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D. STOOPS

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SURVEY OF SUCCESSFUL EXPERIENCES IN ASSISTING THE SMALLHOLDER LIVESTOCK PRODUCER

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GLOSSARY OF ABBREVIATIONS AND EXCHANGE RATES

AFC - Agriculture Finance Corporation
AI - Artificial Insemination
ALPRO - Alliance for Progress
CPCS - Cooperative Production Credit Scheme
DASF - Department of Agriculture, Stock and Fisheries
FEOAC - National Federation of Savings and Credit Cooperation of Ecuador
FONDO - Fondo de Garantia y Fomento para la Agricultura, Ganaderia y Avicultura
FTC - Farmer Training Center
KMC - Kenya Meat Commission
MOA - Ministry of Agriculture
PNG - Papua New Guinea
PNGDB - Papua New Guinea Development Bank

INDIA - 1Rs = US$ 0.13 (May,1973)
KENYA - 1Ksh = US$ 0.14 (May,1973)
MEXICO- 1 Peso= US$ 0.08 (May,1973)
PAPUA NEW GUINEA - 1A$ = US$ 1.42 (1st qtr. 1971)

SURVEY OF SUCCESSFUL EXPERIENCES IN ASSISTING THE SMALLHOLDER LIVESTOCK PRODUCER

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Summary

This survey of successful experiences in assisting the smallholder livestock producer was conducted to draw conclusions from available evidence which would be useful to the World Bank Group (WBG) in the design of development lending programs which can be reasonably expected to benefit the smallholder by increasing his share in the economic growth. The survey was aimed at defining the elements of success and problems encountered in successful smallholder livestock development efforts.

In a desk study, some 60 livestock development projects or activities were examined by evaluating written material and interviewing experts in FAO, IDB, FED, ODA, and the WBG. Kenya and India were selected for field study because activities which had been carried out in certain areas of these countries over a number of years had been apparently successful in benefiting a large number of smallholder livestock producers. Five countries, Mexico, Ecuador, Fiji, Papua and New Guinea, and Taiwan were selected for more thorough desk study as it appeared that development activities in these countries had been successful in reaching smallholder livestock producers over several years time. Even though in some cases it was not possible to estimate how many smallholders had been benefited in these five countries, the information in the literature was judged worthwhile to evaluate and prepare in review because implications pertinent to the objective of this survey were revealed. The smallholders were generally mixed farmers, however in two cases, Fiji and Papua and New Guinea, the beneficiaries were operators of small beef cow and/or fattening enterprises. The experiences of local lending institutions in these five countries with substitutes for title security such as savings accounts, group responsibility through a cooperative society, borrower labor on his holding prior to disbursement, and grazing rights guaranteed by clan elders have been good. A consistent pattern in these countries was that success was related to the quality and depth of the technical supervision, the degree of smallholder and national official initiative and participation in policy decisions, and the viability of smallholder groups.

In India the village dairy development of the Kaira District Milk Producers Cooperative Union and other cooperative unions in the State of Gujarat were surveyed. The unions provide a milk marketing system and a vehicle of social change for some 400,000 village milk buffalo owners who are members of their village cooperative societies. The small quantities of buffalo milk are tested and paid for twice daily at each village society. The year-round price stability for buffalo milk achieved by the processing of storeable milk products has created villager confidence in the security of the market system. The society union organization has become a vehicle of development itself by the implementation of community improvement projects from funds generated by the society from milk sales. Concentrate feed, A.I., and veterinary service are delivered through the society but the delivery of long term credit is discouraged because this practice has resulted in the weakening of society-member relationships. The union has learned the importance of villager involvement in his society and works to insure such involvement at the beginning of the formation of a society and to continuously maintain the vitality of the village

cooperative societies. The leadership of the Kaira Union, which has operated outside the influence of the government, has been a major element of its success principally because of its dedication to the betterment of the life of the villager.

In Kenya, the activities of the credit institutions and the cooperative organization in assisting the development of dairy production as part of diversified smallholder agriculture were surveyed. Attention was also given to the Masai pastoralist cattle production development program. The experiences of the principal development lending institution, the Agriculture Finance Corporation (AFC), show that the attainment of commercially acceptable repayment performance for long-term loans for dairy cows has been dependent on title deed security coupled with well trained supervision technicians operating at the farmer level. The cooperative organization has been instrumental in smallholder development by providing marketing and input supply channels. The cooperative societies have suffered considerable management and administrative difficulties since their formation due to a lack of local member involvement resulting from the origination of this movement by government imposition. Recently steps have been taken to correct these problems by tightening administrative control and by establishing an educational program for cooperative officials. The local initiative of the smallholders and the continuing work of development officials are credited with much of the success. The importance of local level training programs for smallholders and technicians is demonstrated in Kenya smallholder livestock development.

The elements of smallholder development success strategy that appeared most predominant in this survey were: the initiative and responsiveness of the smallholders themselves, the dedication and continuous service of the leadership, the strength of the cooperative societies' relationship with the individual smallholder member, the detailed service which the market system provided the smallholder, the local-level orientation of training programs. The degree of success was dependent on the qualities of the characteristics of the smallholders' environment, i.e., land, labor, infrastructure, and the societal support of the basic concept of smallholder development.

The findings of this survey suggest several implications for the design of smallholder development strategy. Techniques should be devised to assess the potential responsiveness of the smallholder, his local organizations, and his government to development efforts. Subsidies justified in part by social payoff may well be required to provide a market system that fulfills the needs of the smallholder and training programs for rural inhabitants and technicians that are local-level oriented. The formation of local cooperative organizations in which the individual members are and feel involved should be encouraged. Existent local groups should be strengthened to better serve the members in agriculture production and marketing improvement and in social benefit.

INTRODUCTION

The World Bank has moved to place more direct emphasis on relieving the social and financial problems of the rural poor. The aim is to reach and benefit the smallholder farmer through development efforts leading to his having a greater share of his country's economic growth. The design of such development projects will have to go much beyond projects which were aimed at improving productivity and total production on a nationwide basis and which were not necessarily involved with benefit distribution. For the most part the livestock projects carried out in the past have been of this type, i.e., GDP oriented, and have been generally successful in meeting their objective. The basic suggestion for this survey is that it is possible to learn lessons from the experience of others which can be useful to the Bank as it directs its development initiatives towards the smallholder livestock producer. 1/

In a broad sense the objective of this survey is to draw conclusions from available evidence which will be useful to the WBG and national institutions in the design of development lending programs which can be reasonably expected to benefit the smallholder livestock producer. More specifically this survey was addressed to certain questions:

(a) What elements of the livestock production development efforts have contributed most to the benefit of the smallholder?

(b) What are the implications for the application of these elements to other areas with a reasonable expectation of success; given certain characteristics of physical and social environment, and infrastructure?

1/ This survey was concerned with livestock production by smallholders. As described by Mr. McNamara in his speech to the Board of Governors in Nairobi, September , 1973: a smallholder is a rural inhabitant who farms less than 5 hectares or who is in that lower 40% of the population who receive only 10-15% of the total national income. In most cases the smallholder is a crop and animal agriculturist. The segregation of his livestock enterprise for examination is artificial. This report will emphasize the animal production aspects of his business but readily acknowledges the whole farm system of the smallholder. The word "smallholder" will be used through this report to mean the rural person who with his family raises home food, animal food and cash crops on a small plot of land and who also has a few animals, generally milk cows or buffalo, from which he earns some income. In this report the word "pastoralist will be used when strict reference is being made to a man who carries out little or no crop agriculture and who makes his livelihood almost exclusively by grazing his animals. Whenever reference is being made to both the smallholder and pastoralist the word "smallholder" will be used in this report.

(c) What can the WBG do in the process of development planning to introduce, identify, maximize, and encourage the formation of institutions or plans which will bring these elements into a position to best effect change beneficial to the smallholder?

(d) What problems have been encountered and what measures have been employed which have led to their solution or at least to minimize their effect on reaching the goal of smallholder development?

METHOD OF THE SURVEY

The Desk Study (Phase I).-There was an initial screening of information about some 60 smallholder livestock development projects or activities. This screening was aided greatly by interviews with experts in FAO, FED, ODA, AID, WBG and IDB. The purpose of this screening was to select projects that were worthy of deeper desk review or for the field study (Phase II). Development projects were considered worthy if they had been successful over a period of time in reaching a number of smallholders and had improved their livestock production. We studied five projects more deeply and prepared brief reviews. Specific development efforts in two countries, Kenya and India, were selected as warranting field study.

The Field Case Study (Phase II).- The field studies in Kenya and India consisted of interviews with persons responsible for the design and implementation of the development strategies, the recipients (the smallholders), and local officials involved in the day-to-day activities (A.I. technician, cooperative society chairman, veterinarians, local credit managers, etc.). We conducted field visits to farms, processing plants, local MOA offices and cooperative society headquarters and collected and evaluated written material.

In India,we investigated the Kaira Milk Producers Cooperative Union and other unions in the state of Gujarat to understand the operation of the local village cooperative societies and the role of the union in this successful milk marketing system aimed at the social and financial betterment of the villagers.

In Kenya, the emphasis was on the field investigation of the activities of credit institutions and the cooperative movement in the development of dairy production as part of diversified agriculture by smallholders in the Mt. Kenya area. Attention was also given to the group ranch development efforts aimed at increasing cattle production by Masai pastoralists.

The Organization of this Report.- This report is organized so that readers with diverse backgrounds and interest can select the amount of material they wish to examine. The two case studies are presented as sections in this main text and the appendices for both case studies are at the end of the main text. Desk study reviews of Mexico, Ecuador, Fiji, Papua and New Guinea and Taiwan are included in the appendices. Most of the references cited will be maintained in the survey background file under the control of the Bank's Livestock Advisor. A bibliography of articles and books on subjects pertinent to smallholder livestock development is included in Appendix IV.

FIELD CASE STUDIES

I. THE SMALLHOLDER MILK PRODUCERS COOPERATIVE ORGANIZATIONS IN GUJARAT, INDIA

The Kaira District Milk Producers Cooperative Union Ltd. (the Kaira Union) is in the state of Gujarat, some 300 miles north of Bombay. 1/2/ This union 3/ is a federation of 783 village cooperative societies made up of about 225,000 member-families. Most of these member-families own and operate small plots of land (1-5 acres), and have 1-5 buffalo. A few (the estimate is 10%) are landless. The formation and operation of the Kaira Union and others in Gujarat are outside the influence of government. However, the operation of the Kaira Union has been so successful that government has asked that it be used as a model in many other areas of India (where both buffalo and cross-bred cattle may be used), and has commissioned a group of Kaira Union leaders to work out plans for the spread of "Anand." The field work of this survey in India has been aimed at understanding the elements of success of the Kaira Union and other unions in Gujarat, the experiences in the formation and operation of village cooperative societies, and the relationship of the union to the societies.

1/ "Anand" also is used to describe the spirit or concept of Kaira Union. For instance, one hears "we are going to create Anands all over India." Anand is the city in which the Amul plant is located; the headquarters city of Kaira District. "Amul" is another word sometimes used loosely for this union. It is really the trade name for the finished products and is used to describe the plant and office location. Amul means "priceless, beyond value" in Hindu and is an abbreviation of Anand Milk Union Ltd.

2/ For further description of Kaira Union see Appendix I-a and speeches by Dr. V. Kurien, Dairying as an Instrument of Change, Dec. 1972 and The Special Impact of Animal Production on Developing Countries, Feb. 1973. Other published information is also available: 1) Spread Effects of Dairy Enterprise: A Case Study of Anand, a pamphlet of Small Industry Extension Training Institute, Hyderabad, India; 2) Ulrey, O. The Cooperative, An Agency for Rural Development, Michigan State University, Dept. of Ag. Econ., Report 42, March 1966; 3) Subbaroyan, K. Operation Flood: Milk Cooperatives Add to the Farmers' Prosperity.

3/ The union is used to mean the cooperative milk producers union that serves the village cooperative milk producers societies in the district, e.g. Kaira District, or in a commercially defined area, e.g. Baroda.

The Society[1] and the Villager.- The essence of the Kaira Union is in the day-to-day operation of the societies which it serves.[2] These societies are th village milk marketing organizations governed by people elected by the villagers and operated by local workers paid out of milk sales to the society. Beside a marketing activity, the societies function to provide inputs of concentrate feed, A.I. service, emergency animal health care; they carry out certain group social benefit projects and act as a vehicle for the extension of technical and social information. Individually these societies are tightly organized and are then further woven closely into the organization of the union, that serves their particular area.

The villagers sell most of their buffalo milk to the society. On occasion, some sell milk directly to other dealers. Under certain fluid milk demand and supply conditions, these other dealers can offer higher prices. Other factors also enter into milk supply. For example, a decrease in supply of vegetable oil will result in a higher price for ghee (butter with the water removed). Villagers then withhold milk from the society to make ghee at home. However, the uniform price throughout the year offered by the society benefits the producer in the long run. The union does not attempt to restrict the sale of milk outside of the society, i.e., the village milk market is free.

The society influences the lives of its members in more ways than assisting in their buffalo milk business. The society forms a center for village cohesiveness and gives the villagers a sense of control over their destinies. The villagers can use society funds to build schools, water supply services, and approach roads to improve their community. [3] Interestingly, the society has been an equalizing force in the social structure. Women and men, members of all castes, line up together to sell milk - heretofore an unheard of occurrence. The pride which the villagers have in their society is easily evident to the visitor.

The fact that the village family has a predictable cash flow from their milk sales enables them to take care of family needs as they arise. There is less reliance on the village money-lender or the merchant who extends credit for high rates of interest. The twice-a-day payment for milk is an impressive feature of this cooperative organization - some 225,000 payments of 1-6 Rs are made twice a day. The detailed record keeping of these small amounts is handled smoothly by the society as is the twice a day butterfat testing of each villager's milk delivery.

The Union and Its Activities.- The union is the vehicle by which villages control their own milk market and compete with private contractors to whom they were once tied. It is the organization that manages the resources

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1/ "The Society" is used to mean the village milk producers cooperative society.

2/ See By Laws of Cooperative Societies, amended to date Nov. 1973 for a detailed description of the village societies' activities. Also see appendices I-c, d and e.

3/ See appendix I-e.

needed to provide villagers with low-cost concentrate feed, milk transport, veterinary service, A.I. service, and extension and management guidance for their societies. The milk processing plants are set up to process milk into storeable products and therefore can absorb large supplies. The producer, then, is not affected adversely by low prices during these periods of large supply (winter).

The Kaira Union, formed in 1947, is the oldest union in Gujarat. Five other unions have been formed since then and operate in almost identical fashion.[1/] Recently these six unions have been brought into a federation of unions. The main function of this federation is to develop new markets for buffalo milk, purchase certain inputs at quantity price reductions, manage the Gujarat milk grid, and assist in the development of other unions in Gujarat.

The Kaira Union management board is made up of nine members representing the societies, the chairman of the District Cooperative Bank, the District Registrar, three individual members (these places are being phased out) and a dairy expert. Other unions have a similar management group makeup.

Within the Kaira Union sub-organizations have been formed to assist the societies in their affairs and to stimulate the adoption of new techniques by the societies' members. It administratively has divided the societies into four groups. Each group is charged with the responsibility of more or less "husbanding" the societies assigned to it. Occasionally there is organized competition between the group leadership personnel as to which group is progressing fastest in some extension area; such as adoption of lucerne cultivation or increase in the number of artificial inseminations. This approach to extension takes on the air of a commercial soap-selling campaign at certain times which has been a reason for the good results achieved. Most notable of these was in 1966 when lucerne was being introduced to the villagers. Staff members of all backgrounds were given a crash course in cooperative administration, A.I. and animal production and health. These people were sent to the villages to discuss the value of lucerne at small gatherings of villagers. That year 85 tons of lucerne seed were distributed to societies compared to only 6 tons the year before. This was really the start of the society assistance groups in the Kaira Union. In 1973 the demand for lucerne seed is 300 tons.

A major propaganda/extension effort routinely gives assistance to farmers. Teams of five or six men visit villages twice a year to carry out extension work. The make up of the team is: a cattle development officer, a dairy extension officer, a milk supply officer (these three positions are frequently filled by Kaira Union veterinarians), the village "stockman" (A.I. technician and animal first aid man), and the group-level supervisor assigned to that society. These teams are "promoting" different things at different times; e.g., if it is felt that A.I. program is not functioning well, the emphasis will be on A.I. Frequently they use "gimmicks" such as pregnancy diagnosis to attract the villagers' interest and will then direct their attention to the particular subject desired. Recently, government family planning officials joined these teams simply to observe the extension mechanism and

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1/ See Appendix I-f.

are reportedly going to adopt their techniques. The Kaira Union also carries out some other broad extension activities. For example,

1. A monthly "Amul" newsletter.1/

2. Visits of village women to the milk processing plant, the semen production facilities and the feed plant.

3. A mobile unit that circulates audio-visual displays on animal production through the villages every two or three years.

The group-level society supervisor plays a significant role in this organization. Each society assistance group within the Union has 10-12 group - level society supervisors assigned to it. Their job is to constantly be in touch with their societies, to anticipate the problems, and bring solutions to bear before a grave situation develops. They coordinate their efforts through the village stockmen, who frequently carry out the reconnaissance and follow-up work for the supervisor.

Veterinary service, except emergency service, and A.I. service are furnished free to the villager. 2/ The veterinary service is organized to make routine calls to each village once a week and to take emergency calls as they come in. There are 42 veterinarians working at the Kaira Union. Other unions have fewer. Presently, in some unions the veterinary service as well as the A.I. service is executed 3/ by government technicians. This service reportedly is disappointing. At the Kaira Union the semen packed in ice is delivered to each village every day by the morning milk pickup truck. The village stockmen inseminate the buffalo that are brought to the society restraining facilities.

