There have been many blessings of planned approach to rural development but its failures in the implementation of rural development projects or programmes have overshadowed its success. Very few development projects have succeeded in consistently achieving targets over the estimated period resulting in widening the gap between promise and performance. This has affected the take off in the developing countries where capital as a factor of production is in short supply. This is mainly because of concentration on 'how quickly' rather than on 'how well' money is spent and defective implementation at the grass root level which often leads to serious short falls in the output targets. Apart from several casual factors, most of the resultant problems are attributed to the poor planning and faulty implementation. This was greatly attributed to the absence of inadequate assessment of economic viability and feasibility, time consciousness in completing programme action plans, involvement of participating departments and the community, failure to make use of management techniques available and lack of organisational requirement with adequate capability for an effective planning, implementation and management by close monitoring and control at the district level, although now, perhaps for the first time, these organisations have been vested with adequate powers to do so.

It is in this context, the present study is initiated to investigate the following objectives:

To work out the modalities for estimating the benefits of area development, community and individual oriented rural development projects to the target
groups and to the nation so as to improve upon the decision making process while selecting the micro-level projects at the district level.

To derive the procedures for avoiding time delays in planning, implementation and management of development projects with the help of modern management techniques.

To propose a suitable institutional framework for developing expertise and efficiency at the district level functionaries for an effective planning and management of rural development projects.

To bring about a change in formulation, implementation, monitoring, evaluation and feedback mechanism (planning and management) of rural development projects at the district level by effecting suitable organisational change.

An action research methodology was adopted in terms of learning and problem identification (Diagnostic exercise), problem solving (providing solutions to the problems identified through action plan exercise), diffusion through action plan and creating expertise for clientele (staff at district level) by adopting consultancy approach and adoption of solutions through formulation, implementation, monitoring and management of an independent integrated minor irrigation project, an action seminar to cope with the problems of decision process for selection of projects, to avoid time delays in achieving the benefits by applying the available management techniques. Thus, the Action research methodology adopted was "Research - Development (provision of solution) diffusion - Adoption". With an emphasis on project planning and management in terms of identification, appraisal in terms of economic, technical and political feasibilities with the help of project worth measures such as net present value, Internal rate of return, benefit cost ratio to improve the effectiveness of decision making process, application of PERT/CPM oriented management techniques for avoiding time delays and adoption of clientele or consultancy
approach through action seminar for creation of expertise in the field of planning and Management of Rural development projects.

The intention of the above methodology was also to explore whether the district administrative system would accept and sustain a professional intervention whose sole task was to intervene at that level to bring about improvement in the process of planning, implementation and management of rural development projects.

In order to understand the prevailing methods of project formulation, the process of planning for implementation, execution, monitoring procedures adopted and the impact of the complecated project, a minor irrigation project (SUNKESWARI ANICUT) was evaluated. The objectives of the study aimed at understanding the process of project formulation, implementation, monitoring procedures, organisational structure, financial management, effectiveness of the decision making process, time and benefit gaps to the target groups, the impact of the project on the living standards of the target groups in terms of income generation, employment generation, socio-economic conditions, income distribution patterns etc.

The study was based on formal discussions with the concerned Executive Engineers of Minor irrigation investigation, execution and maintenance division of the Minor irrigation department. The details regarding these aspects were carefully studied based on the official records available with the concerned departments.

Further, the related departments such as Agricultural, soil conservation etc., were contacted to obtain the information regarding crop pattern, adoption of improved agricultural practices. Regarding credit and financial help to
the target groups in the form of institutional finances, the commercial Banks and Cooperative societies etc., were contacted and the relevant data was obtained. A structured schedule was formulated and the beneficiaries of the project were contacted and the data was collected by adopting personal interview method with respect to socio-economic background, infrastructural facilities, availability of extension services, ayacut developed, increased income, increase in value of land, management of water distribution system and the felt needs of the beneficiaries were collected and analysed and assessed the impact and further needs of the project.

