lakhs**	

APPENDIX- VIII (B)

Physical & Financial achievement under BGREI in Bihar during 2011-12

Unit: Financial: Rs. In Lakhs.

Sl. No.	Indicative intervention specific program proposed by DAC			Program approved by SLSC		Achievement till February, 2012	
	Interventions	**Physical Target**	**Financial Target**	**Physical Target**	**Financial Target**	**Physical**	**Financial**
1	Block demonstrations-Autumn rice (1000 ha clusters-In Numbers) @ Rs. 7,500/-ha	37	2809.00	32. 0	2400.00	32.000	2400.00
2	Block demonstrations-Boro rice (1000 ha clusters-In Numbers) @ Rs.7,800/-	-	-	3.866	115.98	3.866	115.98
3	Block demonstrations-wheat (Numbers)	22	880.00	22. 0	880.00	22.0	880.00
4	Zero Till seed drill	360	54.00	0	0	0	0
5	Shallow Tube wells (Numbers)	6000	720.00	6000	720.00	6000	720.0
6	Pump-set (Numbers)	600	60.00	600	60.00	600	60.00
7	Site specific needs: Identified by State						
7.1	Shallow Tube wells		1010.00	6000	720.00	6000	720.0
7.2	Pump sets			6000	600.00	6000	600.0
	Total	**-**	**5533.00**	**-**	**5495.98**	-	**5495.98**
					% Financial utilization	**73%**	

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APPENDIX- VIII (C)

Physical & Financial Utilization under BGREI in Chhattisgarh during 2011-12

Unit: Financial: Rs. In Lakhs.

Sl. No.	Indicative intervention specific program proposed by DAC			Program approved by SLSC				Achievement	
	Interventions	Phy Target	Fin. Target	Physical Target		Financial Target		Physical	Financial
				Initial	Revised	Initial	Revised		
(1) Demonstrations program									
1	Block demonstrations- *Kharif* rice (1000 ha number of clusters)	41	3127	39	39	2968.13	2381.58	39	2381.58
1.1	Maize demonstrations (ha)	0	0	0	5000	0	325.00	5000	297.99
Total Demonstrations		**41**	**3127**	**39**	**-**	**2968.13**	**2706.58**	**-**	**2679.57**
(2) Water Asset building									
2.1	Pump-set (Numbers)	700	70	0		0		0	0
2.2	Dug well (Number)	4000	1200	600	600	180.00	153.00	215	64.70
	Bore well/Tube well (Numbers)			8545	4000	1220.00	499.62	3637	400.62
Total Water Asset building		**-**	**1270**	**-**	**-**	**1400**	**652.62**	**-**	**465.32**
(3) Site specific needs:									
3.1	ATS to the farmer allotted with permanent Lease of forest arable Land (0.4ha)	-	1124	14297	14297	174.60	154.08	14258	154.08
3.2	Construction of Check dams			59	150	473.12	1366.18	92	814.13
3.3	Construction of Minor Irrigation Tanks			32	32	648.11	641.64	32	641.64
Total Site specific		**-**	**1124**	**-**	**-**	**1295.83**	**2161.90**	**-**	**1609.85**
	Total	**-**	**5521**	-	-	**5663.96**	**5521.10**	-	**4754.74**
							% Financial utilization	**86%**	
							Total amount released by GOI during 2011-12		**5521.00**
							Unspent balance		**766.36**

APPENDIX- VIII (D)

Physical & Financial achievement under BGREI in Jharkhand during 2011-12

Unit: Financial: Rs. In Lakhs.

Sl. No.	Indicative intervention specific program proposed by DAC			Program approved by SLSC		Achievement till 31.03.2012	
	Interventions	**Physical Target**	**Financial Target**	**Physical Target**	**Financial Target**	**Physical**	**Financial**
1	Block demonstrations-Autumn rice (1000 ha clusters in Numbers)	17	1271	17	1298.84	17	948.13
2	Shallow tube wells	4000	480	0	0	0	0
3	Pump-set (Numbers)	600	60	0	0	0	0
4	Bore well/Dug well (Number)/	3000	900	0	0	0	0
5	**Site specific needs Schemes of 2010-11 to be completed in 2011-12 as under**:						
(1)	BPCD			232	1220.447	-	1002.0457
(2)	LBCD			232			
(3)	Lift Irrigation			232			
6	**Schemes for 2011-12:**	-	457				
(1)	BPCD			175	787.50	-	1121.917
(2)	LBCD			167	375.75	-	
(3)	Lift Irrigation			160	504.00	-	
		Total	**3168**	**-**	**4186.537**	**-**	**3072.093**
					% Financial utilization	**97%**	

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APPENDIX- VIII (E)

Physical & Financial achievement under BGREI in Odisha during 2011-12

Unit: Financial: Rs. In Lakhs.

Sl. No.	**Indicative intervention specific program proposed by DAC**			**Program approved by SLSC**		**Achievement till February, 2012**	
	Interventions	**Physical Target**	**Financial Target**	**Physical Target**	**Financial Target**	**Physical**	**Financial**
1	(i)Block demonstrations-rice (Numbers)	49	3731	52	3752.04	52.00	3717.98
	(ii)Drum seeders					520	34.06
	(ii)Cono-weeders					520	
2	Shallow Tube well (Number)	4500	540	Not being implemented from BGREI funds-being implemented through State plan-JalnidhiYojna .			
3	Pump-set (Numbers)	500	50	11690	1168.96	8238	1168.96
4	Bore well (Numbers)	2000	600	Not being implemented from BGREI funds-being implemented through State plan.			
5	Site specific needs	Break up awaited	1341	-	1341.00	-	796.82
	Total	**-**	**6262**	*	**6262.00**	**-**	**5717.82**
					% Financial utilization	**89%**	

APPENDIX- VIII (F)

Physical & Financial achievement under BGREI in Uttar Pradesh during 2011-12

Unit: Financial: Rs. In Lakhs.

Sl. No.	Indicative intervention specific program proposed by DAC			Program approved by SLSC		Achievement	
	Interventions	**Physical Target**	**Financial Target**	**Physical Target**	**Financial Target**	**Physical**	**Financial**
(1) Block Demonstrations of rice & wheat							
1	Block demonstrations-rice (Number of clusters of 1,000 ha each)	35	2675.00	27	2055.62	27	1558.586
2	Block demonstrations-wheat (Number of clusters of 1,000 ha each)	97	3880.00	22.2	880.00	23.487	826.790
3	Zero till seed drill (Numbers)	1590	238.50	755	113.50	773	115.600
Sub-total Block demonstrations		**-**	**6793.50**	**-**	**3049.12**	**-**	**2500.976**
(2) Asset building							
4	Shallow Tube wells (Numbers)	6000	720.00	24427	1799.89	19081	1184.610
5	Pump-set (Numbers)	900	90.00	10286	1028.60	8748	874.774
Sub-total Asset building		**-**	**810.00**	**-**	**2828.49**	**-**	**2059.384**
(3) Site specific needs -							
6	Water channel construction/renovation (PVC/HDPE pipe)	Determined by State	962.00 -	20970	1300.14	9641	737.590
7	Line sowing of wheat (Ha)			1,65,000	1200.00	1,56,555	964.700
8	Bio-fertilizers (Kg)			1,96,354	188.50	1,95,463	166.353
Sub-total Site specific needs		**-**	**962.00**	**-**	**2688.64**	**-**	**1868.643**
	Total	**-**	**8566.50**	**-**	**8566.25**	**-**	**6429.003**
						Amount released by GOI in 2011-12	**8566.00**
						Unspent balance as on 31st March, 2012	**2136.997**

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APPENDIX- VIII (G)

Physical & Financial Progress report under BGREI during 2011-12 in West Bengal

Unit: Financial: Rs. In Lakhs.

Sl. No.	Indicative intervention specific program proposed by DAC			Program approved by SLSC		Achievement	
	Interventions	**Physical Target**	**Financial Target**	**Physical Target**	**Financial Target**	**Physical**	**Financial**
(1) Block Demonstrations of rice & wheat							
1	Block demonstrations-*Kharif & Boro* rice (Numbers)	46	4834.00	46	3113.60	46	4145.00
2	Block demonstrations-*Boro* rice (Numbers)	18		18	2021.69	18	
3	Block demonstrations-wheat (Numbers)	3	120.00	3	127.50	3	120.00
4	Zero till seed drill (Numbers)	50	7.50	0	0	0	0
Sub-total demonstrations		**-**	**4961.50**	**-**	**5462.79**	**-**	**4265.00**
(2) Asset building							
5	Shallow Tube wells (Numbers)	4000	480.00	Not implemented.			
6	Re-excavation of ponds (Numbers)	0	0	552	232.00	552	232.00
7	Pump-set (Numbers)	400	40.00	3002	300.20	3002	300.00
8	Dug wells (Numbers)	0	0	30	9.00	30	9.00
Sub-total Asset building		**4400**	**520.00**	**3582**	**541.20**	**3582**	**541.00**
(3) Site specific needs							
9	LDTW @ Rs. 6 Lacs	Determined by State	1738.00	40	240.00	0	1052.00
10	*Pucca* Irrigation channels			NA	273.88	NA	
11	Implement Hub			NA	499.60	NA	
Sub-Total		**-**	**1738.00**	**-**	**1013.48**	**-**	**1052.00**
Total		**-**	**7219.50**	**-**	**7017.47**	**-**	**5858.00**
Amount released by GOI in 2011-12							**7220.00**
Unspent balance as on 31st March, 2012							**1362.00**
% Financial utilization						**81%**	

*Payment held up due to court case.

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APPENDIX-IX (A)

Inputs used in Block demonstrations of rice by BGREI beneficiaries versus non-beneficiaries during *Kharif*-2011 in BGREI States.

Sl.	Approved BGREI Interventions	Sanctioned rate (Rs. Per ha)	Inputs used													
			Assam (ha)		Bihar (Acre)		Chhattisgarh (ha)		Jharkhand (ha)		Odisha (ha)		Eastern UP (ha)		West Bengal (ha)	
			B	NB	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
(1) Rainfed uplands																
1	Deep Ploughing & land preparation	1500	0	0	6238/-	3108/-	1475/-	1069/-	4678/-	4333/-	2240/-	1400/-	0	0	3710/-	3976/-
2	Cost of seed	2000	40 Kg	30.6 Kg	10.25 Kg	12.71 Kg	80 Kg	73 Kg	20.2 Kg	7.2 Kg	1168/-	780/-	866/-	0	42.14 Kg	50 Kg
3	Direct seeding in lines/ transplanting in lines	1500	0	0	0	0	1433/-	1150/-	0	0	2350/-	1700/-	0	0	0	0
4	Seed treatment	120	0	0	10/-	0	150g	120g	0	0	0	0	0	0	Rs. 2.55	0
5	Nursery management	-	-	-	470/-	342/-	-	-	0	0	0	0	0	0	0	0
6	Fertilizers	-	-	-	1398/-	1637/-	-	-	0	0	0	0	0	0	0	0
7	Zinc Sulphate	875	10 Kg	0	0	0	26. 61 Kg	0	0	0	950/-	0	878/-	0	18.25 KG	0
8	Boron	275	0	0	0	0	0	0	2Kg	0	0	0	0	0	0	0
9	Weed management	640	0	0	CW: Cono-Weeder	0	361/- (CW)	0	925/- (Manual)	1061/- (Manual)	2930/- (CW)	1240/- (CW)	604/-	0	1332/- (Manual)	955/- (Manual)
9a	Pretilachlor herbicide	-	-	-	-	-	1527/-	0	0	0	0	0	0	0	0	0
10	Plant protection	700	0	0	0	0	1422/-	466/-	384/-	0	700/-	0	0	0	925/-	653/-
11	Hand holding incentive to SDA staff inclusive of mobility	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12	Hand holding incentive to Progressive farmers including cost of drum seeder & mobility	190	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13	Travel cost to CRRI/KVK/SAU Scientists & GOI Officers for monitoring.	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total		**7912**	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX-IX (A) contd...

Sl.	Approved BGREI Interventions	Sanctioned rate (Rs. Per ha)	Inputs used													
			Assam (ha)		Bihar (Acre)		Chhattisgarh (ha)		Jharkhand (ha)		Odisha (ha)		Eastern UP (ha)		West Bengal (ha)	
			B	NB	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
(2) Rainfed Shallow low land																
1	Deep Ploughing & land preparation	1500	0	0	3448/-	1739/-	1500/-	1478/-	4309/-	4206/-	3930/-	3200/-	1500/-	0	3450/-	3376/-
2	Cost of seed	2000	40 Kg	36 Kg	10.03 Kg	13.25 Kg	76 Kg	71 Kg	69.2 Kg	49.2 Kg			334/-	0	49.76 Kg	41.86 Kg
3	Direct seeding in lines/ transplanting in lines	1500	0	0	0	0	1425/-	1316/-	0	0	1168/-	1252/-	1500/-	0	0	0
4	Seed treatment	120	0	0	10/-	0	149g	120g	0	0	66/-	0	0	0	Rs. 29.31	Rs. 12.41
5	Nursery management	-	-	-	470/-	272/-	-	-	0	0	0	0	0	0	0	0
6	Fertilizers	-	-	-	1701/-	1454/-	-	-	0	0	0	0	0	0	0	0
7	Zinc Sulphate	875	10 Kg	0	0	0	25 Kg	24.66 Kg	0	0	1100/-	0	346/-	0	25 Kg	0
8	Boron	275	0	0	0	0	0	0	2 Kg	0	0	0	0	0	0	0
9	Weed management	640	0	0	CW: Cono-Weeder	0	303/- (CW)	321/- (CW)	1061/- (Manual)	715/- (Manual)	3750/- (CW)	4260/- (CW)	153/-	0	2560/- (Manual)	1627/- (Manual)
9a	Pretilachlor herbicide	-	-	-	-	-	1131/-	0	0	0	0	0	0	0	0	0
10	Plant protection	700	0	0	0	0	600/-	377/-	415/-	62/-	700/-	700/-	0	0	969/-	383/-
11	Hand holding incentive to SDA staff inclusive of mobility	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12	Hand holding incentive to Progressive farmers including cost of drum seeder & mobility	190	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13	Travel cost to CRRI/KVK/ SAU Scientists & GOI Officers for monitoring.	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total		**7912**	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX-IX (A) contd...

Sl.	Approved BGREI Interventions	Sanctioned rate (Rs. Per ha)	Inputs used													
			Assam (ha)		Bihar (Acre)		Chhattisgarh (ha)		Jharkhand (ha)		Odisha (ha)		Eastern UP (ha)		West Bengal (ha)	
			B	NB	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
(3) Rainfed medium deep water low land																
1	Deep Ploughing & land preparation	1500	0	0	4838/-	2408/-	0	0	4313/-	4350/-	0	0	0	0	5040/-	4568/-
2	Cost of seed	2000	40 Kg	30.6 Kg	8.56 Kg	11.58 Kg	0	0	74.3 Kg	62.4 Kg	0	0	880/-	0	50.89 Kg	76.84 Kg
3	Direct seeding in lines/ transplanting in lines	1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Seed treatment	105	0	0	10/-	0	0	0	0	0	0	0	0	0	0	0
5	Nursery management	-	-	-	470/-	312/-	0	0	0	0	0	0	0	0	0	0
6	Fertilizers	-	-	-	1254/-	451/-	0	0	0	0	0	0	0	0	0	0
7	Zinc Sulphate	875	10 Kg	0	0	0	0	0	0	0	0	0	875/-	0	25.44 Kg	35.82 Kg
8	Boron	275	0	0	0	0	0	0	2 Kg	0	0	0	0	0	0	0
9	Weed management	640	0	0	Cono-Weeder	0	0	0	965/- (Manual)	979/- (Manual)	0	0	640/-	0	2398/- (Manual)	2196/- (Manual)
10	Plant protection	700	0	0	0	0	0	0	520/-	337/-	0	0	0	0	852/-	997/-
11	Hand holding incentive to SDA staff inclusive of mobility	12	NA	NA	NA	NA	0	0	NA	NA	0	0	NA	NA	NA	NA
12	Hand holding incentive to Progressive farmers including cost of drum seeder & mobility	190	NA	NA	NA	NA	0	0	NA	NA	0	0	NA	NA	NA	NA
13	Travel cost to CRRI/KVK/SAU Scientists & GOI Officers for monitoring.	100	NA	NA	NA	NA	0	0	NA	NA	0	0	NA	NA	NA	NA
Total		**7897**	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX-IX (A) contd...

