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## SUMMARIES

### COMPREHENSIVE AREA DEVELOPMENT PROGRAMME IN WEST BENGAL REVISITED

K. Sain and B. Bagchi\*

The Comprehensive Area Development Programme (CADP) was started in West Bengal only in 1975 although the Comprehensive Area Development Corporation (CADC) Act received the assent of the President of India in 1974. The programme remains confined to 20 projects selected earlier by the District Planning Committee in different agro-climatic zones of West Bengal. Significant success is recorded by these projects in the sphere of water management, farm finance, supply of farm inputs, agricultural marketing and augmentation of production and productivity. Preference has been given to the agricultural landless labourer, share-croppers and small and marginal farmers in the matter of allocation of farm inputs through the Farmers Service Societies under the CADC. Special programmes and schemes like community grain gola, consumers' stores, nutrition programme and food-for-work programme have been initiated under the CADC almost exclusively for the rural poor. But the projects face a number of constraints in the way of its successful execution. The existing inequitable land system, indifference and/or adverse attitude on the part of the political authorities, opposition from the rural rich and other vested interests and scarcity and irregular supply of farm inputs are some instances in this respect. Most of the grounds on which doubts were expressed by the authors about successful implementation and propagation of the programme in their earlier paper on the subject in this Journal still stand. It appears that the CADP fights for its survival and growth in a very limited area and under circumstances not favourable to it.

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### IMPACT OF EXTENSION CONTACTS IN AGRICULTURE: A CASE STUDY OF RICE CULTIVATORS IN ANDHRA PRADESH

T. V. S. Rao and A. G. Prasad†

Extension is the most crucial input for the successful transfer of technology. The paper discusses the relationship firstly between the degrees of development of an area and extension efforts and secondly extension services and the different size classes of farmers with the help of data collected by the Agro-Economic Research Centre for the study of "Intra-State Variations in Rice Yields". For this purpose, two agro-climatic zones that are at different levels of development are selected and the sample cultivators (644) are grouped into small (below 5 acres), medium (5 to 10 acres) and large (above 10 acres). Two types of extension efforts are discussed in the paper, *viz.*, (i) personalised extension where knowledge is imparted through personal contacts of the Assistant Agricultural Officers (AAOs) and Village Development Officers (VDOs) with the cultivators and (ii) non-personalised extension effort where the transfer of technology occurs through demonstration farms.

The following are the main observations. The proportion of farmers contacted is more in the developed (zone I) than in the less developed (zone II) region, particularly in the case of VDOs. Between farm sizes, the small farmers in zone I and the large farmers in zone II appear to have used the extension services to a larger extent. The adoption of demonstrated practices is reported more extensively in zone II than in zone I. In zone I, the superiority of output of the contact farmers over the non-contact farmers is very limited whereas it is quite impressive in zone II. The reason for the above disparities lies not in any partiality of the extension worker but in the unavoidable socio-political hegemony of the rural elite coupled with scarcity of extension. The remedy lies in augmenting extension services in the less developed areas. There is ample empirical evidence to show that such an addition will be handsomely rewarded by a sizable increase in agricultural productivity.

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## IMPACT OF EXTENSION WORK IN THE GROWTH OF AGRICULTURE IN WEST BENGAL

A. K. Giri and B. N. Mitra\*

An attempt has been made in this paper to see how far the number of extension personnel at the village level per block and the size of net sown area per village level worker (VLW) per block in each of the districts of West Bengal affect agricultural development in terms of the growth rate of area, production and productivity of cereals, cropping intensity, fertilizer consumption per hectare and the percentage of irrigated area in the districts of West Bengal. Linear growth rates of area, production and productivity of cereals, and cropping intensity, fertilizer consumption and the percentage of irrigated area for the period 1968-69 to 1971-72 with 1956-57 as the base year were compared among the Intensive Agricultural District Programme (IADP), Intensive Agricultural Area Programme (IAAP) and normal districts. Then rank correlation was computed taking the size of net sown area per VLW per block in the district, on the one hand, and the growth rate of area, production, productivity of cereals, cropping intensity, fertilizer consumption and percentage of irrigated area separately, on the other. Mere difference in the number of VLWs in the blocks in each of the IADP, IAAP and normal district does not account for variability in the growth of various agricultural development activities. It is the size of net sown area per VLW per block in the district which bears favourable relationship with various agricultural development activities. The scope exists for faster development of agriculture by increasing the number of field level extension staff in each block both in IAAP and normal districts which are thought to have less potential for agricultural development.