The processing, marketing, technical service, and extension service activities are carried out by union personnel with one central idea in mind -- the well-being of the villager. The union officials regard themselves as part of a "social enterprise." The villagers have benefited and speak positively of the valuable role this cooperative has played in their lives. The financial result is described in a study which sampled villages with milk producer cooperative societies and those without. The income from milk sales per animal was 60% greater for buffalo-owners of the former type village than the latter. In the same study, it was shown that inhabitants of villages with societies consumed some 33-42% more milk per person than villagers not having access to a society, even if they themselves were not milk producers. It was suggested that this was due to the fact that milk was more likely to be available at a reasonable price in the villages with cooperative societies than those without.4/

1/ See example in background file.

2/ See Appendix I-b for more detail on veterinary and A.I. service.

3/ See Appendix I-f.

4/ Srivastava, R.K. Impact of Cattle Development Programme on Rural Economy in the Kaira District, Paper at Symposium Livestock Statistics, March 1970.

Experiences with Credit Delivery through the Cooperative Organization.- The experiences of the Kaira Union with the practice of long-term (2-5 years) credit delivery through their cooperative organization have been generally unrewarding and have led them to strongly discourage the use of the cooperative organization as an administrative vehicle for credit delivery. Other unions in Gujarat and in other states (Haryana) have tried cooperative credit delivery schemes and, in general, have had similarly bad experiences.

Credit for buffalo purchase has been extended for 75% of the purchase price by societies to individual members. In some cases the loanee has used this money for other purposes, such as wedding and festival expenses, without the knowledge of the society; in other instances, however, the money was used to purchase buffalo. Regardless of the use of the loan, the debt to the society by the loanee frequently becomes such a burden that he cannot meet the payment, and still cover his daily living costs. He will soon start selling milk or ghee privately. The end result of the default is bad feelings between the society administration and the members and amongst members. The experience is that societies involved in credit programs even to small degrees, invariably start to weaken and even dissolve.

The Kaira District Cooperative Bank Office in Nadiad (near Anand) is interested in lending money for buffalo purchase. In October 1972 they lent 800,000 Rs. for buffalo purchase on three-year terms through 21 societies. They are waiting until June 1974, to evaluate their experience. Their criteria for loan recipients were:

1. He must be a member in good standing with the society.

2. He must identify the animal by tattoo.

3. He must have 2 co-signers to the note.

4. He must have daily transactions with the society.

5. He cannot dispose of the buffalo.

The Kaira Union does not favor this practice, despite these restrictions, because similar approaches have turned out badly before. The cooperative bank makes short term loans to smallholders through village agriculture societies (cooperatives which serve crop production) for farm inputs. This type of lending has apparently been successful in the past.

Kaira Union officials very definitely feel that buffalo owners should get credit outside the milk producers cooperative organization either from banks or from private money-lenders. The villagers are apprehensive about the formality of the transaction and about giving title as security to banks. Therefore they most often borrow from a merchant or money-lender in spite of the higher interest rates, because the security required is frequently family jewelry and the transactions are simple.

Problems Encountered in Forming New Village Cooperative Societies.- The Kaira Union, and to a lesser extent other Gujarat unions, has had consider-

able experience with the formation of new village cooperative societies. During this process, they have encountered many problems and have developed some solutions. Personnel have been specially trained to be members of "spearhead teams" to go to villages and stimulate and implement the formation of societies or as they say, "organize milk procurement."1/

Some of the sources of resistance to society formation are listed below:

1. Village political situations involving the power of a particular individual(s).

2. A traditional belief that milk is an item that should not be sold, only consumed by the producer, his family, or friends.

3. Lack of confidence that the market will persist.

4. Desire to make ghee.

5. The village traditionally has been involved only in the "salvage" of milk buffalo from Bombay. (Dry buffalo are brought to the village where they calve or, in some cases, are bred and kept there until they calve. The villagers are paid according to the duration of the care period).

Approaches to solutions for most of these problems are based mostly on human relations understanding and maneuvering. One approach that has worked is to move a villager who is politically important but not entirely supportive of the society idea into a position of society leadership. The prestige helps him overcome his opposition and eventually his political power is used for the benefit of the society. This does not always solve the problem and in a few instances these leaders have sabotaged the society in order to prove their point to the villagers. Generally, though, the successful performance of societies in neighboring villages makes it difficult for any malcontent to misrepresent the advantages of a cooperative village society. To overcome the traditional belief against selling milk, the officials of Kaira and the other unions have employed social workers who are respected by the villagers. This sort of organized persuasion is time consuming and in some cases villagers still remain bound to their tradition; however it has been the only approach that has had good results. When they start a new society, the union personnel always take the village leaders to other societies and specifically to Anand. This is a major excursion for these people as many of them have never ventured out of their immediate environment.

The home production of ghee adds an interesting slant to the marketing of milk. Farmers are not forced by product perishability to sell their milk. Ghee is easily stored without refrigeration and is commonly used in the preparation of traditional dishes and pastries. The union processing plants also make ghee (Amul ghee) and sell it back to villages at a subsidized or near-cost price. This is a milk procurement effort aimed at making it more attractive for villagers to ship their buffalo milk and buy ghee rather than make it at home. At times (as in Nov. 1973) when open market ghee prices were very high, society members buy the Amul ghee through the society and

1/ The National Dairy Development Board has proposed a working plan for the flow of events leading to the successful operation of village societies. See Scheme of Org. or Rural Procurement Action, Item No. 9, Operation Flood for Organization of Village Societies.

sell it, at a profit. However, the overall effect of the union manufacturing ghee has been to decrease the amount of home ghee production and achieve the desired flow of buffalo milk to the processing plant.

In the villages where a high percentage of villagers are involved in the "milk buffalo salvage" business, the establishment of a society has very little chance unless there also are milk sales of sufficient quantity to support a viable society. About 200 litres per day is the minimum quantity needed to justify the village-to-processing plant transportation costs and to yield a return sufficient to pay minimum society operating costs.

These methods of overcoming resistance generally have been successful. Only rarely(once or twice in the Kaira Union) has a society been formed and then dissolved as a result of these resistance sources. In the north,(Haryana) where Kaira Union officials are working to start cooperative organizations at the invitation of the GOI, local government departments are trying to bring the cooperatives into their individual sphere of control. The heads of the Department of Cooperatives, Dairy and Animal Husbandry, each think that the cooperative system being started belongs to his department. This bureaucratic squabble has significantly deterred the efforts of the "spearhead teams" in their work to organize cooperatives. The only solution to this type of problem in the past has been to avoid direct government involvement, even though the government may make vigorous attempts to intervene. 1/

Discussion.- The Kaira Union has achieved an unusually well coordinated commercial and social relationship with smallholders which has led to their financial and social betterment on a sustained basis. In this case, the greatly desired quality, "spread effect," has also been achieved. The "Anand model" is in stages of adoption in various parts of India besides Gujarat. In this survey, we are asking, "Why this success?" It is simply because the farmers of Gujarat are so progressive, the land so fertile or the leaders so dynamic? These may all be true, but every smallholder situation has some potential for development. "The question in the case of Gujarat is: What elements of the development strategy can be identified as being the main reasons for the maximization of resources towards the improvement of the lot of the smallholder?"

The men who lead Kaira Union are judged to be the element which should have initial emphasis. These are men of courage, brilliance, and dedication who brought together and motivated other men of like qualities. The early vision of S.V. Patel in courageously suggesting a farmer-controlled cooperative was carried out by the dynamic executive leadership of Dr. V. Kurien, the general manager. The purpose of mentioning these men is not only to further honor them, but to emphasize the importance of this development ingredient -- dedicated and continuing leadership.

1/ The only involvement that the government has with Kaira Union is to audit the books of the member societies.

The idea motivating these men was that the rural milk producer should be the major beneficiary from the successful development of milk processing and marketing. At Amul all eyes are turned toward the villager. The villagers' position is represented in every decision they make. The efforts are active in that they are constantly seeking better ways to benefit the villager through the technical apparatus established to market milk. To a degree, the success achieved in communicating with the smallholder is due to the imaginative use of modern technology. The treatment of a sick buffalo, a pregnancy diagnosis, the operation of the processing plant are examples. The demonstrations of these activities to the villagers have been used as focal points to enable the men of Amul to have a platform of villager attention from which they can promote new techniques and disseminate information on a variety of subjects.

The importance of a market system in providing the incentive for production has been demonstrated in the Kaira Union. Knowing that he could always sell milk at a predictable price encouraged the villager to actively support the cooperative society and to seek ways in which he could increase his production. The use of modern milk processing technology to achieve a flexible demand in the face of a large variation in milk supply has been responsible for steady prices. The villager has confidence in the market system at the local level. This confidence is due to the tight operation of the societies themselves and of the union in its day-to-day dealings with the societies.

Being outside the direct influence of government the Kaira Union has not been encumbered by the inefficiencies of bureaucracy. One of its main advantages has been that they have been able to employ and promote people on a merit-based system. The government has tried to build cooperative organizations in other parts of India with largely unsuccessful results. One reason for this is that they have approached the problem by building from the "top down." The solid progress made by the Kaira Union and other unions in Gujarat is due to the attention given at the village level resulting in the viability of each society by itself.

Under the direction of the Kaira Union leadership, the assistance of external aid agencies has had optimal effectiveness. Such as assistance from FAO, UNICEF and the government of New Zealand which led to the erection of the Amul processing plant. The assistance of the World Food Program of the FAO in providing powder milk to enable to Kaira Union to capture the Bombay milk market and generate funds for the Union's further development has been important. This is called Operation Flood. 1/ Its basic idea is to convey consumer ruppees spent in Bombay to the pockets of the village buffalo owner in Kaira. This external assistance has had a major contribution to the success of "Anand." However, without the tightly organized and well coordinated marketing system such aid would have had very little impact.

Summary of Main Points.- The Kaira Union has achieved remarkable success in reaching the small buffalo owner in Gujarat, India. This survey has attempted to define the major elements which led to this success.

1/ For more description on Operation Flood see Appendix I-a.

1. The quality and dedication of the leadership. The men that started many of the procedures of the Kaira Union are still there and have a continuing interest in the growth of the entire concept.

2. The orientation of the cooperative organization was based on villager involvement. The individual farmer and his society was and is given prime consideration in policy decisions.

3. The emphasis on the establishment of a market system in which the village can have confidence and which provides production incentives. The villager gets paid twice daily and can expect a predictable cash income throughout the year.

4. The active efforts in the extension of farm and home information to the villager. The use of modern technology such as animal health, A.I., milk processing, etc. to achieve such extension has been imaginative.

5. The lack of encumbrance of a bureaucracy. Being outside the direct involvement of government bureaucractic structure has enabled the Kaira Union to employ personnel on a merit basis and to carry out administrative procedures without the slowing and sometimes crippling effect of bureaucratic involvement.

II. SMALLHOLDER LIVESTOCK DEVELOPMENT IN KENYA

The field work in Kenya was directed toward gaining an understanding of the elements of strategy which have attributed to the successful development of two types of smallholder; the smallholder crop-dairy farmers with one to five dairy cows financed in part by IDA credit 105 as well as German bilateral aid (KFW) in the Mt. Kenya area, and the Masai group ranches of the Kajiado district. The efforts to develop a smallholder agriculture have been in progress over the last 10-15 years and today the people responsible for this progress continue strengthening the procedures and institutions which have grown out of the experience of these efforts. In Kenya the results of development cannot be attributed to one project or even to several finite projects, but rather to the efforts of government and parastatal bodies, bilateral and multilateral assistance, several individuals, to the initiative of small farmers themselves and to a national priority for smallholder development. 1/ The examination of the experiences of the credit institutions and the cooperative movement is emphasized in this report.

Smallholder Dairy Farming in the High Potential Area 2/.- An estimated one million families operate smallholdings in the high potential farming areas of Kenya. Many have registered title deed tenure. Typically these smallholders have some (one to five) dairy cows, many of which are grade animals

1/ See Speech Delivered to the National Assembly on 15th June, 1972 by the Hon. Mwai Kibaki, Minister for Finance and Economic Planning, when presenting the budget for the fiscal year 1972/73; Development Plan 1970-1974 pg. 166-178, Ministry of Finance and Planning; Republic of Kenya, African Socialism and its Application to Planning in Kenya, 1965.

2/ High potential means an area which has over 33.5 inches of rainfall. This area comprises about 14% of total Kenya (10% of the smallholder crop and livestock agriculturists live in this area) and has 56% of Domestic Livestock Units. See Peberdy, J.R. Animal Production, 1970-80 and Beyond. More description of this subject can be found in IBRD, Kenya Ag. Sector Survey, Annex V, 1973.

while some are zebu or zebu-dairy breed crosses. The size of the farms with dairy cattle range from less than one acre to six or eight acres and farm production is diversified in that pyrethrum, coffee, tea, vegetables, maize and/or fodder are grown. Dairy production has become a desirable addition to the farm system because it creates an even cash flow, and fits well into the farm labor distribution pattern. Also, the high milk price fixed by government is undoubtedly a major cause for the interest in milk production. The meat price for live cattle sold to the Kenya Meat Commission (KMC) on the other hand is fixed at a low level. The combination results in premature slaughter of many dairy bull calves because the farmer makes much more return by selling his milk than by feeding it to a calf.

The milk-marketing activity is carried out by the local cooperative societies which are most often federated into district cooperative unions. These societies provide collection centers for the milk as well as sources for some of the inputs for production. The district unions provide a source for the major input -- dairy feed, given in the form of credit against milk sales.

Credit for grade dairy cow purchase and complementary dairy inputs has been provided principally by the Agriculture Finance Corporation (AFC). Loan supervision is provided by personnel of the Ministry of Agriculture (MOA) and the AFC has significant influence in the training of these people in farm management planning. The MOA has developed local training centers for farmers and junior MOA extension personnel. Technical assistance of veterinary services and A.I. are under control of the MOA; they are generally well organized and the farmers have confidence in them.

The Group Ranch Scheme[1/].- In the early 1960's, the Masai were faced with a serious drought and a plague of army worms. Death losses of cattle were as high as 50%. Also, they could see the pressures of land scarcity developing. These people were receptive to offers of MOA officials to design plans for proper development of their cattle business. This initiative was the beginning of the Group Ranch development. The idea of communal land ownership with maintenance of individual cattle ownership was proposed and after a few years of negotiation, the first group ranch (Poka) was formed in 1966 with 30 member families. The credit extended to this group by AFC was assigned to each individual family rather than to the group. In 1971/72 five more group ranches were formed. About 700 families live on these ranches. Loans to these ranches have been made to the groups as a whole.

The problems of who should hold how many cattle and the proportionate use of resources have been worked out to the satisfaction of the Masai. 1/ This is not to say that this solution is everlasting but at this time the group ranch members are satisfied. One of the most attractive features to the Masai is that they now have title to land. To delve into the sociologic aspects of

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1/ More description is offered by Simpson, M., Alternative Strategies for Range Land Development in Kenya, University of Leeds, March 1973; Jahnke, H., Ruthenberg, H., Thimm, H.J., Range Development in Kenya - The Kenya Livestock Development Project and its Impact on Rural Development, Nairobi, Dec., 1972; and IBRD, Kenya Agricultural Sector Survey, Annex V, 1973.

2/ See Appendix II-e.

this approach leads to endless discussions.1/ The fact of the matter is that this was the most acceptable alternative solution to a desperate problem. Further, this concept appears to be acceptable for the future because some 50 more ranches have been designated for financing. The prospective members have been registered and are waiting for financing and development implementation, and their land has been adjudicated.

The efforts of two or three individuals in designing and implementing this plan are significant reasons for the successful outcome that has been achieved. The early days of planning for these ranches involved numerous discussions with the Masai. Many plans were formed and revised. A new land adjudication act had to be written as well as new laws governing group ownership of land. Some of these original planners continue to work with the group ranches in Kenya directly or indirectly. This continuation of management experience has been an important reason for the successful development.

The results of this approach point out the sociologic dynamics that can occur in certain groups in response to alterations to their social and physical environment. This is not to say that the resultant change in the sociologic patterns is not upsetting, nor 100% acceptable, but that this upset represents a lesser disadvantage than the perceived advantage of the new order.

Experiences of Credit Institutions with Lending to Smallholders.- The AFC, commercial banks and the Cooperative Bank have extended credit to smallholders. The AFC 2/ is a development bank that carries out various activities in association with government to administer development credit programs and has the most experience of any organization in Kenya with smallholder credit. The commercial banks' lending policies are fairly conservative. They take much less risk than the AFC. The recently formed Cooperative Bank delivers credit through the cooperative organization and has lent money mostly for coffee production.

The AFC has been involved in smallholder credit schemes since 1955 and has tried various approaches to security and credit supervision. In Appendix II-a some of the experiences are described. In general their experience is that making medium-long term loans without land title security has led to poor repayment. The figures shown in Appendix II-a for the percent of total arrears which are over 12 months do not by themselves truly reflect the actual situation since they do not show total lending which has been repaid. Unfortunately these figures are not available but the experience is that the total repaid loan values are considerably higher for districts where title has been held for security. The point is that when land title was required by AFC policy the repayment improved greatly. The same trend may be drawn from the table in regard to quality of technical supervision. The KFW credit scheme

1/ For discussion of the sociologic features of group ranches, see Hedlund, H.G.B., The Impact of Group Ranches on a Pastoral Society, Institute for Development Studies, University College, Nairobi, Staff Paper No. 100, June, 1971; and Davis, R.K., Some Issues in the Evolution, Organization and Operation of Group Ranches in Kenya, Land Tenure Center, University of Wisconsin, Reprint from East African Journal of Rural Development, Vol. 4, No. 1. Also A.H. Jacobs has done a Ph.D. thesis on this subject, however his work, The Traditional Political Organization of the Pastoral Masai, has not been published.

