

Proceedings of Symposium on "Return to Investment in Animal Husbandry Components of Rural Development Programme"

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Large investment is made through different centrally and state sponsored schemes in animal husbandry programmes as a tool to accelerate the pace of rural development. The Government of India is now seriously considering to allocate more resources to animal husbandry component during the VIII Five Year Plan for improving the quality of life of rural poor. In this context, it was considered appropriate to organise the symposium on "Return to investment in Animal Husbandry Components of Rural Development Programme" to critically discuss the issues related to methodologies for assessment and related case studies.

The symposium was presided over by Dr. K.K.S. Chauhan, Managing Director, KRIBHCO and an eminent economist. In his opening remarks, Dr. Chauhan stated that enormous amount of public funds were diverted to animal husbandry programmes, which calls for a massive efforts to evaluate the returns both private as well as social. He said although the milk production has doubled to 51 million tonnes in 1989-90 as compared to two decades ago, the per capita milk availability was only 173 gms. He emphasised that evaluation and impact assessments are unequivocally the important ways to provide future directions to allocate resources in development projects and to identify gaps and constraints in achieving the targets and desired goals.

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Analytical and policy papers were presented projecting the private and social returns from the Animal Husbandry Development Programme. There was a good deal of discussions on the papers presented and views expressed. The experience of the Operational Research Project at the National Dairy Research Institute, Karnal was stated to be quite encouraging with respect to generating additional income and improving the quality of life. There was a strong view that such models must be propagated at a large scale in different parts of the country. Approaches to quantify returns to investment in animal husbandry programmes in most appropriate and unbiased way need to be developed. Dr. Raj Vir Singh mentioned that work was in progress at N D R I to develop statistical techniques to quantify tangible and intangible benefits and to propose investment strategies for different resource endowed regions of the country to maximise production of dairy enterprises at sustained basis.

Following are the recommendations at the symposium :

- *There is an urgency of generating a strong data base for livestock economy which is so far neglected in the country. It was repeatedly emphasised that inadequate data base is a major constraint in investment decision on livestock economy under diverse resource base in the economy.*
- *The existing cost of cultivation scheme of the Government of India must include the livestock component with minor adjustments. A vast net-work is framed to collect the crop data to estimate the cost of cultivation in different parts of the country. The livestock sector is completely ignored and with modest resources, the scheme may include this aspect as well.*

The extended summaries of the papers discussed at the symposium are as follows :

1. *Returns to Investment in Cattle Development Component of Lab to Land Programme.*

C.B. Singh, J.P. Dhaka, R.K. Patel and S.P. Sharma*

Disguised unemployment in agriculture is a common feature in most of the developing economies which is mainly responsible for economic and technological backwardness in the rural sector. This backwardness is reflected by low level of investment and adoption

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of new technology due to poor resource base resulting in low productivity and income especially on the households of weaker sections. Therefore, various target groups oriented programmes, also involving livestock sector, have been launched in the past. But systematic attempts have not been made to assess the magnitude of benefits accrued to the community as a result of large public investments made in the project/programmes.

An attempt was, therefore, made to evaluate and assess the returns to investment made in the transfer of new technology for cattle development under the Lab to Land Programme of the Institute. The study deals with the programme covering 800 families in 32 villages around Karnal during 1982-84. Various proven technologies of cattle development were transferred to the adopted families. Net income from dairy enterprise, on the 100 sample households of three categories, viz, landless labour (39), marginal farmer (29) and small farmers (32), was worked out following 'B A' (Before and After) approach to assess the returns to investment.

It was observed that the overall net income per annum from dairy enterprise on the sample households was (-) Rs. 128 in 1981-82 which increased to Rs. 549 in 1983-84. Thus, the average increase in net income per household per annum was Rs. 677 in the later period which ranged from about Rs. 139 on the landless labour households to Rs. 1445 on small farms. The total additional net income on the beneficiary households from dairy enterprise in 1983-84 over the base period was about Rs. 5.32 lakhs. The average cost of Rs. 3.70 lakh per annum incurred on technology transfer programme for cattle development yielded an average annual net benefit of Rs. 5.06 lakhs. This gave a benefit cost ratio of 1.37 which indicated economic soundness of the investment made in the programme. Therefore, it may be concluded that such a programme initiated with an integrated approach could go a long way in improving the socio-economic status of the Weaker sections of rural community.