The critical analysis of the data resulted in certain decision process, gaps, formulation gaps, implementation and monitoring gaps which in turn resulted in non-achievement of ayacut contemplated, delayed execution resulting in delayed accrual of benefits to the target groups. Non-development of ayacut resulted in less income generation for the beneficiaries and no additional income for those who could not avail the irrigation due to non-construction of supply channel to the extent planned. Non plan of field channels at the time of project formulation again affected the ayacut development. The decision regarding the location and financial or social benefits of the project was based on arbitrary and on annual rate of return but not on the basis of project worth measures such as Net present value, Internal rate of return and Benefit cost Ratio. The location of the project was not examined in order to assess comparative gains.

No proper procedures were evolved to maintain the project and water distribution systems. The controversy regarding location of the project was not discussed with the beneficiaries at the time of formulation which indicates that the people's participation was ignored. The benefits that accrue to the
farmer were not clearly identified at the time of formulation of the project. Planning for implementation was not visualised or incorporated in the project report. No time scheduling was adopted with the help of PERT/CPM oriented techniques which resulted in enormous delay in implementation. The time estimates were based on subjectivity of the officials involved in implementation. The execution of the project took four years after formulation due to lack of proper decision making process and thereby the cost of the project was escalated. Improper coordination among the participating departments resulted, to a greater extent, in the delay in the execution of the project. Further, this also resulted in non-adoption of improved agricultural practices, non-exposure to the facilities such as institutional finance, etc., However the Minor irrigation department which executed the project was well equipped in its organisational structure. Monitoring procedures could not help in anyway for assessing the impact of the project. The data required could not be generated at the time of project implementation which can be used as feedback for future plans as well as some impact indicators. Out of the anticipated ayacut of 280 acres only 160.46 acres could be achieved thereby only certain section of the beneficiaries could benefit highly in their income generation and improving their socio-economic status. The income distribution pattern indicated that there was not much reduction in their income inequalities. The employment generation however, could be achieved during the construction of the project which directly benefited the villagers. However, the per acre labour input could not be increased because of non-achievement of ayacut as well as non-adoption of improved agricultural practices and non-availability of institutional finance for land development and for agricultural operations.

Based on the diagnostic study which helped in identifying gaps of the project, an action plan for this project was suggested. The researcher was closely
involved in implementation, monitoring and concurrent evaluation of the Action plan suggested. While planning for the activities that can improve the condition of the project, the researcher in-consultation with the Minor irrigation execution department as well as other participating departments such as agriculture, soil conservation, financial institutions prepared a time scheduling for implementation of the project using PERT/CPM techniques. As suggested in the action plan, the activities could be achieved within the stipulated time period as well as within the resources made available. The achievements through the Action plan are; repair of supply channel, silt removal, construction of field channels, command area development to the extent of 195 acres in addition to already developed area of 160.46 acres; credit facility for land reclamation of 23 acres and the crop loans to marginal and small farmers, changed crop pattern, extension services and supply of inputs such as fertiliser, pesticides etc.

The action plan implementation within the stipulated period could produce more than the expected benefits to the farmers. This was mainly attributed to the repair of supply channel and field channel excavation resulting in higher command area thereby increasing the income generation capacity of small and marginal farmers.

The benefit cost comparison analysis indicated considerable increase in project worth measures at farmers' level, project authority level and State or National level. Further, there was considerable decrease in income inequalities of the small, marginal and large farmers which were shown in the form of Gini-coefficients and Lorenz curve.

The action plan exercise resulted in the preparation of proper implementation plan by applying or adopting modern management techniques such as PERT/
CPM oriented time scheduling, resource allocation helped the implementation process in an effective way yielding better project worth measures such as Net-present value, benefit cost ratio and Internal rate of return at all the three levels, viz; farmers' level, project authority level, project authority level and State or National level leading to an effective decision making process. Thus the Action plan suggested could help in bringing or fulfilling the gaps identified through the diagnostic study for the same minor irrigation project (SUNKESWAR ANICUT) through the minor irrigation and other participating departments. Also the expected level of coordination was achieved among the participating departments, the researcher and financial Institutions.