## PRODUCTIVITY PERFORMANCE OF IADP AND CAD

J. S. Narain Rao†

The Intensive Agricultural District Programme (IADP) started in the 1960s and the Command Area Development (CAD) of recent origin under the newly commissioned major irrigation projects are the two important agricultural extension services in the country. Any farm extension service should contribute substantially to the increase in the yields of crops per unit of agricultural land in the country. This paper investigates the productivity performance of IADP and CAD in Andhra Pradesh with reference to rice crop, the most extensively grown crop of the State and the above extension agencies area, during 1958-59 to 1976-77. West Godavari is one of the original three districts selected for the IADP in the 1960 *rabi* season. About 70 per cent of the total cultivated area in the district is devoted to rice. As such, the IADP can be assumed to have contributed to the increase in the productivity, if any, of the crop in the district. For the purpose of comparison, three other districts, namely, East Godavari, the district adjoining West Godavari and similar to it in many respects, Chittoor—a Rayalaseema district of major rice production—, and Nizamabad, the rice-bowl of Telangana, and the State as a whole have been taken into consideration. Because of year-to-year fluctuations in yields, compound rates of growth of productivity have been worked out with the help of index numbers of yields and fitting in the function  $Y=AB^x$ , where Y is the index number of yield and x, time. The compound rate of growth of productivity per annum was 2.8 per cent for West Godavari, 0.6 per cent for East Godavari, 1.5 per cent for Chittoor, 2.1 per cent for Nizamabad and 1.5 per cent for the State as a whole. A rate of growth of just 2.8 per cent in productivity, which is only 0.7 percentage point higher than that of Nizamabad, a non-IADP district, is not considered a good return on investment in IADP. As against the IADP, CAD confined to Pochampad, Nagarjunasagar and Tungabhadra projects has been found to be giving good results by way of rise in crop yields.

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## EXTENSION SERVICES: SMALL AND MARGINAL FARMERS' DEVELOPMENT AGENCIES IN RAJASTHAN—SOME OBSERVATIONS

L. N. Gupta\*

The term 'Agricultural extension work' may be applied to a variety of forms of extension in agriculture. It is concerned with the diffusion of improved agricultural practices. The SFDA and MFAL programmes have been in operation in the State of Rajasthan for the economic betterment of small farmers by way of identifying their problems and finding solutions to them. The MFAL programme assists the marginal farmers in making a maximum use of their small holdings and providing employment opportunities to the landless agricultural workers. The facilities under the SFDA and MFAL have been extended to all the 26 districts of the State. It is suggested that the establishment of *Karshak Kendras*, organization of camps, trips and wide use of radio would help in popularising the programme in the State.

## ECONOMICS OF INVESTMENT IN SMALL FARMERS' DEVELOPMENT AGENCY IN TIRUNELVELI DISTRICT, TAMIL NADU

C. Arputharaj, T. Ramakrishna Rao and Rm. Palaniappan†

The present paper attempts to find out the economics of investment in Small Farmers' Development Agency in one of the pilot districts of Tamil Nadu, *viz.*, Tirunelveli district. The need to include a large number of rural population bypassed by the earlier agricultural development programmes, the special efforts needed to cater to these weaker sections of rural population and the implementation of particular programmes suitable to them led to the establishment of the Agency in 1970-71. The data made use of in this paper in working out the benefit-cost ratio have been taken out from the information collected for a research project conducted by the Agricultural Economics Research Centre. The Agency has achieved considerable results in the fields of minor irrigation and dairy schemes, which have ample scope for further development. Till the end of 1978, as many as 86,146 small farmers were benefited by the Agency and a sum of Rs. 627.01 lakhs had been advanced by the credit institutions. The cost-benefit ratio is 2.16. In addition to the direct benefits derived from the programme, a number of indirect benefits like improvement in the standard of living, level of education, travel, etc., have accrued to the small farmers.