Sl.	Approved BGREI Interventions	Sanctioned rate (Rs. Per ha)	Inputs used													
			Assam (ha)		Bihar (Acre)		Chhattisgarh (ha)		Jharkhand (ha)		Odisha (ha)		Eastern UP (ha)		West Bengal (ha)	
			B	NB	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
(4) Rainfed deep water low land																
1	Deep Ploughing & land preparation	1500	0	0	4646/-	4676/-	0	0	4560/-	4251/-	0	0	1500/-	0	5025/-	5325/-
2	Cost of seed	2000	40 Kg	36 Kg	10.46 Kg	12.09 Kg	0	0	29.8 Kg	24.8 Kg	0	0	158/-	0	49.95 Kg	51.75 Kg
3	Direct seeding in lines/ transplanting in lines	1500	0	0	0	0	0	0	0	0	0	0	1500/-	0	0	0
4	Seed treatment	105	0	0	10/-	0	0	0	156/-	0	0	0	0	0	Rs. 48.90	Rs. 21.90
5	Nursery management	-	-	-	470/-	289/-	0	0	0	0	0	0	0	0	0	0
6	Fertilizers	-	-	-	1673/-	1271/-	0	0	0	0	0	0	0	0	0	0
7	Zinc Sulphate	875	10 Kg	0			0	0	0	0	0	0	198/-	0	24.96 Kg	0
8	Boron	275	0	0			0	0	2 Kg	0	0	0	0	0	0	0
9	Weed management	0	0	0	Cono-Weeder	0	0	0	1040/- (Manual)	801/- (Manual)	0	0	0	0	2456/- (Manual)	2380/- (Manual)
10	Plant protection	700	0	0	0	0	0	0	297/-	264/-	0	0	0	0	82/-	60/-
11	Hand holding incentive to SDA staff inclusive of mobility	12	NA	NA	NA	NA	0	0	NA	NA	0	0	NA	NA	NA	NA
12	Hand holding incentive to Progressive farmers including cost of drum seeder & mobility	190	NA	NA	NA	NA	0	0	NA	NA	0	0	NA	NA	NA	NA
13	Travel cost to CRRI/KVK/SAU Scientists & GOI Officers for monitoring.	100	NA	NA	NA	NA	0	0	NA	NA	0	0	NA	NA	NA	NA
Total		**7257**	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX-IX (A) contd...

Sl.	Approved BGREI Interventions	Sanctioned rate (Rs. Per ha)	Inputs used													
			Assam (ha)		Bihar (Acre)		Chhattisgarh (ha)		Jharkhand (ha)		Odisha (ha)		Eastern UP (ha)		West Bengal (ha)	
			B	NB	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
(5) Irrigated-Traditional rice varieties																
1	Deep Ploughing & land preparation	1500	0	0	3614/-	4210/-	1463/-	1559/-	4223/-	4531/-	0	0	0	0	5888/-	5400/-
2	Cost of seed	1000	40 Kg	36 Kg	9.64 Kg	10.04 Kg	50 Kg	75 Kg	44 Kg	31.32 Kg	0	0	0	0	40.91 Kg	50.89 Kg
3	Direct seeding in lines/ transplanting in lines	1500	0	0	0	0	1610/-	1466/-	0	0	0	0	0	0	0	0
4	Seed treatment	60	0	0	10/-	0	186g	0	0	0	0	0	0	0	0	0
5	Nursery management	-	-	-	470/-	192/-	0	0	0	0	0	0	0	0	0	0
6	Fertilizers	-	-	-	1000/-	683/-	0	0	0	0	0	0	0	0	0	0
7	Zinc Sulphate	875	10 Kg	0	0	0	25 Kg	0	0	0	0	0	0	0	15 Kg	0
8	Boron	275	0	0	0	0	5 Kg	0	2 Kg	0	0	0	0	0	0	0
9	Weed management	640	0	0	Cono-Weeder	0	1250/- (CW)	758/- (CW)	1041/- (Manual)	873/- (Manual)	0	0	0	0	3164/- (Manual)	3163/- (Manual)
9a	Pretilachlor herbicide	-	-	-	-	-	1250/-	1005/-	0	0	0	0	0	0	0	0
10	Plant protection	700	0	0	0	0	1003/-	1124/-	442/-	233/-	0	0	0	0	81/-	0
11	Hand holding incentive to SDA staff inclusive of mobility	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12	Hand holding incentive to Progressive farmers including cost of drum seeder & mobility	190	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13	Travel cost to CRRI/KVK/SAU Scientists & GOI Officers for monitoring.	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total		**6852**	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX-IX (A) contd...

Sl.	Approved BGREI Interventions	Sanctioned rate (Rs. Per ha)	Inputs used													
			Assam (ha)		Bihar (Acre)		Chhattisgarh (ha)		Jharkhand (ha)		Odisha (ha)		Eastern UP (ha)		West Bengal (ha)	
			B	NB	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
(6) Irrigated-HYV																
1	Deep Ploughing & land preparation	1500	0	0	0	0	0	0	0	0	3754/-	4500/-	1500/-	0	0	0
2	Cost of seed	1000	0	0	0	0	0	0	0	0	1168/-	1224/-	2000/-	0	0	0
3	Direct seeding in lines/ transplanting in lines	1500	0	0	0	0	0	0	0	0	3495/-	3878/-	1500/-	0	0	0
4	Seed treatment	60	0	0	0	0	0	0	0	0	90/-	0	0	0	0	0
5	Zinc Sulphate	875	0	0	0	0	0	0	0	0	1250/-	0	875/-	0	0	0
6	Boron	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Weed management	640	0	0	0	0	0	0	0	0	2115/- (CW)	1531/- (CW)	605/-	0	0	0
7	Plant protection	700	0	0	0	0	0	0	0	0	698/-	0	0	0	0	0
8	Hand holding incentive to SDA staff inclusive of mobility	12	0	0	0	0	NA	NA	0	0	NA	NA	NA	NA	0	0
9	Hand holding incentive to Progressive farmers including cost of drum seeder & mobility	190	0	0	0	0	NA	NA	0	0	NA	NA	NA	NA	0	0
10	Travel cost to CRRI/KVK/SAU Scientists & GOI Officers for monitoring.	100	0	0	0	0	NA	NA	0	0	NA	NA	NA	NA	0	0
Total		**6852**	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX-IX (A) contd...

Sl.	Approved BGREI Interventions	Sanctioned rate (Rs. Per ha)	Inputs used													
			Assam (ha)		Bihar (Acre)		Chhattisgarh (ha)		Jharkhand (ha)		Odisha (ha)		Eastern UP (ha)		West Bengal (ha)	
			B	NB	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
(6) Irrigated-Hybrice rice varieties																
1	Deep Ploughing & land preparation	1500	0	0	0	0	1500/-	1429/-	0	0	5529/-	3892/-	0	0	0	0
2	Cost of seed	2000	0	0	0	0	1.5 Kg	1.54 Kg	0	0	2250/-	1488/-	0	0	0	0
3	Direct seeding in lines/ transplanting in lines	1500	0	0	0	0	2800/-	1250/-	0	0	4926/-	4792/-	0	0	0	0
4	Seed treatment	25	0	0	0	0	56g	47g	0	0	90/-	0	0	0	0	0
5	Zinc Sulphate	875	0	0	0	0	27 Kg	24 Kg	0	0	1250/-	915/-	0	0	0	0
6	Boron	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Weed management	640	0	0	0	0	466/- (CW)	345/- (CW)	0	0	3772/- (CW)	3333/- (CW)	0	0	0	0
7	Plant protection	700	0	0	0	0	816/-	717/-	0	0	700/-	0	0	0	0	0
8	Hand holding incentive to SDA staff inclusive of mobility	12	0	0	0	0	NA	NA	0	0	NA	NA	0	0	0	0
9	Hand holding incentive to Progressive farmers including cost of drum seeder & mobility	190	0	0	0	0	NA	NA	0	0	NA	NA	0	0	0	0
10	Travel cost to CRRI/KVK/SAU Scientists & GOI Officers for monitoring.	100	0	0	0	0	NA	NA	0	0	NA	NA	0	0	0	0
Total		**7817**	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: Field Survey-2012.

APPENDIX-IX (B)

Inputs used in Block demonstrations of rice by BGREI beneficiaries versus non-beneficiaries during Summer-2012 in Assam State.

Sl.	Approved BGREI Interventions	Sanctioned rate (Rs. per ha)	Inputs used (per ha) Assam		Approved BGREI Interventions	Sanctioned rate (Rs. Per ha)		
			B	NB			B	NB
(1) Rainfed uplands					(2) Rainfed Shallow low land			
1	Deep Ploughing & land preparation	1500	1500	Yes	Deep Ploughing & land preparation	1500	1500	Yes
2	Cost of seed	2000	40 Kg-HYV 15 Kg-Hybrid	Yes	Cost of seed	2000	40 Kg	30.6 Kg
3	Direct seeding in lines/ transplanting in lines	1500	120.85	Yes	Direct seeding in lines/ transplanting in lines	1500	0	0
4	Seed treatment	120	0	0	Seed treatment	120	0	0
5	Zinc Sulphate	875	10 Kg	0	Zinc Sulphate	875	25 Kg	0
6	Boron	275	0	0	Boron	275	5 Kg	0
7	Weed management	640	0	0	Weed management	640	0	0
8	Plant protection	700	0	0	Plant protection (Pretachlor)	700	1.6 litre	0
9	Hand holding incentive to SDA staff inclusive of mobility	12	0	0	Hand holding incentive to SDA staff inclusive of mobility	12	0	0
10	Hand holding incentive to Progressive farmers including cost of drum seeder & mobility	190	0	0	Hand holding incentive to Progressive farmers including cost of drum seeder & mobility	190	0	0
11	Travel cost to CRRI/KVK/SAU Scientists & GOI Officers for monitoring.	100	0	0	Travel cost to CRRI/KVK/SAU Scientists & GOI Officers for monitoring.	100	0	0
Total		**7912**	-	-		**7912**	-	-

APPENDIX-IX (B) contd...

Sl.	Approved BGREI Interventions	Sanctioned rate (Rs. per ha)	Inputs used (per ha) Assam B	NB	Approved BGREI Interventions	Sanctioned rate (Rs. Per ha)	B	NB
(3) Rainfed medium deep water low land					**(4) Rainfed deep water low land**			
1	Deep Ploughing & land preparation	1500	1500	Yes	Deep Ploughing & land preparation	1500	1500	Yes
2	Cost of seed	2000	40 Kg	30.6 Kg	Cost of seed	2000	40 Kg	30.6 Kg
3	Direct seeding in lines/ transplanting in lines	1500	0	0	Direct seeding in lines/ transplanting in lines	1500	0	0
4	Seed treatment	105	0	0	Seed treatment	105	0	0
5	Zinc Sulphate	875	25 Kg	0	Zinc Sulphate	875	25 Kg	0
6	Boron	275	5 Kg	0	Boron	275	5 Kg	0
7	Weed management	640	0	0	Weed management	0	0	0
8	Plant protection (Pretachlor)	700	1.6 litres	0	Plant protection (Pretachlor)	700	1.6 litres	0
9	Hand holding incentive to SDA staff inclusive of mobility	12	0	0	Hand holding incentive to SDA staff inclusive of mobility	12	0	0
10	Hand holding incentive to Progressive farmers including cost of drum seeder & mobility	190	0	0	Hand holding incentive to Progressive farmers including cost of drum seeder & mobility	190	0	0
11	Travel cost to CRRI/KVK/SAU Scientists & GOI Officers for monitoring.	100	0	0	Travel cost to CRRI/KVK/SAU Scientists & GOI Officers for monitoring.	100	0	0
	Total	**7897**	-	-	**Total**	**7257/-**	-	-

APPENDIX-IX (B) contd...

Sl.	Approved BGREI Interventions	Sanctioned rate (Rs. per ha)	Inputs used (per ha) Assam	
			B	NB
(5) Irrigated-Traditional rice varieties				
1	Deep Ploughing & land preparation	1500	1500	Yes
2	Cost of seed	1000	40 Kg	30.6 Kg
3	Direct seeding in lines/ transplanting in lines	1500	0	0
4	Seed treatment	60	0	0
5	Zinc Sulphate	875	25 Kg	0
6	Boron	275	5 Kg	0
7	Weed management	640	0	0
8	Plant protection (Pretachlor)	700	1.6 litres	0
9	Hand holding incentive to SDA staff inclusive of mobility	12	0	0
10	Hand holding incentive to Progressive farmers including cost of drum seeder & mobility	190	0	0
11	Travel cost to CRRI/KVK/SAU Scientists & GOI Officers for monitoring.	100	0	0
Total		**6852**	-	-

Source: Field survey-2012.

APPENDIX- IX (C)

Inputs used in Block demonstrations of pulses by BGREI beneficiaries *versus* non-beneficiaries in Assam State during *Rabi:*2011-12 .

Sl.	Interventions adopted by State	Sanctioned rate (Rs. Per ha)	Inputs used (per ha)	
			Assam	
			B	B
1	Seed	NA	25 Kg	-
2	Lime	NA	400 Kg	-

Source: Field Survey-2012.

APPENDIX-IX (D)

Inputs used in Block demonstrations of wheat by BGREI beneficiaries versus non-beneficiaries in eastern Uttar Pradesh during *Rabi*: 2011-12.

Sl.	Approved BGREI Interventions	Sanctioned rate (Rs. Per ha)	Inputs used (per ha)		Approved BGREI Interventions	Sanctioned rate (Rs. Per ha)	Inputs used (per ha)	
			Assam				Assam	
			B	NB			B	NB
(1) Timely sown Irrigated-Allahabad district					(2) Timely sown Irrigated-Mirzapur district			
1	Provision of seed	2000	2000	0	Provision of seed	2000	2000	0
2	Soweing operation	1000	0	0	Soweing operation	1000	0	0
3	Seed treatment	150	0	0	Seed treatment	150	0	0
4	Weedicides	618	617	0	Weedicides	618	710	0
5	Zero till seed drills	*	-	-	Zero till seed drills	*	-	-
6	Hand holding incentive to SDA staff inclusive of mobility	12	NA	-	Hand holding incentive to SDA staff inclusive of mobility	12	NA	-
7	Hand holding incentive to Progressive farmers including cost of drum seeder & mobility	120	NA	-	Hand holding incentive to Progressive farmers including cost of drum seeder & mobility	120	NA	-
8	Travel cost to CRRI/KVK/SAU Scientists & GOI Officers for monitoring.	100	NA	-	Travel cost to CRRI/KVK/SAU Scientists & GOI Officers for monitoring.	100	NA	-
Total		4000	2617	-	Total	4000	2710	-

* Rs. 15000/- per seed drill to selected farmers

Source: Field Survey-2012.

Appendix-X

Adoption level of Deep ploughing and Land preparation by beneficiaries of Block demonstrations of rice in BGREI districts and non-beneficiaries duriung *Kharif*-2011

State	Deep Ploughing (%)		Land preparation (%)	
	Beneficiaries	Non-beneficiaries	Beneficiaries	Non-beneficiaries
Assam	100	60	100	100
Bihar	100	0	100	100
Chhattisgarh	100	50	100	100
Jharkhand	100	0	100	100
Odisha	100	0	100	100
West Bengal	100	0	100	100
BGREI States	100	17	100	100

Source: Field Survey-2012.