While passing through the Action Plan exercise an important aspect of Action Research, viz; 'COUNTERPART' approach in involvement of the district level officials as counter parts in formulation of new projects and creation of expertise after duly identifying the required training needs in modified systems and methods of project planning and management of Rural Development Projects was thought of and to this effect Planning and Management of New Minor Irrigation project (MADANANTHAPURAM MINOR IRRIGATION PROJECT) was planned as fresh exercise starting from planning process to the Evaluation stage of project cycle. The two objectives of Action Research, viz; counter part approach and creation of expertise was achieved through the involvement of various Departments and Institutions.

The strategy for formulation of new project including planning for plan implementation (implementation plan) was carefully drawn by duly applying the project worth measures so as to improve the decision making projects, PERT/CPM oriented management techniques to avoid time and benefit delays and the quantitative techniques such as Gini-coefficients and Lorenz curves
to measure the impact of the project in terms of achieving equity distribution of income and reduction of income inequalities. In the revised strategy special attempts was made to promote local participation and to create local expertise. The new project formulated was submitted to DPAP for financial assistance. The project was approved and was implemented.

The project implementation was done by the participation departments specifying the roles of each of the department duly providing with time schedule, resource allocation persons or officials responsible for completion of the work and the required resources such as Material and Machinery were allocated as per the PERT/CPM oriented management techniques. It was closely monitored by the Executive Engineer of Execution division who is the chairman of the Coordination committee consisting of all the heads of sectoral department, researcher and the sponsoring agency as members. Even though the project was planned to be completed within 75 weeks of sanction it took another 37 weeks extra due to technical, administrative and procedural problems identified during the implementation of the project. The cost of the project was Rs.25.00 lakhs. The benefits anticipated could be achieved within the stipulated time period. By and large the project worth measures tallied with the project worth measures estimated at the time of formulation of the project. The participating departments could appreciate the PERT/CPM oriented time scheduling methods which they felt were quite handy for timely achievement of various activities as well as the project. The integration of supporting activities could be achieved.

The impact of the project was quite perceptible to the target groups, project authority as well as State or Nation. There was considerable increase in income generation and reduction in income inequalities of the target groups. Water distribution and management system could work as per the stipulation
of new strategy. However it required certain policy decisions to improve upon the existing distribution systems.

The impact of the project in terms of command area development resulted in 636 acres during kharif and 303 acres in Rabi. Per acre net revenue increased from Rs.1,500 to Rs.2,732 resulting in an increase of Rs.1,232 due to irrigation. The benefit cost ratio worked out to 61.6 as against 65.0 at the time of appraisal. Per acre net present value to the project authority worked out to Rs.154 as against Rs.146 estimated at the time of appraisal. However the benefit cost ratio resulted in 0.21 as against 0.22. At the State or Nation level benefit worked out to NPV = 72,42,801 as against Rs.72,67,109. Benefit cost ratio as 1.75 as against 1.91 and IRR as 39.21 as against 48.84. The overall percentage reduction in income inequalities was 51.02 percent of which highest was among marginal farmers (19.38 percent), followed by large farmers with 14.31 percent and small farmers with 4.34 percent. Increase in per acre labour input resulted in 39.3 percent in addition to the construction employment generation of 1,67,374 mandays during the construction of the project.

The various ramifications of action research resulted in an action seminar on planning and management of Rural Development projects for the District Administration in the District in coordination with the link organisation NIRD the researcher, Post graduate centre at Kurnool and the Development administration group Birmingham University, England.

The action seminar aimed at two objectives: One was to enable the group of participants to explore the contribution that monitoring and evaluation can make an improved performance and the other is to enable those involved
in training to come closer to the decision making process at the district level.

The action seminar lasted approximately four weeks. The participants of the seminar were the senior officials from all the sectoral departments at the district level.

The outcome of the seminar is assessed in relation to its objectives in terms of communication of ideas, insights into ongoing programmes, assessment and modification of existing practice, departmental programme performance, impact measures, appropriateness of assessment, Action planning and finally institutionalisation of action research process.

The ultimate objective of the Action researcher was to improve the capabilities of the district officers in planning and management of rural development projects by adopting action research process and institutionalising the same and also in developing area plans. Therefore it was decided to help the district officers by developing a manual.

