PERFORMANCE EVALUATION OF FARMERS’ COUNCILS IN LOWER BHAVANI PROJECT FOR SUSTAINABLE DEVELOPMENT

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ABSTRACT

Irrigated agriculture will play a major role in determining the future food security of most Asian countries, and it will also be the major contributor to the additional food production required as world population expands. Therefore, it is important to raise the agricultural performance of low productivity irrigation systems, while sustaining the performance of more-productive systems. In many countries, and particularly in India, accurate evaluation of irrigation system performance and sustainability is hampered by lack of adequate, reliable, and timely irrigation statistics. It is important to assess the performance of the irrigation agencies regarding water allocation, distribution and so on.

This study is about the assessment of performance of farmers’ council in Lower Bhavani Project which helps in the sustainable development of the environment. The main focus of the study here is on the farmers’ council and its activities regarding the performance of the irrigation system in operational, agricultural, financial, economical and sociological aspects. The Lower Bhavani Project is covered by the Erode district, which is known for its well developed irrigated agriculture using modern technology in the form of electric pump-sets, huge canal systems and all other features of Green Revolution of India during the 1960s. The major crops grown in the district are paddy, sugarcane and turmeric. The Lower Bhavani Project (LBP) comprises a 200km (124 miles) contour canal named as Lower Bhavani Main Canal.

Formation of Water Users’ Association in the Lower Bhavani Project was initiated during the year 1988 by the Agricultural Engineering Department with the objective to enable users’ participation in “Warabandi” system of irrigation water management under the Command Area Development Programme.

The three tiered structure of Water Users’ Association in the LBP command consists of 44 Farmers’ Councils, 6 Distributory Committees and Federation. The Farmers’ Councils 44 in number that have been formed in the LBP command area are demarcated as Upper Reach (UR), Middle Reach (MR) and Lower Reach (LR) councils based on its location to the main canal. 12 Farmers’ Councils are there in the upper reach, 17 in the middle reach and 15 in the lower reach.

The actual study area covers one council from each reach of Lower Bhavani Project (U8B, M6, L14) and the performance evaluation is carried out. Performance
evaluation includes the operational, agricultural, financial, economical, sociological aspects. Performance indicators are used to evaluate the performance in all the above aspects. The farmer’s interest and their involvement/responsibility regarding water acquisition, water distribution, conflict resolution, resource mobilization and maintenance are evaluated through actual field visits, formal and informal interviews and through rural appraisals. Here, SPSS (Statistical Package for Social Sciences) is used to analyze the Statistical data.

**OBJECTIVES**

1. To evaluate the operational, agricultural performance of the irrigation system.
2. To evaluate the financial and economic performance of the irrigation system.
3. To diagnose the factors for poor performance of the system and to improve performance by prescribing corrective measures.

**NEED FOR IRRIGATION WATER MANAGEMENT**

Irrigation water use is the largest use of water by mankind worldwide. The ever-increasing water demand compared with the depleting water resources warrants refined water use practices in irrigated agriculture to attain improved socioeconomic benefits.

With increasing standards of living and fast growing population, the available water resources may not be able to meet various demands of mankind. It becomes necessary to put the available resource more effectively for more benefits. It is upto the managers of water resources to devise ways and means of optimally using resources to meet the ever-increasing demand. The aim of efficient irrigation water management or precisely, is maximum yield with available water. A good management, proper and timely application of water may result in better yield and reduction in drainage problems.

**SIGNIFICANCE OF THE STUDY**

In many countries, irrigated agriculture has now entered a new phase of development. It is important that the farmer representatives as well as the members of organizations have a clear understanding on such aspects as: the need and basis for collective action in irrigation management, mechanisms for conflict management in relation to Operation and Maintenance. The users should be engaged in, not only in irrigation management tasks, but also in production, collection, storage, quality control, etc. Regular Monitoring and Evaluation should be done for each and every water project. The performance of the system should be analyzed in detailed manner at regular intervals. Hence, this study is taken to evaluate the performance of the Lower Bhavani Project command area.
STUDY AREA

Lower Bhavani Project

Lower Bhavani Project is the first major irrigation project that was undertaken immediately after independence. The Lower Bhavani Project (LBP) is in Tamil Nadu state in the South India. It comprises a 200km (124 miles) contour canal named as Lower Bhavani Main canal. The construction of LBP was started in January 1948 and completed by the end of 1953. The system is about 45 years old. Normally paddy was grown in the I st turn during August to December and dry crops such as groundnut or gingelly grown in the II turn during January to April.