2/ See Annex 2 of IDA 105 Smallholder Credit Project appraisal report, April 1967, for more description of the AFC.

with its deeper reaching technical assistance enjoys a somewhat better repaymen experience than does the IDA scheme. The return to the cost of such administration cannot be determined. Under the IDA scheme, foreclosure has been threatened in some cases but the strength of implementation was such that the farmer was able, in the last resort, to retain his land. Even though foreclosure is a slow administrative and judicial process in Kenya, under the KFW scheme, some foreclosures have been executed.

In early years, assistance provided farmers in conjunction with AFC credit was aimed almost entirely at the technical aspects of farming. This assistance was provided by personnel of the MOA. The problems resulting from the lack of attention to farm management, i.e., budget and cash flow planning, became evident and in 1968, therefore, under the IDA 105 loan, a short course program to train technicians in farm management was begun. These technicians helped farmers prepare a farm plan prior to loan approval 1/ AFC's experience with this approach has been excellent.

Most of the medium-to-long term smallholder lending has been to the crop-dairy farmers of the high potential areas. AFC has also lent money to smallholder pig and poultry operators; this has been unrewarding in many instances and they now, as a policy matter, only lend to pig and poultry producers in cases where an adequate technology and serviceable market system are assured and where the farmer can supply the feed inputs. In contrast to lending for pigs and poultry the lending for grade dairy cattle under conditions of the title security and technical supervision has been relatively successful and the demand for credit for cow purchase and dairy complementary inputs is much higher than expected. This undoubtedly results in part from the milk price policy, but the demand for smallholder dairy loans was high even before the presidential price decree of 1971.

The result of lending to group ranches cannot be accurately evaluated at this point because most of the loans are not yet due.2/ Some prepayments have been made and indications to persons who work closely with these groups are that repayment will be excellent. Repayment of individual loans made to members of the first group ranch (a practice which was discountinued) has been poor. This situation is complicated by problems of record-keeping for these accounts in AFC. The estimate is that 24 of the 30 individual loans on the Poka ranch will be repaid and the remaining six are doubtful.

The commercial banks have been actively lending to smallholder livestock producers for many years. They usually demand more security than does the AFC. Nowadays, in addition to land title, most commercial banks will extend credit only when the loanee can show an existing, well-established source of income such as coffee production or outside employment. Commercial banks because of their high liquidity would like to increase their lending but cannot justify the cost of field supervision which would be required if they relaxed their security policies. They consider smallholder lending good for their public image as well as a way of opening new loan markets.

1/ A sample of the form used for farm management planning is in the background file for this survey.

2/ See Appendix II-b.

One experience was described in which a commercial bank lent money without title deed security. In the Kericho district in 1965, prior to land adjudication, the district manager made a few medium term loans betting simply on the innate honesty of the tribe. Because his early results were successful, he increased this practice. During this 1-3 year period the average number of loans out at any one time varied from 50 to 150, and in value from 50 to 150 K£. The terms were from one and a half to three years. Later as land adjudication progressed, title deed was required. This same official said that he would not repeat the same experiment today. Widespread degradation of basic integrity and poor credit discipline has become prevalent because many farmers who received loans without security were permitted to default without penalty.

The Cooperative Bank was started in 1968 because members of all types of cooperatives desired a credit source and a savings institution within their cooperative movement. The Bank does not maintain individual accounts but makes agriculture loans to cooperative unions and to societies only. Loans to societies are made within the framework of the Cooperative Production Credit Scheme (CPCS) or for crop advance produce buying. Most lending has been for coffee production, and the performance so far has been excellent. In Kiambu, 1,897 members received loans averaging 250 K£ and for an 18-month period 23,016 K£ was recovered out of 24,537 K£ lent. These loans are made with "market monopoly" serving as security. Although to date loans for dairy cow purchase by the Cooperative Bank have been negligible, this bank is prepared to make dairy cow loans with three-year terms to the member societies, and there is sincere interest on the part of the society officials to enter into such credit programs. One district union has recently made eight loans for cows as an experimental venture. They plan however to use the return from coffee production rather than from milk for loan repayment. This arrangement reflects the concern that milk may be easily sold outside of cooperative market channels, thereby debasing the market monopoly.

Another sort of credit that is provided by the cooperative is for emergency personal need, i.e., health expenses, school expenses. This is the only credit not delivered against supplier invoice. Payment is deducted from the sales of products through the cooperative channels (crop advance produce buying). In many cases the harvested crop has been delivered but payment has been administratively delayed. In most cases, the amount of this sort of credit is limited to 10% of the crop value.

The Cooperative Movement.- Individual cooperatives were started many years ago by European farmers for the purpose of marketing their cash crops. Later, in the 1960s after Africanization, many rural cooperative societies were established to fill economic political and social needs of rural Kenyans. 1/

1/ A worthwhile discussion and review of the general philosophy of rural cooperatives with specific focus on Africa is offered by Apthorpe, R.J. He also discusses the problems of credit administration by the cooperative and concludes that such a practice is questionable. Rural Cooperatives and Planned Change in Africa: An Analytical Overview. Staff study for United Nations Research Institute for Social Development, Geneva, 1972.

The aim of the government was to show that it was taking immediate action for rural Kenyans. This emotionally inspired action was in many cases premature and resulted in the rapid growth of numbers of societies which were lacking quality of management. In the more progressive smallholder areas these societies are now serving an economic function of input supply and marketing, but have made very little progress in achieving social or political benefits such as health improvement, extension and community cohesiveness. Internal squabbling, corruption and embezzlement have been commonplace in the recent past. Because the cooperative movement was organized from the "top down" individual members lack a sense of involvement and responsibility. 1/2/3/

In many cases, the societies operate under the umbrella of district co-op unions. These district unions serve the societies by providing assistance for their bookkeeping, training, transportation, and general administrative management. The unions frequently manage the distribution and sales of inputs to the society members. The government continues to encourage the amalgamation of primary societies into district unions which, in most cases, have multipurpose/multicommodity functions. An apex organization, the Kenya Federation of Cooperatives, was set up in 1964. This organization is involved in educational activities for the cooperative employees and the establishment of guidelines for cooperative personnel policy. 4/

1/ This problem is described in Cooperatives and Rural Development in East Africa, edited by Widstrand, C.G., The Scandinavian Institute of African Studies, Uppsala, Africana Publishing Corp., New York, 1970. He observes that "Ideally, in the long run it is not until the members themselves feel a sense of involvement and that they have some control over the cooperative (through education, involvement in productive activities, etc.) that efficiency can be guaranteed by pressure from below, by active participation by the membership, both in the marketing and producer cooperatives."

2/ A discussion of various management problems in cooperatives in East Africa is offered by Karanja, in a paper, Rural Economic Development and Management: The Case of Cooperative Management in East Africa, presented at the 15th Annual Meeting of the African Studies Association, University of Nairobi, Nov. 1972.

3/ The particular problems of the Cooperative management in the resettlement areas of Kenya is presented by Harbeson, J., in Cooperative Societies, Local Politics and Development: A Kenya Case Study, presented at the 15th Annual Meeting of the African Studies Association, University of Nairobi, Nov. 1972.

4/ See diagram Appendix II-c.

The local dairy cooperative societies manage a series of collection centers to which farmers bring their milk in milk cans twice daily. The milk is taken to a union collection center where it is kept chilled in cans. Here in some cases, the milk is separated. From these union collection centers, the milk is shipped to the nearest Kenya Creamery Commission plant. The farmers are paid once a month. These payment are, however, sometimes delayed because of administrative malfunction. Most local societies have a headquarters in the farming area which serves as the record keeping center and also a store to supply certain inputs (spray, teat treatment medicines, etc.) as well as items used in the home.

In 1967 the authority of the Department of Cooperative Development 1/ was increased to deal with the problems in the cooperative movement by a new Cooperative Societies Act. Under this act, the department can remove officials, order amalgamation of societies into unions, approve and reject budgets and policies and audit accounts. To achieve long-range improvement in cooperative management and administration, an education program has been established to train cooperative employees. The Cooperative College was established in a temporary location in 1967 and then in permanent facilities in 1970. This college is a result of an assistance program to Kenya by Nordic countries. Its aim is to provide regular short (1-14 weeks) education programs for cooperative employees as well as facilities for special seminars and short courses. In the period 1967-1970, 1,680 persons benefited from these courses and seminars. The first diplomate certificate in cooperative administration will be granted only this year because the 32-week formal training program was not started until 1972. 2/

The activities of the Department of Cooperative Development were given considerable impetus when they adopted the Government's Cooperative Development Policy (Sessional Paper No. 8 of 1970). The cooperative movement as an instrument of income distribution is meant to have a major impact on the social and economic transfiguration of Kenya. To achieve this, a new division of the Department of Cooperative Development was formed, a Cooperative Development Policy Division, which is attempting to formulate policy leading to the improvement of operational efficiency of cooperatives. The overall program of the Department of Cooperative Development is aimed toward helping the functional activities of cooperatives and to promote better organization of the whole movement. Five divisions are set up to deal with the functional activities; Credit and Finance, Education and Training, Audits and Accounts, Development and Planning, Settlement Cooperation and Field Services. 3/

A credit and savings scheme operates within the Division of Credit and Finance. This scheme, the Cooperative Production Credit Scheme (CPCS) was initiated in 1970 as a mechanism for encouraging better management at the

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1/ See Republic of Kenya, Development Plan 1970-74, pg. 276-282 for more description of the department.

2/ See Appendix II-c for a brief description of courses.

3/ Detailed accounts of the activities of these divisions are described in the 1968-1970 Report of the Department of Cooperative Development in survey background file.

society and union levels, stimulating rural service, retaining funds in the rural sector for the benefit of cooperatives, providing the cooperatives with greater liquidity, encouraging member loyalty and increasing the productivity of cooperatives through availability of input credit. The formation and implementation of this scheme were greatly assisted by the Nordic project for Assistance to the Cooperative Movement in Kenya. 1/ The CPCS has had many growing pains because of poor management ability at the local levels. To date most of the loans have been short-term for coffee production. The design, however, is such that longer term (3-5 years) loans are available. No loans for livestock have been made through this scheme. 2/ However these cooperatives are active in milk marketing. In 1970, 11% of the cooperatives' total turnover was from milk sales. The local primary societies and unions serve a milk marketing function as well as a supply source for some dairy inputs. These inputs are supplied on short-term credit against milk payment. To date very little credit for cow purchase (long-term) has been extended through the cooperative movement. 3/

Discussion.- In Kenya a variety of development strategies have been aimed at smallholders with differing qualities of results. The smallholders in certain areas of Kenya have benefited by these various development efforts. The idea of this field work was to define the lessons learned in this process which may apply to the overall objective of this survey: to draw conclusions useful to WBG in designing programs which can reasonably be expected to benefit the smallholder livestock producer. In the case of Kenya, the available information from the field survey which seems most helpful comes from the experiences relating to smallholders credit programs, the cooperative movement and to the group ranch scheme.

The smallholders which have benefited the most by credit programs are the Kikuyu and the Masai. They are probably the most responsive and have received the most attention. The experience with the Masai is really too young to yield useful information in group lending; however all indications are that the experience will be successful. The efforts in credit delivery to Kikuyu and other crop-dairy farmers mostly in the Mt. Kenya highlands have shown that, at least for longer term credit, deviation from a rather conservative policy on title security and loan supervision leads to poor repayments. In other words, if the loan is not secured by title or if it is not guided by rather deep reaching loan supervision, that repayment performance will not be acceptable. This in itself may not be a tragedy but the damage to an immature credit discipline may have long-term detrimental effects.

1/ See Linquist, S. Report on Credit and Finance in the Agricultural Cooperative Movement in Kenya, The Nordic Project for Co-operative Assistance to Kenya, Document (67) 14, May, 1967.

2/ A detailed description of this scheme is presented by von Pischke, J.D. in A Description of the Cooperative Production Credit Scheme, Institute for Development Studies Working Paper No. 80, Dec. 1972.

3/ See Wanyonyi, J.J. M., Deputy Commissioner for Cooperative Development, The Role of Cooperatives in Small Scale Animal Production in Kenya, speech presented in 1972.

The mechanics of marketing of milk produced by the Kikuyu crop-dairy farmers have been carried out by the cooperative organization. The cooperative movement has yet to approach the full potential of fulfilling the economic and political objectives reasonably envisioned. The "top down" organization is undoubtedly a major reason for this, and, until there is solid member involvement, the ability of the cooperative to be deeply integrated into the life of the smallholder will continue to be crippled. The efforts of the Department of Cooperatives to correct the ills of the cooperative societies and unions by the education of officials and the tightening of administrative controls seems to be properly conceived and to have achieved some improvement already. But the experience is too short to evaluate in terms of lessons for this survey. The lesson on cooperatives in Kenya seems to be that individual farmer motivation and involvement are the key factors toward achieving really vital cooperative societies which in themselves are capable of becoming vehicles of development strategy.

A relatively intangible aspect of development comes from the Kenya survey - the importance of the dedication of individuals in leadership, and the support of the society at large. In general, the nation has supported the development of its rural inhabitants. Certain individuals began to work with the problems at hand, tried various approaches, sometimes failed, built procedures and institutions out of the successful solutions and tenaciously continue their efforts. These human factors although immeasurable except by judgement are critically significant in the development achieved in smallholder crop and livestock in Kenya.

Summary of Main Points.- As a result of development efforts, resource use has been improved so that in Kenya smallholders, the crop-dairy farmers and certain pastoralists, are moving into the commercial stream and modern society. As a primary desire they want education for their children, and now are able to pay for it. The efforts of the credit institutions and the cooperative movement appear to be elements for this success. Although hard to measure, the degree and quality of local initiative is certainly an element, and in final analysis may be the most outstanding one.

Out of the problems encountered in this development history, certain conclusions can be reached.

1. Cooperative societies should be organized with the constant involvement and support of the smallholder member.

2. Local initiative, farmers and the society, are critical for responsiveness to development strategies.

3. Title security and adequate loan supervision are critical for acceptable repayment performance for medium to long term credit given to smallholder operators.

4. Marketing cooperatives are a necessary instrument for the successful development of smallholder dairy agriculture.

DISCUSSION OF MAJOR ELEMENTS OF SUCCESS

A. BACKGROUND - CHARACTERISTICS OF THE SMALLHOLDER'S ENVIRONMENT

The achievement of success by smallholder development efforts will depend upon more than simply an institution, a new technology, a leader, or a market system. The achievements which these elements of development strategy attain depend upon the quality of land, labor, and infrastructure 1/ of the environment in which they operate, and upon the degree to which the society-at-large is supportive of the idea that the rural poor should have a greater share in the economic growth of the country. Accurate assessment and knowledge of the relative degrees of quality of these characteristics has considerable implication for the applicability of the elements of successful development to other agriculture areas.

In the environments selected for field investigation in this survey the qualities of these characteristics, i.e., land, labor, infrastructure and societal support, are relatively good. The question "Are these smallholders really better off as a result of the development efforts or might they have achieved their position anyway?" should be asked. Since we will never know the "control" or "no development" achievement the question seems impossible to answer. However, based on judgement and an understanding of the past position it seems reasonable to suggest that the development strategies employed in project case studies in Kenya and India took advantage of the quality of the environmental characteristics to benefit the smallholder. The bias that the quality of these characteristics introduces to this discussion cannot be removed, and the conclusions must be considered with this in mind.

This discussion of the quality of environment characteristics and the consideration of environments selected for this field investigation invites the question: does this mean that development efforts aimed at smallholders in environments of lesser quality have not been successful? This survey did not reveal examples of successful experiences in assisting smallholders, at least in livestock production, in areas where land quality was poor, labor was totally uneducated or poorly motivated, or basic infrastructure was relatively undeveloped. This is not to say that development efforts cannot be successful in environments of lesser quality than those surveyed but that as of today they have not been or have achieved only minimal progress.

The successes have been achieved with smallholders who are potentially most responsive to development because of the quality of their land and their labor. This process of selecting "the most likely to respond" as subjects of development efforts seems logical -- the fastest and best pay off from the least cost of development. The question before us is "How do we use what we have learned to reach farther toward the development of the rural poor who have an environment of lesser quality?" By example, consider the contrast of achieving development success with the Masai, who have relatively high characteristics of development potential, and the pastoralists of the subsahara.

1/ Infrastructure here is meant to include the physical factors of transportation and communication systems as well as socio-economic factors of land tenure, schools and technical expertise.

Somewhat in contrast to the decidedly commercial agriculturist, the smallholder's livestock production enterprise is generally inseparable from the entire farm system. This implies that smallholder development planning cannot be totally single commodity oriented, but rather farm system oriented. (This does not apply in the case where the farm system is one of a single commodity, such as cattle for pastoralists.) Efforts aimed at increasing the production of one commodity may not be detrimental in development of the commercial agriculture sector but it can be in the smallholder sector. The smallholder cannot risk the failure of the markets or the loss of production of one commodity in a single commodity system. He is in the most secure position if he has a diverse production, including the production of food for his home. In contrast to the larger commercial farmer who uses relatively indivisible and committed resources, the smallholder is able to shift some of his production quite rapidly from one commodity to another. This position of diversification is the one the smallholder will most logically elect.

