

GOKHALE INSTITUTE MIMEOGRAPH SERIES NO. 22

**Agro-Economic Research Centre, Pune  
1954-55 to 1982-83**

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D. P. APTE  
M. B. PADKI

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GOKHALE INSTITUTE OF POLITICS AND ECONOMICS,  
PUNE 411 004 (INDIA)

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## FOREWORD

The Indian Rural Economy has been a major field of research at the Gokhale Institute right from its establishment in 1930. During the first two decades the Institute did pioneering work in many fields of rural economy, beginning from developing methods of farm management survey to studies into agricultural marketing, credit, tenancy, impact of famines, economics of irrigation, policy-frame for war-time food controls, etc. Naturally, when the Government of India, in the Ministry of Agriculture, decided to start and support Agro-Economic Research Centres in the country in 1954-55, one of the first four centres was located in the Institute. Ever since, all research work on agricultural economics at the Institute, whether financed out of the funds made available by the Ministry to the Agro-Economic Research Centre or otherwise, have been reported as work carried out in this Centre in the Institute. On the occasion of the completion of 25 years of the four oldest Agro-Economic Research Centres, it was decided in a meeting of the representatives of the Centres, that a volume giving brief account of the orientation and research works carried out in the Centres may be prepared by the individual Centres. Though the work was taken up in the Institute more than two years ago, the usual problem of pressure of new research projects resulted in this task being put off from time to time. To avoid any further delay, therefore, it was decided to bring out the present volume containing accounts of some of the important studies carried out, as well as a complete list of all published and unpublished research works in the Centre.

One of the major preoccupations of the Agro-Economic Research Centres, during the first 10 years of their existence, was surveys and resurveys of villages in order to study the forces aiding and obstructing economic change. In the Centre at the Institute, 24 village surveys and 16 village resurveys have been carried out so far. The approach to selection of villages for such survey, followed in the Institute, was somewhat different

from the approach followed in the other Centres. Therefore, this report contains an extended account of the methodology of village survey and re-survey followed here, including a brief review of the discussions on the subject that took place among the different Centres in the seminars organized at the Institute and at other Centres.

Besides the village surveys and re-surveys, the Centres carried out what have been called adhoc research studies. More than 80 such research studies were taken up here during the 25 years. Some of these were based largely on primary data collected from the field, and some were based mainly on secondary published or unpublished data. Originally, it was intended to present a brief account of all these studies, covering the questions raised, the methods followed, etc. But in view of the long time taken, it was decided to give such accounts relating to some of the ad-hoc studies which involved primary data collection and which, for such reason, may be of particular interest to scholars of the subject.

In addition, the present volume contains a complete list of all research work carried out at the Centre.

Two of our senior colleagues in the Centre, who have been associated with the Centre from the beginning, volunteered to prepare this account, and my thanks are due to them.

I trust interested scholars will find this account useful.

Gokhale Institute of  
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Pune 4

N. Rath  
Director

December 29, 1982.

and seminars of the AER Centres on the conduct of village resurveys, their scope, research design, problems of analysis and interpretation and utility. Even though we had practically ceased to carry out village surveys and resurveys by 1965, the other AER Centres which were established by the Ministry in the course of years, continued to take up village surveys and resurveys, with more or less similar experiences as we had gathered and problems we had faced in this activity. A forum was provided to take stock and consider afresh as to whether to continue this activity and the modifications necessary in approach, techniques of investigation, analysis, etc., when the Ministry appointed a Review Committee in 1968 to review the working of the Agro-Economic Research Centres. Chapter-IV contains an account of the discussions of the seminar on Reorientation of Village Surveys and Resurveys held at the Institute in September 1969. This is followed by Chapter V on the methodology adopted for certain other studies as indicated in para two of this Preface.

Finally we give in Appendix-I a list of studies carried out by the AER Centre, Pune, in Appendix-II, a list of Occasional Papers prepared by the staff members since the inception of the Centre and in Appendix-III a list of Publications of the studies carried out by the Centre.

We are aware of the fact that in the present report there is some repetition of certain points and views in respect of the objectives, scope and methodology of village surveys and resurveys; but this could not be avoided because they cropped up at all relevant discussions at the Institute as also in the meetings and seminars of the AER Centres between 1954-55 and 1969-70.

We had submitted a draft report to the Ministry in July 1979 on the completion of 25 years of work of the Centre. Due to other

pressing work, the report could not be finalized for circulation. Hence, while finalizing the report, we have updated the information contained in Appendix-I,II and III. We are grateful to the Directorate, and in particular Shri P.N.Deb, for comments on the draft report which helped us in finalizing the report.

Before we present this volume to our readers, we like to thank our colleague, Shri V.S.Patwardha who went through the draft and made useful suggestions and to our other colleagues for their cooperation in bringing out this volume.

Pune  
December 5, 1982.

D.P.Apte  
M.B.Padki

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## CHAPTER I

### THE AGRO-ECONOMIC RESEARCH CENTRES - BACKGROUND

After the initiation of the era of planned economic development in the country, need was felt for carrying out studies for a proper understanding of the changes occurring in the structure and functioning of village economy and other specific problems arising from time to time. The scheme for the establishment of Agro-Economic Research (A.E.R.) Centres grew out of a proposal received by the Ministry of Food and Agriculture in October, 1952 from Dr. V.K.R.V. Rao, the then Director, Delhi School of Economics, for sanctioning a grant for an Applied Research Section in Agricultural Economics at the Delhi School of Economics. The Ministry had earlier sanctioned a teaching-cum-research unit at the School with the object of conducting teaching of agricultural economics at the Central College of Agriculture and undertaking research of a fundamental character. The following functions were envisaged for the proposed Section of Agricultural Economics by Dr. V.K.R.V. Rao.

"This Section will concern itself with applied research on long-term problems of the Indian rural economy on which sustained and systematic work spread over a number of years will be done in the proposed Section in close cooperation with the teaching-cum-research unit which already exists and, for the matter of that, with other Sections of the School as well. Illustrative of the kind of work I have in mind may be mentioned economic surveys of a selected number of villages, the surveys to be repeated in the same villages every five years with a view to ascertaining progress and change in social and economic conditions in the rural areas, special surveys in selected

areas with a view to analysing specific problems such as the effects of Zamindari abolition, cooperative farming, cooperative marketing, etc., and also special studies in agricultural economic analysis such as price problems, demand problems, etc."

Dr. Rao had envisaged that the Research Section would supplement the work done by the Directorate of Economics and Statistics of the Ministry of Food and Agriculture and the perspective of long-term problems presented by the Section would be found useful in tackling short-term problems concerning the Ministry from day-to-day. He also envisaged that the Section would be established on a permanent basis as "it is not possible to get the right kind of staff or to retain them unless the Section is started on a permanent basis". Dr. Rao had also pointed out that it would be to the advantage of the Ministry to promote the study of the wider problems of the Indian rural economy by a non-official academic body, like the Delhi School of Economics.

The proposal of Dr. V.K.R.V. Rao was strongly supported by Dr. S.R. Sen, the then Economic and Statistical Adviser, and was favoured by the Ministry of Food and Agriculture. The proposal was also supported by Shri J.J. Anjaria, Chief (Economics), Planning Commission and also Shri V.T. Krishnamachari, Deputy Chairman, Planning Commission. It was felt that there was a distinct advantage in having such a work done by a non-official agency and the reports or reviews issued by an independent research agency would be especially valuable from the point of view of carrying conviction to the public. It was contemplated that to begin with, four Agro-Economic Research Centres on regional basis might be set up and that in due course additional centres might be established. The scheme was presented in the

memorandum submitted to the Departmental Finance Committee on 7th December, 1953, by the Ministry of Food and Agriculture in the following words :

"About 70% of India's population is dependent on agriculture; very large sums of money are being spent by the Government every year on agriculture and rural development programmes under the Five Year Plans; various legislative and executive actions are taken by the Central and State Governments which very seriously affect the agricultural population. No scientific studies have so far been made on the possible economic and social effects of these measures. The data at present collected as a matter of routine, are not adequate to assess the economic and social effects of the Government's actions in the sphere of agriculture because what is required is not mere statistics but information and what is more important, a scientific analysis of that information by competent economists. It is, therefore, necessary that a body of information should be built up on the basis of scientific studies carried out from time to time, so that such information could be utilised for framing Government policies."

"The assessment of the progress in the various spheres will have to be done on the basis of a continuous and long-term study, preferably by undertaking a series of case studies each appropriately designed to suit the particular type of problem under investigation. In order that the results of the surveys may be useful to the Government as well as inspire confidence in the public, it is desirable that they should be conducted by impartial non-official institutions under the general supervision of the Central Ministry of Food and Agriculture. Research problems will be set out by the Ministry to the institutions from time

to time and it will be their duty to conduct studies in respect of the given problems and furnish to the Government the results of their investigations."

"An ideal scheme of the above nature should provide for a network of research centres throughout the length and breadth of the country and should also provide for adequate coordination at the Centre by having nucleus research staff. With this as an ultimate aim, it is proposed to initiate 4 agro-economic research centres in the different parts of the country to start with, to undertake and promote investigations into the current day rural problems. It is proposed to open agro-economic research centres working in close cooperation with the existing research institutes or universities, e.g. the Delhi School of Economics in the North, the Bombay School of Economics and Sociology or the Gokhale Institute of Politics and Economics, Pune, in the West, the Vishwa-Bharati Institute of Sriniketan in the East and the University of Madras in the South. These centres, besides functioning as agro-economic research units, will also supervise ad-hoc research sponsored by the Government in the region."

"The research to be undertaken in these regional centres will have to be coordinated at the Centre in the Directorate of Economics and Statistics, Ministry of Food and Agriculture, by organising a special research unit which besides setting out problems for study at the various regional centres and fixing relative priorities to the different schemes will also coordinate and analyse the results of studies and organise such field surveys as may be required urgently by the Government."

"... This will be of a definite advantage, for reports prepared by an independent Research Institute are specially valuable from the point of view of carrying conviction to the public; the Government gets the benefit of the services of eminent

Economists in the participating Universities/Institutes virtually free; Agro-Economic Research of the type envisaged is in its very nature a long term job requiring continuous work and thinking and such an atmosphere is more easily possible in a non-official research centre relatively free from the burden of day-to-day official work..."

The Departmental Finance Committee approved the proposal at its meeting held on the 15th December, 1953. The first four Agro-Economic Research Centres were established in 1954-55. These were located in the Delhi School of Economics, Visva-Bharati University, University of Madras and the Gokhale Institute of Politics and Economics, Pune. The sanction for the AER Centre, Delhi was issued on 8th February 1954 and for the other three centres on 5th March 1954. The following functions were assigned to the Centres :

a) To carry out a continuous study on changes in the rural economy by means of surveys of a number of selected villages each year, the surveys to be repeated in the same group of villages at intervals of five years;

b) To conduct ad hoc investigations into problems in which the Ministry is specially interested. It was understood that the scope of such investigations would necessarily have to be confined within the limits set by the resources available to the section for the purpose; it would be, however, open to the Ministry to extend the scope of such investigations by making special grants for this purpose.

c) To carry on research work on fundamental problems relating to the agricultural economics of the country, and

d) To give technical advice to the Government of India and the States in respective regions on such issues as, with mutual agreement may be referred to the Centres.

### The A.E.R. Centre, Pune

The A.E.R. Centre, Pune was located at the Gokhale Institute of Politics and Economics in 1954-55 as its integral part, in view of the work in the field of agricultural economics carried out at the Institute during the period of about twenty five years prior to the establishment of the Centre. In the following paragraphs we briefly review the work done at the Institute between 1930 and 1955.

### Brief Note on Research Work in Agricultural Economics

The Gokhale Institute of Politics and Economics was founded in 1930. The aims of the Institute were defined as "the study of and research into the various economic and political problems of India and the training of workers for such study and research." Because of the limited financial resources it was decided initially to devote attention chiefly to the study of economic problems. Activity was also concentrated on local and fact finding investigations, because such investigational work was then, relatively neglected and because there was considerable scope in this field for pioneering work, even with limited resources, in adapting established social science methodology to Indian conditions.

The first investigational project undertaken was the marketing of fruit in Poona. It was a pioneering piece of work taken up even before the Imperial Council of Agricultural Research had planned their market surveys. Immediately after the completion of this, attention was directed to the basic methodological problem of adapting the survey method in farm management research to conditions in India. The Imperial Council of Agricultural Research made a grant in 1936 to the



Institute towards research relating to the adaptation of the survey method to Indian Farm Management Research. The work in agricultural economics at the Institute thus began with a survey of Farm Business in Wai Taluka which dealt fully with this important problem of methodology. The method developed during this study was subsequently used by the Institute in its work on the direct and indirect benefits of irrigation from the Godavari and Pravara Canals. This study was entrusted to the Institute in 1938 by the then Government of Bombay. This study tackled and at least partially solved problems of great theoretical and practical importance. The Institute was engaged between 1942 and 1947 on a series of projects in agricultural economics in Wai Area in Satara District, Maharashtra State which dealt intensively and comprehensively with various aspects of economic life of the people of the tract.

In 1946, the Sir Dorabji Tata Trust made a grant for a five year period which was subsequently extended by another five year period, for work in agricultural economics. The grant enabled the Institute to establish Sir Dorabji Tata Section in Agricultural Economics.

In 1950, the Institute collaborated in planning the work of the National Sample Survey. The series of schedules prepared at the Institute were used in one-third of the units covered by the survey in 1950-51, the data regarding these were tabulated and the report on them was prepared at the Institute. The staff of the Institute was also actively associated with the planning of the Rural Credit Survey conducted by the Reserve Bank of India in 1951. The Institute conducted the survey on behalf of the Bank in seven districts of the then Bombay and Hyderabad States.

In 1952-53, vast areas of several districts of the then Bombay State were affected by severe drought. The Institute undertook a comprehensive enquiry into the famine conditions of the affected regions. It examined the general conditions of the villages in the famine affected area, the families of the villages surveyed and famine relief works including rehabilitation programme. Subsequently, the Institute carried out, for the Research Programmes Committee of the Planning Commission, a survey in some parts of the then Bombay State into the working and the results of the Bombay Tenancy Act 1948.

Apart from about 30 research studies taken up at the Institute between 1930 and 1953, some research scholars worked under the recognised guides at the Institute for M.A./M.Sc.(Agri.) Ph.D. dissertation. The topics covered by them included Marketing, Labour, Employment, Cooperatives, Economic History and such other topics in Agriculture.

Besides some members of the research staff of the Institute offered lecture courses in Agricultural Economics to the post-graduate students at M.A. Economics.

By 1954, that is on the eve of the establishment of the Agro-Economic Research Centre at this Institute by the Ministry of Agriculture, the Institute had carried out a number of studies in Agricultural Economics. The research staff and research scholars had also conducted studies in other fields in Economics. The results of the research work done by the staff and students of the Institute between 1930 and 1954 were published in 34 publications, 4 of which were published in the Marathi language. 21 students, who worked under the recognised guides at this Institute, had earned their Master's or Ph.D. degree between 1932-33 and 1953-54.

The Institute had thus acquired adequate experience in teaching and research methods. It had on its staff eminent agricultural economists and experienced field investigators and research assistants. It had also excellent library facilities and data processing facilities in the form of unit card system. In view of this the Ministry located the Agro-Economic Research Centre for Maharashtra and Karnataka at this Institute in 1954-55.

### Organisation

We shall consider here the organisation of the Agro-Economic Research Centre, Pune. The Centre differs from the other AER Centres in several respects. The most important feature is that the AER Centre, Pune, since its establishment in 1954-55 is an integral part of the Institute and the staff therein is governed by the Rules and Regulations of the Institute. As a result, the staff working in the Centre could think of a long period of research activities even though the Ministry did not place the Centres on a permanent basis. The staff in the Centre never suffered any inconvenience like in some of the other AER Centres. For instance, if there was delay in receiving grants from the Ministry, the Institute met the expenditure from its own resources till it received funds from the Ministry. For the research staff in the AER Centre, Pune, being an integral part of the Institute, the same pay-scales as are recommended by the University Grants Commission and accepted by the University of Poona and by the Institute for its staff are applicable.

For the other staff in the Centre, the pay-scales recommended by the Government of Maharashtra and accepted by the Institute for its staff are applicable. The entire staff is paid dearness and other allowances as prescribed by the State Government from time

The staff also enjoys the benefit of the Provident Fund. There did not exist, therefore, at any time need to indulge in Trade Union activity as in the case of some of the other Centres.

The Directorate desired every Centre to form an Advisory Committee to guide the activities of the Centre. As our Centre had the benefit of guidance from the senior economists in the Institute such as Prof.D.R.Gadgil, Prof.V.M.Dandekar and Prof.N.Rath as well as other senior research staff working in the Institute, we did not form an Advisory Committee for the AER Centre, Pune. The other Centres, however, constituted Advisory Committees in their early stages of establishment to deal with the problems relating to finance, administration, appointment of staff as well as planning of research projects and guidance to the research staff. The Ministry was of the view that to fall in line with the pattern adopted by the other Centres, the Pune Centre should also form an Advisory Committee. Accordingly the Institute formed an Advisory Committee consisting of the Vice-Chancellor, University of Poona, as its Chairman, the Economic and Statistical Adviser of the Directorate of Economics and Statistics, Ministry of Agriculture, or his representative, the Director and the Joint Director of the Institute, and the Officer-in-Charge of the Agro-Economic Research Centre, Pune, and Professor of Agricultural Economics from one of the Agricultural Universities in Maharashtra State as its members. The first meeting of the Advisory Committee was held in June 1975, the second meeting in June 1978 and thereafter, the Committee met once every year, the last meeting being held in July 1982.

Though in the initial period the Ministry had written to the State Governments to associate the AER Centres with the research needs of the State Governments, as far as our Centre is concerned, the Department of Agriculture of the State Government never had

any close association with our Centre. This might have been because the Institute itself had already established contacts with various departments of the State Government. Also perhaps, the State Government, since it had its own Bureau of Economics and Statistics, did not invite the AER Centre, Pune, to be associated with any of its research projects. Occasionally, the State Government referred its problem to the Institute and we took up the necessary studies in the AER Centre, Pune. One of such studies taken up during the year 1978-79 is 'An Evaluation of the Schemes of Assistance to the Recipients of Land Distributed under the Land Ceilings Act in Aurangabad, Solapur and Thane districts of Maharashtra State'.

As the AER Centre is an integral part of the Institute it is difficult to say how far the Centre as such had established contacts with outside agencies. From time to time the Institute received requests from various non-Government, non-profit making agencies to take-up some research studies and the Institute extended assistance to such agencies. In the AER Centre, we took up studies relating to Agricultural Credit, Regional Planning, Rural Electrification, Evaluation of Integrated Dairy Development Project and also an Irrigation Project and such other problems.

CHAPTER II  
VILLAGE SURVEYS

As indicated in the beginning, the Agro Economic Research Centres were set up by the Government of India with a view to studying the process of change in the rural economy, particularly after the planning process had started. All the four Centres were to conduct a series of village surveys for the purpose. The villages were to be resurveyed at an interval of five to ten years.

The Cluster Approach

The other three Centres chose to adopt the well trodden path of a simplistic two stage sample, first by dividing the district into broad agro-climatic regions and then selecting villages conforming to the 'average' sized village in the region or the district. The Institute, however, decided to adopt the cluster approach for the village surveys. The Institute's views regarding the selection of a cluster of villages rather than that of an individual village and also the purposive selection of such clusters, rather than selection from a random sample, were stated in a note submitted by the Institute to the Ministry. Since the approach differed from the three other AER Centres, we quote the relevant extracts from the note.

"An initial decision has to be made regarding the manner in which the villages to be surveyed should be selected. There appear two principal considerations. Firstly, the villages to be surveyed might be chosen singly or in groups; in other words the unit of study might be either single villages or their groups, they might either be chosen at random or purposively. After careful consideration of the alternatives, we (the Institute) propose to study groups of villages chosen not

necessarily at random. The considerations governing this choice are partly practical and partly methodological."