APPENDIX-XI

Perception profile of BGREI beneficiaries about the program (%)

State	Supply of inputs		Program rating			Technical backstopping	Who guided the best						Preference for source of inputs			Problems in Marketing	
	Adequate	Inadequate	Poor	Average	Good		KVK	SAU	CRRI	SDA	NGO	PF	Licensed dealers	Coop. Society	SDA oulets	Transportation etc.	Lower price than MSP
Assam	80	20	0	30	70	60	6	0	0	74	0	20	74	26	0	40	60
Bihar	60	40	0	42	58	72	8	0	0	70	0	22	100	0	0	44	72
Chhattisgarh	95	5	2.5	42.5	55	100	0	0	0	90	10	0	12.5	77.5	10	54	46
Jharkhand	62	38	0	42	58	80	12	0	0	50	0	38	100	0	0	15	28
Odisha	100	0	0	12	88	52	24	0	0	56	0	20	42	58	0	4	96
Eastern UP	100	0	0	2	98	100	0	0	0	54	0	0	0	0	0	0	100
West Bengal	76	24	0	12	88	52	24	0	0	56	0	20	42	58	0	4	96
BGREI States	81	19	0	26	74	73	12	0	0	68	1	19	64	35	1	28	72

Source: Field Survey-2012.

APPENDIX-XII (A)

Performance Index (Ratio) of the access of the participating farmers to technical backstopping in Assam State under BGREI program during 2011-12.

Technical backstopping	Farmers Reporting			Performance Index		
	Coordinated by progressive farmers	Supervised by identified extension worker	Monitored by KVK	Progressive farmer	Identified extension worker	KVK
Rainfed Upland: District: : Kamrup						
Land preparation	8 (80)	10(100.)	0	1.38	1.40	0
Sowing/planting	2(20)	2(20)	0	1.50	1.00	0
Direct seeding	0	0	0	0	0	0
Seed treatment	0	0	0	0	0	0
Micro nutrient	4 (40)	3 (30)	0	1.50	1.67	0
Weed management	0	0	0	0	0	0
Plant protection	0	0	0	0	0	0
Rainfed Shallow Low Land: District Udalguri						
Land preparation	7(70)	8(80)	2(20)	1.14	1.13	1.50
Sowing/planting	6	4	0	1.33	1.50	0
Direct seeding	0	0	0	0	0	0
Seed treatment	0	0	0	0	0	0
Micro nutrient	6(60)	4(40)	1(10)	1.67	1.25	2.00
Weed management	0	0	0	0	0	0
Plant protection	0	0	0	0	0	0
Rainfed Medium: District: Golaghat						
Land preparation	6(60)	6(60)	0	1.33	1.67	0
Sowing/planting	3(30)	2	0	1.33	1.00	0
Direct seeding	0	0	0	0	0	0
Seed treatment	0	0	0	0.	0	0
Micro nutrient	3(30	1(10)	0	1.00	2.00	0
Weed management	0	0	0	0	0	0
Plant protection	0	0	0	0.	0	0
Rainfed Deep Water: District: Karimganj						
Land preparation	8(80)	6(60)	2(20)	1.38	1.50	1.50
Sowing/planting	6(60)	4(40)	2(20)	1.67	1.50	1.00
Direct seeding	0	0	0	0	0	0
Seed treatment	0	0	0	0	0	0
Micro nutrient	4(40)	5(50)	3(30)	1.75	1.40	1.67
Weed management	0	0	0	0	0	0
Plant protection	0	0	0	0	0	0
Irrigated: District: Jorhat						
Land preparation	7	6	0	1.43	1.67	0
Sowing/planting	4	3	0	1.50	1.33	0
Direct seeding	0	0	0	0	0	0
Seed treatment	0	0	0	0	0	0
Micro nutrient	5	3	0	1.40	1.33	0
Weed management	0	0	0	0	0	0
Plant protection	0	0	0	0	0	0

State: Assam						
Land preparation	36((72)	36(72)	4(8)	1.33	1.44	1.50
Sowing/planting	21(42)	15(30)	2(4)	1.48	1.33	1.00
Direct seeding	0	0	0	0	0.	0
Seed treatment	0	0	0	0	0	0
Micro nutrient	22(44)	16(32)	4	1.50	1.44	1.75
Weed management	0	0	0	0	0	0
Plant protection	0	0	0	0.	0	0

Source: Field Survey-2012.

NB: Figures within brackets indicates percentage. Index varies between 1-3.
Performance index rating (Good-1, Satisfactory-2, Poor-3).

APPENDIX- XII (B)

Performance Index (%) of the access of the participating farmers to technical backstopping in Bihar State under BGREI program during 2011-12.

Technical back stopping	Farmers Reporting					Performance Index				
	Participation in training programme conducted under BGREI	Participation in demonstrations as progressive farmers	Progressive Farmers	Identified extension worker	KVK	Participation in training programme conducted under BGREI	Participation in demonstration as progressive farmers	Progressive Farmer	Identified extension worker	KVK
Rainfed Upland: District: Lakhisarai										
Improved Seed Variety	4	1	---	10	---	40	10	---	100	---
Fertilizer application	5	1	---	8	---	50	10	---	80	---
Plant protection	4	1	---	6	---	40	10	---	60	---
Farm machinery	--	---	---	---	---	---	---	---	---	---
Rainfed Shallow Low Land: District: Patna										
Improved Seed Variety	6	2	1	10	1	60	20	10	100	10
Fertilizer application	6	2	1	8	1	60	20	10	80	10
Plant protection	5	2	1	6	1	50	20	10	6	10
Farm machinery	--	---	---	---	---	---	---	---	---	---
Rainfed Medium: District: Gopalganj										
Improved Seed Variety	3	---	---	---	9	30	---	---	---	90.00
Fertilizer application	4	1	---	---	9	40	10	---	---	90.0
Plant protection	4	1	---	9	---	40	10	---	90	---
Farm machinery	---	---	---	---	---	---	---	---	---	---
Rainfed Deep Water: District: Begusarai										
Improved Seed Variety	5	1	3	7	---	50	10	30	70	---
Fertilizer application	5	1	2	6	---	50	10	20	60	---
Plant protection	5	1	4	6	2	50	10	40	60	20
Farm machinery	---	---	---	---	---	---	---	---	---	---
Irrigated: District: Jehanabad										
Improved Seed Variety	8	1	---	8	---	80	10	---	80	---
Fertilizer application	8	1	2	3	---	80	10	20	30	---
Plant protection	8	1	---	7	---	80	10	---	70	---
Farm machinery	---	---	---	---	---	---	---	---	---	---
State: Bihar										
Improved Seed Variety	26	5	4	35	10	52	10	8	70	20
Fertilizer application	28	6	5	17	10	56	12	10	34	20
Plant protection	26	6	5	34	3	52	12	10	68	6
Farm machinery	---	---	---	---	---	---	---	---	---	---

Source: **:** Field Survey-2012.

APPENDIX- XII (C)

Performance Index (%) of the access of the participating farmers to technical backstopping in Chhattisgrah State under BGREI program during *Kharif*-2011.

Technical backstopping	Farmers Reporting			Performance Index		
	Coordinated by progressive farmers	Supervised by identified Extension worker	Monitored by KVK	Progressive farmer	Identified Extension worker	KVK
Rainfed Upland: District:Baster						
Land preparation	1	7	2	10	70	20
Sowing/planting	2	6	2	20	60	20
Direct seeding	0	9	1	00	90	10
Seed treatment	3	7	0	30	70	00
Micro nutrient	5	2	3	50	20	30
Weed management	1	8	1	10	80	10
Plant protection	3	7	0	30	70	00
Shallow Low Land: District: Durg						
Land preparation	0	8	2	00	80	20
Sowing/planting	2	7	1	20	70	10
Direct seeding	4	5	1	40	50	10
Seed treatment	3	5	2	30	50	20
Micro nutrient	1	9	0	10	90	00
Weed management	0	8	2	00	80	20
Plant protection	1	7	2	10	70	20
Irrigated Hybrid : Baster						
Land preparation	1	7	2	10	70	20
Sowing/planting	3	6	1	30	60	10
Direct seeding	0	7	3	00	70	30
Seed treatment	2	8	0	20	80	00
Micro nutrient	4	5	1	40	50	10
Weed management	0	8	2	00	80	20
Plant protection	1	6	3	10	60	30
Irrigated Traditional : Bilaspur						
Land preparation	1	7	2	10	70	20
Sowing/planting	3	7	0	30	70	00
Direct seeding	3	6	1	30	60	10
Seed treatment	2	6	2	20	60	20
Micro nutrient	0	7	3	00	70	30
Weed management	0	9	1	00	90	10
Plant protection	1	5	4	10	50	40
State: Chhattisgarh						
Land preparation	3	29	8	7.5	72.5	20
Sowing/planting	10	26	4	25.0	65.0	10
Direct seeding	7	27	6	17.5	67.5	15
Seed treatment	10	26	4	25.0	65.0	10
Micro nutrient	10	23	7	25.0	57.5	17.5
Weed management	1	33	6	2.5	82.5	15
Plant protection	6	25	9	15.0	62.5	22.5

Source: Field Survey-2012.

APPENDIX- XII (D)

Performance Index (%) of the access of the participating farmers to technical backstopping in Jharkhand State under BGREI program during 2011-12.

Technical backstopping	Farmers reporting					Performance Index				
	Participation in training program conducted under BGREI	Participation in Demonstration as Progressive Farmers	Progressive Farmer	Identified extension worker	KVK	Participation in training program conducted under BGREI	Participation in Demonstration as Progressive Farmers	Progressive Farmer	Identified extension worker	KVK
Rainfed Upland: District: Pakur										
Improved seed variety	4	1	1	4	-	40	10	40	40	-
Fertilizer application	3	1	1	3	-	30	10	10	30	-
Plant Protection	3	1	-	3	-	30	10	-	30	-
Farm Machinery	-	-	-	-	-	-	-	-	-	-
Rainfed Shallow Low Land: District: Bokaro										
Improved seed variety	6	1	9	4	-	60	10	90	40	-
Fertilizer application	5	1	5	2	-	50	10	50	20	-
Plant Protection	3	1	5	3	-	30	10	50	30	-
Farm Machinery	-	-	-	-	-	-	-	-	-	-
Rainfed Medium: District: Godda										
Improved seed variety	10	3	4	2	-	100	30	40	20	-
Fertilizer application	8	2	4	2	-	80	20	40	20	-
Plant Protection	5	2	3	2	-	50	20	30	20	-
Farm Machinery	-	-	-	-	-	-	-	-	-	-
Rainfed Deep Water: District: Jamtara										
Improved seed variety	3	-	3	8	4	30	-	30	80	40
Fertilizer application	3	-	4	5	4	30	-	40	50	40
Plant Protection	1	-	3	1	3	10	-	30	10	30
Farm Machinery	-	-	-	-	-	-	-	-	-	-
Irrigated: District: Sahibganj										
Improved seed variety	-	-	3	-	-	-	-	30	-	-
Fertilizer application	-	-	9	-	-	-	-	90	-	-
Plant Protection	-	-	8	-	-	-	-	80	-	-
Farm Machinery	-	-	4	-	-	-	-	40	-	-
State: Jharkhand										
Improved seed variety	23	5	20	18	4	46	25	40	36	8
Fertilizer application	19	4	23	12	4	38	20	46	24	8
Plant Protection	12	4	19	9	3	24	20	38	18	6
Farm Machinery	-	-	4	-	-	-	-	8	-	-

Source: Field Survey-2012.

APPENDIX- XII (E)

Performance Index (%) of the access of the participating farmers to technical backstopping in Odisha State under BGREI program during 2011-12.

Technical backstopping	Farmers Reporting				Performance Index			
	Coordinated by progressive farmers	Supervised by identified extension worker	Monitored by KVK	SAU Scientist	Progressive farmer	Identified extension worker	KVK	SAU Scientist
Rainfed Upland Rice (Ganjam District)								
Improved seed variety	8	6	7	3	80	60	70	30
Fertiliser application	7	6	7	5	70	60	70	50
Plant Protection (Pesticides)	-	3	1	5	0	30	10	50
Farm Machinery	1	2	2	4	10	20	20	40
Others	-	-	-	-	-	-	-	-
Shallow Water (Khurda Districts)								
Improved seed variety	9	9	8	8	90	90	80	80
Fertiliser application	2	4	6	2	20	40	60	20
Plant Protection (Pesticides)	7	5	4	8	70	50	40	80
Farm Machinery	-	4	3	4	-	40	30	40
Others	-	-	-	-	-	-	-	-
HYV Rice (Koraput District)								
Improved seed variety	8	6	4	3	80	60	40	30
Fertiliser application	7	6	7	5	70	60	70	50
Plant Protection (Pesticides)	-	3	1	5	-	30	10	50
Farm Machinery	1	2	2	4	-	30	10	50
Others	-	-	-	-	-	-	-	-
HYV Rice (Rayagada District)								
Improved seed variety	-	-	-		-	-	-	-
Fertiliser application	-	10	-	-	-	100	-	-
Plant Protection (Pesticides)	10	-	-	-	100	-	-	-
Farm Machinery	-	-	10	-	-	-	100	-
Others	-	-	-	-	-	-	-	-
Hybrid Rice (Sambalpur District)								
Improved seed variety	10	3	3	3	100	30	30	30
Fertiliser application	3	8	5	7	30	80	50	70
Plant Protection (Pesticides)	4	6	6	3	40	60	60	30
Farm Machinery	4	1	1	3	40	10	10	30
Others	-	-	-	-	-	-	-	-
State: Odisha								
Improved seed variety	35	24	19	17	70	48	38	34
Fertiliser application	29	34	25	19	58	68	50	38
Plant Protection (Pesticides)	21	17	12	21	42	34	24	42
Farm Machinery	6	9	18	15	12	18	36	30
Others	-	-	-	-	-	-	-	-

Source: Field Survey-2012.

APPENDIX- XII (F)

Performance Index of the access of the participating farmers to technical backstopping in eastern Uttar Pradesh State under BGREI program during 2011-12.

Crop ecologies	Participation in training program	Participation in demonstration as progressive farmer	Indentified extension worker	KVK	SAU Scientists	Govt. Demonstration	Progressive Farmer	Others
(1) Rice crop								
1. Rainfed Upland	3	-	10	10	-	10	10	2
2. Rainfed lowland (Shallow)	2	1	10	-	-	10	10	2
3. Rainfed Lowland (Medium)	4	-	10	-	-	10	10	4
4. Rainfed Lowland (Deep Water)	3	2	10	-	-	10	10	2
5. Irrigated Land (Rice Hybrid)	4	1	10	-	-	10	10	2
All Rice ecologies	**16**	**4**	**50**	**10**	**-**	**50**	**50**	**12**
(2) Wheat								
1. Timely sown (irrigated)	3	2	10	-	-	10	10	2
2. Timely sown (Rainfed)	-	-	-	-	-	-	-	-
3. Late sown (Irrigated)	5	2	10	-	4	10	10	3
4. Late sown (Rainfed)	-	-	-	-	-	-	-	-
All wheat ecologies	**8**	**4**	**20**	**-**	**4**	**20**	**20**	**5**

Source: Field Survey-2012.

APPENDIX- XII (G)

Performance Index (%) of the access of the participating farmers to technical backstopping in West Bengal State under BGREI program during 2011-12.