The development of manual was initiated with the experience gained at the various phases of Action research process and the discussions held with the District level officials modifying the scope and objectives based on the suggestions, organising work shop at the district level and at the State level, augmenting the suggestions, preparation of draft manual and discussing in inter district work shop, testing the manual at the field level, further discussions with the officials and institutionalising the manual. The content of the manual was as described below:

Project formulation - Establishing, technical, financial, economic, political
and social viabilities - Location/alternative locations - Preparation of detailed project report - Planning for implementation - Monitoring procedures - Project evaluation procedures.

The basic and foremost effort in a research of this type is to gain acceptance of such an organisation as that of the role played by the researcher as a desirable means of intervention and those organisations that are identified to be changed are often influenced by the images they form of each other. Many a district official, for example, while accepting the need for change, thought it was needed more at the state and central level than at the district level. Legitamisation of a researcher role in the form of an organisation or department could be accomplished through various factors, such as the relative academic advantages of the researcher, their capacity to stipulate activity change or mutual appreciation by the interventionist and the intervened of the need for change. The capacity to stipulate or activate change using and inculcating the adoption of academic research results, solutions derived with the help of the techniques available will be determined more by the individual commitment of the personnel involved and by the direct intervention of the coordinator (the organisation involved) than by an innate value of the management techniques, skills used or the body of knowledge available.

Interventionist did face some conflicts because of differing perceptions but it becomes very clear that the district administration or development departments (Minor irrigation department) needed such a professional who while maintaining his authority and linkage with modern methods of planning and management techniques was also able to support district planning and management activities. However, it was difficult to establish the extent
and content of authority. There seemed general consensus on derivability and efficacy of intervention at the district or local level. However, it should be initiated or shared by the upper echelons of administration too without whose concomitant support emanating from higher levels (state level) the changes at local or district level for institutionalisation of Action research process would not have been possible.

The intervention strategy did not involve the local political leadership directly in the action research process which may not be so helpful to the district without whose help the project planning, implementation, monitoring, management and maintenance may not be effective.

8.2 CONCLUSIONS:

Problem identification:

The action research process in its various components diagnostic study action planning, formulation of new project and the action seminar for improving the skills of the district personnel, led to the following conclusions:

In spite of the strong points of the project formulation in the technical sense the "Sunkeswari Anicut" Project formulation could not provide any objective measures such as NPV, IRR and benefit cost ratio which could contribute for an effective decision making process within the limited resources available.

The project implementation had taken more time than anticipated because of lack of clear cut operational or PERT/CPM oriented time scheduling and resource allocation which ultimately resulted in non-achievement of objectives of the project such as less ayacut development (only 160 acres
out of 280 acres), development of non-notified ayacut, non-excavation of field channels resulting in escalation of cost to the tune of Rs.25,000.

No clear cut monitoring procedures led to lack of data to assess the impact of the project and no feedback for the future project to be planned either at the same scale or of bigger scale.

No project completion reports were made in terms of the weakness and strengths of the different stages of project formulation so as to be guided by these experiences for future projects.

The project implementation could not take care of supporting activities such as ayacut development, agricultural development activities in terms of extension, modern agriculture practices, input supplies, suitable crop pattern and credit facilities to the small and marginal farmers.

No proper maintenance and water distribution system prevailed in the project area.

**Action Planning:**

Based on identified problems or gaps the solutions were derived for the same project in the form of action planning and benefits achieved due to action planning are:

Supply/main channel was repaired and five field channels each ranging from half to one K.M. length were excavated at an estimated cost of Rs.25,000.

An ayacut of 105 acres under the notified ayacut and an extent of 30 to 40 acres under non-notified ayacut was developed under the anicut.
The Syndicate Bank and the Rayalaseema Gramina Bank could provide loans to 15 small and marginal farmers at the rate of Rs. 800 per acre for land development.

Soil tests were conducted in the ayacut and the existing crop pattern was suggested as a suitable crop pattern during kharif season. However during rabi season, the irrigated dry crops such as Groundnut, Chillies etc. were suggested.

The input supplies such as seed, fertilizers and pesticides were given importance by the agriculture department.

Extension activities by the agriculture department were taken up under demonstration programme.