There are no reasons evident from this survey that development of the smallholder and the commercial agriculturist cannot proceed simultaneously. Advances made in the commercial agriculture sector can have complementary effects on the smallholder sector. If the major objective is income distribution, care must be taken to assure that institutions and policies established for commercial agriculture do not create disincentives detrimental to the smallholder. For example, a market system that is geared only to handle large quantities and a uniform quality of the raw commodities would work in the disfavor of the smallholder. The Kaira Union market system and the services provided by the Livestock Market Division of the Kenyan MOA are examples where institutions have been successfully developed to deal with the problems peculiar to the smallholder livestock producer. 1/

The rigorous demonstration of beneficial results from a development effort is difficult to present. The unavailability of farm microdata from which to measure differences of farm productivity or income between smallholders who received development attention and those who did not makes a statistical comparison of this sort impossible in this survey. One of the difficulties in obtaining such data is that smallholders are very reluctant to give accurate disclosures of earnings or production. In the case of India, a comparison has been made which showed that villagers who had a milk producer cooperative produce more milk than those who did not. 2/ However, the conclusion that they are better off cannot be drawn because this study did not reflect the production of the whole farm system. This points out the problem of this type of measurement (a problem common in developed countries as well) - that all the farm production, the home use of farm produce and the increased assets, i.e., equipment, livestock,etc. must be measured in order to defend the position of one farmer being better off than another. Further, the question of measurement of better nutrition, better quality of leisure time (i.e. better wedding celebrations, more consumption spending, etc.) must be dealt with. In this survey,

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1/ See Annex V of Kenya Agriculture Sector Review for description of the Livestock Marketing Division.

2/ Shrivastava, R.K., Impact of Cattle Development Programme on Rural Economy in the Kaira District. Paper presented at Symposium of Livestock Statistics, New Delhi, March 1970.

the position is taken that the farmer can evaluate how much he is being benefited and will respond by requesting participation in assistance activities, repaying his loans, getting more credit and/or attending meetings. This on-going response will be manifested by the increased smallholder enrollment as shown in the case of the growth in the cooperative societies in India, the readiness with which the Masai are signing up for group ranch schemes and the demand for dairy loans with technical supervision by the Kikuyu. The assistance efforts surveyed were successful in reaching the smallholders as shown by their positive and continuous response. 1/

B. ELEMENTS

People.- The smallholders in the cases studied either initiated their own development or conditions were such that they were readily responsive to the opportunities provided by the development strategies. The leaders and development workers are dedicated to the development idea and they have been working with the problems for a long enough time to provide continuous guidance. They have grown with the various schemes which they have designed and have worked tenaciously to overcome the problems that have occurred. These leaders seem to have the ability to instill confidence in the smallholders and others and to motivate them. The society-at-large and the government, regional or national, has been sincerely supportive of rural development in general and has demonstrated this support by assigning a high priority to the allocation of resources aimed at benefiting the smallholders.

The upgrading of smallholders and technical and administrative personnel who operate at the local level by training programs has been an effective form of subsidization. Programs which have trained these people in basic animal production techniques, farm management, cooperative society administration as well as in the management of the home have been the backbone of successful experiences in smallholder development cases studied.

1/ One published experience is helpful in considering this subject of evaluation. In Ecuador an effort was carried out to measure the benefit differential between the users of directed credit and the non-users. The evaluation was based on the interview response from smallholders about changes in production, income, meeting attendance, use of technology and purchases of items for the home, i.e. radios, bicycles, etc. The suggestion is that the measurement of smallholder benefit may be adequately approached by using a sample survey aimed at determining attitudinal and discretionary income differences as reflected by such simple parameters as: attendance at meetings, adoption of technology, attendance of the children at school, and purchase of radios. See R. Hayes Keeler et al., Evaluation of the Directed Agricultural Production Credit Program in Ecuador - AID Spring Review of Small Farmer Credit, Vol. IV, Feb., 1973 No. SR-104. Also see Appendix III-A for Desk Review of Ecuador.

Cooperative Organizations.- The cooperative societies organized primarily for product (milk) marketing have been a major element of success. The role they have played in such success depends greatly on the degree of involvement of the rural member in the society, i.e., the degree to which he feels the cooperative society is his own and that he has a say in its destiny. In this survey it became evident that the more cooperative societies became vehicles for the delivery of technical inputs and information extension(e.g. A.I., Veterinary Service, Newsletter) the better they functioned overall and in a sense became vehicles of other types of development such as stimulation of village cohesiveness, awareness of sanitation and health procedures, development of community improvement projects. 1/

This survey revealed a contrast in the effectiveness of cooperative organization caused by the methods of their formation and operation. In Kenya where the cooperative movement had been imposed on rural inhabitants without much care being given to the quality of local involvement in the cooperative society, many cooperatives have failed to function beneficially for the smallholder member and many have dissolved basically out of local level internal disagreement and lack of member confidence. A contrast is seen in the Kaira Union in India, where great care is taken to assure that the societies are formed with the solid support of the village buffalo-owner members. Continuing active efforts are taken by the Union to assure the healthiness of the cooperative societies. The point is that unless cooperative organizations are formed with the constant involvement and support of the villager they are headed for problems which can contribute greatly to lack of success.

Market Systems.- Milk production was the main smallholder livestock activity investigated in this survey and the role of a well functioning milk marketing system was clearly an element for successful development of the smallholder dairy business. The perishable nature of milk requires considerable technological sophistication in the market system. This as well as the details of handling such small quantities as are produced by smallholders means that the market system is complex. These complexities of smallholder milk marketing can be most successfully managed through the cooperative organization.

Price Policies.- Price stabilization is an important element. Milk processing technology can provide price stability in areas where there are large seasonal variations in supply. These variations can be absorbed by producing storeable milk products which in turn results in a stable predictable price throughout the year and the inspiration of producer confidence in the market.

Credit Policies/Problems.- The extension of credit to smallholders under the proper conditions has been an element of success for smallholder dairy and pastoralist beef production. The experiences with smallholder credit however have not been uniformly rewarding as found in this survey. In some cases long term (2-5 years) credit has created problems. Successful experience with long term credit in smallholder development has been achieved with deep reaching technical supervision and land title security. Conversely, as shown by the experiences of the AFC in Kenya, relaxed requirements of title security and shallow or poorly trained technical supervision lead to poor repayment.

1/ See Appendix I-e for information on community improvement projects.

Group responsibility and market monopoly are generally considered as workable approaches to collateral for credit where land title security is difficult to obtain or when, even if obtained, enforcement after default is hard to exercise. In this survey, for the case of long term credit, the findings do not support these forms of collateral as being adequate to achieve an acceptable repayment performance. The case of the Masai group ranches may well be an exception to this statement but the credit experience in that scheme cannot yet be evaluated. In the Kaira Union, the attempts to use group responsibility as long term loan collateral have resulted not only in poor repayment but a weakening of the cooperative society-villager relationship. This result is linked to the fact that milk can easily be sold outside of cooperative channels; thereby debasing the market monopoly idea. In sum, the experiences in long term credit for smallholders found in this survey indicate that acceptable repayment can likely be expected if title security and well trained loan supervision operating at the farmer level are available and that alternatives of market monopoly and group responsibility have not been adequate security under the conditions of administration in Kenya and India. Besides being commercially unsound, poor repayment has resulted in the weakening of the cooperative organization 1/ and damage to an immature credit discipline; situations which may in themselves be sources of smallholder development failure. Another point that is implied by this discussion on credit collateral is the need for land adjudication as a prerequisite for successful long term lending programs.

The experiences of short term lending (2-9 months) without conservative collateral, i.e., as "in kind" inputs to dairy production against milk sales,have been commercially acceptable. In this case, even though it is hard to achieve a market monopoly with milk, the smallholder is able to keep up the payment without the burden seeming so great as to tempt him to sell milk outside the lending-marketing channel and he knows he must keep his account current before he can buy more inputs on credit through the cooperative.

DISCUSSION OF CONCLUSIONS AND IMPLICATIONS

There are implications from the development experiences studied in this survey which can serve the efforts of the WBG, specifically, to design development plans which enable the smallholder .to move more into the commercial stream through increased agriculture production. The implications from this survey are made with the idea that they can fit into or form the bases for designs of rural development strategy. The results of smallholder development efforts can be expected to be realized with more difficulty and cost and more slowly than the results achieved from lending programs directed at the commercial agriculturist. The elements of success described in the previous section give the general implication that direct and intimate attention to the motivations of rural people and their organizations, the "human factors," should be the basis of smallholder development design. Another general implication is that infrastructure and market opportunities must be extended to the smallholder. The society-at-large should not expect the cost of this infrastructure to be returned entirely through increased GDP from increased smallholder agriculture production. This is a subsidization in which social benefits such as the slowing of urban drift, better

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1/ A similar experience occurred with credit administration through marketing cooperatives in the Midwest USA in which the co-op managers were unable to manage both the marketing and credit aspects of the local cooperative. As a result, in most cases, the credit activity was separated from the marketing activity, sometimes physically to an office built alongside the main cooperative building.

rural health, etc., may have to be perceived by the society-at-large and those in authority as being greater than the cost of rural infrastructure.

Given the situation that the qualities of environment characteristics (land, labor and infrastructure) are potentially responsive to development, the findings of this survey indicate that there is reasonable expectation of success if certain conditions are present:

1. Smallholder interest as demonstrated by some initiative to seek development.

2. Society-at-large support as demonstrated by some action directed at smallholder development and by the priority given to the allocation of resources for such development.

3. Smallholder groups, regardless of the purpose for which they are formed, that can demonstrate the feeling of confidence and involvement by the individual members.

4. Local leadership that can demonstrate their interest in and the commitment of their service to smallholder development.

The point of mentioning these rather well known conditions here is that their necessity was clearly reemphasized in the investigations of this survey. Such conditions will never all be present at optimum quality. But the ability to identify the degree to which these conditions are present would be helpful in making a commitment of resources aimed at the smallholder. Another approach is to encourage the government to stimulate the growth of these conditions so that development strategy which has a reasonable expectation of success can be undertaken. The implication to WBG smallholder development planners is that learning how to identify the existence and stimulate the formation of these conditions would be fruitful in terms of carrying out their objectives. Specifically skills and procedures should be developed for:

1) Assessing smallholder response potential.- An interview-based survey protocol could be developed to form the basis of determining responsiveness. Assistance in this questionnaire design might come from agriculture extension people in the developed countries. The results of these interview surveys may then indicate the comparative responsiveness of groups of smallholders.

2) Assessing the vitality of smallholder organizations.- Assuming there are local cooperative societies or other groups in existence their vitality could be judged by meeting attendance, date of last by-law revision, condition of the account books and sample interviews of smallholder members and the administrators.

3) Assessing the sincerity of society-at-large support for income distribution to the rural disadvantaged.- Governments could be requested to supply policy statements, budget plans, land tenure plans and laws, which indicate their support of the smallholders. The development schemes which they are carrying out or in which they are participating could be examined from the records, by site visit and by participant interview.

4) Assesing the availability or potential availability of local leadership with the quality to carry out development strategies.

The foregoing discussion has emphasized the implications in the general area of human motivation and behavior. The findings from the experiences studied in this survey suggest other implications for successful design of smallholder development plans.

1. Market systems must be designed to deal with small quantities and to deliver frequent payments. This requires that great attention must be given to detail at the local level. The healthiness of the local cooperative societies is a key factor in the successful operation of the market system which in turn is a key factor to the stimulation of smallholder production incentive.

2. Training programs should be emphasized. These programs should be entirely oriented to the smallholder world. The motivation and training schemes of the Kaira Union and the Farmer Training Centers of Kenya are examples of this orientation. The subjects should be almost immediately applicable and their importance should be readily visible to the smallholder. Persons trained for technician roles should be rural inhabitants who understand the daily life and speak the language of the area in which they are to work. Training in farm management and rural society cooperative administration should have the same emphasis as does training in technical subjects.

3. The formation of cooperative organizations should be given a high priority. Besides input supply and marketing in smallholder development, cooperative societies can serve a variety of functions such as extension and short-te credit vehicles. Government technicians should be trained not only in local cooperative society management but in methods of forming local societies which are solidly based on smallholder participation and confidence.

4. Policies which lead to stable prices that provide a reasonable return to labor should be emphasized. The smallholder is more interested in security than in great gains in income for which he must risk a certain loss of security. Price policies which act as disincentives should be identified and discouraged.

5. Credit management should be commercially sound. This leads to the establishment of credit discipline. Enforcement policies should be hard enough to guarantee an acceptable repayment performance. There is no evidence to support the value of experiments in relaxed demands for security. There are other approaches to conservative security for long term loans without title deed (In Papua and New Guinea, clan-elder guaranteed grazing rights and borrower labor are successfully used along with tight supervision to secure loans to indigenous cattle raisers. 1/).

6. The feasibility of programs to promote the security of smallholder tenure to the land should be openly investigated and governments should be encouraged to implement land tenure plans favorable to the smallholder.

RECOMMENDATIONS FOR PRELIMINARY GUIDELINES

This survey shows that the design of development strategy that attends to the agriculture production situation peculiar to the smallholder makes it pos-

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1/ See Appendix III for desk study of Papua and New Guinea.

sible to reach and benefit him. The elements of this success have been presented. These recommendations are put forth as ideas that have grown out of the findings and concluded implications of this survey. They are offered as starting points for further specification of guidelines for smallholder development and for areas to be considered for experimentation.

1. That new techniques be devised to assess the responsiveness of the smallholder, his local social environment and his society-at-large development efforts. Ideas on this subject include development of farmer interview procedures to determine farmer responsiveness, methods to determine local group vitality and requirements of government to demonstrate support.

2. That market systems should be designed to deal with the problems of the smallholder i.e. small quantities, poor transportation to processing centers, ununiform quality of raw product and the need for stable prices. The subsidization of these systems will be necessary in many cases.

3. That consideration be given to the establishment and subsidization of training programs for development officials and technicians of other lesser developed countries using these on-going successful projects as training sites.

4. That opportunities to demonstrate successful operations to farmers, local technicians or national leaders should be investigated in order to stimulate their confidence in the development strategy. For example, village leaders and technicians from other states or countries could be shown the Kaira Union. An MOA official in West Africa might benefit by seeing the activities of the Kenya Livestock Marketing Division with the pastoralists.

5. That existent local smallholder groups, regardless of whether they are formed to assist agriculture or to serve a social need, should be strengthened to serve as marketing/supply cooperative organizations and as vehicles to deliver short term credit. This strengthening would be accomplished by subsidizing the training of local officials in cooperative society management and perhaps the early administration of the cooperative. Also the satisfaction of particular needs of the smallholders through the society could be used to strengthen their involvement, e.g. animal health and perhaps human health. In most cases these local societies would function the best if they were federated into a regional union, i.e. the Kaira Union approach.

6. That long term lending programs should be designed in a manner that maintains conservative security policies.

7. That production improvement plans respect the fact that smallholders operate a farm system and that restrictions of this diversity may be detrimental.

8. That training programs specifically include provisions to train people in methods of achieving smallholder organization and motivation.

9. That the importance of local member involvement in the formation and operation of his cooperative (local group) be emphasized.

APPENDIX I: INDIA

Appendix I-a: " The Miraculous Milkman", The (London) Sunday Times, October 7,1973

BY TRANSFORMING a tiny peasant cooperative into one of the 30 top businesses in India Dr. Verghese Kurien has demonstrated that he is one of Asia's most remarkable men. But not only has he showed extraordinary business acumen. The organization he has created has revolutionized the lives of more than 1 m peasants and could well serve as a model for solving many of the overwhelming problems facing Asia's millions of rural poor.

The fuel for this revolution is buffalo milk, India's rich-tasting alternative to cow's milk. And buffalo milk is something Kurien knows a lot about. His organization now handles 170,000 gallons a day - a massive jump from the 50 gallons a day sold by the infant cooperative he began to manage in 1949. And he has achieved all this without any Government aid. Now, by turning $55 m-worth of butter oil and milk powder from the United Nations into $127m-worth of goods he plans to operate 17 new co-operatives and to move into other products like rice.

Kurien arrived in the small town of Anand, 256 miles from Bombay, in Gujarat State as a refugee from the benefits of nepotism. During the early 1940s, he had worked as a metallurgist for the giant Tata steel corporation of which his uncle was managing director. Both he and his colleages were embarrased by his too rapid promotion and he applied to the Government for a scholarship to study abroad.

There was nothing ordained about his entry to the milk business. Before gaining his scholarship, Kurien had never been nearer to a buffalo than when drinking a bottle of milk. But he had worked for an engineering firm, money was available and the British selection board sent him for three years to Michigan State University to become a dairy engineer.

PROBLEM

Part of the deal was that he would work for the Government for a period. It sent him to Anand in 1947 to try to set up a plant to produce powder from buffalo milk, a forbidding first task for a new graduate made more difficult by the fact that he had nowhere to live. "Anand is a small, cramped predominantly Moslem town and there wasn't much room in anybody's house for a stranger from the Punjab who had studied abroad and, to make things worse, was a Christian," Kurien explains.

He"took the easy way out" and spent two years living in the factory garage. This scant comfort left him plenty of time to solve the problem of converting the fat rich buffalo milk (8% butter fat instead of the 4% in cow's milk) into acceptable powder. And although it had never been accomplished satisfactorily before, he had a successful plant working within a year. But he was constantly interrupted by the manager of the neighbouring Anand cooperative milk producer's plant whose outmoded pasteurising equipment kept breaking down.

Kurien could not avoid becoming aware of the defects in the cooperative's plant and organization. He realized it needed expensive modern high through-put equipment and many more people than the 100-odd members on the outskirts of Anand to provide enough milk to make it successful. He knew that in turn this would require a large - scale transport and marketing organization to be able to sell the additional output in Bombay.

The cooperative manager was understandably distressed when Kurien eventually resigned from Government service. Reluctantly, Kurien listened to his pleas and

agreed to stay in Anand as a servant to the cooperative. And despite the recognition which has heaped upon him, that is where he has remained ever since.

But nowadays, instead of a single small co-op he runs the vastly enlarged organization which by his enthusiasm and talent he's created. Now called Kaira District Cooperative Milk Producers' Union Ltd., it is a giant web of village co-ops involving 215,000 farming families comprising more than one million people located overa an area of 2,500 square miles. Twice a day, the perishable milk from 344,000 cows has to be received at 800 village cooperative collection centres, analysed for fat content, weighed and transported by 85 lorries to Asia's largest and most up-to-date milk pasteurisation and processing plant at Anand. Twice a day, 215,000 cooperative members have got to be paid for the milk supplied at their previous delivery and accounts have got to be kept.