Technical backstopping	Farmers Reporting			Performance Index		
	Coordinated by progressive	Supervised by identified	Monitored by KVK	Progressive	Identified exte	KVK
Rainfed Upland: District: Birbhum						
Deep Ploughing and Land preparation	10	10	9	100	100	90
Direct seeding/ Transpalnting	10	10	9	100	100	90
Seed treatment	1	1	0	10	10	0
Micro nutrient	10	9	0	100	90	0
Weed management	0	0	0	0	0	0
Plant protection	7	6	0	70	60	0
Rainfed Shallow Low Land: District: Bankura						
Deep Ploughing and Land preparation	10	10	0	100	100	0
Direct seeding/ Transpalnting	10	10	0	100	100	0
Seed treatment	10	10	0	100	100	0
Micro nutrient	10	10	0	100	100	0
Weed management	0	0	0	0	0	0
Plant protection	10	10	0	100	100	0
Rainfed Medium: District: Burdwan						
Deep Ploughing and Land preparation	10	4	4	100	40	40
Direct seeding/ Transpalnting	10	4	4	100	40	40
Seed treatment	0	0	0	0	0	0
Micro nutrient	10	4	4	100	40	40
Weed management	0	0	0	0	0	0
Plant protection	5	2	0	50	20	0
Rainfed Deep Water: District: Malda						
Deep Ploughing and Land preparation	10	0	0	100	0	0
Direct seeding/ Transpalnting	10	0	0	100	0	0
Seed treatment	7	0	0	70	0	0
Micro nutrient	10	0	0	100	0	0
Weed management	0	0	0	0	0	0
Plant protection	7	0	0	70	0	0
Irrigated: District: Murshidabad						
Deep Ploughing and Land preparation	10	0	0	100	0	0
Direct seeding/ Transpalnting	10	0	0	100	0	0
Seed treatment	0	0	0	0	0	0
Micro nutrient	10	0	0	100	0	0
Weed management	0	0	0	0	0	0
Plant protection	3	0	0	30	0	0
State: West Bengal						
Deep Ploughing and Land preparation	50	24	13	100	48	26
Direct seeding/ Transpalnting	50	24	13	100	48	26
Seed treatment	18	11	0	36	22	0
Micro nutrient	50	23	4	100	46	8
Weed management	0	0	0	0	0	0
Plant protection	32	18	0	64	36	0

Source: Field Survey-2012.

APPENDIX- XII (H)

Consolidated Performance Index (%) of agency specific access to Technical backstopping under BGREI in 2011-12.

Parameter	Assam	Bihar	Chhattisgarh	Jharkhand	Odisha	Eastern Uttar Pradesh	West Bengal	All BGREI States
Extension Worker	43	70	67	28	26	46	31	47
Progressive Farmers	51	11	17	62	28	45	60	36
Krishi Vigyan Kendra	6	19	16	10	23	6	9	11
State Agricultural University	0	0	0	0	23	3	0	6

Source: Field Survey-2012.

APPENDIX-XIII (A)

Change in Cropping Intensity in BGREI districts in Assam in 2011-12 over 2010-11.

Type of farmers	Cropping Intensity (%)		Extent of change	Remarks
	2010-11	2011-12		
Rainfed Upland: District: Kamrup				
Beneficiary	147.42	151.54	4.12 (2.79%)	Marginal increase
Non-beneficiary	146.72	148.72	2.00 (1.36%)	Marginal increase
Rainfed Shallow Low Land: District: Udalguri				
Beneficiary	155.03	156.28	1.25 (0.81%)	Marginal increase
Non-beneficiary	145.13	149.93	4.80 (3.31%)	Significant increase
Rainfed Medium deep water: District: Golaghat				
Beneficiary	138.38	141.35	2.97 (2.15%)	Marginal increase
Non-beneficiary	131.19	139.63	6.43 (3.68%)	Significant increase
Rainfed Deep Water: District: Karimganj				
Beneficiary	150.01	154.43	4.42 (2.95%)	Marginal increase
Non-beneficiary	144.49	148.17	3.68 (2.55%)	Marginal increase
Irrigated: District: Jorhat				
Beneficiary	140.01	142.5	2.49 (1.78%)	Marginal increase
Non-beneficiary	137.18	139.29	2.11 (1.54%)	Marginal increase
State: Assam				
Beneficiary	**146.17**	**149.22**	**3.05 (2.09%)**	**Marginal increase**
Non-beneficiary	**140.94**	**145.15**	**4.21 (2.99%)**	**Marginal increase**

Source: Field Survey-2012; **Marginal increase:** Below 3%, **Significant increase:** Above 3%

APPENDIX- XIII (B)

Change in Cropping Intensity in BGREI districts in Bihar in 2011-12 over 2010-11.

Type of farmers	Cropping intensity (%)		Extent of change	Remarks
	2010-11	2011-12		
Rainfed Upland: District: Lakhisarai				
Beneficiary	153.72	157.25	3.53 (2.3%)	Marginal increase
Non-beneficiary	203.53	203.66	0.13 (0.06%)	Marginal increase
Rainfed Shallow Low Land: District: Patna				
Beneficiary	153.70	158.38	4.68 (3.04%)	Significant increase
Non-beneficiary	149.16	150.59	1.63 (0.96%)	Marginal increase
Rainfed Medium deep water: District: Gopalganj				
Beneficiary	150.89	152.47	1.58 (1.04%)	Marginal increase
Non-beneficiary	147.27	142.95	-4.32 (-2.93%)	Marginal decrease
Rainfed Deep Water: District: Begusarai				
Beneficiary	170.67	176.14	5.42 (3.21%)	Significant increase
Non-beneficiary	166.16	167.68	1.89 (0.91%)	Marginal increase
Irrigated: District: Jehanabad				
Beneficiary	164.07	156.96	1.89 (-4.33%)	Significant decrease
Non-beneficiary	160.09	161.83	1.74 (1.09%)	Marginal increase
State: Bihar				
Beneficiary	**159.16**	**162.48**	**3.32 (2.09%)**	**Marginal increase**
Non-beneficiary	**158.64**	**160.44**	**1.80 (1.13%)**	**Marginal increase**

Source: Field Survey-2012. **Marginal increase:** Below 3%, **Significant increase:** Above 3%

APPENDIX- XIII (C)

Change in Cropping Intensity in BGREI districts in Chhattisgarh in 2011-12 over 2010-11.

Type of farmers	Cropping intensity (%)		Extent of change	Remarks
	2010-11	2011-12		
Rainfed Upland: District: Bastar				
Beneficiary	100	109	9 (9%)	Significant increase
Non-beneficiary	100	100	0 (At par)	At par
Rainfed Shallow Low Land: District: Durg				
Beneficiary	100	167	67 (67%)	Robust increase
Non-beneficiary	100	127	27 (27%)	Robust increase
Irrigated Hybrid : Bastar				
Beneficiary	100	100	0 (At par)	At par
Non-beneficiary	100	100	0 (At par)	At par
Irrigated Traditional : Bilaspur				
Beneficiary	167	175	8 (4.79%)	Significant increase
Non-beneficiary	166	181	15 (9.04%)	Significant increase
State: Chhattisgarh				
Beneficiary	**125**	**137**	**12 (9.6%)**	**Significant increase**
Non-beneficiary	**132**	**134**	**2 (1.52%)**	**Marginal increase**

Source: Field Survey-2012. **Marginal increase:** Below 3%, **Significant increase:** Above 3% to 25%; and **Robust increase: Above 25%.**

APPENDIX- XIII (D)

Change in Cropping Intensity in BGREI districts in Jharkhand in 2011-12 over 2010-11.

Type of farmers	Cropping intensity (%)		Extent of change	Remarks
	2010-11	2011-12		
Rainfed Upland: District: Pakur				
Beneficiary	127.71	131.43	3.72 (2.91%)	Marginal increase
Non-beneficiary	142.09	147.29	5.20 (3.66%)	Significant increase
Rainfed Shallow Low Land: District: Bokaro				
Beneficiary	151.18	156.17	4.99 (3.3%)	Significant increase
Non-beneficiary	159.18	160.49	1.31 (0.82%)	Marginal increase
Rainfed Medium: District: Godda				
Beneficiary	142.44	146.08	3.64 (2.56%)	Marginal increase
Non-beneficiary	159.13	161.97	2.84 (1.78%)	Marginal increase
Rainfed Deep Water: District: Jamtara				
Beneficiary	142.53	143.77	1.24 (0.87%)	Marginal increase
Non-beneficiary	132.58	132.67	0.09 (0.07%)	Marginal increase
Irrigated: District: Sahibganj				
Beneficiary	139.45	139.63	0.18 (0.13%)	Marginal increase
Non-beneficiary	135.04	134.52	-0.52 (-0.39%)	Marginal decrease
State: Jharkhand				
Beneficiary	**140.52**	**144.18**	**3.66 (2.6%)**	**Marginal increase**
Non-beneficiary	**149.21**	**147.42**	**-1.79 (-1.2%)**	**Marginal decrease**

Source: Field Survey-2012, **Marginal increase:** Below 3%, **Significant increase:** Above 3% to 25%; and **Marginal decrease:** up to below -3%.

APPENDIX- XIII (E)

Change in Cropping Intensity in BGREI districts in Odisha in 2011-12 over 2010-11.

Type of farmers	Cropping intensity (%)		Extent of change	Remarks
	2010-11	2011-12		
Rainfed Upland: District: Ganjam				
Beneficiary	100	100	At par	At par
Non-beneficiary	100	100	At par	At par
Rainfed Shallow Low Land: District: Khurda				
Beneficiary	100	-74.7	-25.3%	Drastic decrease
Non-beneficiary	100	-73.5	-26.5%	Drastic decrease
Irrigated HYV: District: Koraput				
Beneficiary	100	56.9	-43.1%	Drastic decrease
Non-beneficiary	100	50.0	-50%	Drastic decrease
Irrigated HYV: District: Rayagada				
Beneficiary	100	54.4	-45.6%	Drastic decrease
Non-beneficiary	100	100	At par	At par
Irrigated hybrid: District: Sambalpur				
Beneficiary	100	100	At par	At par
Non-beneficiary	100	100	At par	At par
State: Odisha				
Beneficiary	**100**	**81.2**	**-19.8%**	**Drastic decrease**
Non-beneficiary	**100**	**87.3**	**-12.7%**	**Drastic decrease**

Source: Field Survey-2012, **Significant decrease:** Up to 10%; **Drastic decrease:** Above 25%.

APPENDIX-XIII (F)

Change in Cropping Intensity in BGREI districts in Eastern Uttar Pradesh in 2011-12.

Type of farmers	Cropping intensity (%)
(1) Rice districts	
Rainfed Upland: District: Jaunpur	
Beneficiary	198
Non-beneficiary	172
Rainfed Shallow Low Land: District: Kushi Nagar	
Beneficiary	180
Non-beneficiary	217
Rainfed Medium deep water land: District: Maharajganj	
Beneficiary	200
Non-beneficiary	202
Rainfed deep water land: District: Kushi Nagar	
Beneficiary	190
Non-beneficiary	246
Irrigated hybrid: District: Allahabad	
Beneficiary	270
Non-beneficiary	270
State: Eastern Uttar Pradesh-Rice	
Beneficiary	**201**
Non-beneficiary	**221**
(2) Wheat districts	
Timely sown (Irrigated): District: Allahabad	
Beneficiary	169
Non-beneficiary	179
Late sown (Irrigated): District: Mirzapur	
Beneficiary	194
Non-beneficiary	194
State: Eastern Uttar Pradesh-Wheat	
Beneficiary	**184**
Non-beneficiary	**142**

Source: Field Survey-2012

APPENDIX- XIII (G)

Change in Cropping Intensity in BGREI districts in West Bengal in 2011-12 over 2010-11.

Type of farmers	Cropping intensity (%)		Extent of change	Remarks
	2010-11	2011-12		
Rainfed Upland: District: Birbhum				
Beneficiary	151.35	160.37	9.02 (5.96%)	Significant increase
Non-beneficiary	135.27	141.05	5.78 (4.27%)	Significant increase
Rainfed Shallow Low Land: District: Bankura				
Beneficiary	174.07	178.86	4.79 (2.75%)	Marginal increase
Non-beneficiary	138.52	141.42	2.9 (2.09%)	Marginal increase
Rainfed Medium: District: Burdwan				
Beneficiary	201.13	205.05	3.92 (1.95%)	Marginal increase
Non-beneficiary	192.69	194.68	1.99 (1.04%)	Marginal increase
Rainfed Deep Water: District: Malda				
Beneficiary	168.87	171.98	3.11 (1.84%)	Marginal increase
Non-beneficiary	143.33	144.80	1.47 (1.02%)	Marginal increase
Irrigated: District: Murshidabad				
Beneficiary	214.16	216.50	2.34 (1.09%)	Marginal increase
Non-beneficiary	218.80	218.84	0.04 (0.02%)	Marginal increase
State: West Bengal				
Beneficiary	**177.28**	**182.24**	**4.96 (2.80%)**	**Marginal increase**
Non-beneficiary	**163.74**	**166.01**	**2.97 (1.39%)**	**Marginal increase**

Source: Field Survey-2012

APPENDIX-XIV (A)

Yield gap in paddy and pulses compared with farmers' yield and State average-Assam.

Crop	Estimated QE yield (Kg/ha)		Beneficiary				Non-beneficiary			
			Actual yield (Kg/ha)		Yield gap (Kg/ha)		Actual yield (Kg/ha)		Yield gap (Kg/ha)	
	QE: 2010-11	QE: 2011-12	2010-11	2011-12	2010-11	2011-12	2010-11	2011-12	2010-11	2011-12
Rainfed Upland: Kamrup										
***Kharif* Paddy**	**2292**	**2426**	3426	3956	1134 (49.5%)	1530 (63.1%)	3586	2814	1294 (56.5%)	388 (16%)
Summer Paddy	**3092**	**3330**	4926	5233	1834 (59.3%)	1903 (57.1%)	3856	4153	764 (24.7%)	823 (24.7%)
Pulse	**541**	**544**	656	721	115 (21.3%)	177 (32.5%)	-	718	-	174 (32%)
Rainfed Shallow Low Land: District: Udalguri										
Kharif Paddy	**2292**	**2426**	3256	3658	964 (42.1%)	1232 (50.8%)	4146	2805	1854 (80.9%)	379 (15.6%)
Summer Paddy	**3092**	**3330**	4689	5432	1597 (51.6%)	2102 (63.1%)	2719	4294	(-) 373 (-12.1%)	964 (28.9%)
Pulse	**541**	**544**	556	599	15 (2.8%)	55 (10.1%)	549	798	8 (1.5%)	2.54 (46.69%)
Rainfed Medium: District: Golaghat										
***Kharif* Paddy**	**2292**	**2426**	3188	3495	896 (39.1%)	1069 (44.1%)	2870	2800	578 (25.2%)	374 (-15.4%)
Summer Paddy	**3092**	**3330**	4432	5850	1340 (43.3%)	2520 (75.7%)	2914	4465	(-)178 (-5.8%)	1135 (-34.1%)
Pulse	**541**	**544**	656	698	115 (21.3%)	154 (28.3%)	578	805	37 (6.8%)	261 (-48%)
Rainfed Deep Water: District: Karimgang										
***Kharif* Paddy**	**2292**	**2426**	2888	3486	596 (26%)	1060 (43.7%)	4072	2895	1780 (77.7%)	469 (19.3%)
Summer Paddy	**3092**	**3330**	4968	5921	1876 (60.7%)	2591 (77.8%)	2736	4656	(-)356 (-11.5%)	1326 (39.8%)
Pulse	**541**	**544**	626	709	85 (15.7%)	165 (30.3%)	512	795	(-)29 (-5.4%)	251 (46.1%)
Irrigated: District: Jorhat										
***Kharif* Paddy**	**2292**	**2426**	2869	3425	577 (25.2%)	999 (41.2%)	3751	3256	1459 (63.7%)	830 (-34.2%)
Summer Paddy	**3092**	**3330**	4581	5775	1489 (48.2%)	2445 (73.4%)	2950	4607	(-)142 (-4.6%)	1277 (38.3%)
Pulse	**541**	**544**	708	725	167 (30.9%)	181 (33.3%)	764	698	223 (41.2%)	154 (28.3%)
Assam State										
***Kharif* Paddy**	**2292**	**2426**	3125	3604	833 (36.3%)	1178 (48.6%)	3667	2914	1375 (60%)	488 (20.1%)
Summer Paddy	**3092**	**3330**	4719	5642	1627 (52.6%)	2312 (69.4%)	3030	4435	(-)62 (-2%)	1105 (33.2%)
Pulse	**541**	**544**	640	690	99(18.3 %)	146 (26.8%)	616	763	75 (13.9%)	219 (40.3%)

Sources: 1. Basic Agricultural Statistics, Directorate of Economics and Statistics, Assam.