"The case for choosing single villages rather than their clusters is primarily based on the consideration that by that means the survey gets a wellscattered or diffused coverage and consequently enables a wider variety of conditions to be observed. In fact, following the same logic, it is often suggested that even a whole village is not quite an appropriate unit for a survey and that it is generally advisable to survey a small sample of families selected from each one of a large number of villages. The chief difficulty in such a plan is that as the work load at each village is too small for the investigator to stay there for any length of time he has to move from place to place at short intervals. While there should be no objection to employing such a peripatetic agency for short period surveys, with limited and specific objectives, it seems undesirable to plan a long term investigational programme on that basis. Our long experience with such surveys suggests that the conditions under which the peripatetic field agency works are not, when continued for long periods, generally conducive to honest, careful and intelligent type of field work nor to an effective inspection and scrutiny of the field data. In planning any long term programme of investigation, therefore, it would be desirable if the field staff is given reasonably stationary family life. For this purpose the period for which an investigator should be stationed at one place should be at least one whole year. The case for selecting a cluster of villages rather than scattered single villages follows partly from these practical considerations."

"A cluster of neighbouring villages might also afford possibility of studying certain aspects of the rural economy which it would not be otherwise possible to study. There are certain socio-economic features whose operation extends much beyond a single village. Important among them is the market. Other such features are the availability of services of certain types of artisans, medical practitioners, professional money-lenders, cooperative societies and schools. It is felt that the choice of a group of neighbouring villages will facilitate a full study of these and other features. Also it is not true that such a group will always present very similar socio-economic conditions. Often it may exhibit even marked variations in physical conditions such as soil and surface and sub-soil sources of water. This is particularly true in the Deccan with its undulating landscape. The bigger villages usually enjoy the more favoured conditions while the smaller neighbouring villages suffer from many handicaps. Besides, there appear many social conditions of progress which, while they obtain in one village, do not exist in a neighbouring one. Among these are, for instance, enlightened leadership, absence of factions and existence of indigenous forms and traditions of cooperation. A study of these variations in an otherwise similar environment might prove instructive. Finally, there is the whole problem of communication of news, knowledge and ideas to the many small and isolated villages. The manner in which the communication flows and the time it takes are obviously of considerable importance to the progress in the rural economy. A contrast, on comparison between the conditions existing in the bigger villages and in the surrounding smaller ones might bring the problem in bold relief."



"We propose, therefore, that an investigator might be stationed in one place for a period of one year and survey a group of villages within easy reach from that place. In practice, this would amount to a group of villages within a radius of 4 or 5 miles from the village of residence. More specifically, we intend to station the investigator in a bigger village of about 5,000 population. This would be only a bigger village and would not be a town as per the census classification. The village will be normally a market place having a weekly market. The group of villages to be surveyed would then be those served by this market and making a neighbourhood of about 10,000 population, of which half would be in the nuclear village and the remaining half in the neighbouring villages. (A population of 10,000 spread over a group of villages later proved to be more than the desired load of field work for a fieldman. It was decided in 1955-56, the second year of village surveys, to select a cluster of villages with a total population of 5,000 out of which 2,500 or 3,500 would be at the nuclear village). Within the resources available to the Section, it would be possible for us to survey about 40 to 50 such localities in the course of the next five years after which their resurvey would begin. We, therefore, propose to survey one centre in each one of the districts of the Western and Central region."

"A random choice of the localities to be surveyed gives them a certain type of representative character which makes it possible to have an aggregate type of tabulation and analysis. However, as there would only be about 40 to 50 localities to be surveyed over a fairly wide region, and as the survey work would be spread over a period of five years, an aggregative form might not be a particularly suitable form of presentation. Secondly, the main feature of the project is the provision to resurvey the same localities after a period of five years so that a comparison of each locality

over a period of five years would be the more important aspect of the analysis. The treatment of each surveyed locality as a type case would, therefore, be more relevant. We, therefore, propose to select the localities to be surveyed not by a random choice but purposively as representing particular types of economic condition."

In choosing the clusters of villages, the Institute broadly kept in mind the existence of special features or specific 'identifiable' agents which might be expected to cause change 'normally' during the course of the next five years. The 'normal' change was defined to be that which was not purposively initiated by the block authorities or by voluntary agencies like the Sarva Seva Sangh operating in the rural areas.

#### Objectives of Village Surveys

The note submitted by the Institute also contained a brief statement of the objectives of the village surveys as seen by the Institute and the methods of approach and analysis. The relevant extract is as follows.

" While determining the subject coverage of the survey, we have to keep in mind the primary objective, namely, to assess by means of a resurvey after five years, the direction and extent of economic change in rural area. Though it is true that all economic change must ultimately result in changed physical output and changed incomes accruing to the people, it is doubtful whether we could expect sufficient change in the next five years which would fully manifest itself in these forms. It is presumed that changes in physical production and social incomes may not be large enough to be demonstrable by means of a resurvey after five years. The results of the resurvey might be expected to be negative in many cases and where they will be positive they will be subjected

to numerous qualifications to be conclusive. Therefore, though efforts should be directed to assessing possible changes in output and incomes, it would seem advisable to depend more on secondary manifestation of economic change. They are, for instance, the general socio-economic well-being of the population as reflected in literacy, education, health etc., the changes in wealth in assets and equipment; changes in agricultural practices and techniques which might be expected to lead to increased output; changed forms of community and business organizations; and generally increased economic consciousness as revealed by change in marketing practices and economic accounting. As will appear from the various questionnaires we propose to use in the survey, the resurvey will enable us to assess changes in many of these aspects that may take place during the next five years."

### Methodology

It may be seen that all thinking on village surveys, its approach and proposed analysis, was related, at the time of commencement itself, to the resurvey of the village in order to facilitate the location, direction and possible measurement of 'economic change in rural areas', as the project was called.

A number of schedules and questionnaires were devised in order to acquire comprehensive understanding of the functioning of the economy of the villages in the cluster selected. The principal of these was the family schedule which was canvassed for all the families in the cluster of villages. The schedule underwent, in the light of successive surveys, considerable changes in the years 1955-56, 1956-57 and 1961-62. As a part of the study regarding the social structure and the labour structure, information regarding the family and its demographic features, occupations and other aspects in respect of all the family members was recorded.

For the study of the economic structure of the village, information about land owned and cultivated, livestock, agricultural tools and implements, residential houses, etc., owned by the families at the time of the survey were noted down. Besides, information on capital investment and disinvestment of assets during the five years preceding the survey was also recorded.

In 1955-56, provision was made in the family schedule to record expenditure during the month prior to the investigator's visit on certain items of the family budget. The initial idea was to spread the field work over the entire year so that in each month about one-twelfth of the families would report expenditure incurred by them in the previous month and that consumption variations during different months, seasons and festivals of the entire year would get automatically recorded. However, due to investigational difficulties, the field work of the family schedule had to be concentrated in about a period of four months only. The data regarding the family budget thus suffered from serious limitations. In subsequent years, therefore, an independent family budget survey was conducted in respect of a selected sample of families.

In the case of families reporting labour as the main or subsidiary occupation, a supplementary questionnaire was canvassed in the year 1955-56 to record employment, wages and purchases of foodgrains and pulses during the month prior to the investigator's visit. In subsequent years, employment data was collected in respect of a sample of labour families.

In the year 1954-55, farm business survey was conducted in respect of a sample of 28 cultivators in each cluster of villages. In 1955-56, however, it was decided to select a sample of 250 plots to study the cultivation practices and record the various inputs as it would have wider coverage as compared to a sample of 28 cultivators. The sample of 250 plots selected during the

village surveys carried out during 1955-56 to 1958-59 was selected as follows. From the village records, every 'n'th plot was selected, 'n' being the total number of plots in the village records divided by 250. After canvassing the schedule during the village surveys carried out between 1955-56 and 1958-59 it was felt that plotwise data collected from a sample of cultivators would be preferable to that collected for a sample of 250 plots. In 1959-60, therefore, the method of selecting a sample of cultivators was adopted and plotwise data on their cultivation practices collected. The sample of cultivators was systematically selected after arranging the cultivators according to the descending order of their cultivated holdings. The information was collected in three to four visits during the year by visiting the sample of plots and the cultivators.

In order to study the effects of changes in tenancy arising out of the tenancy legislations in the State, a questionnaire was canvassed. If changes were noticed during the five years preceding the survey year in respect of the sample plots selected for the survey, the reasons for such changes and other relevant information was recorded. For the purpose of studying the purchases and sales of land, information regarding such transactions was first obtained from the village records. The parties to the transactions were later contacted to record the reasons or causes leading to the transfer and other details of the transaction.

Special schedules were devised if the cluster to be surveyed exhibited some special characteristic such as the existence of a large number of weavers, cartmen, fishermen, etc. The Research Assistant took up detailed case studies of crafts, professions, trading, etc., by visiting the concerned families or establishments. He was guided by a senior colleague who visited the cluster, in identifying problems to be studied or gone into in a greater details.

## Field Work

The field work of every cluster of villages was carried out by a team consisting of a fieldman and a research assistant. As noted earlier, the fieldman came from an agriculturist family with a rural background and had studied upto the matriculation standard. The research assistant was a post-graduate in Economics (M.A.) or Agricultural Economics (M.Sc.Agric.).

The field work was carried out between June and May (the agricultural year) by the fieldman, who stayed at the nuclear village throughout the year and by the research assistant who usually spent between ten to twenty days in a month at the cluster. The fieldman's work mainly consisted of collecting data with the help of schedules devised for the survey of the particular cluster. The research assistant busied himself in studying various aspects of the village economy by collecting qualitative data mainly through case studies and supervising the work of the fieldman. The field inspector and a member of the senior research staff also visited the selected villages, the former to carry out a percentage check and scrutinise the work done by the fieldman and the latter to discuss specific problems that needed detailed probing and study, to design special enquiries and make suggestions for improvement.

The field staff was instructed to keep a diary to record information of the various features of the selected villages and to copy out certain extracts, especially regarding land utilisation and other data from the village records.

The data so collected during the survey was transferred to punched cards and tabulated on the unit card system. The research assistant was actively associated with the tabulation work along with tabulation assistants and machine operators. By the time the field work came to an end, the research assistant

had visited the cluster 10 to 12 times and had got acquainted with nature of the economy. He was, therefore, thought to be the most eligible to write the report.

### Extent of Village Surveys Undertaken

During the years 1954-55 to 1958-59, 24 clusters of villages from 24 districts of Maharashtra and Karnataka, totalling a population of about 1,22,000 were surveyed. Reports in respect of 16 clusters were prepared and submitted to the Ministry. In respect of the remaining 8 clusters, the study had to be written off as the data collected was incomplete/unsatisfactory or the report remained incomplete because the Research Assistant left the service or had to take up the work of other village survey/resurvey. Table No.1 presents information in respect of the 16 clusters of villages surveyed on which reports were completed and Table No.2 gives information in respect of the remaining 8 clusters of villages regarding the identity of the clusters, the districts in which they were situated and the specific characteristics on the basis of which they were selected.

Table 1 : Village surveys carried out and completed since 1954-55.

Year of Survey	Village/District/State	Important Characteristics/Force of Change	Year of completion
1	2	3	4
1954	1.Mithbav* (Dist. Ratnagiri) . State-Maharashtra	Important fishing centre exporting seasonal labour to Bombay.	1956-57
	2.Mudalgi*, Shivapur* Khannatti*, Kamaldinni* & Banganpur* (Dist. Belgaum. State-Karnataka)	Construction of the Ghataprabha Right Bank Canal	1958-59
	3.Nalwar*, Sooguru*, Kalkunda* (Dist. Gulbarga, State-Karnataka)	Situated near Stone Quarries (Shahabad); Permanent settlement of Iamans (nomadic tribe)	1959-60

Contd..

1	2	3	4
<u>1955-56</u>	4. Pusegaon*, Visapur* (Dist. Satara State-Maharashtra)	Cultivation of potato crop. Village is well advanced in education.	1960-61
	5. Murud*, Wathwad*, Karkata* (Dist. Osmanabad State-Maharashtra)	Existence of live-stock market and Rural Reconstruction centre of the Khadi and Village Industries Board.	1958-59
	6. Dhad*, Dudha*, Sawali*, Karadi* and Dhal-Sawangi* (Dist. Buldhana State-Maharashtra)	Construction of an inter-state road joining Andhra Pradesh linking the selected villages with new markets.	1958-59
	7. Sukene-Kasbe*, Sukene-Mauje*, Mauje Oney (Dist. Nasik State-Maharashtra)	Cultivation of sugarcane, grapes, onions and vegetable crops.	1958-59
	8. Dandeli* (Dist. North Kanara) State-Karnataka	High forest area, Silviculture, Plywood factory, Paper factory.	1960-61
<u>1956-57</u>	9. Waghode*, Maskawad- Seem and Maskawad- Khurd (Dist. Jalgaon State-Maharashtra)	One of the largest centre for the cultivation of Banana	1962-63
	10. Goregaon, Ghoti & Zanjya (Dist. Bhandara, State- Maharashtra)	Dependence upon forest, particularly <u>bidi</u> leaves, and Manufacture of <u>bidis</u>	1960-61
<u>1957-58</u>	11. Malthan, Sone Sangawi, Nimgaon Dude and Amdabad (Dist. Poona State-Maharashtra)	Located in famine tract; State Govt. was carrying out extensive contour bunding operations; Proposed tank construction at about three miles from the village which may increase irrigation facilities.	1960-61



1	2	3	4
	12. Kothari, Kawadjai, Palasgaon and Amdi (Dist. Chandrapur, State-Maharashtra)	Location in forest area; 'Charmakar Kutir', a production centre of leather goods started by the Sarva Seva Sangh	1962-63
	13. Aldur*, Haveli and Chikkamagarvalli (Dist. Chikmagalur State-Karnataka)	Coffee Plantations, Opportunities to study high altitude economy	1960-61
	14. Hagaribomanhalli* and Chintrapalli (Dist. Bellary State-Karnataka)	Rehabilitation in this village of families from the villages submerged in the Tungabhadra Dam.	1960-61
<u>1958-59</u>	15. Paduthonse (Dist. S. Kanara State-Karnataka)	A leading centre for fishing; coconut gardens and coir industry.	1962-63
	16. Kyatasandra, Siddagangamata, Rasvapatra, Maidals, Chokkenalli, Manchakalukuppe, Kallahalli and Maidalada-Amankhere (Dist. Tumkar, State-Karnataka)	Located on the Poona-Bangalore high-way, about four miles from the District headquarters. Hence opportunity to study the impact of the town on village life. Existence of a religious institution which offered education upto matriculation with residential hostel for about 900 students and Betelnut Plantations.	1962-63

\* Village resurveyed.

Table 2 : List of Village Surveys carried out but not completed.

Year of Survey 1	Village/District State 2	Important Characteristics/force of change. 3	Remarks 4
1954-55	1. Mirajgaon, Diksal, Gondardi, Guruv-pimpri (Dist. Ahmednagar State-Maharashtra)	1. Christian Missionary Centre with majority of Bhil population 2. Earth-dam being constructed nearby.	Written off
	2. Dhanora, Mangarul, Karanjawe, Lakhamikhede, Khodade, Arditara, Borde & Adade (Dist. West Khandesh State-Maharashtra)	1. Famine-liable area. Construction of a large irrigation tank nearing completion. 2. A large population of Dhors (leather tanners) and a cooperative tanning society. 3. Lie in surplus foodgrains region.	Written off
	3. Bori*, Dhanora*, Nagpur*, Deogaon*, Muda*, Nagthana*, Ganpur*, Dohara*, and Chandaj* (Dist. Parbhani State-Maharashtra)	1. Lie in the important cotton-groundnut tract 2. Existence of two ginning factories	Incomplete
<u>1955-56</u>	4. Selu, Belgaon, Wadgaon & Lhanoli (Dist. Wardha State-Maharashtra)	1. Location in Cotton Tract. Existence of orange plantations. 2. Introduction of rural electrification scheme.	Incomplete
<u>1956-57</u>	5. Manor, Maswan, Amchan, Awadhan & Kondhana (Dist. Thana State-Maharashtra)	1. One of the largest centres for disposal of timber 2. Existence of Forest Labour Cooperative Societies.	Incomplete

contd...

1	2	3	4
	6. Golasangi, Hongargi, Biralдини, Mukartibal and Budhni (Dist. Vijapur State-Karnataka)	1. Handloom & Blanket manufacturing industries	Incomplete
<u>1957-58</u>	7. Karkhelli, Chikana, Thanora & Walegaon (Dist. Nanded State-Maharashtra)	1. Proposed dam on Godavari about 6 miles from the selected villages which would increase irrigation facilities 2. Proposed construction of road to join the neighbouring villages 3. Reported to be a declining market for cotton, groundnut and chillies.	Incomplete
<u>1958-59</u>	8. Javala, Taroda, Brahmanwada, Salu, Jamb, Kinhi, Gawana & Khandala (Dist. Yeotmal State-Maharashtra)	1. Construction of a road joining the selected villages with the Taluka Headquarters would place this village on the junction of two main roads thereby increase in potentialities of developing into a sizeable market. 2. Proposed cooperative Ginning and Pressing Factory about six miles from the selected villages.	Incomplete

\* Village resurveyed.

### CHAPTER III

#### RESURVEY OF VILLAGES

The first round of village surveys came to an end by June 1959 in the AER Centre, Pune. As decided in the beginning in the scheme of studying economic change in the rural areas, these clusters of villages were to be resurveyed within an interval of 5 to 10 years. The resurveys were stipulated to be repeat surveys, a comparison of the two static pictures being expected to reveal 'changes' which could be studied in greater details once the areas of change were located. In Table 3 we have given a list of clusters of villages resurveyed and reports on which were completed and in Table 4 a list of villages resurveyed but reports on which were not completed, either due to unsatisfactory data or due to the staff leaving the service/being required to take up some other research study.

While the first point surveys were in progress, some serious rethinking of the nature and importance of the scheme of village surveys had begun in right earnest. In the light of the experience acquired by 1958, a reappraisal of these broad objectives was attempted at the meeting of the Directors and Officers In-Charge of the AER Centres in the country, held at Shantiniketan, in July 1958. The reappraisal brought out with greater clarity the possibilities, limitations and the central focus of the studies taken up by the Centres. It was emphasised that the studies assigned to the AER Centres were different in scope from those in which, for instance, the Farm Management

Table 3 : List of Village Resurveys carried out and completed.

Village Resurveyed/ District/State	Year of Survey	Year of Resurvey	Year of Comple- tion	Remarks
1	2	3	4	5
1. Mithbav (Dist. Ratnagiri. State-Maharashtra)	1954-55	1959-60	1963-64	Summary of the Report Mimeographed

contd...

1	2	3	4	5
2. Devapur, Hingni, Shirtav, Palaswade, Putkoti, Panwan, Gangoti, Jambhulni & Valai (Dist : Satara, State- Maharashtra)	1949-50	1959-60	1962-63	Typed
3. Hagari bomanhalli (Dist. Bellary State-Karnataka)	1957-58	1964-65	1969-70	"Planned Rehabili- tation and Economic Change - A case study of Tungabhadra River Project Rehabi- litation Colonies at H.B.Halli" C.S. Gajarajan, (1971), GIFE Mimeograph Series No.10, Rs.12.
4. Gulumb (Dist. Satara, State- Maharashtra)	1942-46	1958-60 and 1976-77	1977-78	Typed Report entitled "A Village in Transi- tion Study of Gulumb, Satara District, Maharashtra State", V.M. Dandekar, S. Brahma, M.B. Jagtap, Mrs Hemalata Dandekar Weisblat
5. Sukene-Kasbe (Dist. Nasik State-Maharashtra)	1955-56	1960-61 and 1975-76	1973-79	Typed Report entitled, "A Study of Problems of Rural Development in Selected Regions of Maharashtra State" by S. Brahma submitted to the Indian Council of Social Science Research, New Delhi, from whom financial assistance was received to conduct the resurvey in 1975-76.
6. Dhad (District Buldhana, State- Maharashtra)	1955-56	1960-61 and 1975-76	1978-79	
7. Landeli (District North Canara, State-Karnataka)	1955-56	1969-70	1976-77	"Inequality and Integration in an Industrial Community" by Victor S.D. Souza, Indian Institute of Advanced Studies, Simla 1977, Rs.50.00.
8. Aldur (District Chikmagalur, State-Karnataka)	1957-58	1979-80	1982-83	Typed.

Table 4 : List of Village Resurveys carried out but not completed.

