Study No. 161

THE IMPACT OF MACRO MANAGEMENT OF AGRICULTURE SCHEME

Executive Summary

K. M. B Rahim
D. Roy
R. K. Biswas

Agro-Economic Research Centre
Visva-Bharati
Santiniketan
2010

THE IMPACT OF MACRO MANAGEMENT OF AGRICULTURE SCHEME*

K. M. B Rahim, D. Roy and R. K. Biswas

Introduction

The Macro Management of Agriculture scheme has been conceived as a major step towards achieving decentralization in pursuance of restoring primacy of the States in agricultural development planning. By integrating the existing 27 Centrally Sponsored Scheme under the Macro Management Approach, it was decided that the Central Government will supplement/complement the State Governments' efforts through regionally differentiated Work Plans comprising crop/area/target group specific interventions, formulated in an interactive mode and implemented in spirit of partnership with the States. As such, the particular objectives of the MMA include - Reflection of local needs/crop/regions specific/priorities etc.; Providing flexibility and autonomy to the States; Optimum utilization of scarce financial resource; Maximization of returns; and Removal of regional imbalances.

The said attempt towards restoring primacy of the states in agricultural development planning by means of providing flexibility and autonomy to the states has been reflected in the fact that the States are theoretically free within given parameters to restructure any/all sub-schemes and their components and include them in their work plan. They are also free to include new interventions in the work plans provided these are not covered under any other scheme of Central Government or is not part of any on-going State Government schemes.

The importance attached to such an attempt towards the decentralization of agricultural development planning and its significance remains established by the fact that the expenditure incurred under the scheme, though registering frequent fluctuations during the period, more than doubled itself within the 7th year of its commencement from 2000-01 to 2006-07 with an annual average growth of about 20 percent per annum. In fact, during the 10th Five Year Plan (2002-07), an expenditure of Rs. 4,154 crore has been incurred as financial commitments towards the scheme. Again, out of the 910 crore budget allocation earmarked for the year 2006-07, a share of 97.5 percent of budget allocation and 97.2 percent of fund release has been subjected to the States and Union Territories.

With such a huge budget allocation for the MMA scheme, it is obvious to observe that there has also been a remarkable physical achievement under the scheme over the years. In particular, it is estimated that during the 10th Five Year

Plan (2002-07) the physical achievement under the scheme amounted to the extent of treatment of 24.13 lakh hectares of degraded land on watershed basis, 10.39 lakh hectares of land in river valleys and flood prone rivers, 7.36 lakh hectares of alkali soil and distribution of 17.14 lakh farm equipment under the MMA scheme.

Since its inception in 2000-2001, the Department of Agriculture, Government of West Bengal, has been implementing various schemes under the Macro Management Mode Work Plan with a view to bring about all round development of agriculture in the State of West Bengal. As for the year 2006-07, out of the seventeen schemes identified under the Macro Management of Agriculture Scheme, five sub-schemes are related with the Cooperation Department, and are not functioning in West Bengal. Again, out of the remaining twelve schemes, five schemes have been modified as per the need of the state, while the rest seven schemes were in operation maintaining its original form in West Bengal. These schemes have further been broadly sub-divided into four groups or heads, as – Soil Health Management Group, Natural Resource Management Group, Agricultural Crops & Others Group, and Innovative Schemes Group.

In West Bengal also, immense importance has been attached with the MMA scheme since its implementation. In fact, during the period 2001-02 to 2008-09, a sum of 234.77 crore has been utilized for the implementation of the schemes under MMA, as against a total fund allocation (Govt. of India + Government of West Bengal) of 285.27 crore. The average annual rate of utilization of funds under the MMA scheme in West Bengal thus stands at a moderate of 82.6 percent points. However, while the annual average rate of growth of the share of the Central Government turns out to be 7.5 percent p.a., that for the State Government stands at 12.4 percent per annum.