2. Return to Investment in Animal Husbandry Component of Rural Development Programme

S.W. Govitrikar and A.K. Saigal*

In India, most of the rural people are engaged in livestock rearing. The government has launched the IRDP and SLPP programmes to increase the income of the rural people for self

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reliance. Subsidised loans are made available from these programmes. The Economic analysis indicated that with two crossbred buffalo unit with 12 percent interest per year on loan gives the net profit of Rs. 1300/- a year in case of buffalo, Rs. 1600/- a year in case of crossbred cow and in subsequent years it will be about Rs. 3000/- a year in case of crossbred cow and Rs. 2400/- in case of buffalo.

Animal Husbandry programmes concerning small livestock like sheep, goat, pigs and poultry can be used, as an important instrument for ameliorating the economic backwardness of rural poor and to bring about social transformation provided the programme for assisting the weaker section are formulated at block and district level. The necessary technical inputs required by the farmers including credit and the production programme should be tied up with marketing of their produce in a manner that consultancy of specialists is available from the block, the bank and the Deptt. of Animal Husbandry at every stage of operation. The working of the scheme should be strictly and regularly monitored to ensure that the implementation of the scheme follows the prescribed model and that the benefit of the scheme are enjoyed by those for whom the programmes are meant i.e. small and marginal and farmers and landless labourers.

Return to investment in Animal Husbandry need be viewed from two angles i) purely commercial point of view and ii) from the point of view of social welfare.

In the first case it is the profit motive, which is the primary consideration. It is observed that Investment in Animal Husbandry and Dairying has been profitable and therefore many organised co-operative Societies and private businessmen have settled firmly in this field. As for the public sector investment it is observed that such investment has been helpful in reducing the mounting pressure on rural unemployment as also it is found to be useful in creating resources of income generation in rural areas. The aim of Animal Husbandry Development programme has changed from being entirely towards increasing the livestock products, to alleviating the problem of poverty and unemployment among rural poor. Such programme are viewed as an instrument not only for economic but also for social upliftment.

3. *Strategy for Planning and Policy Formulations for Sustainable Development of Livestock Economy in India*

P.M. Sharma and K.A. Varghese*

The livestock is a potential source of employment for the rural people who have little opportunities to divert their surplus labour. It is the vital source for generating regular income. Despite of the large number of programmes launched on livestock, there is still more to be done for achieving the desired benefits. What should be the strategy for obtaining the higher returns on investment, what should be the share of Investment on livestock and returns and formulation of effective plans and policies? While doing so the experience of the past and present knowledge should be used fully.

Land and Cattle have been the two basic resources of farmers for income generation. The poor, marginal farmers and landless labourers form the largest group of rural milk producers. The supply of easily accessible draught animal power to the marginal and small farmers is mostly through own resources to operate their farm effectively. The sheep, goat, camels provide the insurance against draught who live in desartic condition. Hence the livestock acts as a correction factor of rural economy by minimising the equality measures.

There are many studies in livestock economy and its interactions with crop production. But certain valuable studies conducted in different part of the country indicated that the policies evolved for livestock sector are never in match with crop production programme and vice versa. Apart from the production aspect the marketing and processing aspect are to be visualised simultaneously. There is a strong set up for generation of farm level data for the formulation of the price policies related to crops, nothing of the similar type exists for livestock products. So there is a dire need to interlace the price policy for crops and livestock product also. Paucity of data in the livestock sector for systematic probing of various issues related to livestock have been stressed by the several researchers. While formulating the crop policies not only the data based on crop activities are to be included but the data on draught animals is to be included also for planning, monitoring and evaluating the programme. This will definitely give the new direction to improve the income, production and hence the standard of living and also prevent the degradation of land other basic resources including

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livestock.

The 'Crop Complex' approach for collecting data may be further enlarged as a 'Farm Complex' approach. It would then be possible to generate farm data simultaneously for crop and livestock on sample basis. By using this technique the additional cost will also be minimised. The overhead expenditure for data collection will get under utilised unless livestock component are given adequate weightage while selecting the sample. Therefore the farm analysis package incorporating crop, livestock and other farm activities will help to generate data giving indications to solve the multifacet problems of farm in relation to agro climatic and environmental dimensions. Such a approach is not only sustainable for livestock development but for the overall development based on agriculture also.