The action planning process increased the income generating capacity of the farmer and the income inequalities among the different farming groups were reduced and the line of equity moved near to the perfect equity line.

The economic project worth measures calculated revealed that an effective decision can be made with the help of these measures within the resource constraints in a better way than simple measure made earlier in the project report.

Above all these, the action plan incorporating PERT/CPM oriented time scheduling and resource allocation could be achieved as per the implementation plan stipulated.

**The New Project:**

Based on the experience derived through diagnostic and action planning
exercise, the project formulation and implementation of new project viz; Madananthapuram Minor Irrigation Project could yield the following results:

The project worth measures derived at the time of appraisal and the measures had resulted after the completion of the new minor irrigation project had slight deviation since the total expected ayacut could not be developed immediately after the completion of the Project. This is shown in the following statement:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Measures of the project worth</th>
<th>At the time of appraisal</th>
<th>After completion of the project</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Net present value (NPV)</td>
<td>72,67,109</td>
<td>72,42,801</td>
</tr>
<tr>
<td>2</td>
<td>Internal rate of return (IRR)</td>
<td>48.84</td>
<td>39.21</td>
</tr>
<tr>
<td>3</td>
<td>Benefit cost ratio (BCR)</td>
<td>1.91</td>
<td>1.75</td>
</tr>
</tbody>
</table>

However, the project worth measures tallied since three years of completion of the project.

Implementation was delayed for a period of 37 weeks in the case of some activities because of unanticipated technical problems. Necessary updating of the network with respect to such of those activities was possible because of close monitoring of Executive Engineer as well as the Researcher.

By and large the time scheduling and resource allocation through net work analysis (PERT/CPM) was adhered to. Few activities such as formation of bund in the deep course, excavation of supply channels and field channels were delayed because of non-profitability of supply and field channel works, the contractor purposefully delayed the work. Yet another activity that
was behind schedule was land shaping because of delay on the part of the financial institutions in providing credit facility. However, necessary updating of the net work with respect to the activities that were delayed was done. As a whole the project was delayed by a period of thirty seven weeks which was planned to be completed within 75 weeks from the starting date.

The exercise could result in the application of net work techniques (PERT/CPM) for implementation of minor irrigation project and to adhere to the maximum time schedule for construction of minor irrigation project with the available (planned) resources. If little more care would have been exercised, the results would have been better without giving more scope for delayed implementation of the project.

**Action Research, Manpower training and Guidelines:**

An important aspect of action research, viz; creation of expertise with the consultancy and clientale (counter part) approach was achieved by creating expertise to the Executive Engineer and to his line staff along with the participating agents (department) in preparation of detailed project report, implementation and monitoring of minor irrigation project.

This also helped highly in reducing the time and benefit gaps that can be made available to the target groups and the identification of certain crucial difficulties during implementation and monitoring of minor irrigation project.

Adhering to the time schedule as per implementation plan helped in achieving the estimated benefits of project in terms of Benefit cost ratio, Net present worth and economic internal rate of return of the project.
It also indicated a sort of decentralised planning and decentralisation of powers should be provided with to the district level officials to achieve effective planning and management of rural development projects. It helped to develop a guideline for formulation, implementation, monitoring of integrated minor irrigation project based on the experience.

A lesson was drawn from the exercise that apart from the existing organisational structure at the district level for development activities an organisation which can be called as "District Project Planning Cell" can be augmented at the district level which can play the role of researcher, in order to achieve an effective planning and management of rural development projects on the lines of minor irrigation project at the district level which is slightly skewed towards the management aspects of developmental projects i.e. with a little excess orientation in academic activities coupled with administrative aspects.

The effective role of researcher as an interventionist and liaison role between the decision making agency (District administration or DRDA) and Executing agencies (Development departments) could be achieved as contemplated through action research process.

The action research objectives such as diagnosis, problem solving, provision of solution, consultancy or clientele approach, creation of expertise and formulation of manuals could be achieved to the extent possible if not to the fullest extent.

Involvement of local bodies and existing organisational structure was utilised to the fullest extent for achieving the results of the project.
The communication of appraisal and PERT/CPM oriented management techniques to the District level official could be achieved through action seminar and by adoption of counter part approach.