2. Field Survey-2012.

NB: Yield gap is given in absolute terms (i. e. Kg/ha) as well as per cent gap.

APPENDIX- XIV (B)

Yield gap in paddy compared with farmers' yield and State average-Bihar.

Crop	Potential yield (kg/ha)	Beneficiaries		Non-beneficiaries	
		Actual yield (KG/ha) (2011-12)	Yield gap	Actual yield (KG/ha) (2011-12)	Yield gap
Rainfed Upland: District: Lakhisarai					
Kharif Paddy	7000	3724	-3276 (-46.80%)	3609	-3391 (-48.44%)
Rainfed Shallow Low Land: District: Patna					
Kharif Paddy	7000	3914	-3086 (-44.09%)	3235	-3765 (-53.79%)
Rainfed Medium: District: Gopalganj					
Kharif Paddy	7000	3875	-3125 (-44.64%)	3475	-3525 (-50.36%)
Rainfed Deep Water: District: Begusarai					
Kharif Paddy	7000	4074	-2926 (-41.80%)	3315	-3685 (-52.64%)
Irrigated: District: Jehanabad					
Kharif Paddy	7000	3765	-3235 (-46.21%)	3613	-3387 (-48.38%)
State: Bihar					
Kharif Paddy	7000	3870	-31.30 (-44.71%)	3449	-3551 (-50.73%)
't' test (0.01% level)		**8.468**		**7.857**	

Source: *SDA, Bihar & Field Survey-2012.*

NB: *i. Potential Yield has been considered of rice varieties --- DRH – 775 & MTU- 1010.*
ii. Yield gap is given in absolute terms (i. e. Kg/ha) as well as per cent gap.

APPENDIX- XIV (C)

Yield gap in paddy compared with farmers' yield and State average-Chhattisgarh.

Crop	Potential yield (Kg/ha)	Beneficiaries		Non-beneficiaries	
		Actual yield (KG/ha) (2011-12)	Yield gap	Actual yield (KG/ha) (2011-12)	Yield gap
Rainfed Upland: District: Bastar					
Kharif Paddy	4500	3852	(-) 648 (-14.4%)	2363	(-) 2137 (-47.5%)
Rainfed Shallow Low Land: District: Durg					
Kharif Paddy	4450	3891	(-) 559 (-12.6%)	3142	(-) 1308 (-29.4%)
Irrigated hybrid: District: Bastar					
Kharif Paddy	4750	4500	(-) 250 (-5.3%)	3333	(-) 1417 (-29.8%)
Irrigated Traditional: District: Bilaspur					
Kharif Paddy	4550	4348	(-) 202 (-4.4%)	4149	(-) 401 (-8.8%)
State: Chhattisgarh					
Kharif Paddy	4750	4148	(-) 602 (-12.8%)	3239	(-) 1511 (-31.8%)

Source: Field Survey-2012.

NB: Yield gap is given in absolute terms (i. e. Kg/ha) as well as per cent gap.

APPENDIX- XIV (D)

Yield gap in paddy compared with farmers' yield and State average-Jharkhand.

Crop	Potential yield (Kg/ha)	Beneficiaries		Non-beneficiaries	
		Actual yield (KG/ha) (2011-12)	Yield gap	Actual yield (KG/ha) (2011-12)	Yield gap
Rainfed Upland: District: Pakur					
Kharif Paddy	5200	3009	-2191 (-42.71%)	2207	-2993 (-57.56%)
Rainfed Shallow Low Land: District: Bokaro					
Kharif Paddy	5200	2940	-2550 (-49.40%)	2138	-3062 (-58.88%)
Rainfed Medium deep water: District: Godda					
Kharif Paddy	5200	3034	-2491 (-47.90%)	2232	-2968 (-57.08%)
Rainfed deep water: District: Jamtara					
Kharif Paddy	5200	3004	-2609 (-50.17%)	2202	-2998 (-57.65%)
Irrigated: District-Sahibganj					
Kharif Paddy	5200	2909	-2588 (-49.77%)	2107	-3093 (-59.48%)
State: Jharkhand					
Kharif Paddy	5200	2979	-2221 (-42.71%)	2177	-3023 (-58.13%)
't' test (0.01% level)		**6.751**		**5.515**	

Source: *Field Survey-2012.*

NB: *i. Potential Yield has been considered of rice varieties – Birsa Dhan- 108 & BPT-5204.*

ii. Yield gap is given in absolute terms (i. e. Kg/ha) as well as per cent gap.

APPENDIX- XIV (E)

Yield gap in paddy compared with farmers' yield and State average-Odisha.

Crop	Potential yield (Kg/ha)		Beneficiary				Non-beneficiary			
			Actual yield (Kg/ha)		Yield gap		Actual yield		Yield gap	
	2010-11	2011-12	2010-11	2011-12	2010-11	2011-12	2010-11	2011-12	2010-11	2011-12
Rainfed Upland Rice (Ganjam District)										
Kharif Paddy	5783	6038	2700	2800	-3083 (-53%)	-3238 (-54%)	1400	1300	-4383 (-76%)	- 4738 (-78%)
Shallow Water (Khorda Districts)										
Kharif Paddy	5783	6038	5200	5800	-583 (-10%)	-238 (-4%)	4100	4200	-168 (-29%)	-1838 (-30%)
HYV Rice (Koraput District)										
Kharif Paddy	5783	6038	5200	5300	-583 (-10%)	-738 (12%)	4100	4200	-1683 (-29%)	-1838 (-30%)
Rabi Paddy	6285	7200	5400	-	-885 (-14%)	-	4300	-	-1985 (-32%)	-
HYV Rice (Rayagada District)										
Kharif Paddy	5783	6038	5800	6000	17 (0.3%)	-38 (-0.6%)	3900	3800	-1883 (-33%)	-2338 (-37%)
Rabi Paddy	6285	7200	5900	-	-385 (-6%)	-	-	-	-	-
Hybrid Rice (Sambalpur District)										
Kharif Paddy	5783	6038	7000	7300	1217 (21%)	1262 (21%)	5800	6200	17 (0.3%)	162 (3%)
Rabi Paddy	6285	7200	6900	7200	-615 (-9.8%)	-	5900	6300	-385 (-6%)	-900 (-13%)

Source: Field Survey-2012.

NB: Yield gap is given in absolute terms (i. e. Kg/ha) as well as per cent gap.

APPENDIX- XIV (F)

Yield gap in paddy compared with farmers' yield and State average-West Bengal.

Crop	Potential yield (Kg/ha)	Beneficiary		Non-beneficiary	
		Actual yield (Kg/ha)	Yield gap	Actual yield (Kg/ha)	Yield gap
		Kh-2011	Kh-2011	Kh-2011	Kh-2011
Rainfed Upland: District: Birbhum					
Kharif Paddy	6300	5096.25	-1204 (-19%)	4710	-1590 (-25%)
Rainfed Shallow Low Land: District: Bankura					
Kharif Paddy	6300	4822.5	-1478 (-24%)	4430	-1870 (-30%)
Rainfed Medium: District: Burdwan					
Kharif Paddy	6300	5557.5	-743 (-12%)	5330	-970 (-15%)
Rainfed Deep Water: District: Malda					
Kharif Paddy	6300	5195	-1105 (-18%)	4890	-1410 (-22%)
Irrigated: District: Murshidabad					
Kharif Paddy	6300	4625	-1675 (-27%)	4355	-1945 (-31)
State: West Bengal					
Kharif Paddy	6300	5095.25	-1205 (-19%)	4743	-1557 (-25%)

Source: Field Survey-2012.

NB: (1) Potential yield is considered of rice variety Swarna (MTU-7029) for calculating yield gap which was grown by the respondent farmers.

(2) Yield gap is given in absolute terms (i. e. Kg/ha) as well as per cent gap.

APPENDIX-XV (A)

Operation-wise productivity and Net return per hectare of the beneficiaries and non-beneficiaries in rice under BGREI program during *Kharif*-11 in Assam. (Cost in Rs.)

Activity	Rainfed upland		Rainfed lowland (shallow)		Medium deep water		Deep water		Irrigated		All Ecologies	
	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
I. Specific to BGREI intervention												
i Deep ploughing and land preparation	6,000	0	6,000	0	6,000	0	0	0	0	0	18,000	0
ii. Seeds	4,000	0	4,000	0	4,000	0	4,000	0	4,000	0	20,000	0
iii. Seed treatment	0	0	0	0	0	0	0	0	0	0	0	0
iv. Weed management	0	0	0	0	0	0	0	0	0	0	0	0
v. Fertiliser	0	0	7,209	0	4,300	0	0	0	8,730	0	20,239	0
vi. Bio fertiliser	0	0	1,490	0	1,500	0	4,020	0	414	0	7,424	0
vi. Micro-nutrients	460	0	460	0	460	0	460	0	460	0	2,300	0
vi. Direct seeding /transplanting	0	0	0	0	0	0	0	0	0	0	0	0
a. Line sowing by drum seeders	0	0	0	0	0	0	0	0	0	0	0	0
b. Transplanting	0	0	0	0	0	0	0	0	0	0	0	0
vii. Plant protection	0	0	0	0	0	0	0	0	0	0	0	0
II. Inputs used by the farmer at his own cost	10,460	0	19,159	0	16,260	0	8,480	0	13,604	0	67,963	0
i. Land preparation	25,720	21,294	16,400	15,930	23,616	46,238	21,000	36,740	17,050	10,950	103,786	131,152
ii. Seeds	3,840	5,689	6,520	15,190	4,142	4,223	8,070	21,920	5,870	8,130	28,442	55,152
iii. Seed treatment	0	0	0	0	0	0	0	0	0	0	0	0
iv. Manures	5,375	4,435	6,080	3,640	4,665	3,670	16,860	28,250	3,735	2,650	36,715	42,645
v. Transplanting	7,210	3,487	9,690	9,350	7,351	9,145	3,410	6,670	6,500	2,300	34,161	30,952
vi. Soil amendments			0	0	1,200	0	0	0	0	0	1,200	0
vii. Fertilizers	3,344	4,520	3,600	7,621	10,526	7,968	3,440	8,425	3,600	5,367	24,510	33,900
viii. Bio-fertilizers	720	850	600	630	985	0	750	0	614	367	3,669	1,847
vi. Micro-nutrients	120	0	120	915	120	1,845	120	4,901	120	0	600	7,661
ix. Irrigation	0	0	2,650	880	5,761	7,232	0	0	10,880	2,400	19,291	10,512

Contd…

Activity	Rainfed upland		Rainfed lowland (shallow)		Medium deep water		Deep water		Irrigated		All Ecologies	
	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
x. Weeding	1,600	1,250	5,400	1,520	0	0	0	0	2,280	720	9,280	3,490
xi. Plant protection	0	0	0	0	0	0	0	0	0	0	0	0
xii. Harvesting	14,205	11,235	17,195	14,100	18,223	34,073	15,000	25,650	9,000	5,750	73,623	90,808
xiii. Threshing	19,450	21,520	15,850	12,100	15,530	18,294	16,030	25,570	13,990	9,430	80,850	86,914
III. Land revenue paid	150	135	109	106	150	302	180	318	109	73	698	934
IV. Interest on capital paid	3,625	3,183	3,378	3,275	3,835	4,589	3,417	6,325	2,641	2,223	16,896	19,595
V. Grand total of cost	95,819	77,598	106,752	85,256	112,364	137,579	96,757	164,769	89,993	50,358	501,685	515,561
VI. Cost per hectare (excluding benefit)	21,340	22,108	21,898	21,973	24,026	17,048	22,069	23,305	19,097	21,088	21,686	20,705
VII. Cost per hectare (including benefit)	23,955	22,108	26,688	21,973	28,091	17,048	24,189	23,305	22,498	21,159	25,084	20,705
VIII. Total quantity produce (Qti)	196.92	125.51	193.81	160.87	191.52	231.61	195.32	287.89	164.20	89.27	941.77	895.15
a. Grain yield rate (kg./ha)	4,923	3,586	4,845	4,146	4,788	2,870	4,883	4,072	4,105	3,751	4,709	3,667
b..Straw yield (qtl../ha)	207	189	125	116	120	141	141	129	186	121	155	126
IX. Value of the produce	157,536	114,104	155,046	118,548	167,259	211,690	172,269	246,035	138,147	74,807	790,257	765,184
X. Net return per hectare(Excluding benefit)	18,044	10,401	16,864	8,580	17,789	9,184	20,998	11,494	15,440	10,343	17,827	10,025
XI. Net return per hectare(including benefit)	15,429	10,401	12,074	8,580	13,724	9,184	18,878	11,494	12,039	10,273	14,429	10,025

Source: Field Survey-2012

NB: Cost includes all average expenses incurred in terms of money in production process by the farmers.

B: Beneficiary; **NB:** Non-beneficiary.

APPENDIX-XV (B)

Operation-wise productivity and Net return per hectare of the beneficiaries and non-beneficiaries in Pulses under BGREI program during *Kharif*-2011 in Assam

(ost in Rs.)

Activity	Rainfed upland		Rainfed lowland (shallow)		Medium deep water		Deep water		Irrigated		All Ecologies	
	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
I. Specific to BGREI intervention:												
iDeep ploughing and land preparation	0	0	0	0	0	0	0	0	0	0	0	0
ii. Seeds	0	0	5,940	0	4,950	0	9,900	0	9,900	0	30,690	0
iii. Seed treatment	0	0	0	0	0	0		0	0	0	0	0
iv. Soil ameleroment	0	0	450	0	0	0	1,450	0	0	0	1,900	0
v. Weed management	0	0	0	0	0	0		0	0	0	0	0
vi. Fertiliser	0	0	2,818	0	2,150	0	2,710	0	0	0	7,678	0
vii. Bio fertiliser	0	0	109	0	1,888	0	0	0	50	0	2,047	0
viii. Micro-nutrients	0	0	0	0	0	0	0	0	0	0	0	0
ix. Direct seeding /transplanting	0	0	0	0	0	0	0	0	0	0	0	0
a. Line sowing by drum seeders	0	0	0	0	0	0	0	0	0	0	0	0
b. Transplanting	0	0	0	0	0	0	0	0	0	0	0	0
vii. Plant protection	0	0	0	0	0	0	0	0	0	0	0	0
II. Inputs used by the farmer at his own cost	**0**	**0**	**9,317**	**0**	**8,988**	**0**	**14,060**	**0**	**9,950**	**0**	**42,315**	**0**
i. Land preparation	0	0	4,200	790	7,900	2,805	10,000	4,000	15,800	6,475	37,900	14,070
ii. Seeds	0	0	700	720	1,230	2,002	3,010	4,703	2,250	3,050	7,190	10,475
iii. Seed treatment	0	0	0	0	0	0	0	0	0	0	0	0
iv. Sowing	0	0	1,525	280	1,080	1,220	3,000	1,125	1,530	800	7,135	3,425
v. Manures	0	0	0	0	1,060	930	8,180	3,200	3,890	1,890	13,130	6,020
vi. Soil amendments	0	0	1,360	340	1,270	690	1,500	0	1,650	575	5,780	1,605
vii. Fertilizers	0	0	200	405	1,625	65	750	1,435	1,225	850	3,800	2,755
viii. Bio-fertilizers	0	0	80	0	900	0	0	0	0	0	980	0
ix. Irrigation	0	0	0	0	475	290	0	0	3,250	1,150	3,725	1,440
x. Weeding	0	0	2,560	440	0	0	1,500	730	4,880	1,890	8,940	3,060
xi. Plant protection	0	0	0	0	0	890	0	0	0	0	0	890
xii. Harvesting	0	0	2,880	560	2,015	856	6,000	2,450	8,220	3,360	19,115	7,226
xiii. Threshing	0	0	8,535	1,600	2,950	760	9,710	4,142	7,550	2,950	28,745	9,452
III. Land revenue paid	0	0	65	13	75	28	180	72	109	73	429	186
IV. Interest on capital paid	0	0	1,105	224	920	304	1,866	906	1,544	985	5,435	2,419
V. Grand total of cost	0	0	32,527	5,372	30,488	10,840	59,756	22,764	61,848	24,048	184,619	63,024

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Activity	Rainfed upland		Rainfed lowland (shallow)		Medium deep water		Deep water		Irrigated		All Ecologies	
	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
VI.Cost per hectare (Excluding benefit)	0	0	9,671	11,678	10,750	14,649	11,424	14,227	12,975	15,616	11,476	14,522
VII.Cost per hectare (Including benefit)	0		13,553	11,678	15,244	14,649	14,939	14,227	15,462	15,616	14,889	14,522
VIII.Total quantity produce (Qtl.)	0	0	15.29	2.53	12.80	4.28	24.64	8.19	32.10	11.76	84.83	26.76
a. Grain yield rate (kg./ha)	0	0	637	549	640	578	616	512	803	764	684	616
b. Straw yield (qtl./ha)	0	0	0	0	0	0	0	0	0	0	0	0
IX. Value of the produce	0	0	39,769	6,544	40,973	12,711	78,861	26,163	83,460	30,576	243,063	75,994
X. Net return per hectare(Excluding benefit)	0	0	6,900	2,548	9,737	2,528	8,291	2,125	7,891	4,239	8,126	2,989
XI. Net return per hectare(Including benefit)	0	0	3,018	2,548	5,243	2,528	4,776	2,125	5,403	4,239	4,713	2,989

Source: Field Survey-2012

NB: Cost includes all average expenses incurred in terms of money in production process by the farmers.