4. *Impact Assessment of Animal Husbandry Programmes and Future Policies*

C.S. Raghuvanshi, Manveen Kaur and Meenakshi Raghuvanshi*

The capital is limited, therefore in view of its scarcity the developing countries like India must endeavour to make the best use of the ones available, which makes it imperative to analyse and examine the total returns or profitability of the capital investment to the whole society or economy. Generally, in animal husbandry programmes, it is intended to consider investment activity as to expand capital resources to create a producing asset from which it is expected to realise benefits over an extended period of time.

Although, animal husbandry enterprise has brought about much needed changes in rural areas and helped in sustained growth of rural economy, yet it has resulted in some environmental effects. The present paper deals with impact assessment of animal husbandry programme.

5. *Impact of Co-operative Dairying on Rural Economy of Agra District*

Girish Mangleek and P.K. Sharma**

Over the past two decades the role of dairying has assumed great importance in increasing the income of small, marginal and landless labourers. The dairy co-operatives are playing a pivotal role in dairy

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development. As a part of new strategy, Govt. has launched a scheme known as Operation Flood through National Dairy Development Board, to evaluate the economic viability of co-op. dairy enterprise and compare the relative importance of different species of milch animals, cost and return analysis. An attempt was therefore, made to examine the extent of expenditure incurred in maintaining different types of milch animals separately and volume of income obtained from them.

Multi-stage stratified random sampling technique was adopted. This district milk producer's co-op. Union, Agra covers 12 development blocks out of eighteen. Each block has been classified into three categories on the basis of density of Primary milk co-op. societies consisting of (i) less than 10 co- op societies (ii) 10-20 societies and (iii) more than 20 societies. For the study, one block from each category was selected randomly. The other 6 blocks not covered were taken as control area for the purpose of comparison. In all 4 blocks have been selected for study. From each block two co-op. societies were selected.

Investment in dairy farm assets made on different categories of cattle holdings of beneficiary and non-beneficiary household was analysed. The categories of dairy assets are i) Milch animals ii) Cattle shed and stores iii) Dairy Development. It was implied that while pattern of investment remained similar, its absolute magnitude were higher with beneficiary household than their non-beneficiary counterparts.

Estimate of certain items of joint costs were apportioned on the basis of standard animal unit in the household, allocating subsequently to an individual milch animal for working out returns from milk production. The analysis was done for different types of milch animals on beneficiary and non-beneficiary households. It was observed that total variable cost of milk production for different types of milch animals to be slightly higher on almost all the categories of cattle holdings of beneficiary households as compared to non-beneficiary ones except in case of buffaloes on large cattle holdings on non-beneficiary households, when total variable cost has been found to be higher in comparison to the beneficiary households.

The study shows that keeping of buffaloes is a good proposition as compared to cross-bred cows and local cows. The impact of Operation Flood project on dairy incomes and test in the feasibility of dairy enterprise gross income, net income, family labour income

and income over variable cost have been worked out for different categories of cattle holdings of beneficiary households and compared with those of non-beneficiary ones. It is concluded that gross income, net income family labour income and income over variable cost indicated a positive correlation with the size of cattle holdings of beneficiary and non-beneficiary households.

Based upon the findings, it may be concluded that co-op. dairying had its direct impact on the household income. Higher net income and family labour income on all the categories of cattle holdings of beneficiaries, as compared to their counterpart of non-beneficiary group had a considerable positive impact on the income through dairy enterprise, despite various technological, administrative, social and economic constraints.