## ORGANIZATION OF DAIRY EXTENSION SERVICES: AN EVALUATIVE ANALYSIS OF INTENSIVE CATTLE DEVELOPMENT PROJECT, HYDERABAD

T. P. Gangadharan and K. R. Rao‡

Intensive Cattle Development Projects have been in operation since the mid-sixties to popularise scientific management practices for increasing milk production. This involves the whole gamut of extension services for which sizable funds are allocated. This paper attempts to investigate the impact and performance of dairy extension services of the Intensive Cattle Development Project, Hyderabad (ICDPH) during the period from 1965-66 to 1977-78. Modern dairy farm techniques have been translated to the farming clientele by organizing cattle shows, milk yield competitions, calf rallies, film shows, demonstrations, etc. For harnessing feed and fodder resources, popularisation of high-yielding fodder varieties have been undertaken through effective extension methods. Although the performance of extension activities has been found erratic from year to year, there has been a commendable improvement in the physical achievements of the ICDPH. A model using first differences of relevant variables was developed to analyse the positive contribution of extension services in increasing milk production in ICDPH. The aggregate impact of these services was hypothesized to be much greater than that revealed by the model. It was felt that in the organization of dairy extension services, the economic and social implications should receive adequate consideration along with the attainment of technical efficiency.

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## ECONOMICS OF AGRICULTURAL EXTENSION SERVICE: A CASE OF STUDY OF DROUGHT-PRONE AREAS PROGRAMME IN MAHARASHTRA

S. B. Dangat and M. P. Dhongade\*

An attempt is made in this paper to assess the economics of extension organization provided for the dryland farming development programme in Ahmednagar district of Maharashtra, which is one of the six districts in India assisted by the World Bank under the Drought-Prone Areas Programme (DPAP). The study is based on a detailed project report prepared for the district by the Government of Maharashtra on the basis of an Appraisal Report (No. 533-a-I) of the World Bank, which acted as an operational guide for the implementation of the programme. The dryland farming development programme is implemented in five watersheds consisting of 71 villages in the district. For the implementation of the programme 5 Agricultural Extension Officers, 25 Village Extension Workers and 5 Junior Clerks are provided for the establishment. The duration of the programme is five years. The average annual expenditure on this establishment works out to Rs. 2.89 lakhs. The maximum coverage under the improved practices of dryland farming is assumed to be 87.50 per cent of the cultivable area at the end of third year and the next two years are left for stabilisation. The proportion of area covered by different crops under the improved practices is as follows: jowar 37.50 per cent, bajra 32.50 per cent, pulses 12 per cent and oilseeds 5 per cent. With the adoption of improved practices, the per hectare additional net income works out to Rs. 726.08 for jowar, Rs. 240.10 for bajra, Rs. 568.35 for gram, Rs. 1,282.01 for *moong*, Rs. 1,827.82 for groundnut and Rs. 621.48 for safflower. Using these norms and the area of different crops that is likely to be brought under improved practices, the annual average additional income that could be generated by the implementation of this programme works out to Rs. 256.61 lakhs, while the annual cost on account of extension organization is Rs. 2.89 lakhs. The input-output ratio works out to 1:32.36 which is quite high. Thus, this exercise shows that the extension organization relating to the dryland farming part of the DPAP in Ahmednagar district is quite profitable.