B: Beneficiary; **NB:** Non-beneficiary.

APPENDIX-XV (C)

Operation-wise productivity and Net return per hectare of the beneficiaries and non-beneficiaries in rice under BGREI program during Summer-12 in Assam (Cost in Rs.)

Activity	Rainfed upland		Rainfed lowland (shallow)		Medium deep water		Deep water		Irrigated		All Ecologiies	
	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
I. Specific to BGREI intervention												
i.Deep ploughing and land preparation	4,875	0	11,550	0	12,600	0	3,870	0	10,650	0	43,545	0
ii. Seeds	5,613	0	12,225	0	12,950	0	4,105	0	15,975	0	50,868	0
iii. Seed treatment	0	0	0	0	0	0	0	0	0	0	0	0
iv. Weed management	0	0	0	0	0	0	0	0	0	0	0	0
v. Fertiliser	0	0	0	0	0	0	0	0	0	0	0	0
vi. Bio fertiliser	0	0	0	0	0	0	0	0	0	0	0	0
vi. Micro-nutrients	3,738	0	8,855	0	9,660	0	2,967	0	8,165	0	33,385	0
vi Direct seeding /transplanting	0	0	0	0	0	0	0	0	0	0	0	0
a. Line sowing by drum seeders	0	0	0	0	0	0	0	0	0	0	0	0
b. Transplanting	393	0	931	0	1,015	0	312	0	858	0	3,508	0
vii. Plant protection	0	0	0	0	0	0	0	0	0	0	0	0
II. Inputs used by the farmer at his own cost	**14,618**	**0**	**33,561**	**0**	**36,225**	**0**	**11,254**	**0**	**35,648**	**0**	**131,305**	**0**
i. Land preparation	14,922	2,090	40,430	7,455	45,045	4,024	15,025	10,750	37,549	8,952	152,971	33,271
ii. Seeds	3,107	644	9,697	2,231	8,588	1,385	1,763	2,867	7,636	3,008	30,791	10,135
iii. Seed treatment	0	0	0	0	0	0	0	0	0	0	0	0
iv. Manures	5,589	777	14,545	2,497	15,449	1,215	5,850	3,338	13,965	3,502	55,397	11,330
v. Transplanting	7,582	1,164	16,494	3,738	20,247	2,267	7,228	4,877	20,908	5,117	72,458	17,163
vi. Soil amendments	0	0	0	0	0	0	0	0	0	0	0	0
vii. Fertilizers	6,758	1,158	19,042	4,401	22,600	2,424	7,070	5,681	20,813	5,543	76,283	19,208
viii. Bio-fertilizers	743	214	1,705	755	1,139	0	806	0	1,011	844	5,402	1,813
vi. Micro-nutrients	706	0	1,642	0	1,806	0	981	0	1,031	0	6,165	0
ix. Irrigation	3,874	490	7,862	1,730	10,101	1,329	4,431	3,541	9,801	2,863	36,070	9,953
x. Weeding	767	0	4,027	774	1,899	433	648	1,015	3,936	1,065	11,277	3,287
xi. Plant protection	0	0	0	480	0	269	0	0	0	0	0	748
xii. Harvesting	8,405	1,042	20,263	3,200	21,180	1,792	8,109	4,402	18,719	5,471	76,676	15,907
xiii. Threshing	9,438	1,184	25,369	3,686	23,027	2,192	9,471	5,137	21,270	6,242	88,576	18,441

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Activity	Rainfed upland		Rainfed lowland (shallow)		Medium deep water		Deep water		Irrigated		All Ecologiies	
	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
III. Land revenue paid	124	16	293	59	314	29	99	72	263	72	1,093	248
IV. Interest on capital paid	2,476	350	6,443	1,238	6,843	693	2,335	1,624	6,298	1,704	24,395	5,609
V. Grand total of cost	79,108	9,129	201,373	32,244	214,462	18,050	75,069	43,305	198,848	44,385	768,859	147,113
VI.Cost per hectare (Excluding benefit)	19,843	22,822	21,794	20,938	21,219	22,563	24,734	21,871	22,986	23,735	21,962	22,324
VII.Cost per hectare (Including benefit)	24,341	22,822	26,152	20,938	25,531	22,563	29,096	21,871	28,007	23,735	26,485	22,324
VIII.Total quantity produce (Qtl)	170.08	16.61	418.23	66.13	491.38	35.72	152.76	92.19	410.03	86.14	1,642.48	296.79
a. Grain yield rate (kg./ha)	5,233	4,153	5,432	4,294	5,850	4,465	5,921	4,656	5,775	4,607	5,658	4,504
b. Straw yield (qtl./ha)	152	123	165	145	187	132	149	132	189	162	168	139
IX. Value of the produce	133,145	13,990	330,258	50,428	359,620	28,624	138,150	76,225	339,352	71,689	1,300,525	240,956
X. Net return per hectare(Excluding benefit)	21,125	12,153	21,097	11,808	21,593	13,218	28,812	16,626	24,810	14,601	22,837	14,240
XI. Net return per hectare(Including benefit)	16,627	12,153	16,738	11,808	17,281	13,218	24,450	16,626	19,789	14,601	18,314	14,240

Source: Field Survey-2012

NB: Cost includes all average expenses incurred in terms of money in production process by the farmers.

B: Beneficiary; **NB:** Non-beneficiary.

APPENDIX-XV (D)

Operation-wise productivity and Net return per hectare of the beneficiaries and non-beneficiaries in rice under BGREI program during *Kharif*-2011 in Bihar

(Cost in Rs.)

Activity	Rainfed upland **(Lakhisarai)**		Rainfed lowland (shallow) (**Patna**)		Medium deep water **(Gopalganj)**		Deep water **(Begusarai)**		Irrigated **(Jehanabad)**		All Ecological Regions (Bihar)	
	B	**NB**	**B**	**NB**	**B**	**NB**	**B**	**NB**	**B**	**NB**	**B**	**NB**
I. Inputs delivered under BGREI												
Deep ploughing and land preparation	---	---	---	---	---	---	---	---	---	---	---	
Seeds	---	---	---	---	---	---	---	---	---	---	---	
Seeds (benefit amount)	123.50	---	123.50	---	123.50	---	123.50	---	123.50	---	123.50	
Seed treatment	10.00	---	10.00	---	10.00	---	10.00	---	10.00	---	10.00	
Weed management	---	---	---	---	---	---	---	---	---	---	---	
Micro-nutrients	---	---	---	---	---	---	---	---	---	---	---	
Micro-nutrient(benefit amount)	57.58	---	68.96	---	52.08	---	49.59	---	50.39	---	55.79	
Direct seeding /transplanting	---	---	---	---	---	---	---	---	---	---	---	
Line sowing by drum seeders	---	---	---	---	---	---	---	---	---	---	---	
Transplanting	---	---	---	---	---	---	---	---	---	---	---	
Plant protection	---	---	68.96	---	52.08	---	---	---	50.39	---	34.28	
Cash Benefit	479.84	---	574.71	---	434.02	---	416.32	---	419.99	---	464.97	
II. Inputs used at own cost												
Land preparation	6238.00	6229.16	3448.27	3481.48	4838.32	4816.91	4646.13	4675.52	3614.02	4209.54	4556.94	4682
Seeds	461.91	692.70	592.59	916.67	473.28	832.61	617.13	867.71	664.40	989.24	581.86	859
Seed treatment	14.95	23.95	38.85	27.77	46.42	52.31	17.89	20.89	38.29	21.05	31.28	29
Transplanting	2245.68	2250.00	1874.42	1876.54	1873.91	1872.45	1575.35	1573.54	1963.25	1873.71	1906.52	1889
Manures	---	---	---	---	---	---	---	---	---	---	---	
Soil amendments	---	---	---	---	---	---	---	---	---	---	---	
Micro-nutrients	473.61	109.37	300.58	295.06	226.56	274.63	300.38	188.85	288.96	203.93	318.01	214
Fertilizers	1397.79	1776.04	1700.57	1453.70	1253.68	901.92	3205.45	2464.40	975.01	353.60	1706.50	1389

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Activity	Rainfed upland **(Lakhisarai)**		Rainfed lowland (shallow) (**Patna**)		Medium deep water **(Gopalganj)**		Deep water **(Begusarai)**		Irrigated **(Jehanabad)**		All Ecological Regions (Bihar)	
	B	**NB**	**B**	**NB**	**B**	**NB**	**B**	**NB**	**B**	**NB**	**B**	**NB**
Bio-fertilizers	225.52	---	270.11	---	203.99	---	195.67	---	197.40	---	218.53	
Irrigation	254.32	604.17	692.52	469.13	162.76	217.96	547.46	330.72	506.09	355.47	432.63	395
Weeding	876.92	734.37	1183.90	712.96	1030.81	686.57	1092.42	800.70	1063.62	78.57	1049.53	602
Plant protection	---	---	---	---	---	---	---	---	---	---	---	
Harvesting	2541.99	2567.71	2500.00	2503.08	2500.00	2500.00	2500.00	2500.00	2500.00	5846.58	2508.39	3183
Threshing	1370.20	1569.79	1500.00	1501.85	1348.30	1349.35	1600.00	1599.91	1500.00	1500.00	1463.70	1504
III. Land revenue paid	75.96	76.87	84.99	85.10	79.95	79.95	89.96	89.95	65.61	68.29	79.29	80
IV. Interest on capital paid	967.18	1011.67	942.98	837.16	984.50	885.50	1290.26	1173.18	1035.02	965.67	1043.98	974
V. Grand total of cost per farm	37126.40	16940.00	27798.19	15975.97	36159.49	33194.54	43903.50	37359.46	35872.12	35203.60	36171.94	27734
VI. Cost per hectare	17144.03	17645.83	15204.74	14160.53	15694.16	14470.16	18277.87	16285.37	15065.94	16465.65	16277.34	15805
Cost per hectare (including benefit)	17814.95	17645.83	15975.97	14160.53	16365.84	14470.16	18877.64	16285.37	15720.21	16465.94	16950.92	15805
VII. YIELD												
Grain yield rate (kg./ha)	3724.00	3609.00	3914.00	3235.00	3895.00	3475.00	4074.00	3315.00	3765.00	3613.00	3874.40	3449
Straw yield (qt./ha)	8.25	8.13	8.50	8.06	8.33	8.23	8.50	8.06	8.29	7.85	8.37	8
VIII. VALUE OF THE PRODUCE												
Value of Grain per farm	68883.33	30566.96	50213.15	20939.65	78779.77	70635.48	85499.83	67277.05	59114.88	51800.40	68498.19	48243
Value of Straw per farm	3543.85	1592.18	3695.35	1638.35	1708.15	1694.90	2122.25	1934.50	3594.28	3167.15	2932.77	1996
IX. RETURNS												
Net Return/farm excluding benefit	35297.78	15219.14	26110.31	6602.03	44328.43	39135.84	43718.58	31852.09	26837.04	19763.95	35258.42	22514
Net Return (including benefit)/farm	34626.86	15219.14	25264.18	6602.03	43656.75	39135.84	43118.81	31852.09	26182.77	19763.95	34569.67	22514
Net return/ha (excluding benefit)	16937.75	15853.27	15005.92	4075.33	19239.76	17060.08	18200.90	13860.78	11271.33	9244.13	16131.13	12018
Net Return/ha (including benefit)	16615.57	15853.27	14559.27	4075.33	18948.24	17060.08	17951.21	13860.78	10996.54	9244.13	15814.16	12018

Source: Field Survey-2012; **B:** Beneficiary; **NB:** Non-beneficiary.

NB: Cost includes all average expenses incurred in terms of money in production process by the farmers.

APPENDIX-XV(E)

Operation-wise productivity and Net return per hectare of the beneficiaries and non-beneficiaries in rice under BGREI program during *Kharif*-2011 in Chhatisgarh

(Cost in Rs.)