When compared against the budget allocation, fund release and expenditure under MMA for the year 2006-07 across the States and UTs, the state of West Bengal stands the 9^{th} largest recipient of central budget allocation and fund release, 14^{th} in terms of expenditure, and 20^{th} in terms of unutilized balance. All these in turn seem to indicate a positive approach from the Government of West Bengal towards the all important Macro management of Agriculture scheme.

Objectives & Methodology

The Macro Management of Agriculture Scheme has been considered as the most important vehicle for strategic interventions for technology up-gradation in different crops. Hence, there is always a need to assess the impact of interventions made under the specific sub-schemes under the MMA scheme, so as to examine the impact of such a decentralized approach at the grass-root level and to verify

whether or not the local needs has been served with, i.e. whether the objectives of the MMA schemes have been fulfilled.

It remains especially true keeping in view of the fact that ever since the implementation of Macro Management of Agriculture Scheme, study on the impact of its Integrated Nutrient Management Sub-schemes has not been carried out. Hence the present study tries to examine these aspects.

The particular objectives of the study are-

a) to assess the impact of interventions made under the following sub-schemes subsumed under the Macro Management of Agriculture Scheme on production and productivity of various crops with minimum cost -

   i) ICDP-Wheat
   ii) ICDP- Coarse Cereals
   iii) Foundation / Certified Seed Production of Vegetable Crops
   iv) Special Jute Development Programme
   v) Sustainable Development of Sugarcane Based Cropping System
   vi) Balanced Integrated Use of Fertilizers

b) to analyze the impact of efforts made by the State in increasing the seed replacement rates (crop wise), in terms of ensuring timely availability of sufficient quantity of good quality seeds, and

c) to analyze the impact of the activities to promote Balanced Integrated Nutrient Management to maintain soil fertility and environment.

To fulfill the specific objectives as spelt out earlier, the study is essentially based on both primary and secondary data. The secondary data has been collected from existing literature, published statistical materials as well as from different nodal offices (e.g. Directorate of Agriculture, Bureau of Applied Economics, Directorate of Census Operations, CMIE, etc) at different administrative levels.

The primary data for the study has been collected through conducting a multistage stratified sampling survey without replacement from over five blocks for the five distinct sub-schemes concerned (one block each for five sub-schemes). The selection of blocks has been done in consultation with the officials of the implementing agency at the state level, viz. Directorate of Agriculture, depending upon the performance and availability of data relating to the individual sub-schemes concerned.

The sample blocks/districts identified for the study were Block Ausgram-I from Barddhaman District, Blocks Bolpur-Sriniketan and Sainthia from Birbhum District and Blocks Habra-I and Basirhat-I from North 24 Parganas District. The sample blocks/districts identified for the study were Block Ausgram-I from

Barddhaman District, Blocks Bolpur-Sriniketan and Sainthia from Birbhum District and Blocks Habra-I and Basirhat-I from North 24 Parganas District.

The sample units in the study were the sample beneficiary farmers obtaining either physical or financial benefits directly in any form under the sub-schemes concerned. In total, a pool of 250 sample beneficiary farmers together (50 each for the 5 sub-schemes concerned) constitutes the sample size in this study. The primary data was collected by conducting an intensive field survey by way of interviewing each and every sample beneficiary farmer by following a rigorous questionnaire on various socio-economic activities.

A few important technical aspects relating to the reference year and coverage of schemes for the present study are as follows –