## IMPACT OF GIRNA COMMAND AREA DEVELOPMENT AGENCY ON PROFITABILITY OF THE FARMS

S. D. Suryawanshi, P. M. Kapase, R. G. Patil and S. J. Patil\*

The paper makes an attempt to evaluate the impact of Command Area Development Agency (CADA) in Girna irrigated project area of Jalgaon district of Maharashtra. The CADA is a separate developmental extension organization which was established to carry out effectively the activities of water control, crop planning and developmental programmes to achieve the objectives of increased production and income. The study has been carried out for three periods, *viz.*, (i) Period I: The period prior to 1969-70 when irrigation was not made available. (ii) Period II: It consists of the period from 1969-70 to 1974-75 when irrigation was made available by the parent Irrigation Department. (iii) Period III: The period from 1974-75 onwards when water and extension aids were received by CADA. In all, 400 sample farms were studied from 28 villages spread over in five tahsils of Jalgaon district. It is revealed that the proportion of cash crops, the area under improved varieties and the intensity of cropping have increased from period I to period III. The investment in capital assets increased per farm from period I to period III. The investment per farm in period III was two times and two and half times more than that of period II and I respectively, which showed that the capital formation process has been accelerated during the period of existence of CADA. The higher utilization of different inputs during period III showed the awareness of the farmers to use modern inputs, which has demonstrated the impact of extension activities. It is observed that in almost all important crops, the per hectare productivity has increased tremendously. This is the real impact of extension development activities of the CADA project and adoption practices of improved technology. The different measures of farm income showed that the per hectare input and output have increased over the study period. The returns to farm investment were 5.08, 10.20 and 14.17 per cent in period I, II and III, respectively, while the output-input ratio in the respective periods was 1.35, 1.60 and 1.62. The per hectare additional income over additional cost in period III worked out to Rs. 482.91, which showed the better execution and utilization of resources at the possible level. The benefit-cost ratio of the project worked out to 1.14 and 2.13 for period II and period III, respectively. In spite of the high annual cost of the project, the benefit is also proportionately high. The CADA has made a good impact on cropping pattern and output-input ratio and the Agricultural Extension Cell of CADA could reach the farm level.

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AN ASSESSMENT OF THE PERFORMANCE OF AN EXTENSION ORGANIZATION—  
THE SMALL FARMERS' DEVELOPMENT AGENCY, FATEHPUR (UTTAR PRADESH)

V. Prasad, R. I. Singh, R. B. Singh and Sri Ram\*

The present paper attempts to assess the performance of an extension organization, the Small Farmers' Development Agency (SFDA) operating in district Fatehpur, Uttar Pradesh for the betterment of the small/marginal farmers since 1970-71. The main objectives of the study were to assess the progress of various schemes sponsored by the Agency and to analyse the impact of various programmes at the farm level. During the period 1970-71 to 1976-77 the SFDA project accounted for a total outlay (expenditure) of Rs. 112.68 lakhs and benefited about 22,778 small/marginal farmers. Amongst the various items of outlays, subsidies for various programmes constituted about 60 per cent of the total outlay. Minor irrigation programmes accounted for the highest share of 49.37 per cent in the total subsidies of Rs. 66 lakhs, followed by purchase of milch cattle 27.53 per cent, agriculture allied services 7.84 per cent, agricultural implements 4.94 per cent and field demonstrations 4.88 per cent. The number of farmers who benefited from the subsidies was highest under the programme of agriculture allied services, being 34.50 per cent followed by those under animal husbandry, minor irrigation and agricultural implements programmes, being 17.55 per cent, 11.88 per cent and 11.55 per cent, respectively. It was observed that the Agency could not achieve its targets for the period 1970-71 to 1976-77 in full for various programmes. The investment-income analysis at the farm level at two points of time showed that the investment in fixed capital in almost all items has gone up by 6 per cent in 1976-77 over the base year of the programme (1970-71), due to the loan and subsidy facilities provided by the Agency. Amongst the different items of capital investment the farmers gave the highest preference to minor irrigation and animal husbandry programmes which resulted in realising good profits from crop and milk production. As a result of increase in the area under irrigation to the extent of 35 per cent and in the intensity of cropping by 15 per cent in 1976-77 over 1970-71, and the supply of necessary inputs and expansion of extension services, the net income in crop production and milk production increased by 31 per cent and 40 per cent, respectively, in 1976-77 compared to 1970-71. Though the Agency has been able to improve the economic conditions of the farmers to a certain extent, it can achieve better results by giving due emphasis to intensive cultivation supported by an efficient input supply system and adequate extension efforts, subsidiary schemes planned in co-operation with technical departments and by providing necessary infrastructure facilities.