Activity	Rainfed upland		Shallow lowland		Irrigated Hybrid		Irrigated Traditional		All Ecological Regions	
	B	NB	B	NB	B	NB	B	NB	B	NB
I. Inputs delivered under BGREI										
Deep ploughing and land preparation	1461.538	-	1500	-	2343.75	-	1406.25	-	1677.885	0
Seeds		-		-		-		-	0	0
Seeds (benefit amount)	419.9231	-	905.2353	-	500	-	750	-	643.7896	0
Seed treatment	33.46154	-	101.5294	-	54.6875	-	186.25	-	93.98211	0
Weed management	1526.923	-	482.5294	-		-	574.3056	-	645.9395	0
Micro-nutrients		-		-	0	-	0	-	0	0
Micro-nutrient (benefit amount)	958.4615	-	862.9412	-	932.8125	-	956.9444	-	927.7899	0
Direct seeding /transplanting	1469.231	-	1411.765	-	2343.75	-	1576.389	-	1700.284	0
Line sowing by drum seeders		-		-		-		-	0	0
Transplanting		-		-		-		-	0	0
Plant protection	961.5385	-	600	-	804.6875	-	1003.125	-	842.3378	0
II. Inputs used at own cost										
Land preparation		833.3333		1480		1833.333		1570.513	0	1429.295
Seeds		755.8824		977.3333		625		1175	0	883.3039
Seed treatment		0		22.66667		47.22222		0	0	17.47222
Transplanting		1058.824		1313.333		1250		1448.718	0	1267.719
Manures	1538.462	480.3922	655.8824	670.6667	1390.625	1472.222	2017.361	1352.564	1400.583	993.9612
Soil amendments							625		156.25	0
Micro-nutrients				960		888.8889		0	0	462.2222
Fertilizers	3373.077	823.5294	3500	3786.667	3703.125	2916.667	6770.833	3801.282	4336.759	2832.036
Bio-fertilizers									0	0
Irrigation									0	0
Weeding	342.3077	308.8235	302.9412	313.3333	429.6875	333.3333	1256.944	750	582.9701	426.3725
Plant protection		426.4706		366		680.5556		1142.949	0	653.9938
Harvesting	1169.231	764.7059	1117.647	1253.333	1359.375	1375	3819.444	3365.385	1866.424	1689.606
Threshing	1723.077	941.1765	1105.882	1040	1109.375	972.2222	0	0	984.5835	738.3497
III. Land revenue paid	12.5	12.5	12.5	12.52	12.5	12.5	25	37.4359	15.625	18.73898

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Activity	Rainfed upland		Shallow lowland		Irrigated Hybrid		Irrigated Traditional		All Ecological Regions	
	B	NB	B	NB	B	NB	B	NB	B	NB
IV. Interest on capital paid	544.6846	438.8725	474.5824	753.48	586.25	969.6944	1045.097	783.5256	662.6535	736.3931
V. Grand total of cost per farm	18587.80	13326	21288.80	8427.95	9414	8562	31603.64	48892	20223.56	19801.99
VI. Cost per hectare	15286.21	7436.83	12650.10	12349.06	15730.77	12029	22057.35	15906.46	16431.10	11930.34
Cost per hectare (including benefit)										
VII. YIELD										
Grain yield rate (kg./ha)	3852.31	2362.75	3891.18	3142.48	4500	3333.33	4347.50	3732.50	4147.748	3142.765
Straw yield (qt./ha)	5.03	4.82	6.62	4.72	2.88	2.40	4.82	5.03	4.8375	4.2425
VIII. VALUE OF THE PRODUCE										
Value of Grain per farm	59094.40	56876	78057	55696	33984	28320	59094.40	56876	57557.45	49442
Value of Straw per farm	3707.11	3552.34	4875.26	3478.64	2122.56	1768.80	3707.11	3552.34	3603.01	3088.03
IX. RETURNS										
Net Return/farm excluding benefit	44213.71	47102.34	61643.46	40746.69	26692.56	21526.80	46716.33	71244.18	44816.52	45155
Net Return (including benefit)/farm	37382.63	47102.34	5577946	40746.69	19712.87	21526.80	40263.07	71244.18	1418826	45155
Net return/ha (excluding benefit)	34578.45	26684.70	35711.38	26954.95	41500.64	30722.17	31852.13	22706.02	35910.65	26766.96
Net Return/ha (including benefit)	27747.37	26684.70	29847.38	26954.95	34520.95	30722.17	25398.87	22706.02	29378.64	26766.96

Source: Field Survey-2012; **B:** Beneficiary; **NB:** Non-beneficiary.

NB: Cost includes all average expenses incurred in terms of money in production process by the farmers.

APPENDIX-XV (F)

Operation-wise productivity and Net return per hectare of the beneficiaries and non-beneficiaries in rice under BGREI program during *Kharif*-2011 in Jharkhand

(Cost in Rs.)

Activity	Rainfed upland **(Pakur)**		Rainfed lowland (shallow) (**Bokaro)**		Medium deep water **(Godda)**		Deep water **(Jamtara)**		Irrigated **(Sahibganj)**		All Ecologies	
	B	**NB**	**B**	**NB**	**B**	**NB**	**B**	**NB**	**B**	**NB**	**B**	**NB**
I. Inputs delivered under BGREI												
Deep ploughing and land preparation	-	-	-	-	-	-	-	-	-	-	-	-
Seeds	-	-	-	-	-	-	-	-	-	-	-	-
Seeds (benefit amount)	113.83	-	229.26	-	92.81	-	212.82	-	126.76	-	154.99	-
Seed treatment	-	-	-	-	-	-	155.92	-	42.25	-	39.63	-
Weed management	364.25	-	431.56	-	371.23	-	639.79	-	450.70	-	451.50	-
Micro-nutrients	-	-	-	-	-	-	-	-	-	-	-	-
Micro-nutrient(benefit amount)	654.53	-	775.46	-	667.05	-	1140.12	-	207.75	-	688.92	-
Direct seeding /transplanting	-	-	-	-	-	-	-	-	-	-	-	-
Line sowing by drum seeders	256.12	-	303.44	-	261.02	-	594.84	-	316.90	-	346.46	-
Transplanting	-	-	-	-	-	-	-	-	-	-	-	-
Plant protection	170.74	-	202.29	-	174.01	-	297.42	-	264.08	-	221.70	-
Cash Benefit	682.98	-	-	-	696.06	-	-	-	-	-	275.80	-
II. Inputs used at own cost												
Land preparation	4678.43	4333.33	4308.84	4206.19	4312.64	4349.92	4560.48	4251.10	4222.75	4531.25	4416.62	4340.35
Seeds	89.13	131.94	238.71	470.11	381.97	480.73	-	273.13	158.45	203.12	173.65	311.80
Seed treatment	-	-	-	-	-	-	-	-	-	-	-	-
Transplanting	1937.96	1958.33	2240.39	2195.88	2231.73	2154.90	2260.41	2114.54	2017.61	1992.18	2137.62	2083.16
Manures	-	-	-	-	-	-	-	-	-	-	-	-
Soil amendments	-	-	-	-	-	-	-	-	-	-	-	-
Micro-nutrients	-	-	-	-	-	-	-	-	-	187.50	-	-
Fertilizers	2299.38	1751.39	2543.16	2222.68	2336.14	2383.63	2577.99	2397.58	1938.31	1992.19	2338.79	2149.49
Bio-fertilizers	-	-	-	-	-	-	-	-	-	-	-	-
Irrigation	39.28	180.56	104.52	128.87	95.71	102.73	16.52	-	69.72	-	65.15	82.43
Weeding	561.19	1061.11	629.13	715.47	593.39	979.13	400.20	800.66	761.97	809.38	589.17	873.15
Plant protection	213.43	-	212.41	61.86	346.58	337.08	-	264.32	330.29	500.00	220.54	232.65
Harvesting	2491.46	2027.78	2972.69	2723.72	2384.28	2259.23	2569.40	2581.06	2670.77	2681.25	2617.72	2454.60
Threshing	1259.25	1027.78	1477.75	1443.30	1480.86	1270.47	2757.44	2736.78	1367.96	1381.25	1668.65	1571.91

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Activity	Rainfed upland **(Pakur)**		Rainfed lowland (shallow) (**Bokaro)**		Medium deep water **(Godda)**		Deep water **(Jamtara)**		Irrigated **(Sahibganj)**		All Ecologies	
	B	**NB**	**B**	**NB**	**B**	**NB**	**B**	**NB**	**B**	**NB**	**B**	**NB**
III. Land revenue paid	88.34	87.50	94.47	89.90	82.99	82.65	64.90	65.86	82.20	83.28	82.58	81.83
IV. Interest on capital paid	805.52	810.00	698.93	745.98	868.58	735.96	884.00	737.00	680.42	629.06	787.49	731.60
V. Grand total of cost per farm	29352.10	9626.20	25897.64	14553.80	29958.03	18860.00	29008.99	14729.60	24306.61	9593.90	27704.67	13472.70
VI. Cost per hectare	14463.37	13369.72	15521.00	15003.96	15114.87	15136.42	16132.25	16222.03	15708.89	14990.47	15388.07	14944.52
Cost per hectare (including benefit)	16705.82	13369.72	17463.01	15003.96	17377.05	15136.42	19173.16	16222.03	17117.33	14990.47	17567.27	14944.52
VII. YIELD												
Grain yield rate (kg./ha)	3009.00	2884.00	2940.00	2650.00	3034.50	1354.50	3005.00	2591.00	2909.00	2612.0	2979.50	2418.30
Straw yield (qt./ha)	8.32	8.19	8.07	7.86	8.26	8.19	8.00	7.84	8.08	7.92	8.14	8.00
VIII. VALUE OF THE PRODUCE												
Value of Grain per farm	46285.30	17156.60	37104.80	21178.80	45498.83	30026.24	40352.30	20690.60	37266.90	14632.00	41301.62	20736.84
Value of Straw per farm	2795.80	1038.60	2152.00	1237.00	8908.35	5767.01	7236.40	3326.00	3850.00	1873.00	4988.51	2648.32
IX. RETURNS												
Net Return/farm excluding benefit	19729.00	8569.00	13359.16	7862.00	24449.15	16933.25	18579.71	9287.00	16810.29	6911.10	18585.46	9912.45
Net Return (including benefit)/farm	17486.55	8569.00	11417.15	7862.00	22186.97	16933.25	15537.80	9287.00	15401.85	6911.10	16406.06	9912.45
Net return/ha (excluding benefit)	11228.79	11901.38	9008.20	8105.15	14181.64	13590.08	12280.05	10227.97	11838.23	10798.59	11707.38	10924.63
Net Return/ha (including benefit)	9952.50	11901.38	7698.69	8105.15	12869.47	13590.08	10269.53	10227.97	10846.37	10798.59	10327.31	10924.63

Source: Field Survey-2012; **B:** Beneficiary; **NB:** Non-beneficiary.

NB: Cost includes all average expenses incurred in terms of money in production process by the farmers.

APPENDIX-XV (G)

Operation-wise productivity and Net return per hectare of the beneficiaries and non-beneficiaries in rice under BGREI program during *Kharif*-2011 in Odisha

(Cost in Rs.)

Activity	Ganjam		Khurda		Koraput		Rayagada (HYV Rice)		Sambalpur (Hybrid Rice)		All Ecological Regions	
	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
I. Inputs delivered under BGREI												
Deep ploughing and land preparation	1250		1250		1250		1250		1250		1250	
Seeds												
Seeds (benefit amount)	1168.20		1168.20		1168.20		2250		2250		1384.56	
Seed treatment			66		90		90		90		62.4	
Weed management	640		640		535.5		640		640		619.1	
Micro-nutrients												
Micro-nutrient (benefit amount)	950		1100		1250		1250		1250		1160	
Direct seeding /transplanting												
Line sowing by drum seeders	1500		1500		1500		1500		1500		1500	
Transplanting												
Plant protection	700		700		700		700		700		699.6	
II. Inputs used at own cost												
Land preparation	990	1400	2680	7200	1100	2100	2504	4500	4279	3892	2310.6	3778.4
Seeds	-	780		1252	-	900	-	1224	-	1488	0	1128.8
Seed treatment	-	-			8000	5000	-	-	-	608	1600	1121.6
Transplanting	1390	767	3750	5140	-	-	1903	1898	4691	3083	2346.8	2137.6
Manures	1060	-	95	116	1300	1000	371	857	824	733	730	541.2
Soil amendments	850	1700	2750	4100	4000	5000	1995	3878	3426	4792	2604.2	3854
Micro-nutrients	3240	1680	4210	5330	5500	5000	3621	4071	4509	3500	4216	3816.2
Fertilizers	338	-	560	310	125	-	847	204	0	0	374	102.8
Bio-fertilizers	-	-			700	700	247	245	250	250	239.4	239
Irrigation	2290	1240	3110	4260	3100	4000	1579	1531	3132	3333	2642.2	2832.8
Weeding	2300	1400			3000	3500	2522	2633	3706	3583	2305.6	2163.2
Plant protection	2730	1140	4300	4380	4500	5000	2699	3184	4294	4042	3704.6	3521.2
Harvesting	990	1400	2680	7200	1100	2100	2504	4500	4279	3892	2310.6	3768.4
Threshing	-	780		1252	-	900	-	1224	-	1488	0	1128.8
III. Land revenue paid	180	140	15	15	20	20	600	15	25	25	168	43
IV. Interest on capital paid	2440	740	1960	2045	4100	4500	5716	3919	1321	1667	3107.4	2536.2

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Activity	Ganjam		Khurda		Koraput		Rayagada (HYV Rice)		Sambalpur (Hybrid Rice)		All Ecological Regions	
	B	**NB**	**B**	**NB**	**B**	**NB**	**B**	**NB**	**B**	**NB**	**B**	**NB**
V. Cost per hectare	18798	10987	26110	42600	36545	39720	27108	33883	34736	36376	28659.4	32713.2
Cost per hectare (including benefit)	25006.2	10987	32534.2	42600	43119.2	39720	33599.7	33883	42416	36376	35335.06	32713.2
VI. YIELD												
Grain yield rate (kg./ha)	2800	1300	5800	4200	5300	4200	6000	3800	7300	6200	5440	3940
Straw yield (qt./ha)	2	1	2	2	3	3	3	3	5	5	3	2.8
VII. VALUE OF THE PRODUCE												
Value of Grain per hectare	27500	12600	63840	45260	57240	45360	64100	41000	72735	61917	57083	41227.4
Value of Straw per hectare												
VIII. RETURNS												
Net return/ha (excluding benefit)	8702	1613	37730	2660	20695	5640	36992	7117	37999	25541	28423.6	8514.2
Net Return/ha (including benefit)	2493.8	1613	31305.8	2660	14120.8	5640	30500.3	7117	30319	25541	21747.94	8514.2

Source: Field Survey-2012; **B:** Beneficiary; **NB:** Non-beneficiary.

NB: Cost includes all average expenses incurred in terms of money in production process by the farmers.

APPENDIX-XV (H)

Operation-wise productivity and Net return per hectare of the beneficiaries and non-beneficiaries in rice under BGREI program during *Kharif*-2011 in eastern Uttar Pradesh

(Cost in Rs.)

Activity	Rainfed Uplands-Jaunpur		Rainfed Shallow low lands-Kushinagar		Ranfed medium deep water low land-Maharajganj		Rainfed Deep water low land-Kushinagar		Irrigated-Allahabad		All Ecologies	
	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
(1) Cost of cultivation												
Land preparation	4335.21	5107.14	1700.00	2054.55	6089.74	6000.00	1500.00	1954.02	1683.22	3405.94	3062.00	3704
Seeds	-	1021.43	-	985.27	-	1105.00	-	1040.23	1304.79	3168.32	1305.00	1464.00
Weeding	2591.55	392.39	1052.32	1309.09	1785.90	2260.00	1005.24	948.28	1934.93	1524.75	1674.00	1287.00
Fertilizers	3547.42	652.79	3436.39	2940.00	4966.67	3833.33	3623.04	3183.91	3657.47	3828.71	3846.00	2888.00
Transplanting	3680.75	3535.71	1900.00	3360.00	3961.54	2933.33	1600.00	3126.44	1924.66	3168.32	2613.00	3225.00
Manures	3568.08	3175.00	1462.54	1581.82	3974.36	4000.00	1439.79	1522.99	2191.78	3217.82	2527.00	2700.00
Irrigation	3906.10	665.87	1746.73	1505.45	2653.85	4000.00	2201.68	1896.55	1619.86	1584.16	2426.00	1930.00
Harvesting	3887.32	3821.43	3653.39	3260.00	3089.74	4433.33	3801.05	3606.32	3773.97	4019.80	3641.00	3828.00
Threshing	3605.53	3000.00	3103.49	3121.82	3423.08	2600.00	3424.08	3250.00	3674.66	3544.55	3446.00	3103.00
Land revenue paid	112.68	-	190.25	145.45	110.26	-	201.05	294.25	147.26	59.41	152.00	166.00
Interest on capital paid	883.00	898.21	547.32	607.82	901.67	935.00	563.87	624.71	657.40	825.74	711.00	778.00
Grand Total of cost/ha	**32466.00**	**22270.00**	**22269.00**	**20871.00**	**33352.00**	**32100.00**	**22716.00**	**21448.00**	**28750.00**	**28348.00**	**29095.00**	**25073.00**
Cost per ha excluding benefit	30118.00	22270.00	18792.00	20871.00	30957.00	32100.00	19360.00	21448.00	22570.00	28348.00	24359.00	25007.00
Cost per ha including benefit	32466.00	22270.00	22624.00	20871.00	33352.00	32100.00	22716.00	21448.00	29050.00	28348.00	28041.00	25007.00
(2) Total value of produce												
Grain yield (Kg/ha)	5802.82	4392.56	4994.05	4181.82	5274.36	4033.33	4921.46	4022.99	7671.23	7128.712	5695.61	4911.75
Straw yield (Qtl/ha)	67.61	55.36	80.26	65.45	51.28	40.33	91.10	63.22	92.05	78.22	80.50	63.09
Value of grain per farm	51294.00	20418.00	68340.00	39100.00	34395.20	20231.20	79900.00	22064.00	102256.00	65730.00	67237.04	33509.00
Value of straw per farm	7200.00	3100.00	2700.00	1440.00	8000.00	2420.00	3480.00	896.00	13440.00	7900.00	6164.00	3151.00
Total value of produce per farm	584940.0	123518.0	71040.0	40540.00	42395.00	22651.00	83380.00	22960.00	115696.0	73630.00	73401.00	36660.00
Total value per ha	54924.00	41996.00	42235.00	36855.00	49225.00	37752.00	43654.00	32989.00	79244.00	72901.00	53119.00	46218.00

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Activity	Rainfed Uplands-Jaunpur		Rainfed Shallow low lands-Kushinagar		Ranfed medium deep water low land-Maharajganj		Rainfed Deep water low land-Kushinagar		Irrigated-Allahabad		All Ecologies	
	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
(3) Net return												
Net Return per farm excluding benefit	26418.00	11407.00	39432.00	17582.00	18249.00	3391.00	46402.00	8032.00	82744.00	44999.00	39790.00	16824.00
Net Return per farm including benefit	23917.00	11047.00	32987.00	17852.00	16381.00	3391.00	39993.00	8032.00	73283.00	44999.00	34746.00	16824.00
Net Return per ha excluding benefit	24806.00	19726.00	23443.00	15984.00	18268.00	5652.00	24294.00	11541.00	56674.00	44553.00	28760.00	21211.00
Net Return per ha including benefit	22458.00	19726.00	19611.00	15984.00	15873.00	5652.00	20937.00	11541.00	50194.00	44553.00	25078.00	21211.00

Source: Field Survey-2012; **B:** Beneficiary; **NB:** Non-beneficiary.