Forty-four-thousand gallons of sterile milk are daily railed from Anand to Bombay for bottling and distribution through 2,000 Government-operated retail sales booths. The remaining 126,000 gallons are processed into the 5,000 tons of butter, 500 tons of cheese or the various grades of milk powder which are made each year at the cooperative's dairy factory.

Output of babyfood based on powdered milk from the Anand factory now represents over 50% of India's entire production, and it is the world's first factory to make good baby food out of buffalo milk. Total cash received for the cooperative's products last year topped £22m. Kurien is proud of this 10-1 ratio of income against capital employed because he knows it is a performance rarely achieved in industry.

He feels that the main reason for the spectacular success of the cooperative he manages is its deep understanding of the requirements of its peasant-farmer members. He realized early that to be really successful, it would have to be very paternal and provide great help to its members to improve their efficiency.

IMPROVED

These now embrace a wide range of advice, supply, and services. Eighty qualified stockmen constantly visit farmers advising on general aspects of buffalo husbandry. Forty-two vets ensure that clinics are held in each village once a week and sick animals are treated free of charge. If the buffalos of the few non-members of the cooperative in the village need treatment they too receive it free. As Kurien says: "We don't want our members' animals catching diseases from the buffalo of non-members."

For 75p cooperators are guaranteed the arrival of a vet within four hours if their buffalos fall sick between normal weekly visits. "Our aim has been to create an animal health and advisory service which is swifter and more effective than that provided by the Government. Our vets do more caesarean operations to save calves in a year than most government vets do in a lifetime."

Apart from health and management, the profitability of buffalo keeping has been greatly improved. The co-op has its own stud of 60 pedigree bulls at its central artificial insemination centre and each village unit employs its own inseminator who helps to carry out the 200,000 inseminations made annually. This improved breeding has led to an increase in milk production of 50% from each buffalo owned during the past eight years. Since about 30% of all the milk produced is kept by the farmer's family, this means that apart from earning more money the villagers are better fed.

To improve and cheapen the diet of its buffalos, the cooperative now operates India's largest compound animal feed mill using a computer and produce grown by its members.

Inevitably such a successful cooperative is developing further activities to profit from its organizational structure. "It was natural to ask - could we do for rice or other crops what we have done for milk?", says Kurien. "Within the next two months we'll be opening our first rice mill. We have just started building a factory to make weaning food for children from soyabean. Shortly, work will begin on a malted milk factory. We were a bit peeved to think that in our poor country the Indian subsidiary of Horlicks was taking so much profit that it could declare a 90% dividend in its first year, a 100% dividend in its second year and a 110% dividend in its third year. We plan that some of that profit should be earned in future by our peasant-farmer members."

"Logically," Kurien says, "we should improve the efficiency of our milk business by trying to reduce the number of producers and increase the number of buffalos each of them keeps. But we really can't do that because our task is to improve the all-round living situation of all our members, not to create a giant pool of rural unemployed."

Fortunately there is still plenty of room for present cooperative members to increase their output. An insatiable demand for milk in Bombay (where it's rationed to two litres a day for every "Milk Card" issued) means that the price is high and there is a good market for the output of the co-op.

As the coopeartive's activities have gathered pace, Kurien has become increasingly aware of its potential to alleviate rural distress, but he's also very conscious of the problems of success. "It's having a profound impact on the whole structure of village life," he says, "especially for the women and their status. For it's the women in Indian families who own the buffalo and keep the income from the milk. In the past, production was low, a lot of milk was drunk by the farmer's family and the income from the sale of the surplus to non-buffalo owners in the village was small. The man in the family grew crops like tobacco, rice, cotton or other cereals on his land, and received an income once or twice a year following harvest. Nowadays, our women receive an increased income twice a day paid in cash, and this has made all the faimily more economically dependent on them and given them much more of a voice in family management."

CAPITAL

Success is also breaking down class barriers. "When high-caste villagers are obliged to line up twice a day before or behind former "untouchables" to deliver their milk to the village depot, it is harder to maintain exclusive attitudes and they are rapidly breaking down."

Kurien's main worry is how far the general welfare side of the cooperatives' activities should extend. "We are not the State and must continue to be economically viable. But what is a vet to do when he arrives at a village to treat a buffalo and is also asked to look at a sick baby? Do we take on more vets so that they can look more at babies? Do we create our own large-scale health service, how much welfare can we afford?".

Economic viability is vital for Kurien because he does not want any State aid which would allow the State to interfere with the cooperatives' activities. That is why he has built the whole giant organization without a rupee of government money. Capital has either been generated out of profits or begged and wangled out of international aid organizations. Unicef lent the money for building the children's weaning food plant and will be paid back in free supplies of the food which they can distribute to children elsewhere. Oxfam donated the £100,000 needed to start the cattle-feed mill.

Kurien is proudest of the way he has obtained the capital with which to embark upon the creation of 17 other cooperatives in 10 other states of India. Eight years ago, India's then Prime Minister, Shastri, visited Anand and was overwhelmed. After a night spent in one of the villages eating and talking until 3 am with cooperative members, he came back to Kurien's office and said: "That's what rural India must be like."

On his return to Delhi, he immediately created the National Dairy Development Board and named Kurien as chairman. Kurien, faithful to his adopted home of Anand and unwilling to tangle with the Delhi Civil Service, accepted on condition that the new board's head office should be in Anand and that no government capital would be involved.

From the United Nations food programme, he obtained a donation of 42,000 tons of fat (butter-oil) and 126,000 tons of milk powder which was mostly chipped from Europe's butter mountain and nominally worth $55m. By processing these raw materials at the Anand factory, he created goods worth $127m which he will use as the capital to found the new cooperatives-six of which have begun to operate with 11 more currently in formation.

Kurien plans to use similar commercial acumen to invade the big town milk markets he will need to absorb the new cooperatives' production. At present, approximately 60% of the milk bought by the citizens of Delhi, Madras, Calcutta, or Bombay is produced in the cities by a few rich men who keep large herds of buffalo in the towns. "It is costly to produce and expensive for the consumer because both the buffalos and their feeding stuffs have to be transported to town. We can produce more milk if we pitched our price sufficiently low to make town production unattractive while leaving the cooperative the profit it needs."

To increase the size of the city markets, Kurien's board is providing the capital for many more retail milk booths. By law they will have to be operated by the State governments, but Kurien does not fear too much interference because, as he points out, "he who pays the piper calls the tune." And it is obvious that in future he'll be pushing the Government to permit the co-ops to manage their own retail outlets.

Admiration for Kurien extends to the world's other milk tycoons. They have chosen him to be the chairman of next year's international dairy congress which will be held in Delhi. Already Kurien has provided the congress with a theme: "Dairying as an instrument of social and economic change."

Appendix I-b: Notes on the Veterinary and A.I. Service

Both the veterinary service and the A.I. service are under the Deputy General Manager for Administration in the Kaira Union organization. These services are extended to the villager free of charge, except for emergency veterinary service. 1/

The veterinary service mans 21 routes for routine weekly calls to the village, and in 1973 they treated about 90,000 cases. Kaira Union employs 42 veterinarians to carry out the routine work and emergency calls. It is recognized that a veterinarian having performed his task well, has a unique advantage in terms of the villagers' confidence. The villager is more likely to listen to the veterinarian than someone sent specifically to "educate" him. The Kaira Union expects its veterinarians to be active extension agents on a wide range of subjects and in a sense they are "milk procurement officers." They talk to individual villagers about such subjects as: the value of proper feeding; the value of A.I.; the importance of maintaining a viable society and the value of home sanitation. The subject of birth control is only infrequently brought up, but Kaira Union is forming policy which will move them more actively into this field. Many villagers want to be examined and treated themselves by the veterinarian in the villages. Serious consideration is being given to using the Kaira Union as a vehicle to improve human health services.

The A.I. service is delivered by stockmen who work in the village societies and are trained by Kaira Union. They receive the fresh, ice packed semen every day on the milk truck. The buffalo bulls are kept in Anand. They have been selected from cows in the villages of Anand. The selection procedure is as follows: Through the annual milk yield competitions, a nucleus herd of buffalo yielding 13 to 20 litres per day during their peak periods is identified in the villages every year. Such high yielding animals comprise only about top 2% of the population of milk buffalo. The Kaira Union statistical group follows up the milk recording of such animals on weigh-a-day-a-month basis to work out the "300-day lactation yield" of these animals; this is calculated as 200 times the peak daily yield. As for example, a buffalo yielding 15 litres per day during the peak period will have 3,000 kg. "milk yield" in a lactation of 300 days. Care is exercised to inseminate these buffalo artificially by the semen from the best bulls at the Kaira Union bull stud. The male calves from these dams are earmarked for the bull stud. To help insure that the bull calves are reared properly by the owner, the owners are given subsidy in the form of balanced cattle feed for the cow of Rs. 10/- per calf per month and are assured a purchase price of Rs. 3/- kg. body weight. The bull calves are moved to the Kaira Union early in their age (3-4 months). Veterinarians check these calves for purity of breed, physical fitness and absence of any deformity. They are also vaccinated against Hemorragic Septicemia and Rinderpest. These calves are then ear-tagged and identified by that number onwards. 2/

1/ Emergency veterinary calls are charged at 10 Rs. for members and 15 Rs. for non-members. This charge is nominal in relation to cost, but serves to reduce the "nuisance calls."

2/ Source: Artificial Insemination Program in the Kaira District in Gujarat State, 1973. In Survey Background File.

It is estimated that A.I. has been accepted by 48% of the villagers. The number of annual inseminations has grown from 9,000 in 1960 to 160,000 in 1972. There are 550 A.I. sub-centers (restraint stalls) to which villagers may bring their buffalo to be bred. The percent of buffalo bred by A.I. which have conceived as determined by pregnancy diagnosis is 58%. No figures are given for calving interval, but it is reported that villages using A.I. have shorter calving intervals for their buffalo than do those that use natural service. There is a lack of basic animal sience knowledge which hampers A.I. progress somewhat. For example, the optimum time of insemination of the buffalo is only roughly identified and to make matters worse, heat detection in the buffalo is difficult because of short and/or silent heats.

Appendix I-c: Notes on the Daily Villager Activities Associated with Buffalo Milk Production

The care of the milking buffalo is intimately associated with the daily village family life. Most of this care is done by the women while most of the field work is done by the men. In most areas, the buffalo are in the front area enclosures of the families' homes. They are moved only when taken to wallow every other day or so. In other areas, the buffalo are grazed some of the time and kept in the home enclosure area at night. 1/ The labor intensity of the operation is impressive. The following activities are performed by the women in the daily care of buffalo (When they are not working with the buffalo they are generally helping their husbands in the fields).

1. Take manure to their manure pit in baskets.

2. Milk the buffalo.

3. Carry the milk to the society. They are paid according to the fat-test taken at each time they deliver milk.

4. Cut forage in the fields and roadsides and carry it to the buffalo twice daily.

5. Take buffalo to wallow.

6. Milk the buffalo and carry the milk to the society again in the evening.

Appendix I-d: Notes on the Organization and Finances of Village Societies

1. Membership Criteria 2/

a. He is a resident of the village, has completed 18 years of age and is competent to contract.

b. His written application in the prescribed form for membership has been approved by the majority of the managing committee.

1/ For more discussion on characteristics and management of the milk buffalo see Whyte, R.O. Land, Livestock and Human Nutrition in India, Frederick A. Praeger Publishers, pg. 214-223.

2/ See Model by laws of Milk Producers Cooperative Society (Ltd.) in the Kaira District.

c. He is a milk producer and owns buffalo. He has supplied milk to the society for a period of three months preceding the date of his nomination.

d. He has taken at least one share and paid an entrance fee of one Rupee.

e. He is not dealing in the business of milk and milk products.

f. He has agreed in writing to give milk to the society.

g. He is not declared insolvent or incompetent under the law.

h. He is not proved guilty under criminal offense immoral act.

2. The Managing Committee

This committee is made up of nine members elected by the membership at large. The chairman, elected by the managing committee, is a member of the union cooperative committee which in turn has its board of directors, nine of which are society chairmen.

3. Finance 1/

The societies earn 9-10 Rs. per 100 liters of milk because they purchase milk slightly cheaper than they sell it, as follows:

a. Difference in favor of society of between weight and volume measurement.

b. Difference in favor of society in method of testing (another source is the local sale of excess milk which is collected for testing).

Out of this money, the society pays its employees and some other variable costs. The employees and monthly salaries generally are as follows:

a. Secretary	175 Rs.
b. Milk collector	120
c. Cashiers	140
d. Tester	110
e. Charge of local milk sales, sales and cattle feed sales	115
f. General clean up	110
g. Helper for tester and milk recording	100

1/ See 1972/73 Annual Report for the Ajarpura (Village) Milk Producers Cooperation Society.

, one of these men will also be the A.I. technician and buffalo first aid attendant for which they earn an extra 65 Rs. per month.

The society makes the following distribution of its profits:

1. Reserve fund 25%
   Education fund for state co-op union 1½ to 2%
   Dividend to stockholders 9%

2. Of the remaining funds, the following distribution is made:

Bonus to the producers distributed according to the amount of milk each sold to the society (patronage)	65%
Charity fund	10%
Relief fund	10%
Cooperative Propaganda fund	5%
Staff Bonus	10%
	100%

Appendix I-e: The Utilization of Charity Funds by Societies in the Kaira Union, Gujarat, India

Year	Education Rs.	Water works Rs.	Woman's charity org. Rs.	Library Rs.	Approach roads Rs.	Medical dispensaries Rs.	Village admin. Rs.	Army funds (disabled persons) Rs.	T.B. funds (for testing) Rs.	Misc. Rs.	Total Rs.
1964-65	93690	26334	1275	1939	7735	9278	11778	101	1700	24021	177250
1965-66	75812	6985	2802	4529	13238	8193	18705	8057	2124	16762	157207
1966-67	126058	15002	489	3302	8869	25098	24625	354	604	18957	223358
1967-68	103404	17726	943	2965	13381	4824	2541	102	460	7113	153459
1968-69	143159	39018	565	5644	36596	16625	17877	57147	3956	27161	347748

Source: Srivastava, R.K. Impact of Cattle Development Programme on Rural Economy in the Kaira District, Symposium on Livestock Statistics. Mar. 1970.

Comparative Data on the Cooperative Milk Union's of Gujarat State (May, 1973)

	Amul Dairy (Kaira	Dudhsagar Dairy (Mehsana)	Sumul Dairy	Baroda Dairy	Sabar Diary	Banas Dairy (Banaskantha)
1. Date started	Dec. 14, 1946	Nov. 8, 1950	Aug. 22, 1951	Dec. 24, 1957	Nov. 21, 1964	Jan. 31, 1969
2. Number of societies initially	2	11	6	13	17	Nil
3. Number of societies now	783	450	92	450	225	350
4. Number of members	225,000	80,000	18,000	40,500	20,000	35,000
5. Source of Vet. and A.I. services	Coop.	Vet.: Ser. Coop A.I.: Govt.	Govt.	Coop.	Govt.	Govt.
6. Number of chilling centers	2	3	One under construction	0	1	2
7. Plant Capacity (liters)-Current -Future	500,000 700,000	250,000 400,000	50,000	75,000	150,000	150,000
8. Milk purchased	147,811,128 kg.	65,022,666 lt.	17,479,329 lt.	20,336,324 kg.	14,612,901 lt.	20,189,331 kg.
9. Sale of milk and milk products (Rs.)	392,238,718	101,382,994	28,905,903	34,061,719	17,393,627	21,778,011
10. Profit/Loss (Rs. +)	1,060,127	+1,024,019	+ 378,606	+ 2,913	+ 10,158	+ 3,751
11. Share Capital (Rs.)	4,148,000	4,081,100	933,800	771,900	1,352,500	488,100
12. Reserve Fund (Rs.)	19,809,408	3,052,511	108,230	67,377	27,847	19,732

Source: Kaira District Milk Producers Cooperative Union; Anand, Gujarat, India

1 Rs = 0.128 US$

KENYA

EXPERIENCES OF KENYA AGRICULTURE FINANCE CORPORATION (AFC) IN SMALLHOLDER CREDIT

Years of Operation	Type of Program	No.Loans Approved	Amt. Loaned (million Ksh.)	Security	Description of Repayment Performance				
1955 to 1958	Emergency loan, interest free, distributed by District Commissioner, 5 year moratorium on principal, repayable over 15 years, cash and kind.	Unknown	Unknown	Nil	Because of long term, not due yet.				
1958 to 1965	Agency loans, various sources of funds - 5 year term, AFC agents for govt. No penalty interest and no interest on arrears.	"	"	"	All due - Amount outstanding June 1973, 1/2 mill. Ksh 7,500 accounts.				
					Collection Ratios *				% Total arrears over 12 months June 1973
					1969/70	1970/71	1971/72	1972/73	
1965 to 1970	AFC appointed as Principal agent for Government Small Scale Loan Program.	"	"	Majority not title secured until 1970	52	66	58	89	a). 63% (In areas where 80% of loans were not title secured) b) 54% (In areas where 80% of loans were title secured)
1968 to Present	IDA 105 1st Phase (not including tractor loan). Technical assistance people operated at head office and provincial office levels, not at farmer level.	10,273***	29,091	Required title in almost 100% ot the loans.	77	75	74 **	59	31
1969 to Present	KFW. Technical aid supplied to prepare farm budgets at farmer level and to train nationals to be able to sustain this supervision.	1,420	3,533	All title security	-	90	49 **	62	16

*) Percent collected against that billed that year. Includes past due and maturing installments.
**) These percentages are low because in 1971/72 no loans were billed.
***) About 80% of the loans were for dairy production in general and about 50% included funds for cow purchase.