Village Resurveyed/District/ State	Year of Survey	Year of Resurvey
1. Gabsavalgi and other Villages (Dist. Bijapur, State-Karnataka)	1949-50	1958-59
2. Bori and 8 other villages (Dist. Parbhani, State-Maharashtra)	1954-55	1960-61
3. Pusegaon (Dist. Satara, State-Maharashtra)	1955-56	1960-61
4. Mudalgi (Dist. Belgaum, State-Karnataka)	1954-55	1961-62
5. Murud and 2 villages (Dist. Osmanabad, State-Maharashtra)	1955-56	1962-63
6. Waghode (Dist. Jalgaon, State-Maharashtra)	1956-57	1962-63
7. Nalwar and three villages, (Dist. Gulbarga, State-Karnataka).	1954-55	1962-63
8. Aldur (Dist. Chikmagalur, State-Karnataka).	1957-58	1965-66

Research Centres or the National Sample Survey Units were engaged. The purpose of the village studies was not primarily "estimational" in the sense of measuring with rigour and precision quantitative changes in such economic categories as output, income, expenditure, consumption, saving and capital formation etc. They were intended essentially to draw important generalisations and inferences, even though as first approximations, about the structure and functioning of village economies in the context of change and about the "hows" and "whys" of development and growth, stagnation and retrogression. Great stress was laid on the necessity of locating and highlighting those forces which accelerated and those that retarded rural change and also on the structural and functional aspects of the rural economy.

with which growth (or stagnation) were found to be closely associated. From such an analysis certain generalised 'indicators' of change could be evolved, in the ultimate analysis, for the aid and guidance of rural planning.

At the Institute and most of the points that came up for reappraisal at the Santiniketan discussion, had already been foreseen and were manifest in the purposive selection of clusters, spelling out of the possible broad indicators of change and in the treatment of the entire village survey as a single case study. The rethinking at the Institute about the scheme was on entirely different lines. The principal doubt was as regards the quality of village survey reports that were turned out. It was realised, although a little belatedly, that the task of surveying and analysing the economy of a village, or for that matter a cluster of villages, was a highly responsible one to be entrusted to the fresh graduates who did not have any training or experience in the techniques or methodology of conducting a village survey nor that of analysing the empirical data. It was proposed that the research assistants in charge of village surveys, should be given training in research methodology in order to enable them to have a better and causal understanding of the working of the village society. It was also proposed that at our Centre the tabulation, analysis and drafting might be entrusted to a senior researcher who had greater experience of economic insight, analysis and argumentation. In the other AER Centres the responsibility of analysis and drafting was entrusted to an independent analyst who could be expected to have an objective view as regards the working of a given village society.

The second issue was the nature of outcome of such village surveys and resurveys. It also connected up with the first in that the village surveys entrusted to the fresh graduates were general purpose surveys in that there were no preconceived or preformulated hypothesis that could be substantiated or disproved by studying the

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working of the village. The surveys were open-ended and there were few historical precepts as regards the conduct of such surveys or any given methodology which could be followed. Since there was no direction, every phenomenon assumed crucial importance and the survey was expected to lay down an exhaustive bench mark of all economic phenomena which could be later compared, during the resurvey, for locating and studying socio-economic change. The resurveys were to be repeat surveys in the first instance and critical areas that exhibited some propensity to change were to be studied in depth after pinpointing them. The final purpose of the survey and resurvey was to study the process of change, its agency, direction and magnitude.

The Institute took the opportunity of providing a forum for discussing the above doubts and problems by arranging an all-India Seminar in September 1959 at Pune. The broad subject for deliberation was 'Village Resurvey Techniques'. The Seminar was attended, in addition to representatives of the Directorate of Economics and Statistics, Ministry of Food and Agriculture and of the AER Centres, by a few scholars from other countries. All the four AER Centres, including the one in the Institute presented papers for discussion.

During the Seminar the Chairman of the opening session, Prof. D.R.Gadgil placed the function and utility of village surveys and resurveys carried out by the AER Centres in the wider perspective of research in agricultural economics as a whole. He stated that it would be appropriate to review the objectives of agricultural economics research and more particularly what the AER Centres had achieved and what they were expected to do. In this connection he observed that two distinctive features of these studies deserved attention : (i) the collection of reliable data and getting at facts, and (ii) the fact-finding process. The agency employed, the instruments used and the design of the survey were problems in determining what was a fact-finding process. The important point which deserved careful attention was whether it was possible to identify change in

a particular direction and that through factors which would also be amenable to measurement, i.e. of being quantitatively expressed. Economic change might be associated with one or more factors like change in methods of cultivation, use of improved seeds, manures, and fertiliser, use of seed-drills etc, which every-body knew would lead to greater production. But the difficult question was how to identify their contribution because the seasonal and other uncontrollable factors had also a strong bearing on the total production. It was possible that in a period of 5 years we might not have enough data to show that there had been a change, though a lot of things might have changed in fact. It might be contended that a short period would not show any measureable results. Then the question arose whether it would be more important to pay attention to changes in techniques of production rather than the quantitatively measurable factors like inputs and outputs. Knowledgeable people were always hesitant in making generalisations particularly on the operation of the rural economy and were sceptical about specific factors being responsible for movement in one or the other direction. Village surveys had yielded a lot of data which might be used for projecting the trend. Prof. Gadgil further observed that from the data collected and from our knowledge of the operation of the rural economy, it was important that we should be bold enough to make what we regarded to be valid projection even though rigorously conclusive evidence could not be obtained. This risk had got to be taken because it was only in this way that we could really learn more.

As the Centres were engaged in the work of studying the socio-economic dynamics, the Chairman maintained that any kind of quantitative data that was being obtained in the first survey should be fully obtained during the resurvey on a comparable basis. If quantitative measurement was not possible, knowledgeable person could go into the villages, talk to people and see what was happening. That itself would add to our knowledge. Unless all these problems were taken into account, it would not be fruitful to think in terms

of the resurveys and study of change. He also referred to other problems such as marketed surplus, factors influencing changes in cropping pattern and the like.

The Economic and Statistical Adviser, Ministry of Food and Agriculture, agreed with the Chairman that there was no sanctity in the five year period to expect and/or study change; change of a significant nature might or might not be manifest during these five years. In fact, it might well be that that no change might have taken place. But it would be worthwhile to investigate causes for this development. The causes of development as well as stagnation were equally important. The question might be again asked; should these surveys be repeated in all the groups of villages? Some of the villages were surveyed on a pilot basis. Later on, as experience was gained, the schedules had to be modified and enlarged and different sets of schedules came to be used. If all those villages were to be resurveyed again, the problem of lack of comparability of data would arise. Hence leaving out the villages surveyed on a pilot basis, the surveys had to be repeated in all other villages. He stressed that efforts should be made to find out what the indicators of change were and whether the changes that had taken place were capable of identification and measurement. He agreed that it was not the intention of the Agro-Economic surveys to make estimates of the national aggregates which would be useful for the purpose of planning. What was envisaged was that these should furnish more information regarding the structure and functioning of the village economy under different environments. A comparative study of different villages in different environment would throw light on the factors that contribute to the changes in the villages.

Another point that had emerged from the statement of objectives was that the study should contribute in some measure to the planned development of the village. There was considerable discussion as to whether it was possible to make village surveys directly useful for planning purposes.

It was agreed that in the village surveys, the research workers had useful lessons for developmental planning by identifying certain aspects relating to allocation of resources and the study of the institutional structure.

### Design of Resurvey

During the discussion on the design of resurvey and schedules to be canvassed, Prof. Gadgil referred to certain changes in the schedules that might be necessary in the light of the objectives mentioned earlier. The following two procedures were suggested : (i) The investigator should first identify the factors and redesign the questionnaire on that basis, and (ii) the information be collected in the schedules already adopted and only supplementary information be obtained by the investigator.

Each Centre discussed this problem in the light of its own approach and special problems. For example, the Vishva Bharati Centre had laid more emphasis on the study of the process of change in the selection of the villages. Hence with this orientation, the village schedules had to cover a larger canvas including some information from the surrounding villages in terms of production, marketing, etc. The Centre also pointed out that in view of the non-existence of regular revenue agency to collect data in the region, it would be desirable that some data for the intervening five years might also be obtained. There was general agreement that broadly speaking the schedules already in use would be adequate if supplementary information from within the village as well as outside the village was to be obtained. In this connection the practice of making the household homogeneous was mentioned. That problem would arise if attempt was made to track the households which had changed in the intervening period of five years. Prof. Gadgil said that for that purpose it was not necessary to go back to the same units of households which were covered during the first survey. In this connection the Delhi Centre suggested that investigators might be provided with a card containing the condensed information for each cultivator so that

it might help the investigator in noticing a significant difference on the spot and thus bring out some important points. But doubts were expressed on the efficacy of this procedure.

#### Problems of Analysis and Interpretation - Choice of Indicators

There was some discussion on the statistical measurement of the indicators. There were certain indicators e.g. population and occupations which were amenable to statistical measurement and from these it might be possible to indicate change. But there were others which would not be measured in such terms. It was held that different indicators in isolation would not be sufficient for understanding the broad phenomenon. Prof. Gadgil enquired if the various indicators could be designed to give a measure of overall economic progress. Some crucial indicators e.g. rate of capital formation and the level of income were suggested in this connection. But in the first place they involved difficult problems of measurement etc. e.g. estimation of the value of self-labour inputs, capital expenditure made through borrowing where the repayments were to be made from the current income, depreciation of old capital etc. There was general agreement that any single indicator viewed in isolation could not indicate conditions of economic change. Each indicator had to be viewed in its functional relationship with some other important indicator for the purpose.

Summing up the discussion, Prof. Gadgil said that there could not be one single factor to bring about the change. It was agreed that a working group consisting of the representatives of the Directorate and the AER Centres should be set up to prepare a common list of tables to be provided in each report. In this way, every cell in the various tables would be an indicator in itself. The scrutiny would also indicate if there were certain gaps in the data and the ways and means of filling them up.



### Cross-Sectional Studies

During the discussion on the subject it was pointed out that at the Workshop Meeting at Santiniketan in the previous year, it was felt that if some cross-sectional studies were made, it would help in the understanding of problems of village development. The papers presented at the Seminar were the results of a study of several aspects of village economy. The idea of taking one village from each Centre was mainly intended to see the nature of problems that came up for resurvey. But for the understanding of the problems of village development a different approach would have to be adopted. One approach might be to take up an endogenous force in the presence of given exogenous forces and find out the various points of contact and then study its impact on one important indicator of welfare. A second approach might be to analyse a change of the indicator of welfare into its empirical components e.g. a start might be made with the level of income which was a welfare characteristic. Here the interest was in the order of difference and not in the absolute level or the rigorous accuracy of the magnitude. What was required was an identification of the main components contributing to the particular level of income and the important factors influencing the levels of components and ultimately the chosen indicator of welfare, in this case the level of income. A cross-sectional study of the influence of a factor or a set of factors on an indicator of welfare would have important implications on the developmental planning of villages identified as having high, medium or low propensities for development. The problem could be studied according to several types of cross classifications.

There was a general discussion on the approach of these studies. A view was expressed that cross-sectional analysis between villages and possibly between the households in the villages would be very useful for policy purposes and would be a better guide than comparisons at two points of time. The villages might be classified according to the level of their productivity or in respect of per capita level of living, production per acre and per worker, etc..

It was also felt that the cross-sectional studies might be useful and helpful in getting information on the structure and functioning of the rural economy. The problem of cross-sectional analysis was to account for observed differences, to study the problems of progress and retrogression, to find out how they operate. It was also suggested that the differences in levels of welfare might be graded into high, medium and low and the reports might be looked into for the causes of those levels.

The difficulties in undertaking cross-sectional studies such as the problem of comparability arising out of the differences in the methods of estimation adopted by the different AER Centres or heterogeneous character of the villages surveyed were also considered. Since homogeneity of villages and comparability of the data were pre-conditions for such a study, cross-sectional studies might not be feasible. The other view was that cross-sectional studies would reveal gaps and would help in the resurvey and at the same time throw up suggestions for policy purposes. Such studies were an inevitable stage in the process of lifting up the descriptive analysis presented in the village reports to a higher level of analysis. As for the problem of homogeneity, it was pointed out, that there were levels of homogeneity which warranted comparison and a large degree of homogeneity did exist in fact in the village surveys by different centres. The general consensus was that the mode and procedure of collection of data, the concepts and definitions had to be made comparable from Centre to Centre for cross-sectional comparison and that the analysts from each Centre might be put on the job of examining the data from that point of view.

### Village Planning

In the context of village planning it was stated that if the planned development of the country was accepted as desirable, then we may begin thinking in terms of planning at the village level. The village plan to be meaningful had to be something more than the

aggregate of the plans of the individual households in the village. The AER Centres with their intimate knowledge of the structure and functioning of the village economy were in a favourable position to initiate work in that direction, at least in developing the methodology of the village planning. But for this work, naturally, the cooperation with the agricultural scientists would be necessary.

It was agreed that pilot work on village planning would be very useful and should be taken up. It was explained that the work had to be of an experimental nature and that along with the survey data supplementary information had to be obtained for the purpose. A view was expressed that the AER Centres might be associated, along with other experts, in the development of village plan techniques.

Thus the Directorate of Economics and Statistics in the Ministry of Food and Agriculture made explicit the objectives underlying the planning of the project of continuous village surveys and resurveys. Apart from the study of the process, direction and extent of socio-economic change and the systematic collection of valuable primary village data, the Directorate appeared to expect workable plan-models of some of the villages coming under the resurvey.

It had, however, to be realised that though a large portion of the statistical data thrown up by the village surveys could serve as a basis for policy or plan formulation, the first-point surveys, which were mainly meant to lay down important bench-marks, did not have the use-orientation implied in the above expectations. In attempting to fit a purpose to these data certain difficulties, partly methodological and partly analytical, will have to be faced.

It was the experience of our investigators conducting village surveys, that certain important sectors extended beyond the limits of a revenue unit. The village constituted an integral part

of a region with common problems. It had an influence-area of its own or it came under the influence of some other village. Any consideration of development planning might, therefore, have to take into account these relationships and their magnitudes. The collected data might prove to be inadequate to suggest a plan-model.

## CHAPTER IV

### REORIENTATION OF VILLAGE SURVEYS AND RESURVEYS

The discussion on village surveys and resurveys received further impetus after the Ministry appointed a Review Committee in 1968 i.e. after 14 years since the inception of the AER Centres in different parts of the country.

#### Review Committee

The Ministry of Food, Agriculture, appointed, in pursuance of the recommendations of the Co-ordination Committee for the AER Centres, a Review Committee, under the Chairmanship of Prof. M.L. Dantwala. The principal term of reference was to review the work done by each AER Centre since its inception and the extent to which the purpose for which it was set up had been fulfilled and the research work done by it had been useful.

The Review Committee expressed that "to the best of their knowledge, the AER Centres had not undertaken much 'fundamental' research. The set-up and the staffing pattern of the Centres were such that it would have been unreasonable to expect them to produce fundamental research". Another objective of the Centres was to observe the changes in the rural economy, through continuous village surveys and periodical resurveys. By that time, the number of village surveys and resurveys had amounted to about 280 and 80 respectively. In this regard, the Review Committee was of the opinion that "no centre had brought out any report identifying the observed changes in the village economy over the years and analysing the factors which accounted for the change or its absence. Nor had a consolidated Report putting together findings of all the Centres in an analytical framework or the interpretation of the nature and process of change been brought out. All that could be

said of those village surveys and resurveys was that they provided some factual data on the village economy of those regions, which was not available in the early fifties. But hardly any interpretative analysis of these data appeared to have been made with any degree of success."

The Review Committee went on to point out that "in the light of the altered conditions in the demand and supply of agricultural research, the scope and nature of research activities of the AER Centres would have to be suitably adjusted. The old type of village surveys would no longer serve the purpose initially postulated. They had not adequately fulfilled the expectations envisaged originally. If their form and content were suitably altered, they might still serve a useful purpose". The Committee, therefore, suggested that the question might be reexamined at a meeting of the Directors and observed that " Their scope and purpose should be clearly defined and a consensus evolved regarding the methodology which would be appropriate for the purpose in view. Except in some regions, collection of factual data might no longer be necessary. Other agencies would be continuously observing the changes taking place as a result of dynamic factors like introduction of high yielding varieties and development programmes such as for small and marginal farmers. All the same, there was yet scope for studying the process of change and suggesting policies and measures for extending the benefits of technological change to the weaker sections of the rural population. In any event, as suggested above, the decision in that matter was to be taken by the Directors of the Centres. The same could be said about the resurveys. These should be conducted only where the bench-mark studies held some promise for interpretation and analysis of the change which might have taken place during the intervening period."

The appointment of the Review Committee caused repercussions in almost all the AER Centres. Some of the reactions of our staff

to the conduct of village surveys and resurveys and the working of the AER Centre Pune are mentioned below to bring out the nature of thinking on the problem in the Institute.

The first major and continuing work with which the AER Centres started was the village surveys to study economic change in rural areas. These were planned as comprehensive socio-economic surveys of purposively selected villages or clusters of villages with a view to carrying out a repeat survey after five to ten or more years.

The staff in the AER Centre, Pune who were put in charge of these surveys comprised, besides the field investigators, research assistants who not merely collected data and supervised field work, but also did a part of the tabulation and the entire analysis and writing of the report.

This was undoubtedly an interesting exercise, calling for considerable keenness of observation and analytical ability; and the fresh M.A.'s in Economics (or M.Sc.'s in Agriculture) who, as research assistants were put in charge, could not naturally come upto that level of requirements particularly in the beginning of their research career. The Research Assistants, when recruited, were given training by senior Research Assistants in the Centre. Most of them also benefited by taking some of the courses offered by the Institute in the programme of training in Social Science Research Methods. They were accompanied by the Senior Research Assistants to the selected villages in the initial visits and were introduced to the various types of field work to be carried out. The Senior Research Assistants paid a few visits during the course of the field-work with a view to seeing if there were any deficiencies in the data collected, to plan some special studies in the selected villages and to help the Research Assistants and the fieldmen in solving any difficulties they had in the conduct of the field work.

The Research Assistants prepared a draft of the report as per the detailed synopsis prepared for the village reports. They included some standard tables. Additional tables were prepared wherever necessary. The draft reports were usually read by the Senior Assistants or the Officer-in-charge and some broad suggestions were made for revision of the drafts. However, for want of adequate time it was not possible for the senior staff to critically go through all the drafts and get the village survey reports revised and finalised for publication.

There were certain other constraints also. The method of selection that the Institute adopted from the very beginning was that of a purposive sample consisting of a cluster of villages. The nuclear village had a population of about 2500 and a few surrounding villages with a total population of another 2500, dependent on the nuclear village in respect of a variety of services, facilities and institutions.

The load of field work anticipated during the surveys as well as the resurveys increased every year. The data collected during the year was quite voluminous as to keep the Research Assistant busy throughout the two years following the field work and there were some areas, the analysis of which was beyond the capacity of the newly recruited Research Assistants for intelligent interpretation.

The field-work usually lasted for about 12-14 months. The tabulation of the data continued for about 12 to 18 months. The Research Assistants drafted the report simultaneously with the tabulation of the data. Thus the field work and the writing of the report kept the Research Assistants engaged on one village report for anything like 3 to 4 years. During this period, they hardly had any opportunity to look into the current research publications in agricultural economics. As soon as a Research Assistant was free from the work of one village report or even



before he could finish the report on hand, he had to be entrusted with the field work of another survey. As a result the Research Assistant had to work on village surveys continuously for a period of 6 years or more. It was then time for the conduct of the resurvey. This meant another 2-3 years of work on the same subject.

The Research Assistants had no prior experience of field investigations, analysis and interpretation of data and the reports prepared by them could not be published. The continuous work, either in the field or in the office and in respect of the few villages surveyed by them and the disincentive on account of the report not being considered for publication discouraged the Research Assistants from volunteering for the work of the resurveys. Besides the expertise required for handling the enormous volume of data, understanding of the village economy, and the ability to explain the relationship between the nuclear and the surrounding villages was lacking. The Institute, therefore, had to think of an alternative. It was decided to carry out the resurveys only when any Research Assistant showed interest in conducting it.

#### Seminar on Village Surveys

It was decided in the joint meeting of the Coordination Committee and the representatives of the AER Centres held at New Delhi on 2nd July, 1969 that a Seminar be held to discuss in the light of the report of the Review Committee the reorientation of the Village Surveys and Resurveys and the various theoretical, conceptual and analytical problems connected with the surveys. The Seminar was held at our Institute from 13th to 15th September 1969.

A number of the participating AER Centres had prepared notes on the approach adopted by them, the work that had been done as well as the desirability of continuing the village surveys. Besides, a brief note regarding the village surveys and their future role and potentialities was submitted by the delegate of the Indian Society of Agricultural Economics.