**Institutionalisation:**

Institutionalisation of Action research process was achieved by the researcher by way of suggesting to augment an institutional framework by suitably augmenting the staff to the existing planning department at the district level and labelling it as "District Project Planning Cell", which can play the role of the researcher in achieving the set goals of projects or programmes at the district level by playing a liaison role between the district administration and sectoral departments.

In addition, this cell will also identify the training needs and play a vital role in creating expertise among the administration and sectoral departments for adoption of modern management techniques for management of Rural Development Projects.

Thus proper planning and management of development projects at rural level can be achieved by duly applying appraisal techniques for effective decision making process, PERT/CPM oriented techniques for avoiding the delays in deriving benefits and effecting suitable organisational change for an effective planning and management of Rural Development Projects.

**8.3 IMPLICATIONS:**

The following are the implications of the conclusions of the action research specific to Minor Irrigation Project.
Based on the above conclusions, it is necessary to change the delegation of powers or decentralisation of powers to the executing agencies.

The executive engineer and the field level staff may be provided with additional powers so as to take spot decisions as and when some technical problems arise during execution of the project.

Suitable ordinance has to be made while fixing the contract to complete all the activities parallely without going in only for profitable works in the early stages and postponing the non-profitable items. Of course, if can be taken care of, /PERT/CPM oriented time scheduling is drawn for implementation. However, a clause has to be added regarding this aspect in the agreement entered between the department and contractor.

Every new project will lead to the new problem when it is being closely monitored which will be helpful in planning for the new projects.

Effective coordination had to be assured through a Govt. order in clearing land acquisition proposals by the Revenue Department by suitably changing the procedures.

Identification, execution, maintenance and water distribution and management are to be brought under the control of Minor Irrigation Department. District Project Planning Cell so as to assure proper maintenance water distribution and management data on water levels etc., in coordination with the village committee as in the case of canal irrigation systems leaving the revenue department with the burden. A policy decision has to be communicated to the department of Minor Irrigation.
8.4 SUGGESTIONS FOR FUTURE RESEARCH:

The evidences of the study suggests that the action research undertaken was rich experience in a learning process. It is still under learning process which helps to cope with not only the researcher's self imposed task but also the social demand of bringing about change. Inspite of 'lab to land', 'theory to practice', slogans, often there is research with little action or action with little research. This particularly true for government departments or bureaucratic systems. It is hoped that the action research analysis may be useful for further research designs. Still certain questions remain.

Considering several institutions and implications of various studies what is the role of planner or planning organisation should play at the micro level? would it not be a liaison between technical and administrative departments since it is being multi-disciplinary agency at the district level, contemplating growth and equity at both micro and macro levels?

Does this activation and upgradation of skills at the district or micro levels help long way in achieving the effective planning and management of Rural Development Projects?

The study did not contemplate much on the role of link organisation. Hence, will it be possible to change the planning and management culture with an effective participation of local educational institutions in the planning, execution and management process of Rural Development Projects.

The relationship between all organisations which can play the role of interventionist/researcher and a normal routine administration were bound to be strained. However, the issue that emerges is how to reconcile the bottom
to top and top down approaches when an organisational structure breeds a culture of conformity in the administration.

In a government system it is learnt that too quick an acceptance of an idea is a sure sign of its eventual abortion whenever researcher pleaded for acceptance of his ideas a ready acceptance in principle is rarely followed by acceptance in practice. In action research initial resistance to an idea could imply a serious effort on the part of the researcher to analyse the repercussions. Can an organisation or institution at the district level could be able to sustain like an action research, the functions stipulated for a longer period and as a matter of routine?.

In all hierachical systems, unless the vertical links are loosened, the horizontal link amongst efficient organisations could not be forged. When most of the developmental projects are inter organisational in nature, the implication of this lesson is that systematic loosening of vertical links should be an inalienable component of any change strategy at micro level.

Can this action research process of Research - Development (solution) - diffusion - adoption be generalised to all the sectors in order to make planning and management process as more effective at the micro level?.

Does this action research process as in the case of minor irrigation project, be extended to other rural development projects?.