1 Ksh = 0.14 US$

EXPERIENCES OF AGRICULTURE FINANCE CORPORATION WITH THE MASAI GROUP RANCHES
AS OF MAR. 31, 1973 (Kenyan Shillings)

Name of Ranch	Date of Approval	Development Loan		Working Capital		Principal Outstanding	Interest Outstanding	Total Principal and Interest Outstanding
		Original amount	Amount Disbursed*	Original Amount‡	Amount Disbursed			
Merueshi	9/12/70	329,200	59,190	419,400	40,000	99,190	5,868	105,058
Kiboko	28/6/70	269,100	148,482	566,500	156,973	305,456	12,074	317,530
Olkarkar	28/6/70	332,300	222,705	425,620	137,353	360,058	28,640	388,698
Poka	Individual Loans	184,200	-	309,240	1,298	1,298	190	1,488
Mbilin	9/12/70	277,460	122,749	373,560	25,331	148,080	10,047	158,127
Mbuko	15/3/71	422,600	-	362,560	-	-	-	-
Nkama	15/3/71	547,000	164,691	730,540	40,000	204,691	11,752	216,443
Aaroi	22/3/72	576,000	-	636,000	-	-	-	-
Mashuku/Imaroro	25/4/72	803,000	23,380	1,390,000	900	24,280	268	24,548
Erankau	24/4/72	310,000	-	400,000	-	-	-	-
Ilmamen	22/3/72	388,500	70,415	555,000	20,000	90,415	1,438	91,853
Emarti	11/7/72	545,000	-	630,000	-	-	-	-
Empeiyiangate	11/7/72	696,000	-	640,000	-	-	-	-
Embowoi	19/7/72	800,000	-	100,000	-	-	-	-
Kinor	11/7/72	412,000	-	360,000	-	-	-	-
TOTAL		6,892,360	811,612	7,898,420	421,855	1,233,468	70,277	1,303,745

*) The reason for lack of disbursement in most cases is that water surveys have not been conducted.
‡) Total of amounts for steer purchase and operating expenses.

1 Ksh = 0.14 US$

Appendix II-c: Descriptive Information about the Kenyan Cooperative Movement

(Includes Policy Statement, Organization Diagram, Cooperative College Course History, Table of Cooperatives)

Policy Statement of Department of Cooperative Development of Kenya

The government is aware that rural development and distribution of the country's wealth can only be effectively achieved through the cooperative movement. Accordingly, the government took certain specific measures directed to improve the effectiveness and efficiency of the cooperatives. These measures are dealt with at length in the Second National Development Plan (1970/74) and more specifically in the Cooperative Development Policy for Kenya under Government's Sessional Paper No. 8 of 1970. However, earlier the government introduced a new Cooperative Societies Act 1966 (revised 1967) and also the Cooperative Societies Rules 1969 which gave the Commissioner for Cooperative Development wide powers to prevent misappropriation, misuse of funds, and also empowered him to act as he sees fit to improve the overall efficiency in the cooperative movement. The commissioner, under these powers, may take action to remove management committees and replace them with his own appointed committees for a limited period of time in the interest of efficiency. He may also order two or more cooperatives to split, all in the interest of efficiency in the movement. The commissioner is empowered to scrutinize, for approval or rejection, all budgets and proposals of major transactions by the cooperatives in order to prevent any unwisely planned investments and or undertakings by the cooperatives. Cheques drawn by cooperatives are subject to scrutiny by the commissioner or his field representative before being signed by such persons in order to make them valid.

Appendix II-c: Diagram of Organization of Cooperatives in Kenya

Kenya National Federation of Cooperatives, Ltd.
(Apex Organization)

- 5 Country-Wide Cooperatives

1. Kenya Farmers Association (for larger farmers - over 20 acres)
2. Housing Cooperative Union (facilitate home purchase for members)
3. Kenya Creamery Cooperative (processing and retailing of milk)
4. Kenya Planters Cooperative Union (coffee processing)
5. Cooperative Bank

Other societies which deal directly with their specific commodity cooperatives or the Cooperative Bank rather than through a cooperative union.

39 Cooperative Unions (Serve the producers of milk, cotton, pyrethrum, coffee, fish and cashew nuts, etc. Usually they are multi-commodity and multipurpose.)

1,464 Cooperative Societies

Appendix II-c: Courses at the Cooperative College of Kenya

ABM I COURSE	Basic training in Administration, Book-keeping and Management. Other subjects taught are Law and Procedure, Arithmetic and English. Entrance Qualifications: Participation in local courses and College Correspondence Courses together with a pass in the College Entrance Test covering the following subjects: Book-keeping, Law and Procedure, Arithmetic and English. Duration: 10 weeks followed by a Field Training programme.
ABM II COURSE	Further training in the ABM I subjects. Entrance Qualifications: A good pass in the ABM I course. Some students may be admitted directly after passing a special entrance test and an interview. Duration: 10 weeks including 2 weeks' Field Training.
CERTIFICATE COURSE IN COOPERATIVE ADMINISTRATION	An advanced co-operative training. Entrance Qualifications: A good pass in the ABM II course. Some students may be admitted directly after passing a special entrance test and an interview. Duration: 32 weeks divided into two parts including 4 weeks' Field Training.
COFFEE FACTORY MANAGEMENT COURSE	Training mainly in technical and other subjects of importance to those responsible for the running of Coffee Factories. Entrance Qualifications: Participation in local courses. A pass in the College entrance test covering the following subjects: Coffee Factory Management, Co-operative Knowledge, Arithmetic and English. Duration: 14 weeks including Field Training.
CREDIT AND SAVINGS COURSES	A specialised training programme for those who deal with credit and savings activities. Some of the courses include a major part of practical training. Duration: 4-8 weeks including practical training.
COMMITTEE MEMBERS SEMINARS	Basic and specialised training for committee members from unions and societies. Duration: 1 week.

Source: Bulletin October 1971

Appendix II-c: Distribution of Kenya Cooperatives According to Activities and Provinces as of 31st Dec. 1970

Activities	Provinces							Total
	Central	Coast	Eastern	Nyanza	Rift Valley	Western	Nairobi	
Cereals and Grain	7	14	34	16	5	82	--	158
Coffee	39	1	46	39	5	26	--	156
Cotton	2	--	1	17	--	17	--	37
Fruits and Vegetables	9	6	1	--	--	--	--	17
Pyrethrum	14	--	1	24	5	1	--	44
Sisal	1	1	2	--	1	--	--	5
Sugar Cane	--	1	--	28	2	1	--	32
Other Crop Market	2	14	4	23	4	2	1	50
Dairies	27	9	12	31	21	5	2	107
Eggs-Poultry	13	2	9	1	1	5	3	35
Pigs	20	--	--	--	--	--	--	20
Ranching and Livestock	2	4	17	1	8	1	--	34
Other Animal Market	1	--	2	--	1	--	--	4
Multi-Produce	55	4	19	13	63	5	--	157
Farm Purchase	141	--	2	4	157	3	20	327
Consumer	16	8	2	3	21	--	28	78
Housing	1	1	1	1	--	--	8	12
Savings and Credit	19	22	6	16	13	9	50	135
Charcoal	1	1	--	--	1	--	--	3
Timber	1	--	2	--	--	--	--	3
Craftsmen	5	2	1	1	--	1	5	14
Fisheries	--	5	--	5	3	1	--	14
Meat Supply	1	--	1	--	--	--	--	2
Transport	--	--	1	--	1	1	--	3
Butcheries	--	--	--	--	--	--	2	2
Building Constructions	--	--	--	--	--	1	3	4
Miscellaneous	2	1	1	1	2	--	4	11
Unions	6	4	6	11	4	6	2	39
Apex-countrywide	--	--	--	--	--	--	6	6
Totals	385	100	171	234	319	166	134	1,509

Source: Ministry of Co-operatives and Social Services, Department of Co-operative Development. Annual Report 1968-70

Appendix II-d: Description of the Farmer Training Center (FTC) at Nyeri, Kenya (Wambugu)

The FTC at Wambugu serves the Central Province as a multipurpose training center to train farmers and Junior Agriculture Assistants (JAA), and Junior Animal Husbandry Assistants (JAHA) for that province. Other provinces have similar institutions. For the farmers, they offer general courses on crop and livestock production techniques, home economics and farm management planning. The farmers stay on the FTC premises for one to three days. Most of the training sessions are about crop farming. Two to three dairy sessions are offered every year. The FTC officials claim there is great enthusiasm for the course as the farmers feel that such education aids them in their competition with their neighbors to get ahead. In some cases, the farmers take inputs for crops home with them which are financed by the cooperative society.

As part of the training facilities, the FTC maintains an operational smallholder farm. This farm is typical in makeup to the farms observed in this area although it was a little neater and had a wider variety of crops than most. The "model smallholder farm" is about 4 acres in total size and has one acre of coffee, ½ acre of napier grass, ½ acre of maize, ¼ acre cow paddock, a small vegetable garden, 3 grade milk cows, 2 pigs and a few chickens. The buildings are a small cow shed with 3 calf pens and the farm home. The operator is paid only out of the proceeds of the farm.

The FTC course for the JAAs and the JAHAs lasts for eight weeks. This training program will terminate temporarily next year because they have trained the number needed in this provice (some 450). After these assistants finish the course work, they must make up several actual farm budgets and organize a farm demonstration. They are visited after one month for a progress check by an Agriculture Technical Official. The follow-up is reportedly carried out faithfully and the results are good.

Appendix II-e: Method of Herd Size Adjustment and Problems with Fixed Membership on Masai Group Ranches

When the group ranches were started in 1971, the Masai agreed that there had to be a basis on which to make repayment assessments to the owners within the group. The most obvious basis was number of cows per owner or "chargeable units" as they are called. The Masai also agreed that some shifting of ownership and reduction of herd size could and should take place. To accomplish this, the cows were counted at three different times and a roster showing the ownership was prepared. The amount of reduction of individual ownership was roughly as follows: Those owning a 0-50 herd - no reductions; a 50-100 herd - 10% reduction; and over 100 herd - 15% reduction. These cattle either went to increase the herd size of some of the smallest herds or were sold. After these adjustments were made, the resultant cow number per owner became his "chargeable units."

As it stands now, there is no allowance for redistribution to other members or to sons of members; at least the roster won't reflect such. Also there is no allowance for increase in membership. Supposedly there is to be no increase in size of cow herd. There are arrangements for reassignment of ownership upon death of an owner. This problem of redistribution among members has not become serious as yet but Masai participants and range management officials admit that it will have to be dealt with in the future. Some form of "negotiable grazing right" scheme will probably be developed.

The establishment of "chargeable units" has been carried out for only two ranches (Kiboko and Olkarkar). Members of the other five ranches to which loans have been disbursed are well aware of and have agreed to the adjustment plan. These adjustments on other ranches are in the process of being implemented now. The registered members of the group ranches which are in earlier stages of formation have also agreed to this plan.

The restriction in membership size will force some of the young men to leave the ranch. The Masai are facing this reality by supporting educational efforts so that young men may leave and enter into a relatively more sophisticated society -- perhaps working at small businesses in the rural area; at least this seems to be the most workable alternative that can be projected at this time.

Appendix II-f: Brief of Research on Smallholder Stall Fattening[1/]

At the beef research station near Lanet, Kenya, experiments on the technical aspects of smallholder stall fattening have been carried out. They experimented with rations of napier grass, maize stover and/or maize silage as forage, and molasses and urea and maize germ - bran meal concentrate. The results of animal response within difference combinations of feedstuffs were quite variable and no trends were shown. Possible reasons for this variation are a lower quality roughage than expected and poor mixing of the feed.

The conclusion was reached that even if a "least-cost" ration could be determined that the stall fattening idea would not fit into smallholder operations. The reasons are: 1) the high price of inputs (3/4 of this cost is for concentrate feed); 2) milk and crop production competes for labor and other input resources more favorably; and 3) the smallholders' requirement of a steady cash flow.

It seems that for stall fattening to fit into smallholder agriculture that there would have to be considerable productivity slack, at least seasonally. The payoff to labor is higher for crops and dairy outputs so he will elect these unless conditions of environment or infrastructure create disincentives for these production activities. Another problem with stall fattening is the risk; the smallholder has a low propensity for risk.

1/ In part, the source for this brief is: Mulder, J., et. al., Intensive Cattle Production on a Smallholder Basis, UNDP/FAO Kenya Beef Industry Development Project, Working Paper, Aug. 1973.

APPENDIX III: DESK STUDY

Appendix III: Desk Study Reviews on Mexico, Ecuador, Fiji, Papua and New Guinea, and Taiwan

The attached reviews were prepared from data available at the World Bank and other sources and interviews with experts at the WBG, AID, FED, FAO, and ODA. The countries were selected after screening various projects and/or countries for experiences which would possibly lead to conclusions useful to the WBG in the design of smallholder development plants. The countries selected for desk reviews were those in which there were several years of history of activities to assist smallholders to improve their livestock production and where these activities apparently had been successful in reaching and benefitting the smallholder. The reviews briefly present information available generally according to the following outline:

1. The particular features of the smallholder and the main idea of the development programs or activities.
2. The history of the experience.
3. Major points or features which have implications to the WBG.

MEXICO: The Efforts of the "FONDO" with the Alliance for Progress (ALPRO) and Others to Reach the Smallholders

As a result of their land reform program, many Mexicans have tenure to small plots of land. This tenure is secure to the farmer, the "ejidatario," as long as he productively uses the land. Community groups of ejidatarios are "ejidos" which in some cases function as cooperatives and in others function only to carry out some of the administrative needs of the group. In 1960, about 1,600,000 ejidatarios lived in 18,699 ejidos. Other smallholder tenure groups are nearly 1 million private owners with less than 5 hectares. There is also growing number of landless peasants. These smallholders have an income per hectare of about US$40-60. Many of them have livestock integrated into their crop agriculture, but the statistics describing the percent of total livestock held by small farmers are not available.

Since 1934 a variety of efforts have been initiated to bring benefit to the small farmer of Mexico. Various credit institutions have been formed and restructured to carry out this development. The usual approach of these institutions has been to identify the creditworthy farmer and loan him money in exchange for collateral. The small farmer without collateral was obviously out of the running and the "have - have not" gap simply widened. The institution which in recent years has made the most serious attempts to benefit the small farmer is the "Fondo"1/ which is a trust fund within the Bank of Mexico. It presently gets its funds from the Government, AID, ALPRO, IBRD and IDB. When ALPRO joined the scene in 1962, the practice of using group responsibility (the ejido) as collateral was initiated. This idea was only slowly accepted. In 1963 and 1964 a large scale promotion campaign was carried out to popularize "credit without collateral" to the local, on-lending banks and to stimulate farmers to seek production credit.

Increasing emphasis is being placed on the importance of quality technical assistance being delivered to loan beneficiaries. The few instances of production response to credit extension have been attributable to the quality of technical guidance which the ejido farmers received at the same time. The Fondo maintains a staff of some 300 technicians. About 250 of them work out of the 27 regional offices carrying out feasibility studies, review of technical credit programs, extension activities and on-going assistance to borrowing farmers.

Also in Mexico, a localized, intensive development project based on corn production, the Puebla Project, has been in progress for a number of years. In a detailed evaluation study of that project a favorable cost/benefit coefficient was calculated. The evaluation concluded that the development of technology at the local site, tied with an integrated program of credit extension and marketing, is the key to successful development. They observed that some farmers who benefitted from this project spent their increased income to integrate cows, pigs, or chickens into their farmer operation.

1/ Fondo de Garantia y Fomento para la Agricultura, Ganaderia y Avicultura

The Bank Group has appraised a fourth Livestock and Agricultural Development project. This project features a sub-project designed to reach the smallholders. In the first year, an estimated 148 loans would be made to farmers which:

(1) are ejidatarios, groups of peasants who work land on a communal basis or small farmers in legal possession of their land;

(2) work their own plots and derive most of their income from the production;

(3) have a yearly family net income less than 1,000 times the legal daily rural way of the area (about US$ 1,000).

The Experience

There is only scanty information leading to comments about the import these assistance efforts have had on the smallholder. Since 1956, 26.2% of all beneficiaries of Fondo Loans reportedly have been ejidatarios. In recent years this percentage appears to be increasing; for example, in 1970 and 1971 about half of total discounted ALPRO paper is described as having gone to ejido farmers (see table 1). In 1970, 7,932 "small farmers" and ejido farmers are described as beneficiaries of ALPRO credit. One observer reports that in one area, Tabasco, only about 3% of the ejidatarios are getting credit. In other areas of Mexico, this percentage is reportedly respectably higher. Since 1956 about 14% of all the beneficiaries getting cattle loans are described as being ejidatarios.

From resources of US$8 million in 1955, the Fondo has grown in size to 289.6 million. Transactions in 1970 exceeded $100 million. In 1970, the average loan was $3,142, and there were 34,175 beneficiaries, 57.5 percent of which were livestock producers. It is impossible to say how many of these were smallholder producers.

Major Points and Implication

From these evidence sources, it cannot be concluded that the efforts to benefit the smallholder livestock producer of Mexico have been successful in anywhere near a broad scope. It appears that he is still relatively "economically backward." Some conclusions have been drawn by Williams and Miller from experiences in Mexico. Some of them are briefly - and paraphrasing their comments:

(1) The flow of credit should only start when the machinery for technical service delivery is set up, and there are clear indications that the smallholder will benefit.

(2) Local conditions must dicate the design of the project and equal results cannot be expected from equal input in each location.

(3) Marketing improvement should be integrated with production improvement.

(4) Personal needs should be considered as well as agricultural needs.

(5) Credit should be large enough to insure a profit in application of a technology.

(6) Loan supervision is critical.