The important issues, as formulated by the Chairman in his opening remarks were (i) whether the AER Centres should continue to have the same objectives of village survey, viz., to study the change in the rural economy and (ii) if so, what should be the appropriate method?

In his address, Prof. Dandekar raised some important points. He emphasized that the objective of the village surveys should be to study the change in the rural economy. However, there was a general feeling that this objective had not been fulfilled. In order to understand the reasons for it, it was necessary to clearly know in what ways the village survey was different from other surveys. Both for the village survey and the survey of a large area, information was collected on more or less the same points, but in the case of the former the concentration was on the village alone, while in the case of the latter a sample fairly distributed over a larger area which was a known and identifiable region was selected. The important advantages in the case of village surveys were (i) the quality of data was substantially superior, mainly because the data were collected by a person who stayed in the villages throughout the year and thus had the opportunity to verify and check the information (ii) since all aspects of the village economy were studied, there was a possibility of examining interrelationships between various items of information; (iii) it also became possible to study the village institutions, thoroughly and closely and (iv) it further became possible to trace the change over a period of years, and see why and how it occurred.

Prof. Dandekar was of the opinion that these distinctive advantages of village surveys should be retained at any cost. For that purpose the researcher should stay in the village for sufficiently long period so as to get fully acquainted with the people and village economy. Secondly, the village survey should remain an all-purpose survey, without which interlinking of information might

not become possible. Thirdly, the resurvey must not be just a repeat survey, but there should be an attempt to trace the development of all the families in the intervening period. The analysis and presentation of the data should be such as to establish clearly the identity and personality of the surveyed village. It was agreed that this was indisputably a difficult task and no complete prescription as to how to do it was possible. The main guideline in this respect was that the researcher, instead of giving a mere statistical picture, should try to present a total picture of the village life. A good description of the village was one of the requisites. Minimization of hypothesis and statistical analysis was another. The researcher, however, could ask himself questions such as, how change could be introduced in the village life or how a particular institution could be organised.

One of the major reasons why most of the village reports had failed to come up to the above expectation was the lack of experienced staff. Unfortunately in all the Centres the work was often entrusted to the junior staff who was not equipped to complete the task.

The other view of village surveys was presented by many participants. It was held that the village survey as conceived in the scheme of village surveys and resurveys is not just a cultural-anthropological survey. The main purpose as understood by the Centres was to study the specific aspects of economic life in the rural area. This was useful for understanding the changing character of rural economy, as also the evaluation of various development schemes. In other words, the interest was confined to rural studies and so much with village surveys. Instead of spreading the net too wide, it was useful to concentrate on specific problems, such as tenancy etc. This implied that the village survey did not need to be an allpurpose survey. The focus should be on the process of change, its direction, and magnitude.

In this connection it was pointed out that it was difficult to isolate individual economic problems as there were numerous variables. So an attempt should be made to collect information about all variables and analyse the problem with the help of the computer.

Other points raised in the debate related to the method of selecting the village, validity of the village as a unit of study, the definition of village, and the propriety of resurvey. The selection of the village had always been purposive. It was felt by some that it should be selected in such a way that we get an understanding of the regional problem also. A village unit of study was never meant to be identified with a revenue village. In order to understand the totality of life of the village it might be necessary to extend the concept of the village. For example, if the landlord was staying outside the village, he had to be included in the study. As regards the resurveys it was expressed that even one-point survey could be used for understanding the change, if information about past was collected. This saved a good deal of time and trouble.

One of the purposes of entrusting the village surveys to different AER Centres was to get an expert and independent opinion about the problems of different regions in India. However, it was wrong to expect that the village studies carried out by the Centres would have immediate policy implications. The Centres could contribute through the village surveys to a better understanding of the problems of rural economy in the country. Also that the Centres should develop the expertise at different Centres in the course of time.

The point was, were the AER Centres contributing to the understanding of different regions through village surveys? At that moment, the Centres understood just a single village, not the region. Instead, if the Centres attempted to understand the region, it would be better.

region through the village studies it will have practical use. The concept of a region in this connection, however, whether a block, a district or a larger area was not fixed. It was proposed that in such a study, the Centres could pool together expertise in all fields such as marketing, transport, political and social organisations, etc.

The resurvey was considered necessary as it had many more advantages. Experience showed that by resurveys the Centres could say many more significant things about the village. These advantages were lost if the Centres confined themselves to only one-point survey, even if some information about the past was collected therein. The decisive point was whether marginal returns from resurveys were more or not.

It was suggested that in the resurvey, there was no need to study all the households; instead a sample would do. A resurvey should be more purposive directed to the examination of a few important aspects.

In the ensuing discussion the following points were raised. The village surveys were taken up to get a clue to changes in economic life in rural areas. It was from this point of view that the suitability of village as a unit had to be examined. Certain economic changes manifested themselves more clearly and could be studied effectively at the village level. For instance, it was clear from the wider regional studies that the implementation of land reforms was not satisfactory. However, exactly where the things had gone wrong could be understood only through intensive village studies. There were also other types of changes which could be studied at the village level.

It was necessary for the Centres to guard themselves against the tendency towards generalisation as well as towards making forecast on the basis of the findings of village surveys.

The interest in the village study was not just the village for its own sake, but to study the different problems and how the developments at the national level were reflected at the village level. Further, the village could be used as a centre for experiments for different purposes, such as getting a theoretical understanding of price change, trade relations etc. The intervening time period between the survey and the resurvey had to be decided with reference to the situation in the larger area. The research workers of the AER Centres should go to the villages in future with a view not only to understand the basic economic issues but also to contribute to the economic theory, if possible.

Three specific issues were posed for discussion. (1) Could a region be studied by the method of village surveys? (2) Could indicators of change which would enable to keep track of the change over a period of years be constructed? and (3) Could social accounts of the villages be constructed and the same used meaningfully to understand the change in future?

As regards the first point it was clarified that the concept of the region was brought in because the purpose of studying a village was to understand it as a part of the rural economy. This obviously implied that the region would not be studied necessarily through the village survey method. It would be emphasised that the village study was not meant to enable build estimates for the region as such Village studies were important because many times the aggregations at the regional level concealed certain important things.

The idea behind the construction of indicators was to maintain the conformity of the survey, so that important changes taking place in the village could be understood quickly and easily. In certain respects, it even fulfilled the functions of the resurvey. However, apart from difficulties in constructing the indicators, their utility was also limited. For example, in the village study the interest was

in knowing the causes of change, or stagnancy. Indicators would not reveal these. It was also pointed out that there could be no standardised indicators. Experience of some Centres in this field was also cited. In view of the difficulties involved in the construction of indicators, it was suggested whether we could prepare a list of significant points which could be checked periodically in between the survey and the resurvey. It was generally agreed that though there were difficulties in constructing the indicators, certain specific happenings in the village could be watched continuously.

As regards the third topic, two questions were raised :

- (i) Was the notion of village social accounts meaningful, and
- (ii) did the comparison of social accounts at two points give any idea of change ?

The experience in this field was not very encouraging. However, it was generally felt that the subject should be studied further both for theoretical and practical purposes.

The next topic discussed was 'Utilization of Village Survey and Resurvey data for further research such as cross-sectional analysis, scope, limitations and problems'. During the discussion the usefulness of the village survey data in making cross-sectional analysis of rural problems and in building of the social accounting system for village communities was stressed. Village studies represented the totality of socio-economic activities of rural communities. With the data collected for such studies, it was feasible to build up social accounting systems for the villages which would help in understanding the changing nature of the micro problems under the broader set-up of the macro problems. Indicators of change at the macro level needed to be interpreted carefully taking into account the broader forces of change at the macro level.

A view was expressed that the village studies covering the total picture at the micro level were less useful to the policy maker than the sample survey studies aimed at a particular problem at the macro level. Nonetheless, the qualitative data made available through the village surveys would be useful for taking meaningful policy decisions.

During the course of the discussion certain view points were expressed by the participants in the debate regarding the scope, purpose and utilization of the village surveys which are summarised below :

1) There were a number of village studies undertaken by the agencies other than the AER Centres. A comparative study of all types of village studies made by different agencies would lead to cross-fertilization of ideas.

2) Village studies, to be useful, would have to be representative and quantitative.

3) Collection of qualitative information is necessary during village studies, but it is also necessary to look into the causal relationship underlying these facts.

4) If the data collected at the village surveys were unreliable, the defect was not of the village survey method but of the way the data were collected.

5) Village study was a basis for formulating hypothesis and was meant to examine the totality of activities and their relationships at the village level. Originally, the village studies were oriented towards the generation of some socio-economic data on a comparative static model. Formulation of hypothesis should have followed the findings of these data.

6) Lack of hypothesis in the case of village studies was overemphasized. Even problem-oriented studies did not always have any hypothesis. Hypothesis could be tagged on later though village



survey data could not bear too many hypotheses. Village survey data were extremely useful and could be used for testing newly formulating hypothesis.

About the reliability of the village survey data, one viewpoint was expressed that the question was not one of reliability but of the usefulness of the data. It was worthwhile distinguishing between the NSS, Farm Management and the Village Survey data. Of these three, the NSS data were more acceptable as statistically representative and significant. As regards the utility of the village survey data was concerned, it was expressed that the AER Centres had not been set up to generate data for external consumers. They themselves had to find some use for it. Their utility to outside agencies, if at all there was any, had to be a by-product or of a secondary consideration.

The chairman expressed that the relative place of various types of studies - village studies, purposive sample studies, etc., should be decided in the programme of the AER Centres. Village studies in depth must be undertaken along with aggregative type of studies as each strengthened the other.

'Special Problems of Village Surveys' was the next topic of discussion. The discussion was initiated mainly on the investigational problems. It was felt that both the investigator and the respondent got bored with the lengthy questionnaire. The questionnaire had, therefore, to be rationalised and cut short. To reduce the workload, complete enumeration in respect of some items and sample survey within the village in respect of others should be adopted. Long stay in the villages was not convenient to the investigators. It was also observed that the investigators were poorly paid and could not reciprocate in entertaining the village whose hospitality they enjoyed.

About the resurveys, a view was expressed that the gap between the survey and resurvey may be filled up by building up time-series

on certain items to understand the processes of change. A question was also asked as to what proportion of the surveyed villages were to be resurveyed and which villages were to be selected for resurveys and on what basis. There was a point of view that the forces of change and direction of change will have to be prima facie understood before undertaking the resurvey. If villages with similar forces of change showed different results, it should be understood that there were other forces which were not identified. As regards the 'in depth' studies, it was felt that they should necessarily be single-point studies.

While summing up, it may be stated that there is no standardised approach to the village surveys/resurveys. The ultimate objective is to develop our understanding of the village life. For this purpose it is necessary to combine properly the subjective insight and the statistical data.

## CHAPTER V

### METHODOLOGY ADOPTED FOR CERTAIN STUDIES

We have in the previous chapter indicated how the methodology adopted by the Institute for Village-Surveys and Resurveys differed in certain respects from the methodology adopted by the other AER Centres. During the twentyfive years between 1954-55 and 1978-79, we also carried out more than sixty studies in the Centre. Though we would have very much liked to give in brief the methodology adopted for all the studies taken up in AER Centre, due to shortage of space and time, we have decided to describe the methodology adopted for some of the major or typical studies in the following pages.

In most of the studies referred to herein, a wealth of data was found in the correspondence files, periodic reports, progress reports, minutes of meetings, discussions, etc., in the offices of the concerned agencies. A careful study of such information is as important and vital as the primary data collected by the survey method and qualitative data collected during the Studies. We have also included at the end two notes on Village Resurveys as the scope, objectives and methodology thereof differs from the other village resurveys carried out by us.

#### Regional Development Planning : S.H.Pore

Since 1960, the Institute has conducted a number of studies which refer broadly to the developmental aspect of the areas covered. These are listed below, chronologically :

1. 1960-61 : 'A survey of Navapur, Nandurbar, Akkalkuwa and Talode talukas of Dhulia district', Y.K. Sohoni (Typed).
2. 1961-62 : 'District Development Plan - Wardha', S.H.Pore and S.W.Muranjan - Work continued upto 1966 (Not published).
3. 1964-65 : 'Utilization of Local Resources - A case Study of Goa'. M.B.Padki, S.H.Pore and S.W.Muranjan, GIPE Mimeograph Series, No.1 1967).

4. 1965-66 : 'Problems of Tribal Development : A case Study - Harsul Block, Nasik District (Maharashtra)'. M.G.Kulkarni, GIPE Mimeograph Series, No.3, 1968.
5. 1967-68 : 'Problems of Development in a Backward Area - A Case Study of Gadchiroli, Sironcha and Rajura Talukas in Chanda District', S.H.Pore and M.G.Kulkarni, GIPE Mimeograph Series, No.11, 1971.
- 6.- 1969-70 : 'Regional Planning - A Case Study of Marathwada Region', Sulabha Brahme, Kumud Pore and S.H.Pore. Artha Vijnana Reprint Series, No.1, 1975.
7. 1971-72 : 'Chafal Valley - A Socio-Economic Survey of 14 villages from Patan taluka in Satara district, Maharashtra State'. D.P.Apte, (Typed) 1974.
8. 1974-75 : 'Prospects of Development in a Backward Region : A Socio-Economic Survey of 15 villages in Kolaba district, Maharashtra State', D.P.Apte. Cyclostyled, 1975.

Out of these, only two studies viz; 'District Development Plan - Wardha' and 'Regional Planning - A Case Study of Marathwada' were concerned with direct preparation of a regional/local development plan. The remaining studies dealt, primarily, with estimation and utilization of local resources and problems of development. Suggestions have been offered in the reports on the studies to solve the problems, but these were subject to feasibility studies by experts in respective fields. The Wardha and the Marathwada studies not only examined the utilization of local resources and the problems of development, but also recommended certain programmes and schemes for implementation, indicating how these could achieve the objectives of development. In the present, the methodology adopted for these two studies is described.

The methodology followed for the purpose of assessing the availability of resources in a particular area, for studying the

utilization of available resources and for locating the problems of development, included the following steps : (i) collection of official and semi-official recorded data in respect of resources (people, land, water, livestock, forests, marine, minerals, etc.); (ii) sample surveys to examine the utilization of available resources; (iii) interviews, discussions and case studies, if necessary, to supplement the official/non-official and survey data; and (iv) inferences regarding problems of development. However, these steps were varied and adapted to a particular study depending upon its immediate objective, area to be covered and time available for the study.

The objective of the Wardha survey was to prepare a development plan to supplement the Third Five Year Plan of the district, taking into account resources available within the district. There was a definite financial limit for the state's assistance. Since this was the first experiment of preparing a comprehensive district development plan, the Institute wanted to see how the peoples' association could be assured with the formulation and implementation of the plan. The following methodology was adopted to achieve this :

(i) A preliminary note was prepared on the basis of official and non-official recorded data, indicating talukawise availability of resources, their utilization and gaps in the Third Five Year Plan of the district. This note was discussed in a meeting attended by the government officials, elected representatives, office-bearers of cooperatives and Panchayats, progressive cultivators, industrialists and others.

(ii) On the basis of decisions taken in the meeting, blockwise notes were prepared. For this purpose each of the seven development blocks was divided into three homogenous areas and from each area a cluster of villages was selected for intensive study. Thus in 21 clusters 54 villages were taken up for study. From each village a purposive sample of families engaged in different occupations was selected.

(iii) These notes were again discussed at the block level to elicit the reactions and suggestions of the people.

(iv) Quick purposive surveys were conducted to understand the problems thrown up by investigations and discussions in the villages. These included waterlogged areas, soil conservation, crop protection, unused wells, grass lands, mandi areas, etc.;

(v) A consolidated picture of programmes and schemes was built up with the assistance of technical experts and discussed with the elected representatives of Panchayat Samitis and Zilla Parishad;

(vi) Financial implications were worked out, priorities were decided, and phasing of the programmes was worked out;

(vii) Inter-connection and interdependence between various programmes and schemes were worked out and actions for each department were discussed and decided.

Though implementation of some of the programmes/schemes was started in 1965, a number of methodological issues still remained unsolved. Briefly, these were : (i) What is the proper unit for local development planning? How much weightage should be given to factors like homogeneity, central places, administrative convenience, etc.? (ii) What are the sectors in which local authorities can plan efficiently? (iii) To what extent decentralization can be effective and how various levels of development planning, viz., national, regional and local, can be integrated? (iv) What type of planning cells can be established at the district level so as to ensure preparation of comprehensive district plans? (v) How can the planning authorities ensure collection of reliable information at lowest levels and feeding it to them in time ? (vi) In what way concurrent evaluation be made efficient and effective so as to avoid unnecessary delays and to forestall possible bottlenecks?, (vii) Since preparation of district development plan is an interdisciplinary exercise, in what way the participation of all the relevant disciplines be ensured and made effective?

The study of regional planning in the Marathwada Region was initiated in 1969 and completed in 1971. Major part of this region which consists of five districts, viz; Aurangabad, Parbhani, Nanded, Bhir and Osmanabad is situated in a single river valley, viz; Godavari valley. The region is endowed with a variety of resources and has a common socio-political-historical background. This made the region eminently suited for an exercise in regional planning. Marathwada is a less developed region in Maharashtra, which is relatively an industrially advanced state in India. The basic approach adopted to study this region was to consider development of resources for sustained increase in the levels of living of the community as a whole.

The methodology adopted for this study was as follows :

(i) Information about population was compiled from the Population Census. This was supplemented by data from the Employment Exchange Bureaus and National Sample Surveys. Projections available in the District Census Handbooks, 1961, were used as basis for projecting rural/urban distribution, work force, occupational distribution, etc. for 1981.

(ii) To study the resources of the region, the official information was used. This was supplemented by in depth studies of 349 households from 5 villages, one from each district, selected to represent the broad agro-climatic features and the occupational distribution in the rural areas of respective districts. Data collected in the village surveys of Murud (Iatur taluka, Osmanabad district) 1955-56 and 1962-63 and Bori (Jintur taluka, Parbhani district) 1954-55 and 1960-61, carried out in the Agro-Economic Research Centre, Pune, were extensively used.

(iii) Existing industrial activity, non-growth of industrial sector and potential of industrial development were studied on the

basis of information obtained from Population Census 1961 and 1971 and from Statistical Abstracts. Structure of industrial activity and inter-industry transactions were studied on the basis of input-output table prepared for the purpose.

(iv) Appropriate urban-economic infrastructure was worked out to sustain the suggested agricultural and industrial development. Data for this purpose were obtained from the government and semi-government agencies. Regulated and weekly markets were studied to work out a plan for the types, range and scale of different facilities which needed to be provided to promote and support the economic development envisaged for the region.

(v) Financial implications of the suggested development were worked out and expected benefits in terms of income and employment were indicated.

In brief, information regarding the availability of resources, their present utilization and possibilities of their better and fuller utilization formed the basis for formulation of the development plan. A projected picture of the regional economy was then built up and the impact of the plan on different sectors was assessed. Financial implications of the suggested development plan were worked out. Project employment in different sectors by 1981 was calculated by using employment/investment ratios obtained from the studies made by the Planning Commission, Government of India.\*

Study of the High Yielding Varieties Programme in Maharashtra :  
S.W. Muranjan

Eight studies on the High Yielding Varieties Programme in Maharashtra and Karnataka States were taken up by the Agro-Economic Centre, Pune, at the instance of the Ministry of Food and Agriculture Government of India in the years 1966-67 to 1968-69. The present

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\* Regional Planning : A Case Study of Marathwada Region, Brahme, Sulabha, et al., GIPE, Artha Vijnana Reprint Series, No.1, 1975, p. 170.



note describes the methodology used for the studies in Maharashtra. The first study carried out in 1966-67 dealt with a high yielding variety of paddy, viz., Paddy-Taichung Native-1 in Kolaba district. The subsequent studies in 1967-68 dealt with the high yielding varieties of Bajra viz; Bajra HE-1 in Nasik district and Jowar viz; Jowar CSH-1 as a rabi crop in Pune district. The objectives of these studies were the examination in depth of the planning and implementation of the programme at the district, block and village levels, the role of agricultural credit in the implementation of the programme, the profitability of these varieties and the response these varieties were likely to get in the future implementation of the programme.

The survey for each variety was restricted to a single district reporting the largest target for the variety among all districts. The best blocks were selected from each district on the basis of the reported achievement of the target in the blocks and the survey was restricted to the two best villages in each block. Fifteen participants and fifteen non-participants were selected from each village by stratifying the participants on the basis of the area devoted to the variety and the non-participants, on the basis of the area devoted to the crop. This led to the selection of 60 participants and 60 non-participants in each district.