- As the Government of West Bengal has suitably restructured the scheme 'Foundation / Certified Seed Production of Vegetable Crops' modified as 'Strengthening of Seeds Farms and Production of Quality Seeds' of cereal crops, the objectives specified in (a-iii) and (b) has been ruled out from the present study accordingly.
- The Government of West Bengal has also restructured the scheme 'Balanced and Integrated Use of Fertilizers' as 'Soil Health Management'. However, as the component activities under the scheme have maintained its original form to a considerable extent, the scheme has thus been incorporated in the study under valid justifications.
- The scheme 'ICDP- Wheat' has also been modified as 'Dissemination of New Technology through Diversification of Suitable Crops'. Nevertheless, as the scheme incorporates component programmes on wheat to a considerable extent, the said names of the scheme has been considered as synonymous in the study, and has thus been incorporated under valid ground.
- The reference year for the study, in general, pertains to the year 2006-07 and 2007-08 for secondary data at the state and the block levels. However, depending upon the availability of data, the period has been extended to 2008-09 as well to cope up with the present state of the sub-scheme schemes. On the other hand, unavailability of secondary data for the said reference years, in particular cases, led to the shifting of the reference year to the next available year for secondary data analysis.
- All primary data relating to the particular sub-schemes pertain to the crop year 2007-08, and to crop year 2004-05 as and where necessitated (in case of before & after analysis). Hence, while the period 'before' refers to the crop year 2004-05 (before the farmers became beneficiaries under the sub-schemes), the period 'after' refers to the crop year 2007-08 (after the

farmers became beneficiaries under any component activity of the sub-schemes).

-

The Study Area

The present study is essentially based on the West Bengal agriculture, which plays such a pivotal role in the State's economy that nearly three out of every four persons is directly or indirectly involved in agriculture. Though the state has only 3 percent of cultivable land, it accounts for 8 percent of the total food grains produced in the nation. The major crops grown in the state include Rice, Wheat, Jute, Tea, Potato, Sugarcane, Pulses and Oilseeds etc. The state is the highest producer of rice in the nation; about 60 percent of the raw jute is produced in the state. Though West Bengal has faced a gradual decline in the net cropped area over the decades, it has got more than equally compensated by a sharp rise in the cropping intensity from 159 percent to 182 percent, as a result of an increase in the gross copped area. The proportion of HYV cultivation in case of principal crops, especially rice and wheat taken together, seems to have achieved a plateau in the current decade. The importance of agriculture in the State’s economy is reflected in the fact that the contribution of primary sector stands at 26 per cent to the total NSDP in 2006-07 (at constant 1999-2000 prices) supporting employment of nearly 58 per cent of its rural workforce as per census 2001.

For the fulfilment of the objectives of the study, a total number of three district of West Bengal, namely Birbhum, Barddhaman and North Twenty Parganas, have been selected as the sample districts, each belonging to distinct agro-climatic zones based on landform hydrology. In particular, while the district Birbhum falls under the Red & Lateritic Zone, district Barddhaman and district North Twenty Parganas belong to the Old (Vindhya) Alluvial Zone and New (Gangetic) Alluvial Zone respectively. Brief agricultural profiles for these district may be present as-

- Birbhum is primarily an agricultural district with around 75 percent of the people dependent on agriculture. Rice is the major crop of this district and occupies about 70percent of the grossed cropped area. The other important crops are wheat, potato, mustard, vegetables, sugarcane and pulses. The district has attained surplus production in case of paddy, potato and vegetables.
- Agriculture in North 24 Parganas has witnessed a remarkable increase in food grain production. The district also contributes significantly towards the West Bengal horticultural produces and is taking shape as a ‘Horticulture Hub’ of the state. The commercial production of vegetables like tomato, cabbage, cauliflower, pea, brinjal, ladies finger, beans, potato etc. has grown rapidly over the years owing to favourable agro-climatic conditions of the district.

- The district Barddhaman has also been a predominantly agricultural district with 58 percent of the total population belonging to the agricultural population. The district is properly known as the granary of West Bengal. Rice is the most important crop of the district, while among commercial crops, jute, mesta, sugarcane, potato, oil seeds etc. are also cultivated in marginally.
-

Results of the Study

The key observations and the major findings of the empirical investigations relating to the respective sub-schemes can be described here in brief as impact of interventions made under the sub-scheme concerned. A scheme-wise description of the key observation and the major findings has been present here as follows. -

Major Findings on SUBACS

I) The impact of interventions under the SUBACS scheme has been found to have manifested itself primarily through a marked increase in the area under sugarcane cultivation, yield rate and production of sugarcane for the beneficiary farmers, especially for the marginal farmers.