NB: Cost includes all average expenses incurred in terms of money in production process by the farmers.

APPENDIX-XV (I)

Operation-wise productivity and Net return per hectare of the beneficiaries and Non-beneficiaries in wheat under BGREI program during *Rabi:* 2011-12 in eastern Uttar Pradesh

(Cost in Rs.)

Activity	Timely sown (Irrigated) Allahabad		Late sown (Irrigated) Mirzapur		All Ecologies	
	B	NB	B	NB	B	NB
Cost of cultivation						
Land preparation	2175.44	4141.18	-	-	2175.44	4141.80
Seeds	25.61	3227.53	373.85	1630.95	199.73	2429.24
Sowing	3080.70	1855.76	2837.52	1726.19	2977.11	1790.98
Fertilizers	5317.84	4770.82	4976.98	5344.76	5147.41	5057.79
Manures	894.74	141.80	253.96	119.05	574.35	130.12
Irrigation	2494.74	2856.47	510.09	304.76	1502.42	1580.62
Harvesting	3943.86	3058.82	3375.98	3666.55	3659.92	3362.69
Threshing	3480.70	2741.18	3420.03	3590.48	3450.37	3165.83
Land revenue paid	26.67	18.82	34.44	15.36	30.56	17.09
Interest on capital paid	550.81	666.82	434.07	440.12	492.44	1106.94
Total cost/farm	**35066.10**	**21036.80**	**42007.70**	**28288.20**	**19122.04**	**20793.70**
Total cost/ha	24607.79	24749.18	18962.53	16838.21	21785.16	20793.70
Own cost/ha	21991.16	24749.18	16252.92	16838.21	38536.90	24662.50
Cost/ha including benefit	24608.00	24749.00	18963.00	16838.00	11969.00	16438.00
(2) Total value of produce						
Grain yield (Kg/ha)	4229	3718	3911	3202	4075	3466
Straw yield (Qtl/ha)	49.12	47.06	45.19	38.69	47.16	42.88
Value of grain per farm	58175.00	15168.00	84050.00	51740.00	71112.50	41038
Value of straw per farm	11180.00	9296.00	20810.00	13000.00	15995.00	11148
Total value of produce per farm	69355.00	39632.00	104860.0	64740.00	87107.50	52186
Total value per ha						

contd…

Activity	Timely sown (Irrigated) Allahabad		Late sown (Irrigated) Mirzapur		All Ecologies	
	B	NB	B	NB	B	NB
(3) Net return						
Net Return per farm excluding benefit	38018.00	18595.00	68855.00	58737.00	53436.50	38666.00
Net Return per farm including benefit	34289.00	18595.00	62852.00	36452.00	48570.50	27523.50
Net Return per ha excluding benefit	26680.00	21876.00	31082.00	21698.00	28881.00	21757.00
Net Return per ha including benefit	24063.00	21876.00	28372.00	21698.00	26217.50	21787.00

Source: Field Survey-2012; **B:** Beneficiary; **NB:** Non-beneficiary.

NB: Cost includes all average expenses incurred in terms of money in production process by the farmers.

APPENDIX-XV (J)

Operation-wise productivity and Net return per hectare of the beneficiaries and non-beneficiaries in rice under BGREI program during *Kharif*-2011 in West Bengal

(Cost in Rs.)

Activity	Rainfed upland		Rainfed lowland (shallow)		Medium deep water		Deep water		Irrigated		All Ecological Regions	
	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
I. Inputs delivered under BGREI												
Deep ploughing and land preparation	-	-	-	-	-	-	-	-	-	-	-	-
Seeds	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Seeds (benefit amount)	1499.07	-	898.94	-	1356.54	-	2716.70	-	1204.03	-	1535.05	-
Seed treatment	-	-	-	-	-	-	-	-	-	-	-	-
Weed management	-	-	-	-	-	-	-	-	-	-	-	-
Micro-nutrients	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Micro-nutrient (benefit amount)	1059.99	-	714.62	-	1071.90	-	2148.27	-	698.72	-	1138.7	-
Direct seeding /transplanting	-	-	-	-	-	-	-	-	-	-	-	-
Line sowing by drum seeders	-	-	-	-	-	-	-	-	-	-	-	-
Transplanting	-	-	-	-	-	-	-	-	-	-	-	-
Plant protection	-	-	-	-	-	-	-	-	-	-	-	-
II. Inputs used at own cost												
Land preparation	3710.28	3975.85	3450.00	3376.26	5040.28	4568.06	5025.00	5325.0	5887.50	5400.00	4622.61	4529.00
Seeds	0.00	1007.75	0.00	585.99	0.00	1075.69	0.00	1007.7	0.00	712.50	0.00	821.20
Seed treatment	2.55	0.00	29.31	12.41	0.00	0.00	48.95	21.90	0.00	0.00	16.16	6.86
Transplanting	3010.31	2799.14	4037.21	4499.35	2991.44	2583.33	2991.67	2942.44	2949.71	2804.29	3196.07	3125.71
Manures	1813.21	1991.20	2015.30	1800.69	1117.96	277.78	1194.84	712.68	1707.92	2188.59	1991.20	2015.3
Soil amendments	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1592.50	1232.71	318.50	246.5
Micro-nutrients	1431.74	-	1432.64	-	1483.18	1611.98	1490.70	-	1457.92	-	1459.24	322.40
Fertilizers	3954.32	3815.48	2366.16	1893.59	4011.27	4070.25	2979.23	2300.90	2118.83	2307.00	3815.48	2366.1
Bio-fertilizers	431.10	0.00	0.00	0.00	1966.12	1238.19	0.00	0.00	0.00	0.00	479.44	247.64
Irrigation	347.10	732.05	672.70	450.73	646.27	503.16	1690.32	1054.60	2185.21	2168.57	1108.32	981.82
Weeding	1331.55	955.38	2559.98	1627.35	2398.10	2195.56	2455.84	2379.53	3163.54	3162.86	2381.80	2064.13
Plant protection	925.23	653.24	968.69	383.40	851.84	996.53	81.99	59.94	81.25	0.00	581.80	418.6
Harvesting	3697.76	3084.18	3858.86	3950.08	4249.19	4277.78	1689.64	1727.27	5510.00	3472.50	3801.09	3302.36
Threshing	2913.90	1951.58	2087.95	2043.48	3597.16	3293.33	2646.18	3416.84	3416.25	3597.14	2932.29	2860.48

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Activity	Rainfed upland		Rainfed lowland (shallow)		Medium deep water		Deep water		Irrigated		All Ecological Regions	
	B	NB	B	NB	B	NB	B	NB	B	NB	B	NB
III. Land revenue paid	134.73	45.76	187.50	187.57	210.00	210.00	122.21	118.11	118.83	118.21	154.65	135.93
IV. Interest on capital paid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
V. Grand total of cost per farm	33189.48	10655.33	17278.83	38420.30	31890.10	7876.41	47221.54	23431.15	35013.70	38808.0	32918.73	23838.24
VI. Cost per hectare	23370.67	20986.60	23666.30	20810.89	28562.81	26901.64	21787.58	20783.72	29611.96	26906.64	25399.86	23277.90
Cost per hectare (including benefit)	25224.26	20986.60	25908.22	20810.89	30850.75	26901.64	24032.75	20783.72	31234.77	26906.64	27450.15	23277.90
VII. YIELD												
Grain yield rate (kg./ha)	5096.25	4710.00	4822.50	4430.00	5557.50	5330.00	5195.00	4890.00	4625.00	4355.00	5059.25	4743.00
Straw yield (qt./ha)	6.7700	6.4364	6.1407	6.0084	6.9032	6.8160	6.7045	6.4418	5.5808	5.3564	6.4199	6.2118
VIII. VALUE OF THE PRODUCE												
Value of Grain per farm	62212.55	21787.59	32810.33	76187.29	55594.21	14887.00	96542.83	48516.10	45501.97	49616.67	58532.38	42198.93
Value of Straw per farm	10540.10	3999.00	5480.60	13005.60	8339.10	2468.30	17222.60	8832.80	7761.20	8910.20	9868.72	7443.18
IX. RETURNS												
Net Return/farm excluding benefit	39563.17	15131.26	21012.10	50772.59	32043.21	9478.89	66543.88	33917.75	18249.47	19718.87	35482.37	25803.87
Net Return (including benefit)/farm	37004.11	15131.26	19398.55	50772.59	29614.77	9478.89	61678.92	33917.75	16346.72	19718.87	32808.61	25803.87
Net return/ha (excluding benefit)	30179.32	28075.99	29443.29	26722.67	32097.58	31522.49	30685.24	28995.41	15355.37	14592.38	27552.16	25981.79
Net Return/ha (including benefit)	28325.72	28075.99	27201.37	26722.67	29809.65	31522.49	28440.07	28995.41	13732.55	14592.38	25501.87	25981.79

Source: Field Survey-2012; **B:** Beneficiary; **NB:** Non-beneficiary.

NB: Cost includes all average expenses incurred in terms of money in production process by the farmers.

Appendix-XV (A)

Determination of the impact of inputs in the total yield of paddy in *Kharif*-2011 (Results of Regression Model)

Factors/Interventions	Summary of multiple regression						
	Assam	Bihar	36garh	Jharkhand	Odisha	Eastern UP	West Bengal
R^2	0.59	0.203	0.557	0.303	0.863	0.373	0.589
Adjusted R^2	0.52	0.120	0.507	0.231	0.840	0.308	0.546
SE of Estimate	230.55	269.282	484.88	192.094	503.485	452.18	260.737
Dependent Variable: Yield (Kg/ha.)							
Coefficients of independent variable:							
Constant	799.90	3239.284	3099.696	2385.034	-875.87	10311.4	4439.631
Costs of Seed per hectare(Rs.)	2.03	-0.173	0.947	-0.323	1.740	-6.107	0.229
Costs of Micro-nutrients per hectare (Rs.)	0.43	0.377	-0.045	0.090	3.254	0.573	0.082
Other Costs per hectare (Rs.)	0.08	0.034	-0.007	0.032	0.014	0.072	-0.001
Dummy for rainfed Upland ecology	138.95	-214.19	-	104.137	-1798.12	1337.84	309.846
Dummy for rainfed shallow low land ecology	118.45	-52.426	478.013	12.616	-162.66	4083.88	-
Dummy for rainfed medium deep water ecology	130.29	-5.828	-	92.809	-	3863.79	732.992
Dummy for rainfed Deep Water ecology	238.28	57.269	-	-77.886	-	-	392.431
Dummy for HYV Irrigated ecology	-286.29	-	-	-	460.26	19296.0	333.805
Dummy for Irrigated –hybrid ecology	-	-	491.198	-	-1497.12	-	-
Dummy for Irrigated-Traditional ecology	-	-	462.518	-	-	-	-

Source: Field Survey-2012.

APPENDIX-XV (B)

Determination of the impact of inputs in the total yield of paddy during summer -2012 (Results of Regression Model) in Assam State

Model Summary: Paddy yield: Summer-2012 (Assam)	
R^2	0.72
Adjusted R^2	0.66
SE of Estimate	181.82
Dependent Variable: Yield (Kg/ha.)	5658
Independent Variables	**Coefficients**
Constant	1753.37**
Cost of Micro-nutrients (Rs.)	-0.10
Cost of Seed per hectare (Rs.)	1.54*
Other Costs per hectare (Rs.)	0.09*
Dummy for rainfed Upland Ecology	167.97
Dummy for rainfed Low land Ecology	39.56
Dummy for rainfed Medium Deep Water Ecology	338.37
Dummy for rainfed Deep Water Ecology	207.72
Dummy for Irrigated Ecology	137.27

*and**indicate significant at 0.01 and 0.05 level, respectively

Source: Calculated from Field data.

APPENDIX-XV (C)

Determination of the impact of inputs in the total yield of pulses during *Rabi:* 2011-12 (Results of Regression Model) in Assam State

Model Summary: Yield of pulses in Assam: *Rabi: 2011-12*	
R^2	0.69
Adjusted R^2	0.62
SE of Estimate	115.33
Dependent Variable: Yield (Kg/ha.)	684
Independent Variables	**Coefficients**
Constant	-3.13
Cost of Micro-nutrients (Rs.)	0.09
Cost of Seed per hectare (Rs.)	0.24
Other Costs per hectare (Rs.)	0.05**
Dummy for rainfed Low land Ecology	275.51*
Dummy for rainfed Medium Deep Water Ecology	191.10*
Dummy for rainfed Deep Water Ecology	51.89
Dummy for Irrigated Ecology	67.88

*and**indicate significant at 0.01 and 0.05 level, respectively

Source: Field Survey-2012.

APPENDIX-XV (D)

Determination of the impact of inputs in the total yield of wheat during *Rabi:* 2011-12 (Results of Regression Model) in eastern Uttar Pradesh State.

Model Summary: Yield of wheat in eastern UP : *Rabi: 2011-12*	
R^2	0.62
Adjusted R^2	-0.46

SE of Estimate	5102.38
Dependent Variable: Yield (Kg/ha.)	
Independent Variables	**Coefficients**
Constant	6152.80
Cost of Seed per hectare (Rs.)	0.729
Other Costs per hectare (Rs.)	-0.097
Dummy for timely sown irrigated ecology	-2171.56

Source: Field Survey-2012.

Acronyms

AERC – Agro-Economic Research Centre

BGREI – Bringing Green Revolution to Eastern India

CRRI – Central Rice Research Institute

HYV – High Yielding Variety

ICAR – Indian Council of Agricultural Research

KVK – *Krishi Vigyan Kendra*

KS – *Krishi Salahkar*

NFSM – National Food Security Mission

RKVY – *Rashtriya Krishi Vikas Yojana*

SAU – State Agricultural University

SDA – State Directorate of Agriculture

TOR – Terms of Reference