While investigating the problem, emphasis was laid on trying to understand the process of target formulation, the resistance offered to this process by the lower officials who were to implement these targets, the procedures evolved for the implementation of the target and the supply of the corresponding inputs, and the actual procedures of implementation and supply. These aspects of the target formulation and implementation were investigated by studying the correspondence files, progress reports, other official records and through the discussions with the concerned officials. The second part of these investigations related to a study of the performance

of these varieties and the requirements and use of inputs which were examined by canvassing a questionnaire for the participants and the non-participants. The former part of the investigations was made use of to narrate and analyse in the study, how the process of target implementation and the supply of inputs became operative and the role of each official and each agency in this operation. The latter part of the investigation was made use of to analyse the actual use of the inputs, the credit made available for these inputs in relation to the standard requirement, the requirement of credit for a future crop of these varieties and the success of these varieties in terms of production and profit.

Assessment of Progress and Evaluation of Cooperative Farming Societies in Pilot Projects in Maharashtra State : S.W.Muranian

Investigations into Cooperative Farming Societies in Pilot Project Areas in the States of Maharashtra and Karnataka were taken up at the instance of the Commissioner (Cooperation), Ministry of Community Development and Cooperation, Government of India in 1963-64. These studies were carried out as a part of an all-India Survey for assessment of progress and evaluation of cooperative farming societies. In the present note we describe the methodology used for the study in Maharashtra State. As a part of the Third Five Year Plan, the Government of Maharashtra had decided to organise cooperative farming societies on a pilot basis in each district. As many as 540 cooperative farming societies were registered in the State during the first three years of the Third Five Year Plan. We selected two districts namely, Dhulia and Wardha for the study.

It was decided to study all of the cooperative farming societies which had completed at least one year of working, in both the districts. A few of these societies were studied by the case study method whereas a questionnaire was canvassed for eliciting the required information for the others. Accordingly, twenty-six

Joint Farming and five Collective Farming Societies were selected for the study in Dhulia district and eleven Joint Farming Societies were selected for the study in Wardha district. Out of these, seven societies from Dhulia district and four societies from Wardha district were studied by the case study method. The case study method involved a detailed study of the working of a society in each year since its inception, a study of the motivations behind joining and organizing the cooperative farms, the interrelationships among the members in respect of the functioning of the societies, and their experiences and attitude towards cooperative farming. The questionnaire which was canvassed for all the societies completing at least one year of working including the societies case studied, noted the changes in the membership, the cultivated area, and the cropping pattern over the years, the various activities taken up by the society and productivity of these activities, the employment provided through agriculture and other activities, the incomes derived from various activities and the progress made by the society over the years. The conflicts among the members and the problems of a society were also noted through the questionnaire. These data were made use of to analyse the progress made by the societies in each district in one part of the study. The case studies for the individual societies were presented in detail in another part. The study also included a historical review of cooperative farming in the State and in each selected district, the information for which was gathered from the Cooperative Department of the State Government and the leaders associated with the cooperative movement.

Studies in the Economics of Farm Management in Ahmednagar District (Maharashtra State), 1967-68 : M.P.Khare

The Institute took up this survey for the year 1967-68 at the instance of the Ministry of Food and Agriculture. The district was previously surveyed for the years 1954-57 by the College of Agriculture, Pune where the Farm Management Centre was located by

the Ministry at that time.

Ahmednagar is a typical low-rainfall district of Maharashtra State with rainfall ranging between 500 and 650 mm. annually. Jowar and bajra are the main crops covering about 70 per cent of the district gross cropped area. The district has also a network of canals in its northern part where sugarcane cultivation is localised. The district is also a region of contrasts between irrigated area and vast unirrigated, drought-prone areas.

From this district a sample of 150 farmers from 15 villages was to be selected representing the entire region and using the cost-accounting method, the data were to be collected.

Since the region represents a typical jowar-bajra complex with jowar (mainly rabi) covering 44 per cent and bajra (entirely kharif) covering 25 per cent of the district gross cropped area and since the jowar : bajra combinations differ in different regions within the district, it was thought proper to make four zones based on these jowar : bajra proportions. Using talukawise data, the following four zones were created :

- Zone 1 : Three talukas of Shrirampur, Parner and Pathardi.  
Jowar:bajra proportion being 1.11:1 or near equality.
- Zone 2 : Four talukas of Shevgaon, Pathardi, Nevasa and Kopergaon. ✓  
Jowar:bajra proportion 1.96:1 which is nearer the district proportion of 1.74:1
- Zone 3 : Four talukas of Ahmednagar, Jamkhed, Shrigonda and Karjat.  
Jowar:bajra proportion 7.60:1. Jowar highly dominant.
- Zone-4 : Two talukas of Sangamner and Akola. Jowar:bajra proportion 1:11.18. Bajra highly dominant.

The allocation of sample villages over these zones was according to the total area under jowar and bajra within a zone.

This was as follows :

	Jowar+bajra Proportion (%)	Sample Villages
	-----	-----
Zone 1	24.51	4
Zone 2	27.88	4
Zone 3	35.15	5
Zone 4	12.46	2
	-----	--
<u>District</u> ...	<u>100.00</u>	<u>15</u>

Sample villages within a zone were selected at random with probability proportional to the cultivated area.

In each selected village, all the cultivating households were listed noting their land holdings. These were pooled together, arranged in an ascending order of holding size and divided into five size groups of land holdings such that each size group contained equal area. The cut-off points determined the actual size group ranges. From each size group, two cultivators were selected at random, 10 from each village, giving a total of 150 from 15 villages.

For the final analysis, 136 farmers were retained as the remaining 14 farmers provided incomplete data. For estimation of a characteristic, size-group averages were obtained at the village-level and then weighted appropriately to arrive at size-groupwise zonal and district estimates.

With the creation of size-groups such that each contained equal area and two farms selected from each size-group from each village, it is obvious that for the entire sample, average area per farm would be somewhat larger than per farm average area based on the population of farms in the selected villages. For the sample, average area per farm came to 9.54 hectares compared to the average area of 5.29 hectares for the population of farms in the selected villages. The cropping pattern for the sample farms came quite close to the district cropping pattern.

Apart from detailed introduction in the form of economy of the district, economy of the selected villages and structure of farms, economy of the farm, economy of major crops, economy of minor crops and consumption are the major topics covered and analysed in depth. For the economy of the farm and individual crops, size group-wise details are available of labour inputs, material inputs, costs at different levels (costs A1, A2, B and C) and surpluses at different levels all at per farm and per hectare levels. In addition, production functions are also attempted using Cobb-Douglas production function along with the marginal rate of returns to various inputs. Bulkline costs are calculated for individual crops.

Agricultural Development in Maharashtra  
(1960-61 to 1971-72) : M.P.Khare

This project was taken up by the Agro-Economic Research Centre at the Institute in 1975 and forms part of the Statewise studies taken up by the various Agro-Economic Research Centres. While the other Centres covered a period of 1951-1971, the AERC, Pune covered a smaller period because consistent data are available only for the period after formulation of Maharashtra State in 1960. Unlike other centres, our centre decided to analyse districtwise data because it was felt that mere state level analysis would not help us to bring out the contrasts in development within the State and further, it was thought that a phenomenon at the State level could be meaningfully discussed with such a detailed analysis. It may be noted that other Centres are also taking up districtwise analysis after the initial State-level analysis.

The Report covers various aspects like scarcity areas in the State, land utilization, total cropping pattern, irrigated cropping pattern, growth of irrigation resources, use of chemical fertilizers, production, productivity and finance.

The basic data used are the official data published in the Season and Crop Reports. In addition, data published in Fertiliser Statistics are used for fertiliser consumption analysis while in the analysis of finance, data from Land Development Banks, Commercial Banks and those available in the Government Budgets are used. In addition, reports of various commissions, reports of organisations such as the National Sample Survey are utilised in the preparation of the report.

The analysis is carried out at two levels : Firstly, compound growth rates for various aspects are calculated. These help in a quick assessment of relative changes. Secondly, changes are also examined in absolute terms so that the behaviour at the State-level could be disaggregated at the regional or district level and 'impacts' of different regions within the State could be brought out. The second approach is necessary because the first is not sufficient. For example, high growth rate in a given area could be inconsequential in explaining the State level change because the given region has a rather low share of the State aggregate. The growth rates are nevertheless relevant as they depict the strength of change in a given area.

The analysis itself is presented at the State level and for five regions into which the State area is divided. The peculiarities of individual districts are brought out whenever necessary and in addition complete districtwise analytical tables are incorporated at the end of each chapter for ready reference.

A Study of Income, Saving and Investment in Agriculturally Progressive Areas of Ahmednagar District (Maharashtra State) 1969-70 to 1971-72 and Bangalore District (Karnataka State) 1970-71 & 1971-72 : M.P. Khare

The national saving comprises of contributions from three sectors : the household sector, the business sector and the Government sector. In India, the household sector is the major contributor to the national saving with a share of more than three-fourths of this

total national saving. Of the total household saving, urban households contribute as much as 70 to 80 per cent while the rural households contribute the remaining 20 to 30 per cent share. Although nearly 70 per cent of the population depends on agriculture, the rural households' share in household saving is low because share of agriculture is less than half the total national income.

However, in recent years, with the advent of new technology in the form of improved and hybrid varieties, use of chemical fertilizers and better irrigation facilities, etc., there has been a significant increase in the levels of income of the agricultural households in the progressive areas. The objective of this study is to assess this rise in income to estimate what proportion of this income is saved and to examine the embodiment of this saving in various forms of assets. The study provides us an inkling as to how the farming community would react to higher income levels, what their saving investment behaviour is likely to be, as the benefits of new technology are extended to more and more areas.

The survey conducted at the instance of Ministry of Food and Agriculture by the various AER Centres in the country extends over a period of three years from 1969-70 to 1971-72 in respect of Ahmednagar district in Maharashtra State and two years namely, 1970-71 and 1971-72 in respect of Bangalore district, Karnataka State. With this three-year coverage, more stable results can be expected as agriculture is subject to year-to-year fluctuations. In the present note we refer to the methodology in respect of the study in Ahmednagar district.

In Maharashtra State, two blocks were to be chosen in a district, the choice of the district being determined by its 'progressiveness' in agriculture. To judge the progressiveness of a district, criteria like use of improved and hybrid varieties, use of fertilizers, availability of irrigation facility and generation of income were taken into consideration. In Maharashtra



State, districts growing sugarcane are clearly 'progressive' as the economic profiles of these districts have radically changed with the growth of sugarcane cultivation. Between Kolhapur and Ahmednagar, the largest sugarcane growing districts, the latter was chosen because most of the sugarcane area is concentrated in two blocks of Shrirampur and Kopargaon whereas in Kolhapur the area is well distributed over more than two blocks.

From the two blocks, ten villages were selected at random according to their cultivated area and a sample of hundred farmers was chosen which fairly represented the holding size distribution of the population of farmers in those villages.

The survey was conducted by three to four visits each year during 1969-70 to 1971-72. Data about inputs, production, income, sale-purchase of assets, consumption etc., were collected.

For the purpose of analysis two criteria of assets, value and income, were adopted to classify farmers in various groups. For all the three years, the same size-group ranges were adopted but the farmers were classified according to their asset value and income as obtained in each year. Thus the distribution of farmers in these size groups in this report differed from the one obtained in the first two years.

For the purpose of saving estimation, the asset accounting method was adopted. Gross income was defined as value of output, net of current and out-of-pocket expenses (expenses equivalent to Cost A-2 in the Farm Management Studies). Net income represented gross income net of depreciation. Gross saving was estimated by subtracting change in liabilities from change in assets and net saving as gross saving net of depreciation. Depreciation was charged according to the straight-line-method, generally adopted in the Farm Management Studies. Outlay on housing and consumer durables was generally treated in this study as investment. In the analysis, categorywise

investment was presented so that it was possible to estimate saving by considering investment in consumer durables as consumption and not investment.

Larger Availability of Milk for Procurement of Public Sector/  
Cooperative Sector Dairy Plants in Maharashtra, 1974-75 :  
S.W.Muranjan

Compared to a few years prior to 1974-75, the public sector dairy plants in Maharashtra were able to procure much larger quantity of milk during 1974-75. The study was taken up in 1974-75 with the objective of identifying the factors responsible for the sudden increase in the procurement during the year.

The scope of the study was restricted to one of the three milk procurement regions in the State, viz. the Pune Region and to two of the nine Milk Schemes therein, viz; the Solapur Milk Scheme and the Miraj Milk Scheme which had recorded a larger percentage increase in 1974-75. It was possible to explain the increase in the procurement of the Solapur Milk Scheme by collecting the data for the quantities of milk procured by this Milk Scheme from each of the village co-operative societies, during 1972-73 to 1974-75. Detailed village level investigations had, however, to be undertaken to explain the increase in the procurement of the Miraj Milk Scheme. Four villages were selected from among the villages supplying the Miraj Milk Scheme and family level investigations were carried out in these villages by selecting 30 families from each village.

A Study of Scarcity Affected Areas in Maharashtra State : S Brahme

The study was taken up to evaluate the short term effects of drought 1972-73 on the rural population in Maharashtra and to examine the drought in the perspective of agricultural and particularly irrigation development in the State.

The data from Secondary sources, both published and those available with various State Government Departments, Zilla Parishads.

village records relating to cropping pattern, crop production, development of irrigation, the agricultural production in the drought year, employment on relief works, price levels, disbursement of loans, livestock position, etc., were utilized. Survey of drought affected families in a few selected villages was undertaken to assess the position regarding loss of crops, livestock, employment, etc. and the compensation provided through the scarcity relief works and relief measures initiated by the State Government. On the basis described above, the agricultural situation and the problems of irrigation development in the State are reviewed and the rationale behind the recurrence of drought in Maharashtra is indicated. The short term impact of the drought in terms of loss of crop, livestock and the relief provided through the government measures is evaluated.

The study revealed the lack of comprehensive agricultural development policy in Maharashtra State to be an important factor that explains why distress conditions due to failure of rainfall recur. It also indicated the need for comprehensive and time bound plan for development and rational utilization of the water resources of the State.

Planned Rehabilitation and Economic Change - A Case-Study of Tungabhadra River Project Rehabilitation Colonies at H.B.Halli (Karnataka State) : Resurvey Report : C.S.Gajarajan

The village Hageribomanhalli from Hadagali Taluka, Bellary district, Karnataka State was first surveyed in 1957-58. The object of the resurvey carried out in 1964-65 was to describe the process of planned rehabilitation and relate it to later development of economic activity in the new colonies. The problems of evaluation and rehabilitation experienced by the displaced persons from the reservoir lands of Tungabhadra River Project in Bellary District, Mysore State provide background to the present study.

Intensive case-study method was adopted for the purpose of focussing the attention on the dimension and the characteristics of various activities rather than the aggregates and accounting aspects.

The scope of the field study was extended to cover, in addition to displaced persons, the old inhabitants of the two villages in close vicinity of the new colonies and the migrants who arrived in post-rehabilitation period. In view of the vast spread of residential localities comprising nearly 1500 households of all categories of residents, it was decided to study only a sizeable proportion of cases for household studies. However, a preliminary listing of all the households was made to collect basic information relating to identity of the house-hold, year of resettlement or migration, occupations, caste, size of the family, type of the dwelling place, etc. The preliminary listing and observations revealed that a great majority of households was in the non-agricultural sector and that central colony was the hub of all the activities. As the rapid changes concerned the non-agricultural activities, the selection of cases was purported to study the main fields of activities and the forces affecting changes at various levels.

About half of the rehabilitant and voluntary immigrants and a quarter of the old inhabitants were selected for the detailed household studies without loosing the representative character of the cluster. In all, 640 out of 1456 households were studied. Among the selected households, nearly 75 per cent were from the non-agricultural occupations. The duration of field study lasted about 18 months, a considerable portion of which was spent in collecting secondary information from various official sources.

Factors Influencing Cropping-Pattern on Individual Holdings (Jalgaon District : Maharashtra State) : G.R.Mulla

Crop-pattern can be studied both at the individual and the aggregative level. In fact, it should be studied at both the levels by a two-pronged approach. In India, however, the subject has been

studied more at the macro-level, neglecting the micro side of it. Many of the studies of crop-pattern, therefore, are lopsided and have yielded conflicting results - some putting forth that the Indian farmer is highly responsive to price, while the others revealing just the opposite. The role of price as a factor, can be better examined at the micro-level by studying how it affects the individual cultivator's cropping decisions. It is in this field of the economies of crop-pattern determination of the individual cultivator, that this study is set in. It attempts to analyse the crop-pattern of individual cultivator - how he works under the constraints - physical, social, personal and other types.

In this study a case-study approach has been followed in order to study in detail the individual cultivator - the man behind the crop decisions, who is altogether missed in the macro-studies. Here the cultivator as a whole is studied with a view to find out as to how he takes a composite view of all the factors and decides upon his cropping. No factor taken independent of others can explain fully the cropping of any individual cultivator. In order to understand fully their crop decisions, a study in detail of the conditions and circumstances of each cultivator and how he adapts himself to these is necessary. One has to see how rigid are the restraints and limitations under which he works and to what extent he can be flexible within the given frame. All these details have to be collected at individual level through case studies.

Cultivators from four villages - Khirode - Pr.Yawal; Vivara-Budruk, Waghode-Budruk and Rozode - in Taluka Raver of the district Jalgaon, Maharashtra State, were selected. The selection of the villages is purposive, having some bearing on the crop-acreages in them. Of the selected four villages two, Khirode and Vavare, were dry and the remaining two, Waghode and Rozode, were irrigated. A random sample of 30 cultivating families from each of these villages was taken for the study. From Waghode, however, two more cultivators were studied because of their big holdings. Thus, in all 122 cultivating families were selected for the study.

Exploitation of Forests through Forest Labour Cooperatives in Maharashtra : S.W.Muranjan

Out of 1560 Forest Labourers' Cooperative Societies in India in 1970, as many as 457 were organized in Maharashtra alone. We, therefore, decided to conduct a detailed study of the Forest Labourers' Cooperative Societies in Maharashtra. Two districts viz., Thana and Dhulia, wherein these societies were found in a sizeable number, were selected for the study. Three societies from each of the two districts, were selected for detailed study by the case study method. General information for the Forest Labourers' Cooperative Societies in the State as given in the annual reports of the Cooperative Department was collected for the period 1959-60 to 1968-69 to examine various aspects of the working of the societies in the State over time. The case study method adopted for the selected societies in the two districts involved a detailed examination of the working of the societies since 1961-62 upto 1967-68. Greater emphasis was laid on a study of the actual costs of exploitation and the costs sanctioned by the Forest Department over the various items of exploitation. The member and the non-member employment in forest exploitation was studied by drawing a sample of 30-member and 30-non-member families working in each of the selected societies. The study also involved a historical review of the organization of the forest labourers' cooperative societies in the then Bombay State and Maharashtra since the organization of the first society in 1946.

Economic Benefits of Rural Electrification in Maharashtra : S.W.Muranjan and Ashok K.Mitra

The study was taken up by the Institute in February 1976 at the instance of the Rural Electrification Corporation, Delhi, (REC) which had financed some of the rural electrification projects in Maharashtra. We decided to carry out the study in two parts : (I) to develop a methodology for maintaining linewise account and

(II) Cost-Benefit Study of four rural electrification projects in four districts, viz; REC-I Scheme in Pune District, REC-II Schemes in Aurangabad and Buldhana districts and REC-SU Scheme in Nasik district. We describe below the methodology in respect of the two parts.

I-Procedure for Development and Preparation of Linewise Account :

In connection with the evaluation of the REC project in Maharashtra a small note was prepared on the methodology of developing linewise account for the consideration of the Maharashtra State Electricity Board (M.S.E.B.). At present the M.S.E.B. maintains separate accounts for its total operation in the rural area and prepares the income-expenditure or profit-loss accounts for the State as a whole. It is often mentioned that the rural electrification programme of the State as a whole is not financially profitable. In view of this the M.S.E.B. should be interested in knowing in which areas of its vast operation of rural electrification it is losing money. Unfortunately as the internal financial reporting of the Board's activity goes, there is no routine or normal way by which the Board can find out the financially gainful or losing areas of its operation. As a commercial enterprise with vast area of coverage and ever increasing extension of its activities to different parts of the State, it is necessary for the Board to develop internal financial accounting system by which it can monitor the financial profitability of each extension of its activity in order to decide on the policy of extension and so also to design remedial measures.