II) With the increase in production and productivity of the sample beneficiary farms, a quantum positive change occurred in income, expenditure and gross return from field crops of the beneficiary farmers, especially for the small and the marginal farmers.

III) With the input-support received under the scheme in the form of important inputs like fertilizers, plant protection materials, sugarcane seed, etc, radical changes have taken place in the application of fertilizers, plant protection inputs, etc. of the sample beneficiary farmers towards a more balanced and judicious application of fertilizers.

IV) As an impact of the interventions made under the scheme, the participation of the sample beneficiary farmers in the demonstrations programmes or training camps organized by the immediate implementing authority of the scheme (viz. the ADO, Sugarcane of the concerned block) turns out be quite high, which in turn reflects the initiative from the farmers' side to adopt new technologies under modern cultivation practices.

V) The impact of the demonstrations under the scheme has manifested itself through a gradual change in the cultivation techniques adopted by the sample beneficiary farmers. Moving away from the traditional format, the farmers are found to have been changing their attitude towards modern cultivation techniques with high yielding varieties of high yielding seeds (here, BO-91), balanced fertilizer use with required soil ameliorates based upon soil tests.

VI) There has been a serious lacuna in case of information regarding the scheme, as none of the sample beneficiary farmers learnt about the scheme though a printed or electronic media. Rather, there has been an important role played by the KPS and the Panchayat as sources of information on the scheme.

Major Findings on BIUF

I) The impact of interventions under the scheme BIUF (or 'Soil Health Management' in case of West Bengal) has found to have played a significant role regarding positive changes in the area under cultivation, yield rate and production of main crop (viz. paddy- kharif). While the area under cultivation in kharif increased marginally, the area under cultivation in boro and rabi increased to a considerable extent, resulting into a quantum jump in the cropping intensity of the sample beneficiary farmers over the period. The phenomenon has been especially true for the marginal sample beneficiary farmers.

II) There have been positive changes in gross return, income and expenditure of the sample beneficiary farmers, which in turn indicate towards a phenomenon of manifestation of the impact of the interventions made under the scheme on the socio-economic condition of the beneficiary farmers, especially marginal farmers. At the same time, though the costs of paddy cultivation in kharif recorded an increase, the corresponding increase in income (gross income/hectare) more than compensated for the loss arising out of the increase in costs.

III) The impact of the interventions made under the scheme in attaining a balance in fertilizer application among the beneficiary farmers and reviving soil health has been indirectly reflected in the reorganization of chemical fertilizers doses among the sample beneficiary farmers. The growing rate of application of chemical fertilizers (e.g. urea, DAP, etc.) in supplementing nitrogen and phosphorus of soil has been reversed to some extent for the sample beneficiary farmers, primarily due to an increase in the rate of application of bio-fertilizers, organic manure, compost, vermi-compost, etc. under the scheme BIUF.

IV) The participation of sample beneficiary farmers in demonstrations on Green Manuring, Micro Nutrient Application and Organic Manure & Herbal Products, etc. organized by the concerned ADO office under the scheme has been found to be quite high reflecting growing interest of the farmers in adopting modern cultivation practices, with the assistances on bio-fertilizers, enriched-compost, micro-nutrients, green-manure, etc under the scheme BIUF.

V) Though distribution of soil ameliorates was a component activity under the BIUF scheme, only a few of the sample beneficiary farmers have actually used soil ameliorates in their farmland. In fact, about ¼ of the sample beneficiary farmers do not know the whereabouts regarding soil tests, which indicates towards lack of propagation or mass-campaign in favour of soil tests.

VI) Though there is a provision of publicity campaign under the scheme, only a handful of the sample beneficiary farmers came to know about the scheme through the activities on publicity campaign. Rather, the dominant sources of information about the scheme BIUF are found to be the KPS and the Gram Panchayat.

Major Findings on SJDP

I) The key strategy adopted under the scheme SJDP towards the development of jute cultivation appears to have exerted a significant positive impact on the area, production and productivity of jute for the sample beneficiary farmers. This has particularly come through the production technology demonstration on jute with balanced fertilizer dose and proper plant protection technology conducted on land-plots belonging to the sample beneficiary farmers under the scheme.