Table 1

Lending under the Alliance for Progress (ALPRO) Program in Mexico

(1,000's of Pesos)

Year	1963	1964	1965	1966	1967	1968	1969	1970	1971
Total Discounted ALPRO Paper	$16,238	$117,138	$159,246	$152,372	$132,708	$75,322	$34,314	$12,977	$68,168
To Livestock and Poultry	12,954	80,990	90,400	90,000	81,900	50,800	23,017	2,124	40,147
To Ejido Farmers	1,913 * (314)	11,150 (3,882)	26,725 (3,799)	9,235 (691)	27,304 (3,509)	18,073 (3,187)	17,310 (1,706)	7,815 (1,701)	25,541 (651)

*) Number of loans is shown in parenthesis.

Source: Salgado, J.U., Mexico: Fondo de Garantia y Fomento para la Agricultura, Ganaderia y Avicultura. AID Spring Review of Small Farmer Credit, Vol. 1, Feb. 1973, p. 55

1 Peso = US$ 0.08

References:

Williams, S., Miller, J.A., Credit Systems for Small Farmers, Studies in Latin American Business No. 14, Graduate School of Business, The University of Texas at Austin, 1973.

Uniza, T., Chapingo, S., Mexico - Fondo de Garantia y Fomento para la Agricultura, Ganaderia y Avicultura, Mexico, December 1972. Published in Vol. I of the AID Spring Review of Small Farmer Credit. Feb. 1973. No. SR 101.

Diaz-Cisneros, H., Credit Among Small Farmers - The Case of the Puebla Project of Mexico, University of Wisconsin, January 1973. Published in Vol. I of the AID Spring Review of Small Farmer Credit. Feb. 1973. No. SR 101.

IBRD, Appraisal of Fourth Livestock and Agriculture Development Project, Report No. 133a - ME. May 1973.

Personal Communication - R. Milford, IBRD.

ECUADOR: Program to Direct Credit through Certain Cooperative Societies

The National Federation of Savings and Credit Cooperation of Ecuador (FEOAC) began a program in 1965 to extend supervised (directed) short-to-medium term credit to smallholders in a northern province through their cooperative societies. Group responsiblity of the local society was the collateral. The farmer had to be a member in good standing of the cooperative society and had a savings account equal to 10% of the loan value in order to be elegible for the loan. About 71% of these members farmed less than 8 hectares. The FEOAC executed the educational program and the extension of service to the affiliated cooperatives. The loan funds have all come from internal sources. AID granted money for organization and technical assistance and for an evaluation study which was conducted in 1972. This study used interview-questionnaire date from a random sample of beneficiaries of the loans and a control group.

The Experience

Because of the evaluation study, more detailed information is available for this program in Ecuador than most of the other countries or projects studied. Since the start of the supervised credit program there has been a gradual increase in the number of beneficiaries but the number falls quite short of the predicted credit demand. In 1971, 1171 members in 16 cooperatives received a total of US$240,000 in loans. About 40% of the loans were for animal agriculture. The loans terms were up to 2 years.

The evaluation study concludes that the production and income increases were greater for the beneficiaries than for the control group. According to this study the major reasons for lack of participation in the program have been: 1) the local credit administrators are poorly motivated and do not want to assume the added responsibility required to make the program function well; 2) members are only poorly informed about the program; 3) technical assistance was inadequate; and 4) development of the marketing system which was needed did not take place.

Major Points and Implications

From the problems encountered in this directed credit scheme as elucidated by the AID evaluation report, the following implications about smallholder development are made:

1. Motivation and information dissemination at the local level is critical.

2. Development strategies which do not integrate technical assistance, extension and marketing will not reach the smallholder.

The success that was achieved may be principally a result of:

1. The local initiative in designing and implementing the idea.

2. The fact that beneficiaries were required to have savings of at least 10% of the loan value which is a way of demonstrating their potential responsiveness.

References:

Benitez, M., The Directed Agricultural Credit Program of the National Federation of Savings and Credit Cooperation of Ecuador, Quito, Ecuador, Dec. 1972 (Published in Vol. IV of the AID Spring Review of Small Farmer Credit, Feb. 1973, No. SR 104).

Keeler, R.H., Rodrigo, R., The Evaluation of the Directed Agricultural Production Credit Program in Ecuador, Feb. 1972 and Jan. 1973. (Published in Vol. IV of the AID Spring Review of Small Farmer Credit, Feb. 1973, No. SR 104.)

Personal Communication - Paul Fritz USAID/Ecuador, Frank Thomas IBRD.

FIJI: An Pilot Program to Develop Beef Ranching by Islanders

Beginning in 1962, the Department of Agriculture started to assist smallholders to go into the steer fattening business. They assisted them to get grazing leases for farms of about 150 acres and to get loans for the purchase of fencing and stock and for 2 years rent of the land. As a condition for loan eligibility the potential borrower had to build a house and agree to plant subsistence crops to support his family for the first two years after which the cattle would be sold. Supervision attention is intense (15-20 farmers per technician).

Later the Department of Agriculture included beef raising farms of 3-500 acres as part of the project. The same loan eligibility requirements were demanded.

The Experience

Prior to this time efforts to develop communal ranching by Fijians were unsuccessful. As of 1972, 108 beef raising farms were in operation with some 3,800 cattle and 25 more were in some stage of preparation. Reportedly a similar approach has been used in the Solomon Islands.

Major Points and Implications

This scheme is quite small but the success in using borrower labor commitments in the form of building a house and planting a garden prior to any disbursement as for creditworthiness may have applicability to other areas. The importance of intensive technical assistance is emphasized.

References:

Fiji Cattle Census 1971/72, Bureau of Statistics, Suva Fiji Jan. 1973.

Personal Communication - Mr. A.L.C. Thorne, Overseas Development Administration, London.

Papua and New Guinea (PNG): The Development of Smallholder Beef Cattle Operations by the Local Development Bank

The central idea of the smallholder cattle development effort in PNG has been to stimulate farmers to take on small breeding herds of 15-20 females and/or fatten 2-4 steers. Most of these farmers have very little experience in cattle raising. This effort has been carried out by the PNG Development Bank (PNGDB). The PNGDB accepts as collateral a signed statement by clan leaders which agrees to the grazing rights to clan land by the individual borrower. Also, prior to any disbursement, the PNGDB requires that the borrower contribute his labor to his project such as fence building, etc. Technical supervision is carried out by the bank in close cooperation with extension personnel of the Department of Agriculture, Stock and Fisheries. This supervision covers all phases of a cattle loan from initiation through planning and budgeting to final repayment. Extension courses are offered in cattle raising.

The Experience

The loans to indigenous borrowers for all types of farm enterprises has grown from A$125,000 in 1967/68 to A$3,252,000 in 1971/72. In 1970/71, 349 loans for the total amount of A$622,600 were approved for beef cattle production. In 1971/72 551 beef cattle loans of a total of A$1,328,000 were approved. The PNGDB has had satisfactory experience so far with the clan land usage agreement procedure and plans to continue this policy even though it is doubtful that this agreement has legal status. The indigenous borrowers have accepted the "work input prior to disbursement" idea and the PNGDB has found it to be an effective screening device for potential borrowers.

Survey results in 1972 of some 161 cattle loans in five districts showed that the performance of individual projects (breeding herds of from 10-40 cows or 2-10 steers for fattening) varied from "very bad" to "very good." The main reasons for variation is thought to be differences in the quality of technical supervision by staff of the Department of Agriculture, Stock and Fisheries (DASF). Based on observations of a recent visit, an Australian consultant states that in general the DASF is doing an excellent job of supervision and that although some projects are doing badly, the greatest majority are doing well.

The Major Points and Implications

The success achieved in PNG in extending long-term credit without the security of registered title deed may suggest other approaches to this problem. Actually this lending is quite conservative when the "collateral" situation is examined:

1) Grazing rights guaranteed by clan elders.

2) Tightly organized technical supervision coordinated by the lending institution.

3) Borrower commitment of labor to project prior to disbursement.

4) A tradition of honesty amongst the indigenous population.

References:

Philipp, P.F., Beef Cattle Raising by New Guineans, South Pacific Bulletin, 1971, Second Qtr.

Panker, M.L., Agriculture in the Development of Papua and New Guinea, Aust. J. of Ag. Econ. (15-2) Aug. 1971, p. 82-94.

Annual Report and Financial Statements 1971-72 Papua and New Guinea Development Bank.

Full IBRD Supervision Report, Papua and New Guinea. August 1973. D. Parsons, R. Milford and D. Gold.

Kesteven, K.V.L., Report on Visit to Papua and New Guinea Made at the Request of the Papua and New Guinea Development Bank, 6-17 May 1973.

Marr, N.J., Report of Research of Cattle Projects, March 1973.

IBRD Appraisal of Smallholder Livestock Credit Project Papua and New Guinea, Oct. 1972. M.J. Walden, J.R. Peberdy, S.J. Koo, R. Arrivillager.

Papua and New Guinea Development Bank Circular to Agent Officers, No. 20, April 1971.

Personal Communication, R. Milford, IBRD.

Taiwan: The Smallholder Crop and Pig Farmer

The Taiwanese smallholders intensively farm 3-5 acres and many raise pigs from a few sows (5 or less). About 600,000 farms produce 3½ million hogs per year. Pig production is not necessarily a profitable enterprise but it fits into the farm and home activities very well. The labor and fee inputs frequently have low opportunity costs and the pig manure is valuable for fish feed, soil fertilizer and cooking gas production. There does not seem to be much tendency for the smallholder to increase the herd size beyond what is needed to produce the manure. Hogs are also raised by non-farm households.

The government has played a major role in shaping this pig industry, along with the general agricultural production, by building research stations, training technicians and research workers, developing artificial insemination programs and providing the basic infrastructure of agriculture. The farmers have been encouraged to diversify their production to include pigs, fish, rice, fruit, and vegetable crops. The government implemented a land reform program in the early 1950's and supported the formation of Farmer's Associations which form a cooperative organization for the marketing of products and supply of inputs, credit administration and extension activities. About 95% of the farm families participate in these associations.

The Experience

The data for farm production and incomes is quite detailed and reliable in Taiwan. These data show that average on-farm income was US$1,281 in 1970 compared to US$1,021 in 1960. There was a greater increase in off-farm income in that period. The hog population has increased about 12% since 1962. A strong rural capital market developed in Taiwan in the 1960's. Even the smallest farms almost quadrupled their credit use in that period. The farmers were getting high marginal returns from these capital inputs, which led to good repayment records, higher savings capacities, decreased consumption, increased use of credit, and more efficient scales of lending.

Major Points and Implications

In Taiwan's case a strong rural capital market is an important ingredient for smallholder well being. This capital market results from the overall development of farm production by making credit yield a high payoff, which in turn implies the existence of a marketing system that works for the smallholder. Land tenure policies were an important reason for the growth of farm income in Taiwan which points out the need to address that question in smallholder development strategy.

The success in developing Taiwan smallholder agriculture is attributed to the active implementation of a well integrated government program of market system technical knowledge improvement, extension, and credit. An experienced observer, R.P. Christensen, who spent several years in Taiwan as an administrator in the USAID program has offered his seasoned comment on the importance of institutional features of Taiwan's experience which are relevant to other lesser developed countries: (in summary)

1. The role of the strong leadership of national and local government.

2. The social stability and economic incentives resulting from farmer ownership of land.

3. The production incentive that results from assured market outlets and stable farm prices.

4. The role of local farmer organizations in marketing, extension, and input supply and to implement government programs at the farm level. Education of the staff is a key factor in the efficient operation of these associations.

5. Water resource improvement through irrigation system development as part of the overall agriculture infrastructure.

6. The use of capital inputs to increase the output for land unit not to substitute for labor. The use of subsidy programs to demonstrate the value of such inputs may be needed.

7. Large investments in vocational agriculture and extension training which leads to the early and effective adoption of new technology on farms.

References:

Personal communication, Messers. Kroeske and Spinks of FAO.

Tanner, S.C., The Pig Industry in Taiwan, The Pig Research Institute of Taiwan, 1971.

FAO, Pig Research Institute, Taiwan, Terminal Report, July 1972.

Adams, D.W., Chen, H.Y., Hsu, C.Y., Rural Capital Markets and Small Farmers in Taiwan, 1952-72, Ohio State University, Dec. 1972. Published in Volume II of AID Spring Review of Small Farmer Credit. Feb. 1973, No. Sr. 111.

Christensen, R.P., Taiwan's Agricultural Development: Its Relevance for Developing Countries Today, Foreign Ag. Econ. Rpt. No. 39. U.S. Dept. of Ag. Econ. Research Service, April 1968.

APPENDIX IV BIBLIOGRAPHY 1/

Appendix IVa India

* Amin, R.K. Mogri, Socio - Economic Study of a Charotar Village, published by K.A. Amin, Registrar, Sarder Vallabhbhai Vidyapeeth, Gujarat, India.

* Amin, R.K., Valasan, Socio-Economic Study of a Charotar Village, published by K.A. Amin, Registrar, Sardar Vallabhbhai Vidyapeeth, Gujarat, India.

* Bhatt, B.C. A Note on Cattle Breeding Activities in Mehsana District.

* By-Laws of Cooperative Societies, amended to date November 1973.

Configurations in a Strategy for the Development of Small Farmers, Financing Agriculture, Vol. 2, No. 3, October 1970.

* Dharap, V.S. Economics of Milk Production in a Kaira District Village. Agro-Economic Research Centre, Sardar Vallabhbhai Vidyapeeth, Vallabh Vidyanagar, Staff Paper No. 4, June 1965.

* Edwards, J., Report on the Dairy Industry in India, The World Bank Office, New Delhi, March, 1969.

Gilpatrick, C., Problems and Prospects of Small Farmers in Two Regions of Uttar Pradesh in 1969-70, U.P. Agricultural University, Pantnagar, U.P. Dec. 1971.

* The Gujarat College of Veterinary Science and Animal Husbandry Magazine, Vol. 5, March 1972, Anand.

* Indian Dairy Corporation, Baroda, Second Animal Report 1971-72.

Irwin, P.G. The Dairying Industry of Kaira, Western India, South Asia, Nedlando, W. Aust. 1, 1971.

* Jodha, N.S. and Vyas, V.S. Growth and Stability in Arid Agriculture, Agro-Economic Research Centre Sardar Patel University, Vallabh Vidyanagar, 1968.

* The Kaira District Central Co-operative Bank Ltd., Balance Sheet and Profit and Loss Account, 1972-73.

* Kaira Union, Annual Report and Accounts, 1972-73.

* Kaira Union, Artificial Insemination Programme in the Kaira District in Gujarat State, 1973.

* Kurien, V. The Anand and Bombay Milk Projects, Kaira Union, Gujarat, India, Paper Presented at University of Reading - International Seminar on Change in Agriculture 3-14 September 1968.

* Kurien, V. Dairying as an Instrument of Change, December 16, 1972, as part of the Rajmitra B.D. Amin Memorial Lecture series.

* Kurien, V. The Special Impact of Animal Production on Developing Countries. Paper for proceedings of World Congress on Animal Production, Melbourne, Australia, February 1973.

1/ The references listed in this bibliography were discovered in the course of the literature review and the field investigation of this survey. Some of these references have been reviewed and are cited in the text. Others were reviewed for background information. The complete list is presented here for readers. The material kept in the background file under the control of the Bank's Livestock Adviser is marked by an asterisk.

* Maharaja, M.H., Economics of Ghee Manufacture - A Study at Micro Level, Centre for Studies in Economics of Dairying, Sardal Patel University, Vallabh Vidyanagar, Staff Paper No. 1, July 1967.

* Marsden, A.W. Dairy Training for Rural Women, Indian Dairyman, Vol. XXIV, No. 1, January 1972.

* Mehsana Union, Annual Report and Accounts for the Year Ended 31st March, 1973, Gujarat.

* Mehsana District Co-operative Milk Producers' Union, Trading, Profit and Loss Account for the Year 1965-66, and balance sheet as at 31st March 1966.

* Mehsana Union, Economics of Dairy Farming in Mehsana District, June, 1972.

* Mishra, S.N., Some Inferences from Compositional Changes in India's Livestock Population (1920-66) Indian Journal of Agricultural Economics, Vol. XXV, No. 4, October-December 1970.

* National Dairy Development Board Anand, Annual Report 1972-73.

* National Dairy Development Board, Report on Bangalore Dairy, July 1970.

* Patel, R.K., The Role of Dairying in Increasing Employment Potential for Under-employed, Marginal Farmers and the Landless, Indian Dairyman Vol. XXIV No. 11, November 1972, Paper presented at the symposium held at N.D.R.I. Karnal on 22/8/72.

* Scheme for Study on Infertility in Cattle, sponsored by Indian Council of Agricultural Research, New Delhi, 1965-1969, Gujarat Agricultural University, Anand.

Schluter, M.G.G., Raising Incomes of Small Farmers in India. Data collected as part of doctoral research from Cornell University.

Sharma, R. Pattern of Employment and Labour Returns on Small Farms. Balwant Vidyapeeth, J. Agric. Sci.-Res., Bichpuri, 10, 2, 1970.

Singh, H.P., Economics of Dairy Farming, a Case Study. Calcutta, India, Economic Affairs, 1972, 17(6). Directorate of Marketing and Inspection, Patna, India.

Singh, M. Co-operatives in Asia, Praeger Publishers, New York, 1970.

* Singh, R.D. Economic Viability of Marginal and Small Farmers, Indian Farmers' Digest, Vol. V, No. 8, 1972.

* Spread Effects of Dairy Enterprise: a Case Study of Anand, a pamphlet of Small Industry Extension Training Institute, Hyderbad, India, 1971.

* Srivastava, R.K., Impact of Cattle Development Programme on Rural Economy in the Kaira District, Presented at Symposium on Livestock Statistics, New Delhi, March 1970.

* Subbaroyan, K. Operation Flood - Milk Cooperatives Add to the Farmers' Prosperity.

* Sundaresan, D. A Model for Improved Milk Production in India, World Animal Review, No. 6, 1972.