Therefore, in addition to its total operation for the State as a whole the Board needs to prepare income-expenditure statement for smaller units or areas in order to make internal assessment of its operation in those areas. The smaller economic unit under consideration could conveniently be a feeder line serving a compact rural region.

The pre-requisite for computing income-expenditure accounts is to maintain the asset registers, construction ledger, revenue expenditure ledger, revenue receipt ledger separately for each feeder line, once they are identified. At present these registers are maintained villagewise for different sub-divisions based on some geographical and administrative consideration. These need to be rewritten for each of the feeder lines separately. Once this basic records are available linewise, the computations of profit-loss account can be attempted.

For preparing the profit and loss account we need to compute the total operating expenses and total operating revenue for a feeder line. The total operating expenses comprise of (i) depreciation of the capital, i.e. annual capital cost, (ii) operation and maintenance expenses and, (iii) cost of production of energy. Since we are trying to build up statement of accounts in such a manner that it would be possible for the Board to make internal assessment of feeder lines, we need to have the aforementioned components of the operating expenses for each of the feeder lines in a division.

Presently the depreciation for each item is computed on linear basis, a fixed proportion of the capital is treated as scrap which is valued at 10 per cent of the book value, the balance, i.e. 90 per cent of the book value is equally spread over the life of each asset. Further, the interest on capital investment is charged every year on original capital. We suggest that for proper accounting of the depreciation charges, the depreciation should be either by sinking fund method or by annuity (capital recovery) method. It is observed, on comparing, that the method followed in the R.E.C. project proposal over-charges the project towards capital and interest.

The operation and maintenance expenditure comprises, (i) expenditure on material use and (ii) part of the general establishment charges. The present method is to relate it to gross value of total investment in the rural electrification and use this fixed percentage for computation of O and M expenditure for any project.



This percentage is bound to differ from region to region and therefore using a global average for all the regions, as is being done for a R.E.C. financed project, does not seem to be reasonable. It is quite likely that with the increase in the number of users of power the capital cost may not increase proportionately but the O and M cost may increase at a greater rate than the capital cost. In view of this we have expressed O and M expenditure as a percentage of the total amount of power consumed. Besides, using gross value of assets brings about the question of prices, namely whether the value of the assets on a feeder line is calculated at current prices or at their past historical prices.

At present for a project, such as the REC financed one, the cost of energy is computed by considering a uniform line loss. The loss of power due to transmission, transformation and distribution is not uniform in every line. Using an average percentage of power loss in transmission and distribution uniformly based on the entire M.S.E.B.'s operation amounts to subsidising the less efficient lines and taxing the more efficient ones. We suggest that the Board should compute the cost of power supplied up to the point where a distributory (feeder line) to a particular area starts and also have records of power sent out at that point and also at each tap off point on that feeder line and so also at the point of transformer (stepping down for distribution).

The gross revenue comprises the revenue from the sale of electricity and revenue from other sources i.e. service connection charges, fuse call charges, etc. There is no further computation involved in this except that the electricity duty which is collected from the consumer is to be subtracted from the revenue because it is straightaway paid to the Government. Further in case the depreciation is charged by the sinking fund method, the interest earned on sinking fund every year is to be added to gross revenue.

The net revenue is then computed by subtracting the total operating expenses from the gross revenue and then the surplus or deficit after meeting the interest, is computed by subtracting the interest payment every year from the net revenue. This gives a total picture of income-expenditure account of a feeder line.

## II-Cost Benefit study of Four Rural Electrification Projects :

The objectives of the study were to analyse the investment and to assess costs and benefits, both direct and indirect, of rural electrification in Maharashtra with special reference to the four schemes referred to in the opening paragraph of the note. The study also aimed at identifying the factors influencing the development of load in the rural areas and identifying the parts of the projects which are beneficial or otherwise.

Questionnaires were canvassed for all categories of beneficiaries of these projects viz., the users of electricity for agricultural pumps, village industries, and domestic, commercial and street lighting. The data relating to costs of electrification and the returns from each category of the beneficiaries were collected from the offices of the M.S.E.B. The electrification projects had completed only three or four years by the time the Study was taken up. Hence on the basis of data relating to the period since its establishment till the year of our study, projections were made for the number of beneficiaries and their consumption under each category over the life of each project, which varied from 25 to 30 years.

These projections were based on the past behaviour of the present beneficiaries and the resources available to the non-beneficiaries in the electrified villages. Data were, for example, collected from the Groundwater Survey and Development Agency to note the number of new wells feasible in the area. It was assumed that the tempo of construction of new wells and their electrification would continue on the same lines as in the past but it would be constrained by the availability

of ground water. This approach assumed that no special developmental activities would be taken up in the area to accelerate the digging of new wells and the number of wells would continue to rise just as in the past, until constrained by the ground water availability. The approach, thus, enabled us to work out only the minimum benefits of electricity. In some cases, however, as in the case of flour mills for example, there was no point in estimating the number of flour mills on the basis of the performance in the past as it was constrained by the growth of population. In such cases, it was assumed that it is not the number of consuming units but the rate of consumption per unit that would change over time, and hence projections for the consumption were made on the basis of the rate of growth in population. The performance in the past, the availability of resources and the operative constraints, thus, formed the bases of these projections. The costs and the returns for the future were estimated on the basis of consumption projections for each category worked out in the above manner.

The costs of electrification involved the costs incurred and the costs which may have to be incurred in future over the substations, high tension and low tension lines, distribution transformers, service connections and street lighting; and the operating and maintenance costs, the cost of energy purchased by the Board from the generating stations, repayment of loans and the interest thereon. The returns to the Board included the returns from service connection charges, meter rent, energy charges, loan funds and the salvage value of the equipment at the end of the project period.

As noted above, the cost and the return data for the past was obtained from the offices of the M.S.E.B. The physical inputs over the electrification in future, such as the transformers and the high tension and the low tension lines were estimated on the basis of the past ratio for the number of beneficiaries and the physical inputs and these were modified over time by the normal ratios required for

electrification. In doing so, it was assumed that as the number of beneficiaries increases, these ratios would also change and finally reach the norms. The returns for the future were also inflated on the basis of certain factors such as the need to deepen the wells or the possibility of extending irrigation over a well by any other means as noted in the questionnaires. The cost and benefits were evaluated from the above projections by using the prices in 1975-76 at the constant prices, to enable their comparison.

The cost and the return flow or the cash flow technique was used to determine the net present worth and the internal rate of return of a project to judge its profitability to the Board. The costs and the returns during each year of a project over its life were brought to the present by discounting them at a discount rate of 6 per cent which was the borrowing rate for the M.S.E.B.

A benefit-cost analysis of these projects was attempted by assuming the cost of an alternative used previously by the beneficiaries as the benefit of electrification, since the introduction of electricity led to the savings in these costs. The costs to the society included the costs incurred by the Board as noted above and the costs incurred by the individual beneficiaries over the purchase of electric motors and their fitting, bulbs and accessories, etc. The costs over kerosene and diesel which might have been incurred by the individual beneficiaries to produce the same output as from electricity, formed the benefits of electricity. The previous mode of energy such as bullock power or diesel used by an individual beneficiary, was given due consideration in the evaluation of benefits. The norms for the costs of electrification and the consumption of bullock power, diesel or kerosene were derived from the data obtained for the beneficiaries through the questionnaires.

The benefits and costs for each year over the life of a project were estimated by using the projections for the number of beneficiaries discussed above and these were discounted to the present by using a social discount rate of 15 per cent.

Resurvey of Gulumb : M.B.Padki

The village Gulumb from Wai Taluka of Satara district, Maharashtra State is unique in the sense that it was intensively studied through a variety of economic investigations carried out by the Institute. The circumstances that led to Gulumb being specifically selected for such intensive study were as follows :

The first survey of farm business in Wai Taluka in which Gulumb village was included was taken up primarily as a methodological project. Its objective was to find out whether the survey method of farm business studies was applicable to Indian conditions and if so, what adaptations would be necessary in view of the peculiar circumstances in India.

A comprehensive socio-economic survey of Gulumb was subsequently planned and carried out during the period 1942-1945, along with four other villages. This survey was financed by the Indian Council of Agricultural Research for a period of five years. In the year 1942-43 all the families in the village were interviewed with the help of a structured questionnaire that included information about the demographic characteristics and occupations of the family members, livestock and other assets, housing, indebtedness, crop pattern, production and income from different sources etc. The details regarding land holdings, land transfers, and land transactions available in the village records were noted down. In fact, the field investigator, who happens to be one of the co-authors of the Resurvey Report even maintained a duplicate set of village records (Village Forms Nos. VII and XII and the Mutations Register V.F.No.VI) for the purpose of a holding to holding check-up. This record was of great help in noting changes on the family level when the village was resurveyed in 1958 and in 1976.

In 1944-45, a plotwise survey was conducted covering information on soil erosion, bunding, well construction, crops grown, trees in fields, etc. Farm business accounts which recorded daily the material and labour inputs and the expenditure thereon were maintained for 17 selected farmers.

The families of Gulumb and two other villages covered in the farm business survey of 1937-38 were revisited in 1959-60 to study the changes in agricultural business. This formed a part of the project of the project of resurveys of the AERC, Pune. The principal senior researcher and guide of the project, made a practice of visiting and staying in the village for almost 10 days a month for almost a year in order to meet the respondents, discuss the observed changes in their families as well as to direct case studies of occupations other than agriculture. The investigation as regards changes in agricultural business was formalised through a schedule which sought information regarding land ownership and leasing operations, land transfers, irrigation, crop pattern, material and labour inputs, farm expenditure, cultivation practices, supply of fodder and manure, production and disposal of produce, livestock and livestock products, agricultural implements and machinery, indebtedness, etc. The survey covered 28 farmers from Gulumb included in the 1937-38 survey and 11 farmers from among those covered by the farm business surveys carried out during 1942-45. Along with the 19 families originally covered the split-up units were also included in the study. The survey conducted in 1959-60 thus covered in all 55 farmers from Gulumb.

A similar survey of the village was carried out in 1966-67 when the same farmers were revisited. A report of this survey was prepared by the chief field investigator and published in Marathi language. In the survey in the midsixties, the work of examination of the statistics and other information was taken up and a detailed account of the family level changes in land ownership, effects of the various land legislations, family organisation etc., was prepared.

The village was again visited in 1974 when information about family composition, education, occupation, income, etc., was collected from two communities, viz., the Mahars (untouchables) and the Dhangars (shepherds).

In 1976, a visiting student at the Institute decided to take up Gulumb village for the study of the problems of rural development and change since extensive material was available for the village. She carried out a survey during 1976 with the help of a short family schedule covering broad demographic information, education, land ownership, occupation, migrant members and remittances. All the families in the village were covered in the survey. Subsequently, the comparable data from the 1942-43, 1958-59 and 1976 surveys were computer-processed. Additional information regarding land use, crop pattern, crop yields, changes in agricultural practices, etc., was collected at the village level. Consumer expenditure data were collected from 17 selected families. Information relating to different non-agricultural occupations was also collected.

As may be surmised from above, the village was visited, for the purpose of one type of inquiry or other, 5 times in a span of about 35 years.

The Differential Impact of Agricultural Development :  
A Micro-Study in Maharashtra State : S. Brahma

The study was taken up to examine in depth the problems of rural development to assess the differential impact of development on various sections of the rural community and to identify the factors that were promoting or constraining the economic development process. With this view, two districts in the State, one experiencing growth (Nasik) and the other experiencing near-stagnancy (Buldhana) were selected for the study. In the scheme of village surveys, comprehensive socio-economic surveys of a cluster of villages from the two districts were conducted in 1955-56. The clusters were resurveyed in 1960-61 and 1961-62 respectively. It was decided to take up the nuclear villages viz. Kasbe Sukene from Nasik and Dhad from Buldhana district for a comprehensive resurvey; this facilitated the evaluation of rural development and changes during the Plan Period. The resurveys of Kasbe Sukene and Dhad were carried out during the year 1976. The reference period used for collecting information from the village households regarding employment, agricultural production, income, etc. extended from the beginning of the Kharif season i.e. June 1975 to end of the summer season i.e. May 1976.

The report studying the differential impact of agricultural development naturally lays a heavy accent on the agriculture and the changes noted in it. It discusses in detail related aspects like land ownership in different community groups at the three points of time, tenancy reforms, cultivated holdings, crop-pattern by size of holdings, work pattern of cultivators, work schedule of agricultural labourers, employment of hired labour by size of holding, marketing of agricultural produce, farm receipts and expenditures, investment, etc..



APPENDIX-I :LIST OF STUDIES CARRIED OUT IN THE A.E.R.CENTRE,PUNE

Year of study	Title and Remarks ( GIFE= Gokhale Institute of Politics and Economics )	Year of completion
1	2	3
1954-55	1.A Study of Measures of Food Control, Procurement and Distribution of Food grains and their Effects on the Agrarian Economy relating to the Erstwhile Bombay State. (Published as "Food Control in Bombay Province 1939-49"; GIFE Publication No.36 by V.S.Patvardhan, 1958, Rs 7.50)	1958-59
1955-56	2.An Enquiry into the Working and Clientele of Government Fair Price Shops. (Results published as "Families Purchasing Grains from Govt. Fair Price Shops", Shalini Dhavale, Artha Vijnana, Vol.2, No.2, June 1960)	1957-58
1956-57	3.A Study of Economic Change in the Area of Pravara Cooperative Sugar Factory. (Work suspended after completion of field work and tabulation of part of data).	
1957-58	4.Factors Influencing Cropping Pattern in selected villages in Nanded District. ("Factors Influencing Cropping Patterns on Individual Holdings", S.W.Muranjan, Artha Vijnana, Vol.1, No.3, September 1959)	1959-60
1958-59	5.Management and Pricing of State Canals in India with special reference to Bombay Deccan, 1850 to 1960. (Published as articles entitled i) "Pricing of Irrigation Service in India (1854-1959", B.D.Kanetkar, Artha Vijnana, Vol.2, No.2, June 1960; ii) "Some Problems of Management and Pricing on the Irrigation Works in Bombay", M.V.Gadgil, B.D.Kanetkar, Artha Vijnana, Vol.2, No.3, September 1960 and iii) "The Core of Price Policy for the Sale of Canal Waters", B.D.Kanetkar, Artha Vijnana, Vol.5, No.2, June 1963).	1961-62

1	2	3
1960-61	6. Marketing of Paddy/Rice in Igatpuri Taluka Nasik District. ("Marketing of Paddy - A study based on Fifteen Villages (Igatpuri Taluka, Nasik District)" V.S.Satyapriya (1974) GIPE Mimeograph Series No.18, Rs. 25.00)	1973-74
	7. A study in Farm & Area Planning for an Indian Village. (Summary published as "A Study in Farm and Area Planning - Village Karkata", D.P.Apte, Artha Vijnana, Vol.4, No.2, June 1962)	1960-61
1961-62	8. A study to Assess the Effects of the Intensive Drive for the Removal of Untouchability in Maharashtra State (10 Villages) in Districts of Buldhana and Nasik, (Study taken up at the instance of the State Government; Typed)	1962-63
	9. Wardha District Development Plan. (A number of notes were mimeographed from time to time.)	1966-67
	10. British Marketing Organization. (Published as "British Agricultural Marketing-A study in Government Policy" by V.S.Patvardhan, 1965, GIPE, Publication No.47, Rs. 14.00)	1963-64
1962-63	11. A Study of Behaviour of Agricultural Prices. (Published as "Study of Price Data for Jowar and Rice - Maharashtra and Mysore State", N. Rath & V.S.Satyapriya, Artha Vijnana, Vol.7, No.1, March 1965)	1964-65
	12. Factors influencing Cropping Pattern of Individual Holdings in four villages in Jalgaon District, Maharashtra State, G.R.Mulla, (Ph.D.(economics) Thesis, University of Poona; Typed)	1967-68
1962-63	13. A Study of Marketable Surplus based on Farm Management Studies in Akola & Amravati Districts during the years 1955-56 and 1956-57. (The study was taken up at the instance of "The Indian Council of Agricultural Research" (ICAR). Two reports entitled "Studies in the Behaviour of Consumption of Farm Families in Vidarbha" and "Studies in the Behaviour of Marketing of Farm Families in Vidarbha" were submitted to the ICAR; Typed).	1964-65

1	2	3
1963-64	14. Maintenance of Farm Account Books by Sons of Farmers and Literate Farmers in Wai Taluka, Satara District. ("Maintenance of Farm Account Books by Sons of Farmers & Literate Farmers - An Experiment", D.P.Apte, GIFE, Mimeograph Series No.14, 1972, Rs. 2.50.	1970-71
	15. Survival Rates of Male and Female Livestock and Sex Ratio in Adult Cattle for each district of Seven States in India based on Livestock Census Data. (Results published in an article, "Problems of Estimation of Mortalities in Cattle and Buffaloes, S.S.Srivastava, Indian Journal of Agricultural Economics, Vol. 25, No.2, April-June 1970).	1970-71
	16. Effects of Bombay Prevention of Fragmentation and Consolidation of Holdings Act, 1947 (Village Arphal in North Satara District). (Mimeographed)	1964-65
	17. Assessment of Progress and Evaluation of Cooperative Farming Societies in Maharashtra and Mysore States. (Typed)	1964-65
	18. Structure and Organisation of Regulated Markets: Barsi Regulated Market, Sholapur District, Maharashtra State. (Typed)	1964-65
1964-65	19. Study on Fair Price Shops. (Typed)	1964-65
	20. Development Plan for Goa. (Published as "Utilization of Local Resources - A Case study of Goa", M.B.Padki, S.H.Pore and S.W.Muranjan, 1968, GIFE, Mimeograph Series No.1, Rs.20.00	1966-67
	21. Agricultural Extension Service in Nasik District, Maharashtra State, S.G.Sapre, (Mimeographed)	
	22. Development of Cotton in Kumta-Dharwar tract in Mysore State, A.R.Rajapurhit, (Ph.D. (Economics) Thesis, University of Poona; Typed)	1967-68

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1	2	3
1964-65	23. Study on Cultivation of Potato, Banana, Grapes, Cotton and Groundnut (based on village studies) (Some Notes prepared)	1967-68
	24. Animal Husbandry in Rajasthan. (Work suspended)	
	25. Utilisation of Bullock Labour in Rajasthan. (Work suspended)	
	26. Relative Trends of Agricultural Wages and Prices of Cereals in various parts of India during the Pre-war and Post-war Years. (Work suspended after a study based on data collected in respect of two villages in the Agro-Economic Research Unit- Results published as an article "Relative Movement of Agricultural Wage Rates and Cereal Prices", Nilakantha Rath and R.V. Joshi, Artha Vijanana, Vol.8, No.2, June 1966.)	
1965-66	27. Land Utilisation and Cropping Pattern in Mysore State-A Post Independence Study, M.Prahladachar (Ph.D.; Economics, Thesis; University of Poona; Typed)	1970-71
	28. Economics of Sheep Rearing in Rajasthan. (Report not finalised. Notes cyclostyled and circulated in January 1972)	1965-66
	29. Study of Land Legislation in Maharashtra State. (Note on Western Maharashtra drafted. Work suspended due to other pressing work).	
•1966-67	30. Study on possibilities of carrying out Farm Management and Farm Planning in Wardha District. (Given up)	
	31. Growth of Agricultural Output in Maharashtra and Andhra Pradesh. (Results published as an article "Growth Rate of Agricultural Output in Maharashtra and Andhra Pradesh", Ashok Parikh, Artha Vijnana; Vol.8, No.1, March 1966)	
	32. Inter-action between Rate of Growth and some Social-Economic Indicators based on District Land Data for Maharashtra and Mysore States. (Typed)	
	33. Taluka Level-Levels of living study for Maharashtra State. (Typed)	