II) The manifestation of the impact of interventions made under the scheme concerned in terms of positive changes in area, yield-rate and production of jute turn out to have in turn caused a significant rise in income, expenditure and gross return from field crops for the beneficiary farmers.

III) The fertilizer-use pattern has changed radically after the intervention of the SJDP scheme mainly through demonstration programmes conducted under the scheme, thereby reflecting a positive attitude of the sample beneficiary farmers towards a more balanced and judicious use of fertilizer with proper plant protection techniques. This has been clearly established considering that one-thirds of the sample beneficiary farmers have used soil ameliorates in their plots, while more than half of the sample beneficiary farmers have got their soil tested to revive pH balance and soil health.

IV) The component activities under the scheme, especially demonstration programmes, has grown interests among the sample jute cultivators on acquiring knowledge on various technological aspects of modern cultivation practices, which is reflected through a higher rate of participation of beneficiary farmers in demonstration programmes and training camps, organized by the ADO office under the scheme.

V) The prime source of information about the scheme has been the local KPS, and not any printed or electronic media, which in turn indicates that there has been an information gap with the masses in terms of campaigning for the scheme.

Major Findings on ICDP-W

I) Under the intervention of the scheme ICDP-Wheat (modified as 'Dissemination of New Technology through Diversification of Suitable Crops'), the area and yield rate of wheat witnessed significant positive changes for the sample beneficiary farmers, primarily through the technology demonstration programmes- which in turn brought about an increase in the production of wheat in consequence.

II) With the increase in area and yield rate of wheat, the gross return from agriculture for the sample beneficiary farmers increased to a large extent, resulting into considerable rise in the income of the sample beneficiary farmers, though the positive impact of the increases in gross return and income has been outweighed by an even greater increase in expenditure.

III) There has been a positive impact of the scheme on fertilizer application pattern of the beneficiary farmers also, as the key technology adopted in the demonstrations was to promote diversification of crops through increase in production and productivity with balanced use of fertilizers. In particular, the application of MOP and DAP per unit of land increased considerably, while there has been a marginal increase in the rate of application of urea. These changes appear to have occurred as a direct influence of the scheme primarily through crop production technology demonstrations with seed-fertilizer support.

IV) The interventions under the scheme appears to have provided the much required impetus for a mass-adoption of modern cultivation techniques, as the participation of the sample beneficiary farms in various training programmes conducted under the scheme has been quite high, though that for the demonstration programmes has been found to be moderate.

V) There is an indication that the farmers are assigning greater importance on aspects of scientific cultivation techniques like soil tests and use of soil ameliorates, though it is restricted to only to a few farmers. This has immense significance in the sense that there is much scope for a mass-campaign for soil tests, even within the most advanced agricultural districts of West Bengal.

VI) The major sources of information about the scheme turn out to be the KPS of the concerned block and the Panchayat, whereas the printed or electronic media has not played any significant role in this respect.

Major Findings on ICDP-CC

I) The impact of interventions made under the scheme ICDP- Coarse Cereals appears to have brought about overwhelming increase in the area under cultivation of maize for the sample beneficiary farmers, which in turn, with the increase in yield rate, contributed to an even higher increase in the production of maize. At the same time, the manifestation of the impact of the scheme through increase in production and productivity of maize resulted into significant increase in the gross return from agriculture, income as well as expenditure for the sample beneficiary farmers under the scheme.

II) The key technology adopted for the hybrid maize seed distribution programme (viz. distribution of high yielding varieties of maize with application of fertilizer in balanced dose; maintaining timely irrigation, inter culture, top-dressing, etc) has exerted significant impact on the fertilizer use pattern for the sample beneficiary farmers towards a more balanced and judicious use of fertilizers.

III) As an impact of the interventions made under the scheme, the participation of the sample beneficiary farmers in training camps organized by the immediate implementing authority turns out be quite high. In particular, more than two-thirds of the sample beneficiary farmers found to have participated in various training programmes conducted under the scheme, which in turn reflects the initiative from the farmers' side to adopt new technologies under modern cultivation practices.

