INTRODUCTION

Milk is widely accepted as a major source of quality animal protein in India. A persistent scarcity of this vital food item demands a greater attention to this field. During the first two five year plans the animal husbandry development programme in India was operated through an integrated project called Key Villave Schemes. This project provided for the establishment of bull rearing farms in selected breeding tracts, supply of pedigree bulls to areas marked for development, castration of scrub bulls, facilities for artificial insemination, veterinary services and fodder demonstration plots on cultivators' holdings. From the Third Plan, particularly since 1965, the emphasis shifted to Intensive Cattle Development Projects (ICDP). The ICDP is distinguished from Key Village Schemes for its cross-breeding component and its linking of dairying with urban milk supply programmes. This shift in the emphasis from the Key Village Schemes to ICDP indicates the shift in official policy from one of developing a dual purpose- milk and draft- cattle breed by selective breeding to a milk breed by cross-breeding with exotic cattle.

The probable reason behind such a change in policy was the realisation of the necessity for increasing milk production. The alternative ways of increasing milk supply were thought to be either (i) introduction of exotic breeds or (ii) improvement of the local stock by systematic cross-breeding programme.
It was realised that it would not be possible for the foreign genetic strains to adopt the prevailing environmental conditions readily, and the vast number of local stock could not be eliminated immediately. Thus the systematic introduction of exotic inheritance into local stock was considered to be the best method of increasing milk production potential.

In addition to this milk production aspect, keeping the condition of rural economy in view, 'Operation Flood' project was taken up in 1970-71 under Fourth Plan for improving the well-being of the small and marginal farmers and agricultural labourers. It was decided that at least one third of the producers to be helped by this project may be drawn from the group of small farmers and at least another one third from among marginal farmers and/or agricultural labourers.

The major lines of action are directed towards increase in milk yield per animal through increase in the capacity of dairy processing facilities, shifting of cattle-sheds from cities to rural areas, development of transportation and storage network of milk, development of milk procuring system and finally the most important aspect-improvement in standards of dairy farming by programmes of animal breeding, veterinary services, feedstuff supplies and management.

The benefits envisaged on successful completion of the project are (i) availability of wholesome milk at stable and reasonable prices, (ii) removal of dairy cattle from cities
(iii) establishment of a broad basis for development of national dairy industry and finally, (iv) improvement of productivity of dairy farming in rural areas bringing major increase in income with special emphasis on improvement of income of small farmers, marginal farmers and landless people.

The 'Operation Flood' project was expected to vastly increase the average milk yield per cow and buffalo. This expectation could be fulfilled through ensured supply of balanced feed by owners, improvement of subsequent generation of cattle and buffalo through intensive cross-breeding programme implemented by artificial insemination.

According to 1972 Livestock Census, the cattle population in India is about 179 million and of these only 54 million are breedable cows. In addition, this country has 58 million buffaloes out of which 29 million are breedable females. Though the size of the cattle is one-fifth of the world cattle population and buffalo size being the half of the world buffalo population, the level of milk production in India, in spite of all the projects adopted, is very poor. In 1973-74, India produced only 23.20 million tonnes of milk as against USA figure of 50 million tonnes a year with only 12 million cows. With this milk production of the order 23.20 million tonnes, the per capita availability of milk per day stood at 105 gms. against the minimum nutritional requirement of 210 gms. With the increase in population this gap is widening.
The formulators of the Draft Fifth Plan, while considering the performance of 'Operation Flood', remarked that this project was lagging behind the schedule by two years. They recommended a further intensification of the programme and projected a 5% growth rate in milk production during the Fifth Plan as against the likely achievement of 2% in the Fourth Plan.

It is observed that excepting a few pockets the programme could not make much headway. The reason may be attributed to the hesitation of the population proposed to be covered by this project, that is, small farmers, marginal farmers and agricultural labourers, to adopt this new programme. Present work contemplates to probe the reason behind this hesitation or the lack of enthusiasm on the part of this large section of rural population towards acceptance of crossbred cattle. This could be done through a proper cost-benefit analysis in this area.

The entire work is proposed to be divided into six chapters in the following way.

In Chapter I, titled 'Animal Husbandry in Indian Economy', the history of dairying, some aspects of animal husbandry are covered. Moreover, the development policy for livestock in India and the literature of cost-benefit analysis of crossbred cattle in India have been reviewed.
The 'Theory of Cost-benefit analysis' covering the review of literature of cost-benefit analysis, various opinions expressed by different Economists about the objective of cost-benefit analysis and a comparative discussion between cost-benefit analysis and financial analysis are discussed in Chapter II.

In Chapter III, the 'Methodology of cost-benefit analysis' covering identification of benefits and costs due to a project, national planning and national parameters are discussed.

The Indo-Swiss Project, Kerala, has been critically reviewed in Chapter IV. In this connection a brief description of the procedure adopted by project authorities has been presented. On the basis of the tables provided in the report a revised cost-benefit analysis of Brown Swiss Crossbred (BSC) cows in the plains has also been done in this chapter.

Cost-benefit analysis of data collected from the districts of Birbhum, Nadia and Hooghly in West Bengal have been undertaken in Chapter V. Here the national parameters have been estimated for this purpose. This exercise finally leads to an examination of the economic feasibility of crossbred cattle in the plains and the highlands in India.

The summary of results and the conclusions having policy implications are presented in Chapter VI.