1	2	3
1966-67	34. Land Utilisation and Cropping in Andhra Pradesh. (Work carried out in the U.G.C. Centre of Advanced Study in Economics and published as an article "Land Legislation in Andhra Pradesh (1800-1950)" T.V.S.Rao, Artha Vijnana, Vol.8, No.3 & 4, September-December 1966)	1965-66
	35. Enquiry into the Economics of Tractor Cultivation in Shahada Taluka in Dhulia District. (Published as "A Study of Tractor Cultivation in Shahada", S.G.Sapre, GIPE, Mimeograph Series No.7, 1970, Rs. 6.00)	1967-68
	36. Study of High Yielding varieties Programme Kharif Paddy 1966-67, Kolaba, Maharashtra. (Published as "Study of High Yielding Varieties Programme in a District in Maharashtra (Paddy 1966-67)", S.W.Muranjan, GIPE Mimeograph Series No.4, 1968, Rs.5.00)	1966-67
	37. Impact of Development Projects during the three Five Year Plans in Chanda District. (Published as "Problems of development in Backward Area-A case study in Gadchiroli, Sironcha and Rajura Talukas in Chanda District", M.G.Kulkarni, S.H. Pore, GIPE Mimeograph Series No.11, 1971, Rs. 12.00)	1969-70
	38. Marketing of Arecanut in Mysore State, V.S. Satyapriya (Ph.D.Economics; Thesis, University of Poona; Typed)	1970-71
	39. Evaluation of Crop Loan System in Aurangabad District. (Published as "Crop Loan System-A Case Study", V.D.Deshpande, M.B.Padki, GIPE Mimeograph Series No.12, 1971, Rs. 5.00)	1967-68
1967-68	40. Study of High Yielding Varieties Programme : (i) Hybrid Bajra, Kharif 1967-68 Nasik District, Maharashtra State. (Published as "Study of the High Yielding Varieties Programme in Maharashtra (1967-68), Part I-Kharif Bajra in Nasik District", S.W.Muranjan, GIPE Mimeograph series No.15, 1972, Rs. 7.50)	1968-69

1	2	3
1967-68	ii. Hybrid Jowar (Rabi 1967-68), Poona District, Maharashtra State. (Published as "Study of the High Yielding Varieties Programme in Maharashtra (1967-68), Part -II Rabi Jowar in Poona District", S.W. Muranjan, GIPE Mimeograph Series No.15, 1972, Rs.7.50)	1968-69
	iii. Paddy (Rabi 1966-67), Mandya District, Mysore State. (Published as "Study of the High Yielding Varieties Programme in a District in Mysore (Paddy-Rabi 1966-67)", A.R.Rajapurohit, GIPE Mimeograph Series No.5, 1968, Rs. 2.50)	1968-69
	iv. Mexican Wheat, (Rabi 1967-68) and Hybrid Maize Bijapur District, Mysore State. (Published as "Study of the High Yielding Varieties Programme in Mysore (Rabi 1967-68) Mexican Wheat in Bijapur" A.R. Rajapurohit, GIPE Mimeograph Series No.17, 1973, Rs. 6.00)	1968-69
	41.A Study of Forest Land Distributed to Landless Labourers-Poona District, Maharashtra State. (The study was taken up at the instance of the Government of Maharashtra. Published as "Disposal of Government Waste Lands for Cultivation in Poona District, Maharashtra", G.R.Mulla, GIPE Mimeograph Series No.16, 1971-72, Rs.7.50 )	1969-70
	42.A Study of Farm Management in Ahmednagar District, 1967-68. (Studies in the Economics of Farm Management in Ahmednagar District, Maharashtra State 1967-68", M.P.Khare, published by the Directorate of Economics and Statistics, Ministry of Agriculture and Irrigation, New Delhi, December 1975, Rs. 11.40)	1970-71
	43.Loans advanced (Long Term Finance) by Land Development Banks and their Utilisation in Akola and Nasik Districts, Maharashtra State. (Mimeographed)	1969-70
	44.Evaluation of Crop Loan System in Akola District. (Typed)	1974

1	2	3
1967-68	45. Land Use Planning in a Valley in Panhala Taluka, Kolhapur District, Maharashtra State. (Work suspended)	
1968-69	46. Forests in Maharashtra (Study taken up in the U.G.C. Centre of Advanced Study in Economics & Centre for Research in Planning and Development of the Planning Commission) (Published as "Compendium of Forest Resources in Maharashtra Forest Enumerations" S.N.Gadam, GIPE Publication No.63, 1975, Rs.75.00)	1974-75
	47. Studying of H.Y.V. Programme : HYV Paddy (Kharif 1968-69) Ehandara District, Maharashtra State. (Typed)	1969-70
	48. Study of HYV Maize (Kharif 1968-69) in Bangalore District. (Typed)	1969-70
	49. Evaluation of Full Finance System in Nasik. (Work suspended)	
1969-70	50. Study regarding Marathwada Regional Development Plan - i) Agriculture, Animal Husbandry, Minerals and Fisheries, ii) Agro-based Industries and Marketing iii) Rural Institutions and Organisational Studies. (Published as "Regional Planning: A Case study of Marathwada Region", Sulbha Brahme, Kumud Pore and S.H.Pore, Artha Vijnana, Vol.XVII, Nos.2 and 3, March-June 1975, Rs.20.00; Artha Vijnana Reprint Series No.1)	1971-72
	51. Income, Saving and Investment in Agriculturally Prosperous Areas in Ahmednagar District, Maharashtra State, (1969-70 to 1971-72) (Published as "Income, Saving and Investment in Agriculturally Prosperous Areas in Ahmednagar District, Maharashtra State; A Combind Report for the years 1969-70 to 1971-72" M.P.Khare, Artha Vijnana, Reprint Series No.3, Rs. 15.00; Also published in Artha Vijnana, Vol.XVIII, No.4, December-1976)	1975-76
	52. Disposal of Additional Incomes and the Changes in the Standard of Living. (Given up)	

1	2	3
1970-71	53. A Study of Income, Saving and Investment in Prosperous Areas in Bangalore District, Mysore State (1970-71 and 1971-72) (Typed)	1973-74
1971-72	54. Crash Scheme for Rural Employment in a district in Maharashtra State (Typed) (Summary published as "Crash Scheme for Rural Employment-Evaluation of the Programme in a District in Maharashtra", D.P.Apte, Economic and Political Weekly, Vol.VIII, No.12, March 24, 1973.)	1972-73
	55. Exploitation of Forest through Forest Labour Cooperatives. (Published as Exploitation and Forests through Forest Labour Cooperatives in Maharashtra, S.W.Muranjan, June 1974, Vol.XVI No.2)	1972-73
	57. Economic Survey of Chaphal Valley, from Patan Taluka, Satara District, Maharashtra State, D.P.Apte (Typed).	1973-74
	58. Concurrent Evaluation of the Small Farmers Development Agency and also of the Programme for Small and Marginal Farmers in Mysore District, Karnataka State 1972-73. (Report published as "Evaluation of Small Farmers Development Agency, Mysore District, Karnataka State (1972-73 to 1973-74)", A.R.Rajapurohit, GIPE Mimeograph Series No.19, 1975, Rs.8.00)	1974-75
1972-73	59. A Study of Scarcity Affected Areas in Maharashtra State, S.Brahme. (Report submitted as "Irrigation Imperative for Agricultural Development in Maharashtra : Lesson from Drought 1972." Typed)	1976-77
1973-74	60. Employment Effects of the Crash Scheme for Rural Employment in Thana District, Maharashtra State, D.P.Apte (Typed)	1974-75
1975-75	61. Agricultural Development in Maharashtra (1960-64 to 1971-72), (Typed) M.P.Khare.	1977-78
	62. Economic Change in the Pravara Co-operative Sugar Factory Area, M.B.Padki, (Typed)	1975-76

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1	2	3
1974-75	63. Larger Availability of Milk for Procurement by Public Sector/Cooperative Sector Dairy Plants-Maharashtra-1974-75. (Report published as "Factors Responsible, for Increased Procurement of Milk in Maharashtra", S.W.Muranjan, Artha Vijnana, Vol.XIX, No.4, December 1977, Rs.10.00)	1975-76
	64. Prospects of Development in a Backward Region : A Socio-Economic Survey of Fifteen Villages from Kolaba District, Maharashtra State. (Summary published as "Tara Project: A Case study in Integrated Rural Development in Western India" in the Proceedings of the Conference on 'Rural Development Technology: An Integrated Approach', D.P.Apte, Asian Institute of Technology, Bangkok, July 1977)	1975-76
	65. Price-size Relationship of Teak and other important Wood Species in Maharashtra, S.W.Muranjan (Mimeographed).	1976-77
1975-76	66. Working of the Farmers' Service Coop. Society: A Case study of FSCS, Attibele, Bangalore, C.S.Gajarajan (Mimeographed).	1977-78
1976-77	67. Long Term Agricultural Finance Through Cooperatives in India with special reference to Maharashtra State, M.B.Padki (Ph.D. (Economics) Thesis, University of Poona; Typed).	1978-79
1977-78	68. Study of Surplus Land Distributed under the Ceiling of Holdings Act, Yeotmal District. (Please refer to No.75)	1981-82
	69. Study on Evaluation of Integrated Dryland Agricultural Development Programme : Bijapur District, Karnataka State, C.S.Gajarajan (Typed)	1979-80
	70. A Study regarding Consolidation of Land Holdings: Resurvey of Arphal Village, Satara District, Maharashtra State, G.R.Mulla (Typed)	1979-80
	71. Benchmark Survey of Villages in the Command Area of Bhima (Ujani Project), D.P.Apte. (Printed by the Irrigation Department, Government of Maharashtra, September 1979; Unpriced)	1979-80

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1	2	3
1977-78	72. Review of Research Work in the Agro-Economic Research Centre, Pune, 1954-55 to 1978-79, D.P.Apte and M.B.Padki, (Mimeographed)	1979-80
1978-79	73. Consolidation of Land Holdings : A Case Study of Maharashtra State. (Typed)	1978-79
	74. Economic Benefits of Rural Electrification: Nasik, Pune, Aurangabad, Buldhana. (Published as 'Economic Benefits of Rural Electrification in Maharashtra: A Study of Electrification of villages in Four Districts,' Ashok K.Mitra and S.W. Muranjan, Artha Vijnana Reprint Series No.5, Rs. 50.00)	1978-79
	75. Study of Surplus Land Distribution : Survey of Allottees under the Ceiling of Holdings Act - Aurangabad, Sholapur, and Thana Districts, Maharashtra State. (Typed Report entitled "Survey of Surplus land allotted under the Maharashtra Agricultural Lands (Ceiling on Holding) Act: A Consolidated report for Aurangabad, Sholapur, Thana and Yeotmal Districts", G.R.Mulla and S.W. Muranjan and M.V.Joglekar.)	1981-82
1979-80	76. Marketing of Mangoes, S.W.Muranjan (Typed)	1981-82
	77. Evaluation of the Food for work Programme in Karnataka State, C.S.Gajarajan (Typed)	1981-82
	78. Problems of Water Distribution, Management and Use of Three Irrigation Projects in Maharashtra, A.K.Mitra (Typed)	1982-83
	79. Agricultural Growth & Potential in Maharashtra, M.P.Khare (Typed)	1982-83
1980-81	80. Evaluation Study of Warnanagar : Integrated Dairy Development Project. (Published as "Evaluation of an Integrated Dairy Development Scheme (Warnanagar)" I.P.Apte, GIPE Mimeograph Series No.21, 1982, Rs. 50.00)	1982-83
	81. Irrigation Statistics and British India 1890 to 1946-47 M.B.Padki (Typed)	1982-83

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1980-81	82. Impact of SFDA Project in Satara District (Maharashtra), Second Point Study, M.V.Joglekar (Typed)	1982-83
1981-82	83. Evaluation study of Land Development in Girna Irrigation Project. (In Progress)	
	84. Economic Problems of Fisheries in the Coastal Region of Maharashtra. (In progress)	
	85. Impact of some Policies of the Forest Development Corporation on the Working of the Forest Labourers Cooperatives. (Published as an article entitled "Impact of some policies of the Forest Development Corporation on the Working of the Forest Labourers Cooperatives", S.W.Muranjan, Artha Vijnana, Vol.21, No.4, December 1980)	
1982-83	86. Marketing of Onion in Maharashtra (In progress)	
	87. Socio-Economic Evaluation of Mula Irrigation Project. (In progress).	

APPENDIX-IIOccasional Papers Prepared by the Staff of the AER Centre.

Sr. No.	Title of the Paper and Journal in which published or Conference for which submitted	Author
1	2	3
1.	BAIUTA SYSTEM IN MAHARASHTRA, 3rd All India Sociological Conference, Feb.1958.	D.P.APTE
2.	FACTORS INFLUENCING CROPPING PATTERN IN INDIVIDUAL HOLDINGS, Artha Vijnana, Vol.1, No.3, Sept.1959.	S.W.MURANJAN
3.	REQUISITE QUALITIES OF A RURAL FIELD INVESTIGATOR (IN MARATHI), Artha Vijnana, Vol.1, No.4, Dec. 1959.	M.B.JAGTAP
4.	NOTE ON THE COST OF PRODUCTION OF MILK IN POONA, Artha Vijnana, Vol.1, No.4, Dec.1959.	S.G.SAPRE
5.	LAND TAX AND LAND USE, Indian Journal of Agril. Economics, Vol.XV, No.1, Jan.-March 1960.	S.C.JOSÉPH
6.	ROLE OF QUESTIONNAIRE AND CASE STUDIES IN THE STUDY OF SOCIO-ECONOMIC CHANGE IN RURAL AREAS (MIMEOGRAPHED), 5th All India Sociological Conference, Lucknow, Mar.1960	D.P.APTE
7.	SIZE & COMPOSITION OF RURAL FAMILIES, Artha Vijnana, Vol.2, No.3, Sept. 1960.	V.M.DANDEKAR & V.P.PETHE
8.	REPORT ON CROP LOAN EVALUATION COMMITTEE PART-II CASE STUDIES-A REVIEW, Artha Vijnana, Vol.2, No.3, Sept. 1960.	V.S. PATVARDHAN
9.	SOME PROBLEMS OF MANAGEMENT AND PRICING ON THE IRRIGATION WORKS IN BOMBAY, Artha Vijnana, Vol.2, No.3, Sept.1960.	M.V.GADGIL & B.D.KANETKAR
10.	PLANNING OF AGRICULTURAL DEVELOPMENT IN INDIA, Technical Address at the Conference of Agril. Statistics, Pune 1960.	D.R.GADGIL
11.	THE CASE STUDY IN INVESTIGATION OF ECONOMIC CHANGE, Artha Vijnana, Vol.3, No.1, March 1961.	M.B.PADKI
12.	THE PROBLEM OF AGRICULTURAL LABOUR, Artha Vijnana, Vol.3, No.2, June 1961.	D.R.GADGIL
13.	ESTIMATION OF GRAIN-LOANS IN A VILLAGE (IN KANNADA), Artha Vijnana, Vol.3, No.2, June 1961.	R.V.JOSHI

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14. ANNUAL FAIR IN A VILLAGE (IN MARATHI), Artha Vijnana, Vol.3, No.4, Dec. 1961.		V.B.MONDAKAR
15. ECONOMIC THEORY AND AGRARIAN REFORMS, Oxford Economic Papers, Vol.XIV, No.1, Feb. 1962.		V.M.DANDEKAR
16. 'GHONGDI' (WOOLLEN HANDWOVEN BLANKET) INDUSTRY, IN A VILLAGE, DURING 1943-1958 (IN MARATHI), Artha Vijnana, Vol.4, No.1, March 1962.		M.B.JAGTAP
17. EMPLOYMENT AND UNEMPLOYMENT OF ADULT RURAL POPULATION, Artha Vijnana, Vol.4, No.1, March 1962.		V.M.DANDEKAR
18. SOME IMPLICATIONS OF THE PROPOSED LAND REFORM IN ORISSA (IN ORIYA), Artha Vijnana, Vol.4, No.2, June 1962.		N.RATH
19. A STUDY IN FARM AND AREA PLANNING-VILLAGE KARKATA, Artha Vijnana, Vol.4, No.2, June 1962.		D.P.APTE
20. USE OF AVAILABLE DATA FOR PREPARING FARM PLANS A NOTE, Farm Production Planning and Programm- ing, Indian Society of Agricultural Economics, Seminar Volume, July 1962.		D.P.APTE
21. SOME PROBLEMS OF FARM PLANNING IN CHANGING FROM MONOCULTURE TO DIVERSIFIED IRRIGATED FARMING, Farm Production & Programming, Indian Society of Agricultural Economics, Seminar Volume, July 1962.		N.RATH
22. A STUDY OF CHANGES IN THE BALUTA PAYMENTS OVER THE LAST TWO DECADES IN AN IRRIGATED VILLAGE IN THE NASIK DISTRICT, Artha Vijnana, Vol.4, No.3, Sept.1962.		S.G.SAPRE
23. FAMILY BUDGET ENQUIRY IN A MYSORE VILLAGE (IN KANNAD), Artha Vijnana, Vol.4, No.3, Sept. 1962.		S.B.MADIUR
24. A REVIEW OF THE LAND REFORM STUDIES SPONSORED BY THE RESEARCH PROGRAMMES COMMITTEE OF THE PLANNING COMMISSION, Artha Vijnana, Vol.4, No.4, Dec.1962.		V.M.DANDEKAR
25. ROLE OF CO-OPERATION IN BRITISH AGRICULTURE Artha Vijnana, Vol.5, No.1, March 1963.		V.S.PATVARDHAN

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26.	HOUSING CONDITIONS AND ASSESSMENT OF HOUSING WELFARE IN RURAL AREAS, Indian Journal of Agril. Economics, Vol.XVIII, No.1, Jan-March 1963.	M.B.PADKI
27.	EXTENT OF LITERACY IN THE RURAL MAHARASHTRA, Indian Journal of Agril. Economics, Vol.XVIII, No.1, Jan-March 1963.	S.G.SAPRE
28.	BUSINESS ORGANIZATION, CASTE AND TECHNICAL CHANGE IN A FISHING COMMUNITY, Artha Vijnana, Vol.5, No.2, June 1963.	A.R. RAJAPUROHIT
29.	FARM PLANNING FOR JOINT FARMING SOCIETIES, Indian Cooperative Review, Oct. 1963.	D.P.APTE
30.	PRICE SPREAD FOR GROUNDNUT IN TWO REGULATED MARKETS IN MAHARASHTRA, Seminar Volume on 'Marketing of Agricultural Products', Indian Society of Agril. Economics, Nov.1963.	A.P.KULKARNI
31.	COMPARATIVE COSTS OF LIFTING WATER FROM WELLS - A CASE STUDY OF BANANA CULTIVATION, Artha Vijnana, Vol.5, No.4, Dec. 1963.	D.P.APTE & G.R.MULLA
32.	A NOTE ON COST CONCEPT AND FAMILY LABOUR IN FARM MANAGEMENT STUDIES, Artha Vijnana, Vol.5, No.4, Dec. 1963.	R.S.RAO
33.	MARKETING OF GROUNDNUT IN SOME REGULATED MARKETS IN MAHARASHTRA, Artha Vijnana, Vol.5, No.4, Dec. 1963.	A.P. KULKARNI
34.	UNCERTAINTIES IN AGRICULTURE & DECISIONS OF THE CULTIVATORS REGARDING CROPS TO BE CULTIVATED, Indian Journal of Agril. Economics, Vol.XIX, No.1, Jan. March 1964.	D.P.APTE
35.	REGIONAL VARIETIES IN AGRICULTURAL PRODUCTIVITY AND DEVELOPMENT IN MAHARASHTRA, Indian Journal of Agril.Economics, Vol.XIX, No.1, Jan. - March 1964.	S.G.SAPRE & V.D.DESH- PANDE
36.	INTER-DISTRICT VARIATIONS IN AGRICULTURAL EFFICIENCY IN MAHARASHTRA STATE, Indian Journal of Agril.Economics, Vol.XIX, No.1, Jan.-March 1964.	S.G.SAPRE & V.D.DESH- PANDE
37.	OUTMIGRATION FROM A KONKAN VILLAGE TO BOMBAY, Artha Vijnana, Vol.6, No.1, March 1964.	M.B.PADKI