VII) The KPS of the concerned block has been found to act as the prime source of information regarding the scheme ICDP- Coarse Cereals, as also for other Central or State sector schemes, whereas the printed or electronic media fails to act as a source of information in this respect.

Conclusion & Policy Implications

The major policy recommendations based on the facts and findings as emerged from the study have been briefly described below as follows.-

- Though the increasing budget allocation and fund sanction for the schemes reflects a positive approach from the Government of West Bengal towards the Macro management of Agriculture scheme, the issue of unutilized balances deserves proper attention from the concerned authority to work upon, especially when there has been much scope for flexing autonomy in the allocation of resources in agricultural development planning under the MMA scheme. *[Attention: Department of Agriculture, Government of West Bengal]*
- There are a number of issues regarding the input-support extended under the scheme concerned, which need due attention from the implementing agency at the sharpest. The most important of them is that the inputs supplied for demonstrations and to the demonstration plot holder farmers reach the farmers so late that they have to purchase the inputs from the open market to makeup for the delay, else suspend cultivation running out of required inputs. *[Attention: Inputs Department, Directorate of Agriculture, Government of West Bengal]*
- In a highly marginalized economy like in West Bengal, the lower ceiling on demonstration plots of 0.50 hectares needs to be reconsidered as land plots suitable for sugarcane cultivation of 0.50 hectares at a stretch is rarely available with the common farmers. Though reorganizing demonstration plots as a conglomeration of numerous small tracts of few decimals only belonging to a group of farmers may evoke a cooperative attitude among the farmers, it may also inversely cause difficulties in the distribution of input-supports among contributory farmers of the demonstration plots, as has been observed in the study. *[Attention: Department of Agriculture, Government of West Bengal]*
- Often the subcomponents under the schemes concerned are entrusted with the local Panchayat offices (e.g. distribution of hybrid wheat seeds), which do not report back the progress of the specific task or its status. The concerned authorities should consider this as a serious flaw in the strategy for implementation of the components of the schemes concerned, as this in turn results into a number of hurdles in the proper implementation of the schemes or to keep track of the progress achieved under the schemes concerned. *[Attention: Ministry of Panchayat,*

Government of West Bengal; Department of Agriculture, Government of West Bengal]

- In the process of transformation of the farming economy from its traditional practices to the adoption of modern technologies of farming., the role of soil tests acquire immense significance to facilitate balanced use of fertilizers, nutrient, ameliorates, etc. However, time and again, it has come out that a large section of the farming economy does not know the whereabouts regarding soil tests, even in the agriculturally advanced districts. This surely desires much attention from the concerned authorities as the phenomenon indicates towards an acute need of mass-campaigns in favour of soil test based judicious application of inputs. At the same time, the official procedure for obtaining the soil testing facilities should not be much complicated so as to enable each and every member of the farming community to come to the soil test net. *[Attention: Department of Agriculture, Government of West Bengal]*
- Though the strategy for employing KPSs has been a story of success as being the most prominent source of information regarding the scheme concerned, as also for other agricultural schemes, the fact remains that there exists a serious lacuna of the schemes under MMA regarding publicity campaign programmes. This deserves much attention from the implementing authority as well as from the masses to sustain the advent of the schemes. Here, the effectiveness of the electronic media (TV, Radio, etc.) should be considered with due importance, as they can become good weapons of mass-communication and mass-publicity for the schemes concerned for both the literate and illiterate farmers. *[Attention: Ministry of Agriculture, Government of India; Department of Agriculture Government of West Bengal]*

Obviously, the tasks are many and performing of these tasks enumerated above would require coordinated efforts among different departments of the government. Nevertheless, considering the broader objectives of the MMA scheme, the aforesaid tasks boil down only to minor corrections in the strategies for implementation of the schemes concerned, so as to sustain the Macro Management Mode in its glory of success.