IMPACT OF MINOR IRRIGATION PROGRAMME ON FARMER'S INCOME AND  
INVESTMENT PATTERN IN DISTRICT JAUNPUR (UTTAR PRADESH)

H. D. Yadav, S. R. Yadav and Y. S. Chauhan†

An attempt is made in this paper (i) to study the changes in farm structure, cropping pattern and level of investment and (ii) to assess the changes in the level of farm income as a result of implementation of minor irrigation projects. The study was conducted in district Jaunpur, Uttar Pradesh in 1975-76. From this district, one block, viz., Buksha was selected, the basis of its selection being the operation of minor irrigation project through the Land Development Bank. The data were collected by the survey method from a sample of 25 participant and 25 non-participant farms in minor irrigation project randomly selected from five *gram sabhas* in the block. The selected farms were further classified into three size-groups, viz., small (less than 2 hectares), medium (2 to 4 hectares) and large (4 hectares and above). The percentage of irrigated area on an average was about 90 per cent on the participant farms and was only 47 per cent on the non-participant farms. Capital investment per hectare in the former case was about  $1\frac{1}{2}$  times more than that in the latter. The per hectare investment on irrigation structure was about 4 times more on the participant farms than on the non-participant farms. The intensity of cropping on an average was 170.62 per cent and 157.84 per cent in the two categories of farms respectively. The area under high-yielding varieties of paddy and wheat was about 50 per cent on the participant farms and it was only 25 per cent on the non-participant farms. The cropping pattern in the former category shifted in favour of high-yielding varieties of paddy and wheat. The input, output, net income, farm labour income and farm business income per hectare on an average on the participant farms were about Rs. 2,692, Rs. 4,878, Rs. 2,186, Rs. 2,532 and Rs. 2,596, respectively, while the corresponding figures for the non-participant farms were Rs. 1,972, Rs. 3,288, Rs. 1,316, Rs. 1,562 and Rs. 1,610. The input-output ratio on both the categories of farms were 1:1.81 and 1:1.67, respectively. It may be concluded that with the operation of the minor irrigation programme in the area, the outlook of the farmers has changed. With the adoption of modern agricultural technology, there has been an increase in their incomes.

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IMPACT OF DEMONSTRATION AND TRAINING ON PRODUCTIVITY OF JUTE  
CULTIVATION UNDER INTENSIVE JUTE DEVELOPMENT PROGRAMME  
(A CASE STUDY OF PURNEA DISTRICT)

D. K. Singh\*

The paper attempts to analyse the impact of Intensive Jute Development Programme (IJDP) on the adoption of cultural practices and production of jute in Purnea district of Bihar. It also examines the present level of investment, income, and productivity of benefited farmers. The data were collected from 40 households whose plots had been chosen for demonstration. For evaluating the impact of this programme, pre- and post-evaluation method was adopted with 1973-74 as the base year and 1975-76 as the terminal year. The IJDP aims at motivating the jute growers through demonstration and training of improved methods of cultivation. To increase the production potential, improved seeds, fertilizers and pesticides are supplied at subsidised rates under the programme. The survey data revealed that the area under improved varieties of jute increased by 12.11 per cent over the base year. The techniques of correct use of fertilizers and seed and timely application of pesticides as learnt by the farmers during the demonstration have enhanced the productivity of different varieties of jute. The productivity of Tossa, *Desi*, Chandi, and Mesta has increased by 42.93 per cent, 23.26 per cent, 28.41 per cent, and 5.03 per cent, respectively, over the base period. According to yield estimation, the new technology on jute gives 30.77 per cent of additional yield over the traditional method of jute cultivation. An additional net income of 23.72 per cent was obtained by the growers by adopting the improved practices. After investing a rupee extra, the growers received 1.44 kg. additional production over the normal production. But unfortunately, the increase in production and gross income was not uniform because the big jute growers had received more benefit from the programme than the illiterate small jute growers due to the biased attitude of extension workers.

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