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| 38. | CHANGES IN LAND UTILIZATION AND CROPPING PATTERN IN AN IRRIGATED VILLAGE OVER TWO DECADES ENDING IN 1960, Artha Vijnana, Vol.6, No.2, June 1964.   | S.G.SAPRE                                      |
| 39. | ECONOMICS OF LIVESTOCK ENTERPRISE-USE OF COWS FOR DRAUGHT PURPOSE, Indian Journal of Agril. Economics, Vol.XX, No.1, Jan.-March 1965.  | S.W.<br>MURANJAN &<br>A.R.<br>RAJAPUROHIT      |
| 40. | SEASONAL MOVEMENT OF PRICE OF JOWAR IN MAHARASHTRA & MYSORE, Artha Vijnana, Vol.7, No.1, March 1965.   | V.S.<br>SATYAPRIYA<br>(Jointly<br>with N.Rath) |
| 41. | WARDHA PLAN-SOME EXPERIENCES IN DISTRICT PLANNING (IN MARATHI) (Paper submitted to the Seminar on Zilla Parishads, Aug. 1965), Maharashtra Times, -Aug.1965.   | S.H.PORE &<br>S.W.MURANJAN                     |
| 42. | INTER-FIRM VARIATIONS IN INPUT-COSTS IN THE FERTILISER INDUSTRY, Submitted to the Seminar on Input-Output Analysis, Gokhale Institute, August 1965.  | ASHOK PARIKH                                   |
| 43. | WARDHA YOJANA - EXPERIENCE IN DISTRICT PLANNING (IN MARATHI), Submitted to the Seminar on the working of Zilla Parishads, Gokhale Inst., Aug. 1965.  | S.H.PORE &<br>S.W.MURANJAN                     |
| 44. | ANALYSIS OF GROWTH COMPONENTS AND METHODS OF CONSTRUCTING THE INDEX NUMBER OF AGRICULTURAL PRODUCTION UNDER CONSTANT CROPPING PATTERN, Presented at the Indian Socy. of Agril.Stats., 19th Annual Conference, Cuttack, 1965. | ASHOK PARIKH                                   |
| 45. | CONSUMPTION OF NITROGENEOUS FERTILISERS - A CONTINUOUS CROSS-SECTION STUDY VERSUS CONVENIENCE ANALYSIS, Submitted for the Indian Econometric Conference, Delhi, 1965.  | ASHOK PARIKH                                   |
| 46. | MINIMUM SUPPORT PRICES FOR FOODGRAINS - GUIDELINES FOR A POLICY & A PROGRAMME, Artha Vijnana, Vol.7, No.4, December 1965.  | V.M.DANDEKAR                                   |
| 47. | FACTORS INFLUENCING THE ADOPTION OF IMPROVED TECHNOLOGY IN AGRICULTURE, Submitted to the Agril. Economics Conference, Allahabad, Dec.1965.   | S.W.<br>MURANJAN                               |
| 48. | ROLE OF COCONUT PLANTATION & FISHERIES AS EMPLOYMENT GENERATORS IN A RURAL ECONOMY, Submitted to the Agril. Economics Conference, Allahabad, Dec.1965.   | A.R.<br>RAJAPUROHIT                            |

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49. GROWTH RATE OF AGRICULTURAL OUTPUT IN MAHARASHTRA AND ANDHRA PRADESH, Artha Vijnana, Vol.8, No.1, March 1966.		ASHOK PARIKH
50. STATEWISE GROWTH-RATE IN AGRICULTURAL OUTPUT AN ANALYSIS, Artha Vijnana, Vol.8, No.1, March 1966.		ASHOK PARIKH
51. RELATIVE MOVEMENTS OF AGRICULTURAL WAGE RATES & CEREAL PRICES : SOME INDIAN EVIDENCE, Artha Vijnana, Vol.8, No.2, June 1966.		R.V.JOSHI (Jointly with N.Rath)
52. PROBLEMS OF DEVELOPMENT PLANNING IN THE PRESENT SET-UP OF PANCHAYATI RAJ IN MAHARASHTRA, Submitted to the Inter-University Seminar on Community Development, Panchayati Raj and Cooperation, at Bhubaneshwar, Orissa, Sept. 1966.		S.H.PORE
53. AGRICULTURAL REGIONALISATION-A MULTIVARIATE APPROACH, Submitted to the Summer School on Applied Geography held at Banaras, Nov.1966.		M.P.KHARE (Jointly with G.S.KULKARNI)
54. THE PLAN FRAME AND THE MOTIVE POWER, Economic & Political Weekly, Special Number, January 1967.		V.M.DANDEKAR
55. PLANNING IN INDIAN AGRICULTURE-PRESIDENTIAL ADDRESS AT THE 26th ALL-INDIA AGRICULTURAL ECONOMICS CONFERENCE, LUDHIANA, JANUARY 1966, Indian Journal of Agricultural Economics, Vol.XXI, No.1, Jan.March 1967.		V.M.DANDEKAR
56. RURAL INDUSTRIALISATION PROGRAMMES-SOME OBSERVATIONS (IN ENGLISH & HINDI), Yojana, Jan. 1967.		S.H.PORE
57. REGIONAL & LOCAL PLANNING-SOME PROBLEMS (IN MARATHI), Chandrapur Parishad, Jan.1967.		S.H.PORE
58. COLLECTION & USE OF FARM MANAGEMENT DATA IN GREAT BRITAIN, Artha Vijnana, Vol.9, No.1, March 1967.		S.G.SAPRE
59. FOCD AND FREEDOM, Lectures delivered at Karnataka University, March 1967.		V.M.DANDEKAR
60. UTILISING THE EXPERIENCE GAINED IN THE AGRICULTURAL DEVELOPMENT PROGRAMMES, 'Agricultural Development of India' Seminar (April.1967), Volume on IADP, University of Madras, 1972.		D.P.APTE



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61.	FORESTRY DEVELOPMENT-INTENSIFICATION OF PRODUCTION THROUGH AREA SELECTION, Indian Journal of Agril. Economics, Oct.-Dec.1967.	S.W.MURANJAN
62.	POPULATION GROWTH AND MIGRATION IN THE DISTRICTS IN MYSORE STATE (IN KANNADA), Mysore Rajya Janasankhya Darshan, Institute of Economic Growth, 1967.	S.N.GADAM (Jointly with Mrs.V.MUKERJI)
63.	ARTICLE ON CATTLE PROBLEM, Blitz, Weekly in English & subsequently published in some Indian Languages.	V.M.DANDEKAR
64.	SCHEMES OF THE GOVERNMENT OF MAHARASHTRA FOR MANUFACTURE, DISTRIBUTION AND POPULARISATION OF AGRICULTURAL IMPLEMENTS - PROPOSALS FOR RESEARCH STUDIES, submitted for the Seminar on 'Agro-Economic Research Needs of Agro-Industries' convened at Bombay by the Indian Society of Agricultural Economics, May 1969.	D.P.APTE
65.	A PROPOSAL FOR RE-EXAMINING AGRO-ECONOMIC DATA ABOUT AGRICULTURAL TOOLS & IMPLEMENTS, paper submitted for the Seminar on 'Agro-Economic Research Needs of Agro-Industries' convened at Bombay by the Indian Society of Agricultural Economics, May 1969.	D.P.APTE
66.	STUDY OF ECONOMIC CHANGE IN RURAL AREAS-SCOPE & METHODOLOGY, paper submitted for the Seminar on "Village Surveys" organised at the Gokhale Institute on behalf of the Directorate of Economics & Statistics, Ministry of Agriculture, Govt. of India, Sept. 1969.	D.P.APTE
67.	TRANSPORT & MARKETING COSTS OF BANANA & ONION A STUDY OF TWO PRODUCTION CENTRES IN MAHARASHTRA, Agricultural Marketing, Vol.XII, No.3, Oct. 1969.	D.P.APTE
68.	CHANGE IN THE LIFE OF RURAL WOMEN (IN MARATHI), published in 'Bharatiya Stree' (in Marathi), Hingane Stree Shikshan Sanstha, Pune 4, 1968.	V.M.DANDEKAR AND M.B.JAGTAP
69.	NEED FOR A CHANGE IN EMPHASIS ON VILLAGE STUDIES IN TRIBAL AREAS, "Socio-Economic Research in Tribal Areas", Seminar Volume, Agro-Economic Research Centre for North East India, Assam Agricultural University, Jorhat 4, Assam, Feb. 1970.	D.P.APTE
70.	HISTORY OF TENANCY REGULATION IN THE STATE OF MAHARASHTRA SINCE 1900, Artha Vijnana, Vol.12, Nos.1 & 2, March-June 1970.	V.D.DESHPANDE

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| 71. | Seed Strategy : its Implications, Industrial March, January-March 1970.   | S.W.MURANJAN               |
| 72. | DESIGNING OF SCHEDULES & QUESTIONAIRES, 'Training Course in Survey Research Methods-Synopsis of Lectures & Workshop Reports' Agro-Economic Research Centre, Sardar Patel University, Vallabh Vidyanagar, 1970 (Mimeographed).                             | D.P.APTE                   |
| 73. | SOCIO-ECONOMIC LIFE AT THE VILLAGE END OF MIGRANTS TO BOMBAY CITY-A CASE STUDY OF VILLAGE MITHBAON, paper submitted for the Seminar on Bombay City convened by the Commonwealth of Massachusetts, University of Massachusetts, Amherst, U.S.A. July 1970. | D.P.APTE                   |
| 74. | METHODOLOGY, CONCEPTS & DEFINITIONS FOR STUDYING PRODUCTIVITY OF SINGLE CROP ENTERPRISES, published in the Seminar Volume on 'Methodology of Studying Productivity in Agriculture', Institute of Agricultural Research Statistics, New Delhi, Aug.1970.   | D.P.APTE                   |
| 75. | EXPERIENCE OF FIELD INVESTIGATION : HOW TO PLAN A FIELD INVESTIGATION? Manohar, Sept. 1970 (in Marathi).  | D.P.APTE                   |
| 76. | RESOURCES & PRODUCTIVITY IN INDIAN FISHERIES, Artha Vijnana, Vol.14, No.2, June 1972.   | A.R.RAJPUROHIT & M.B.PADKI |
| 77. | CRASH SCHEME FOR RURAL EMPLOYMENT : EVALUATION OF THE PROGRAMME IN A DISTRICT IN MAHARASHTRA, Economic & Political Weekly, Vol.VIII, No.12, March 24, 1973.   | D.P.APTE                   |
| 78. | CLASSIFICATION OF INDIAN CITIES BY THE OCCUPATIONAL PATTERN OF WORKERS-A COMMENT, Artha Vijnana, Vol.15, No.1, March 1973.  | A.R.RAJPUROHIT             |
| 79. | PARTICIPATION OF THE YOUTH IN PROGRAMMES OF NATIONAL DEVELOPMENT, Maharashtra Times, June 1, 1973 (In Marathi)  | D.P.APTE                   |
| 80. | GOVERNMENT LANDS FOR CULTIVATION-A CASE STUDY OF MAHARASHTRA STATE, Economic and Political Weekly, Vol.VIII, No.39, Sept.29, 1973.  | G.R.MULLA                  |

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| 81. | A SURVEY OF COMMUNITY WELLS, SIRUR TALUKA, 'Mancos' Weekly, 8 June, 1974 (In Marathi)...  | M.B.JAGTAP                |
| 82. | EXPLOITATION & FORESTS THROUGH FOREST LABOUR COOPERATIVES, Artha Vijnana, Vol.XVI No.2, June 1974.  | S.W.MURANJAN              |
| 83. | REGIONAL DEVELOPMENT IN KARNATAKA-A CASE STUDY FOR THE NEED OF A DISTRICT SUB-REGIONAL PLAN FOR THE PLANTATION TRACT IN MALNAD, paper submitted for the First Asian Symposium on Regional Planning & National Development, July 1-5, 1974 Mysore. | C.S.GAJARAJAN             |
| 84. | FIFTEEN KOLABA VILLAGES, 'Planning for Tribal Development', Ed. Prof. Ranjit Gupta, D.K. Publishers & Distributors, New Delhi, 1976.  | D.P.APTE                  |
| 85. | DEVELOPMENT OF TRIBAL ECONOMY : MAGNITUDE OF THE PROBLEM & CHOICE OF APPROACH, Seminar Volume on 'Tribal Economy' (Feb.1977), Anthropological Survey of India, Calcutta.  | D.P.APTE                  |
| 86. | TARA PROJECT - A CASE STUDY IN INTEGRATED RURAL DEVELOPMENT IN WESTERN INDIA, Proceedings of the 'International Conference on Rural Development Technology: An Integrated Approach', Asian Institute of Technology, Bangkok, July 1977.           | D.P.APTE                  |
| 87. | INVESTMENT IN AGRICULTURAL RESEARCH IN MAHARASHTRA STATE 1961-62 to 1971-72, Summary published in the Indian Journal of Agril. Economics, Vol.XXXII, No.3, July-Sept. 1977.   | D.P.APTE & R.G.PAITHANKAR |
| 88. | SOCIAL COSTS OF INDUSTRIAL LOCATION, "Dispersal of Industry - Report of a Study Project", Bombay Regional Centre, Indian Institute of Chemical Engineers, April 1978.   | D.P.APTE                  |
| 89. | IDENTIFICATION & ORGANISATION OF ECONOMIC PROGRAMMES FOR SMALL FARMERS, 'Interventions for Rural Development - Experiences of the small Farmers' Development Agency,' Indian Institute of Management, Ahmedabad, June 1978.                       | D.P.APTE                  |

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| 90. | ORGANISATIONAL & STRUCTURAL PROBLEMS IN IMPLEMENTING EMPLOYMENT SCHEMES : SOME OBSERVATIONS ON THE CRASH SCHEME FOR RURAL EMPLOYMENT, Development Policy and Administration Review, Vol.IV, No.2, July-December 1978.   | D.P.APTE                     |
| 91. | FORMULATION & APPRAISAL OF PROGRAMMES<br>THE SFDA : A CRITICAL REVIEW,<br>Indian Journal of Agril. Economics,<br>Vol.XXXIII, No.4, Oct.-Dec.1978.   | D.P.APTE                     |
| 92. | SOME BASIC ISSUES IN RURAL CREDIT,<br>Indian Journal of Agril. Economics,<br>Vol.XXXIII, No.4, Oct. - Dec. 1978.  | M.B.PADKI &<br>C.S.GAJARAJAN |
| 93. | EVALUATION OF THE PROJECT OF ENERGISATION OF WELLS FOR LIFT IRRIGATION IN PUNE DISTRICT, Indian Journal of Economics, Vol.XXXIII, No.4, Oct.-Dec. 1978.   | A.K.MITRA &<br>S.W.MURANJAN  |
| 94. | GROWTH OF IRRIGATION IN MAHARASHTRA (1960-61 TO 1971-72), Artha Vijnana, Vol.21, No.2, June 1979.   | M.P.KHARE                    |
| 95. | PROBLEMS OF EMPLOYMENT PLANNING IN RURAL AREAS, Indian Journal of Labour Economics, Vol.XXII, No.4, January 1980.   | D.P.APTE                     |
| 96. | TENANCY REFORMS & ITS IMPLICATIONS : A CASE STUDY OF A VILLAGE IN MAHARASHTRA, 'Sociological Perspectives of Land Reforms' Ed. Sheokumar Lal, 1982.   | M.B.PADKI &<br>G.R.MULLA     |
| 97. | IMPACT OF SOME POLICIES OF THE FOREST DEVELOPMENT CORPORATION ON THE WORKING OF THE FOREST LABOURERS' COOPERATIVES, Artha Vijnana, Vol.22, No.4, December 1980.   | S.W.MURANJAN                 |
| 98. | DUGDHA YOJANA, ADHARBHOOT SAMRACHANA ANI RAJYA SARKARCHI BHUMIKA (i.e. INFRASTRUCTURAL FACILITIES & ROLE OF THE STATE GOVERNMENT), for the Dairy Conference proposed to be organised by the Maharashtra State Cooperative Bank Ltd., Bombay in November 1982. | D.P.APTE                     |

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99. STUDY OF LABOUR RELATIONS IN AGRICULTURE: D.P.APTE  
SOME ISSUES, submitted for discussion at  
the Annual Conference of Indian Society  
of Labour Economics to be held at  
Chandigarh in January 1983.
100. ROLE OF COOPERATIVE DAIRY DEVELOPMENT D.P.APTE  
SCHEMES IN RURAL DEVELOPMENT, Paper  
submitted to the Symposium on 'Cooperatives  
and Rural Development' at the XI International  
Congress of Anthropological & Ethnological  
Sciences to be held in August 1983 at Quebec  
City, Canada.

APPENDIX-III :LIST OF PUBLICATIONS

1. "Food Control in Bombay Province 1939-49" V.S.Patvardhan, GIPE, Publication No.36, 1958, Rs. 7.50.
2. "British Agricultural Marketing - A Study in Government Policy" V.S.Patvardhan, GIPE, Publication No.47, 1965, Rs.14.00.
3. "Utilization of Local Resources - A Case Study of Goa" M.B. Padki, S.H.Pore and S.W.Muranjan, GIPE, Mimeograph Series No.1, 1968, Rs. 20.00 (Out of Stock).
4. "Problems of Tribal Development A Case Study - Harsul Block, Nasik District" M.G.Kulkarni, GIPE, Mimeograph Series No.3, 1968, Rs. 12.50 (Out of Stock).
5. "Study of the High Yielding Varieties Programme in a District in Maharashtra (Paddy 1966-67)" S.W.Muranjan, GIPE, Mimeograph Series No.4, 1968, Rs. 5.00 (Out of Stock).
6. "Study of the High Yielding varieties Programme in a District in Mysore (Paddy-Rabi 1966-67)" A.R.Rajapurohit, GIPE, Mimeograph Series No.5, 1968, Rs.2.50.
7. "A Study of Tractor Cultivation in Shahada" S.G.Sapre, GIPE, Mimeograph Series No.7, 1970, Rs.6.00 (Out of Stock).
8. "Planned Rehabilitation and Economic Change - A Case Study of Tungabhadra River Project Rehabilitation Colonies at H.B.Halli" C.S.Gajarajan, GIPE, Mimeograph Series No.10, 1971, Rs.12.00 (Out of Stock).
9. "Problems of Development in Backward Area - A Case Study of Gadchiroli, Sironcha and Rajura Talukas in Chanda District" M.G.Kulkarni and S.H.Pore, GIPE, Mimeograph Series No.11, 1971 Rs. 12.00 (Out of Stock).
10. "Crop Loan System - A Case Study" V.D.Deshpande and M.B.Padki, GIPE, Mimeograph Series No.12, 1972, Rs.5.00 (Out of Stock).
11. "Maintenance of Farm Account Books by Sons of Farmers and Literate Farmers" D.P.Apte, GIPE, Mimeograph Series No.14, 1972, Rs. 2.50 (Out of Stock).
12. "Study of the High Yielding Varieties Programme in Maharashtra, (1967-68) Part-I - Kharif Bajra in Nasik District, Part-II - Rabi Jawar in Poona District" S.W.Muranjan, GIPE, Mimeograph Series No.15, 1972, Rs.7.50 (Out of Stock).
13. "Disposal of Government Waste Lands for Cultivation in Poona District" G.R.Mulla, GIPE, Mimeograph Series No.16, 1972, Rs. 7.50 (Out of Stock).

14. "Study of the High Yielding Varieties Programme in Mysore (Rabi 1967-68) Mexican Wheat in Bijapur" A.R.Rajapurohit, GIPE, Mimeograph Series No.17, 1973, Rs. 6.00 (Out of Stock).
15. "Marketing of Paddy - A Study based on Fifteen Villages (Igatpuri Taluka, Nasik District)" V.S.Satyapriya, GIPE, Mimeograph Series No.18, 1974, Rs. 25.00 (Out of Stock).
16. "Evaluation of Small Farmers' Development Agency, Mysore District, Karnataka State (1972-73 - 1973-74)" A.R.Rajapurohit, GIPE, Mimeograph Series No.19, 1975. Rs.8.00 (Out of Stock).
17. "Regional Planning - A Case Study of Marathwada Region" Sulabha Brahme, Kumud Pore, S.H.Pore, GIPE, Artha Vijnana, Reprint Series No.1, Rs. 20.00
18. "Studies in the Economics of Farm Management in Ahmednagar District (Maharashtra State) 1967-68", Published by the Directorate of Economics and Statistics, Ministry of Agriculture and Irrigation, New Delhi, 1975, Rs. 11.40.
19. "Income, Saving and Investment in Agriculturally Progressive Areas in Ahmednagar District (Maharashtra State : A Combined Report for the years 1969-70 to 1971-72)" M.P.Khare, Artha Vijnana, Reprint Series No.3, 1976, Rs. 15.00
20. "Factors Responsible for Increased Procurement of Milk in Maharashtra" S.W.Muranjan, Artha Vijnana, Vol.14, No.4, December 1977, Rs. 10.00.
21. "Inequality and Integration in an Industrial Community" Victor S.D'Souza, Indian Institute of Advanced Study, Simla, - 1977, Rs. 50.00.
22. "Evaluation of an Integrated Dairy Development Scheme (Warnanagar)" D.P.Apte, GIPE, Mimeograph Series No.21, 1982, Rs. 50.00.

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