6. *Impact of Intensive Cattle Development Programme on Rural Economy : A Micro Economic Analysis*

D.K. Marothia and V.K. Choudhary*

Intensive Cattle Development Programme (ICDP) was initiated partially in 155 villages of 7 blocks of Raipur district of Madhya Pradesh in 1971-72 to increase milk production as well as to provide draft power for cultivation and transport in the rural areas covering indigenous breeds of cattle. ICDP envisages all aspects of cattle improvement such as controlled breeding, improved feeding, disease control, better management practices, input package programme and adequate market facilities for milk and milk products. By the end of 1989-90 ICDP has covered 206 villages of 24 blocks of the district. The ICDP has been effectively operating since last 15 years and sizeable capital investment has also been made. The present study was undertaken to assess the impact of ICDP on the total beneficiaries of Charoda Village of Dharsiwa block of Raipur District, M.P. The beneficiaries were classified into marginal (below 1 ha.), small (1-2 ha.), medium (2-5 ha.) and large (above 5 ha.) farm size groups. Required information was obtained from the well maintained record of veterinary surgeon of Charoda village from the year 1975 to 1989-90. Year 1975-76 was considered as base year as programme was effectively implemented from this year. Before and after approach of impact analysis was used to assess the performance of the programme in the selected village. Impact of ICDP was only evaluated for crossbred cows. The results of this

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study indicate positive impact on the milk and milk products production, income, employment, feed and fodder consumption, utilisation of milk products, use of draft animals in crop production and related parameters. Farmer's perception about the performance of ICDP were also analysed. Several policy interventions were suggested in this paper for sustainable use of livestock resource base for the rural development.

7. *Returns to Investment in Dairy Farming Under Rural Development Programme in Punjab.*

R.C. Bhatia*, R.S. Bawa and Satinder****

This investigation focuses on the effect of Investment in Animal Husbandry under Rural Development Programme in Punjab during 1989-90. The objectives of the study are :

i) to study the impact of programme in raising the income level of the beneficiaries (ii) to decompose the total change in per milch animal production into the proportional due to change in technical and input level (iii) to estimate the value of inputs saved with new technology and (iv) to bring out the implications to investment in Dairy Farming under Rural Development Programme (RDP).

These objectives were studied with cross-section input-output data on 150 beneficiaries with crossbred heifers and 50 non-beneficiaries with indigeneous animals for the year 1989-90. The data were collected from six blocks of Amritsar and Jalandhar districts. The Cobb-Douglas production function was used to arrive at the input use elasticities on the production of milk of both the categories and then the total impact of the milk yield was decomposed into technical and non-technical and changes in inputs use by arriving at the decomposition equation. The returns to investment were worked out using input saved approach.

The data revealed that the net income per milch animal per annum was raised significantly by adopting new technology under RDP which indicated that Dairy enterprise is economically viable proposition. The return to investment in the animal, the Animal Husbandry under RDP is expected to the tune of Rs. 8.48 per milch animal per day which accounted to Rs. 1072 crores for the entire Punjab.

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8. Returns from Wheat Research in Haryana Agriculture

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The past few decades have been characterised as the period of massive investment on agricultural research. Huge budget was allocated annually towards evolving High Yielding Varieties (HYV) of different crops, and as such a large number of such High Yielding Varieties have been developed and transferred to the farmers' fields. The progress on this front was quite visible in the form of "Green-Revolution".

The economic viability of research investment can be evaluated by using important tools of financial analysis, namely, Net Present Value (NPV), Internal Rate of Return (IRR), Cost-Benefit Ratio, and pay-back period. The paper basically deals with the methodological aspect and applicable for both agriculture and animal husbandry.

The present study however, deals with the rate of returns and economic feasibility of research investment in wheat. The main findings of the study are:

The cost of producing seed of High Yielding Varieties of wheat increased to about Rs. 78.66 crores in 1988-89 from an initial cost of about Rs. 61.20 crores in 1980-81. The "Gross Annual Returns" which is the value of resulting increase in wheat production from High Yielding Varieties, amounted to Rs. 181.91 crores in 1988-89 which were about Rs. 147.55 crores in 1980-81. The value of social profitability from High Yielding Varieties, measured as the losses in total wheat production, that would have resulted, if there were no HYV of wheat. A reliable estimate of net social profitability could be attained assuming the perfectly elastic supply of wheat in the long run and the price elasticity of demand for wheat estimated at 0.48.

The net value estimated at Rs. 495.28 crores indicated that it was worthwhile to continue investment on wheat research. The estimated internal rate of return was 15 percent which was greater than market rate of interest of 12 percent. The Benefit- Cost ratio of wheat research project stood at 1.33 indicating about 25 percent more returns on initial investment. Pay-back period indicated that the flow of returns from the investment would be equal to the total cost incurred on wheat research in a period of six years.

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