* Sundaresan, D. Prosperity in Punjab, Wheat Today: Dairy Cow Tomorrow, Indian Farming, New Delhi, August 1970.

* Ulrey, O. The Cooperative, an Agency for Rural Development, Kaira Union, Department of Agricultural Economics, Report No. 42, Michigan State University, East Lansing, March 1966.

* Vyas, V.S. and Choudhary, K.M., Economics of Dairy Farming in Mehsana District of Gujarat State, Centre for Studies in Economics of Dairying, Sardar Patel University, Vallabh Vidyanagar.

Vyas, V.S., Tyagi, Misra, V.N., Significance of the New Strategy of Agricultural Development for Small Farmers, A.E.R.C., Sardar Patel University, Vallabh Vidnyanagar, 1968.

Whyte, R.O., Land, Livestock and Human Nutrition in India, Frederick A. Praeger, publishers, New York, 1968.

List of Documents and Reports Gathered During Field Investigation in Anand, India.

* 1. Progress Report of Veterinary Work of the Kaira Union.

* 2. A Sample of the "Amul" Newsletter.

* 3. List of Jobs on Hand as on First July 1973, National Dairy Dev. Board.

* 4. Classification of Cases Treated During the Years 1969-73, Kaira Union.

* 5. Short Note on Mehsana Union by B.C. Bhatt, General Manager.

* 6. Vashashz Society, Annual Balance Sheet in Gujarat.

* 7. A sample of Formula No. 52 of Cattle Feed Factory: Boriavi (St. Linch).

* 8. Scheme of Org. of Rural Procurement Action Item No. 9 Op. Flood for Organization of Village Societies.

* 9. The Amul Story, 1946-71, A Saga of Co-operative Effort.

* 10. Progress Report of Artificial Insemination Work, of the Kaira Union.

* 11. The Kaira District Central Co-operative Bank Ltd., Role of Kaira District Central Co-operative Bank Ltd. in the Co-op. Field.

* 12. List of Operation Flood Reports reproduced-1973.

* 13. Bulletin of Milk Producers of Ajarpura, Village Cooperative Society.

Appendix IVb KENYA

* Agricultural Finance Corporation, Application for Loan.

Berg-Schlosser, D. The Distribution of Income and Education in Kenya: Causes and Potential Political Consequences, IFO-Institut fuer Wirtschaftsforschung Weltforum-Verlag, Muenchen, 1970.

* Brokensha, D., Nellis, J., Administration in Mbere: Portrait of a Rural Kenyan Division, Institute for Development Studies, University of Nairobi, Discussion Paper No. 114, June 1971.

* The Co-operative Bank of Kenya Limited, Annual Report and Statement of Accounts 1971-72 and 1972-73.

* Bulletin of the Co-operative College of Kenya.

Kenya Co-operative Creameries Limited, Annual Report 1963/64 - 1971/72.

* Creek, M.J., The Kenya Feedlot Project, World Animal Review, No. 3, 1972.

* Davis, R.K., Some Issues in the Evolution, Organization and Operation of Group Ranches in Kenya, Land Tenure Center, University of Wisconsin, Reprint from East African Journal of Rural Development, Vol. 4, No. 1, 1971.

Donaldson, G.F. and von Pischke, J.D. A Survey of Farm Credit in Kenya, Published in AID Spring Review of Small Farmer Credit Vol. VII, Feb. 1973 No. SR. 107.

Ghai, D.P., Incomes Policy in Kenya: Need, Criteria and Machinery presented at the University of East Africa Social Science Conference held at University College, Dar es Salaam, January, 1968.

* de Haas, H.J., Murage, J., Smith, G.P. Lamb and Mutton Production in Kenya, FAO Sheep and Goat Development Project, Working Paper No. 3, July, 1973.

* Harbeson, J., Cooperative Societies, Local Politics and Development: A Kenya Case Study, University of Nairobi, 1972.

Harris, J.R., Todaro, M.P. Wage Policy and Employment in a Developing Economy, Institute for Development Studies, University College, Nairobi, Discussion Paper No. 72, November 1968.

* von Haugwitz, H.W., Some Experiences with Smallholder Settlement in Kenya 1963/64 to 1966/67, IFO-Institut fuer Wirtschaftsforschung Muenchen, Afrika-Studiestelle, Weltforum Verlag, 1972.

Healy, A.M., Agriculture in Kenya and New Guinea, Australian Quarterly (Sydney) 33:71-82, June, 1961.

* Hedlund, H.G.B., The Impact of Group Ranches on a Pastoral Society, Institute for Development Studies, University of Nairobi, Staff Paper No. 100, June, 1971.

* Heyer, J., The Economics of Small-Scale Farming in Lowland Machakos, Institute for Development Studies, University College, Nairobi, Occasional Paper No. 1, April, 1967.

Hill, M.F., Cream Country, Nairobi 1956.

IBRD, The Economic Development of Kenya, December 1962.

* IBRD, Kenya Agricultural Sector Survey, Annex V (Livestock), Green Cover, 1973.

ILO, Employment, Incomes and Equality: A Strategy for Increasing Productive Employment in Kenya, Geneva 1972.

Jacobs, A.H., The Traditional Political Organization of the Pastoral Masai, D. Phil. Thesis, Nuffield College, Oxford, unpublished.

* Jahnke, H., Ruthenberg, H., Thimm, H.J., Range Development in Kenya - the Kenya Livestock Development Project and its Impact on Rural Development, Nairobi, Dec. 1972.

* Jorgensen, N.O., The Case for Cooperative Loan Associations in Kenya, Institute for Development Studies, University College, Nairobi, Discussion Paper No. 17, December, 1965.

* Karanja, E., The Problems of Amalgamating Cooperative Societies, The Case of N. Tetu, Institute for Development Studies, University of Nairobi, Staff Paper No. 97, April 1971.

* Karanja, E., Rural Economic Development and Management: The case of Co-operative Management in East Africa, University of Nairobi, Presented at the 15th Annual Meeting of the African Studies Association, Nov. 1972.

* Leonard, D.K., Chahilu, B., Tumwa, J., Some Hypotheses Concerning the Impact of Kenya Government Agricultural Extension on Small Farmers, Institute for Development Studies, University College, Nairobi, Staff Paper No.71, July, 1970.

* Lindquist, S., Report on Credit and Finance in the Agricultural Co-operative Movement in Kenya, the Nordic Project for Co-operative Assistance to Kenya, Document (67) 14, May, 1967.

* MacArthur, J.D., Some Thoughts of Future Trends in Farm Employment in Kenya, Report of Kericho, Kenya Conference 1966, edited by James R. Sheffield.

* Marsden, A.W., A Cheesemaking Demonstration in Masailand, World Animal Review, No. 1, 1972.

* Memorandum from Creek, M.J., to Stedman, R.B., subject ICO-DF Kenya Smallholder Beef Fattening Project.

* Memorandum on Milk Production Organization and Trends for the Central Province of Kenya.

Meyn, Klaus, Beef Production in East Africa, IFO-Institute fuer Wirtschaftsforschung, Muenchen, Afrika-Studiestelle, Weltforum-Verlag, 1971

* Ministry of Agriculture, Crop Production Division, Crop and Livestock Manual, 1971/72, No. 271.

* Ministry of Cooperatives and Social Services, Department of Cooperative Development- Kenya, Report for the Years 1968-70.

Ministry of Cooperatives and Social Services, Development Plan, 1971-74.

Ministry of Finance and Planning, Development Plan, 1970-74.

* Mulder, J., Waweru, C.M., Kaman, C.K., Intensive Cattle Production on a Smallholder Basis, UNDP/FAO Kenya Beef Industry Development Project, Working Paper, Aug. 1973.

* Nattrass, J. An Evualuation of the Kenyan Development Strategy, The South Africa Journal of Economics, September 1971.

* Newberry, D.M.G. A Feasibility Study of Intensive Cattle Feeding: An Experiment With the Little/Mirrlees Method in Kenya, Thesis, Churchill College, Cambridge, June 1972.

Peberdy, J.R., Animal Production, 1970-80 and Beyond.

* von Pischke, J.D., Description of the Cooperative Production Credit Scheme, Institute for Development Studies, Working Paper No. 80, Dec. 1972.

* Republic of Kenya, African Socialism and its Application to Planning in Kenya, 1965.

* Republic of Kenya, Speech Delivered to the National Assembly on 15th June, 1972 by the Hon. Mwai Kibaki, Minister for Finance and Economic Planning, when Presenting the Budget for the Fiscal Year 1972/73.

* Roling, N., Chege, F., Ascroft, S., Rapid Development for Kenya's Small Farms, Discussion Paper No. 173, Institute for Development Studies, University of Nairobi, July 1973.

Sheffield, J.R. (ed.), Education, Employment and Rural Development, Report of the Kericho (Kenya) Conference 25th September to 1st October, 1966, East African Publishing House, Nairobi 1967.

* Simpson, M., Alternative Strategies for Range Land Development in Kenya, University of Leeds, March 1973.

* Supplement to Discussion Paper No. 93, Notes on Projected Returns to Group Ranching.

Uchendu, V., The Environment of Africa's Small Farms, 1972.

* Vasthoff, J., Small Farm Credit and Development, Some Experiences in East Africa with Special Reference to Kenya, IFO-Institut fuer Wirtschaftsforschung Muenchen, Afrika-Studienstelle, Weltforum Verlag, Muenchen.

* Paper by Wanyonyi, J.J.M., Deputy Commissioner for Co-operative Development on The Role of Cooperatives in Small-Scale Animal Production in Kenya, Speech Presented in 1972.

* Co-operatives and Rural Development in East Africa, Edited by Widstrand, C.G., The Scandinavian Institute of African Studies, Uppsala, Africana Publishing Corporation, New York, 1970.

* Wilson, Rodney, J.A., The Economic Implications of Land Registration in Kenya's Smallholder Areas, Institute for Development Studies, University of Nairobi, Staff Paper No. 91, February, 1971.

* Adams, D.W., Chen, H.Y., Hsu, C.Y., Rural Capital Markets and Small Farmers in Taiwan, 1952-72, Ohio State University and Joint Commission on Rural Reconstruction, Columbus, Ohio, Dec., 1972

* Adams, D.W. and Coward Jr. E.W., Small Farmer Development Strategies - A Seminar Report, The Agricultural Development Council, July 1972.

* Agricultural Credit Program and Operation in Taiwan, Republic of China, Industry of Free China, Vol. XXXIX No. 3, March 1973.

Apthorpe, R., Rural Cooperatives and Planned Change in Africa, an Analytical Overview, United Nations Research Institute for Social Development, Geneva, 1972.

* Ayre-Smith, R.A., Principles for Increasing the Efficiency of Livestock Production in a Developing Country, Tropical Animal Health and Production, Vol. 3, No. 1, February 1971.

* Barkin, D., Agricultural Development in Mexico: A Case Study of Income Concentration, Social Research, Vol. 37, No. 2, Summer 1970.

Benecke, D.W., Kooperation und Wachstum in Entwicklungslaendern, J.C.B. Mohr, Tuebingen, 1972.

* Biggs, H.C. Report on the Marketing of Agricultural Produce and Some Aspects of the Marketing of Livestock in Bechuanaland, Ministry of Overseas Development, London

* Brumby, P.J., International Lending for Livestock Development, World Animal Review, No. 5, 1972.

Bunting, A.H., Change in Agriculture, Gerald Duckworth & Co., Ltd., 1970.

Caroll T., Etienne G., Flores X., von Muralt J., A Review of Rural Cooperation in Developing Areas, Geneva, May 1969.

* Chang, H-Y. A Study of the Living Conditions of Farmers in Taiwan, 1931-50, The Developing Economies, Volume VII, March 1969, No. 1.

* Christensen, R. Taiwan's Agricultural Development: Its Relevance for Developing Countries Today, USDA, 1968.

Eicher, C., Witt, L., Agriculture in Economic Development, McGraw-Hill, 1964.

Engelmann, K. Building Cooperative Movements in Developing Countries, the Sociological and Psychological Aspects, Frederick A. Praeger, Publishers, 1968.

* FAO, Economic Commission for Africa, African Livestock Development Study, Part One, Southern and Central Africa, Addis Ababa, July 1973.

* FAO, Pig Research Institute, Taiwan, Terminal Report, Rome, July 1972.

* FAO/UNDP, Programme for Development of Livestock Production on Marginal Land in Taiwan, Technical Report, Rome 1971.

* FAO-WFP, Inventory of Internationally Assisted Projects for Livestock Development, September 1971.

Gittinger, J., Economic Analysis of Agricultural Projects, the Johns Hopkins University Press, Baltimore, Maryland, Published for IBRD, 1972.

* Goldschmidt, W., The Brideprice of the Sebei. Sci. Amer. Aug, 1973.

Guidelines to Cooperatives in Developing Economies, edited by McGrath, M., The International Cooperative Training Center, The University of Wisconsin.

* El Hadari, A.M., Simpson, M., The Economics of Tropical Milk Production: A Sudanese Case Study, East African Journal of Rural Development Vol. 3, No. 1, 1970.

Hamilton, W.L., et. al., A Study of Rural Cooperatives, 3 Volumes - Summary, Analysis, Appendices, Abt. Associates for the Office of Economic Opportunities, 1973.

IBRD, The Economic Development of the Territory of Papua and New Guinea, September 1964.

* IBRD, A Report with Recommendations on the Use of Anthropology in Project Operations of the World Bank Group, March, 1973

IBRD, Status of Livestock Operations - Eastern and Western Africa Regions, December 1972.

ILO, Asian Regional Seminar on Trade Unions and Cooperatives, Singapore 20-31, October 1970, Geneva, 1972.

ILO, Report of the Seminar on Trade Unions and Co-operatives in Africa, Nairobi, 1969.

ILO, The Role of Co-operatives in the Economic and Social Development of Development Countries, 49th and 50th Sessions, Geneva 1965-66.

IXth International Congress of Anthropological and Ethnological Sciences, August 28-September 8, 1973. In background file are abstracts of papers which may have been selected as being pertinent to smallholder development.

International Cooperative Alliance, State and Cooperative Development, Allied Publishers, New Delhi, 1971.

* Kelly, R.M., The Cooperative Approach in Rural Development: A National Strategy and Program Design, Center for Community Economic Development, Cambridge Massachusetts, 1973.

Kesteven, K.V.L., Report on Visit to Papua and New Guinea Made at the Request of the Papua and New Guinea Development Bank, 6-17 May 1973.

* Khalifa, A.H., Simpson, M.C. A Review of Perverse Supply in Nomadic Societies,

Knapp, J.G., The Rise of American Cooperative Enterprise 1620-1920, The Institute Printers and Publishers, Danville 1969.

* Liu, C.-Y., An Economic and Statistical Model of the Hog Economy of Taiwan, Republic of China, Economic Review, The International Commercial Bank of China, Taipei, Jan-Feb. 1972, No. 145.

Marr, N.J. Report of Research of Cattle Projects, March 1973.

Strategies for Increasing Agricultural Production on Smallholdings, edited by Myren, D.T., International Conference, Puebla, Mexico, August 1970.

Papua and New Guinea Development Bank, Annual Report and Financial Statements, 1971-72.

* Papua and New Guinea Development Bank, Circular to Agent Officers , Administration Agency Circular No. 21, April 1971

* Parker, M.L. Agriculture in the Development of Papua and New Guinea, The Australian Journal of Agricultural Economics, Vol. 15, No. 2, August 1971.

* Philipp, P.F., Beef Cattle Raising by New Guineans, South Pacific Bulletin, Vol. 21, No. 2, Second Quarter 1971 .

Papers presentet at the Purdue Workshop on Empirical Studies of Small Farm Agriculture in Developing Nations, November 13-15, 1972. Purdue University, W.Lafayette, Indiana.

* Sacker, G.D., The Ankole-Masaka Ranching Scheme, Uganda, Ministry of Animal Industry, Game and Fisheries, Mbarara, Uganda.

* A Sectoral Approach to Development of the Livestock Industry in West and Central Africa, author unknown

Smallholder Farming and Smallholder Development in Tanzania. Weltforum-Verlag 1968

* Streeter, C., Reaching the Developing World's Small Farmers, Rockefeller Foundation, 1973.

* Tanner, S.C., The Pig Industry in Taiwan, 1972, The Pig Research Institute of Taiwan, 1971.

Tinnermeier, R., Supervised Credit and the Small Farmer paper presented at RTN Seminar on "Small Farmer Development Strategies," Ohio State University, September 13-15, 1971.

* USDA, Changes in Agriculture in 26 Developing Nations, 1948-63, Foreign Agricultural Economic Report No. 27, Economic Research Service.

* USDA, Economic Progress of Agriculture in Developing Nations, 1950-68, Foreign Agricultural Economic Report No. 59, Economic Research Service.

USAID, Agricultural Credit and Rural Savings, A Selected List of References, Dec. 1972.

USAID, Presentation for the Meeting on African Livestock Development in Brussels. D.S. Brown.

USAID Spring Review of Small Farmer Credit, June 1973, Vol. I-XIV, Country Papers, XV-XVIII,Special Papers, XIX-XXII, Analytical Papers.

* Wang. Y.-C. The Development of Livestock in Taiwan, Industry of Free China, Col. XXXVI No . 3, September 1971.

de Wilde, J., Experiences with Agricultural Development in Tropical Africa. Vol. I and II. Johns Hopkins Press, 1967.

Williams, S., Miller, J., Credit Systems for Small-Scale Farmers, Case Histories from Mexico, Studies in Latin American Business No. 14, Graduate School of Business, The University of Texas, Austin, 1973.

Winkelman, D., Factors Inhibiting Farmer Participation in Plan Puebla. Land Tenure Center Newsletter. No. 39, Jan-March 1973: 1-5.

* Wright, K.T., Taiwan's Postwar Agricultural Development, Agricultural Economics Report, No. 19, October 1965, Department of Agricultural Economics, Michigan State University, East Lansing.