Water Users’ Association in LBP

There are 44 Farmers’ Councils in Lower Bhavani Project covering total command area of 83,772 ha. These councils were organized by Agricultural Engineering Department in 1988 under the Command Area Development Programme. Figure 1 represents a detailed picture of the three tiered structure of Water Users’ Association in the LBP command area.

![Figure 1 Three tiered structure of Water Users’ Association in LBP](image-url)
Figure 2  Map Showing head, middle, tail reaches and locations of selected study councils
COUNCILS SELECTED FOR THE STUDY

One council from each reach i.e., U8B from upper reach, M6 from middle reach and L14 from Lower reach are taken for the study. The details of the three councils are given in the Table 1.

Table 1 Details of the three councils

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the council</th>
<th>Reach from the Main canal</th>
<th>Name of the distributory committee</th>
<th>Command area covered (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>U8B</td>
<td>Upper</td>
<td>Kavunthapadi (DC-2)</td>
<td>1152.95</td>
</tr>
<tr>
<td>2</td>
<td>M6</td>
<td>Middle</td>
<td>Nasiyanur (DC-3)</td>
<td>1626.83</td>
</tr>
<tr>
<td>3</td>
<td>L14</td>
<td>Lower</td>
<td>Mangalampatti (DC-6)</td>
<td>1295.04</td>
</tr>
</tbody>
</table>

Figure 2 map gives details about the boundaries of head, middle and tail reaches and also the locations of the selected farmers’ councils.

PERFORMANCE EVALUATION

Performance indicators are used to evaluate the performance of the council as well as the irrigation system. Performance evaluation is done in operational, agricultural, financial and economical aspects.

In the evaluation of the operational performance, the indicators used are adequacy, reliability, performance of sluices and equity in water distribution. This evaluation can be achieved through farmers’ interview and secondary water resources organisation officials.

In the evaluation of the agricultural performance, the indicators used are principal crops grown, crop productivity, cropping intensity and extent of advanced crop production technology used. This evaluation can be done through informal discussions with the farmers and through actual field observation.

In the evaluation of the financial performance of the council, the indicators used are annual operations and maintenance cost/ha to government, irrigation cash costs/ha to farmers, total irrigation costs/ha to farmers and value of family labour contributions for canal maintenance. This can be achieved through secondary sources and rural appraisals.

In the evaluation of the economic status of the council, the indicators used are irrigation cost, employment, productivity, marketed surplus and net income. This can be evaluated from farmers and records.
DESIGN AND ORGANIZATION OF THE DETAILED QUESTIONNAIRE

To obtain all the important information for the diagnostic analysis, the questionnaire based on the experience gained from the reconnaissance survey is designed for the irrigation officials, agricultural authorities and the farmers so as to obtain information from the relevant sources.

The questionnaire to the irrigation authorities covers questions related to irrigation water management, canal conditions, interaction with the farmers and the agricultural officials. The questionnaire prepared to the agricultural authorities covers questions related to the crops to be grown in the study area, their interaction with the farmers and the irrigation officials, type of agricultural extension and other miscellaneous information regarding the soil fertility conditions in the study area. The questionnaire executed to the farmers covers apart from other information, information related to their identification, the details regarding the inputs and the production in the current season, their involvement in the various council activities, their views about the irrigation and the agricultural authorities, and their knowledge about the various agricultural aspects.

SAMPLING PROCEDURE FOR THE SELECTION OF THE FARMERS

The questionnaire designed is to be executed for the farmers in the 3 councils in each reach to get the attribute data. However, the total number of farmers in the 3 command areas selected, sum up to 1000 forcing the sampling to ease the complexity involved in the collection of data. The sampling done for the present study is a sort of stratified random sampling based on the yield variability such that the reaches having high variability in yield have more samples. 50 farmers are selected from each council and the questionnaire is executed.

ANALYSIS

The information collected from the ground was organized and analyzed in SPSS (Statistical Package for Social Science). The causative factors are identified and prioritized for corrective measures to ensure better performance of the system. The analysis is performed by comparing the good with the bad performing council command areas.

RESULTS AND DISCUSSIONS

In this study, an attempt has been made to analyze the irrigation system from the viewpoints namely, irrigation, agriculture and socio-economics. Any system needs to
account for the human or socio-economic component to realize the fruit of the effort. Water management will be successful only if the human part of the system is considered. This study shows that the operation plan and its adherence had a greater impact on the overall performance of the system.

This experiment, in the middle reach command areas belonging to M6 council resulted in considerable increase in irrigated area and also in the yield of main crops like paddy after the formation of farmers’ council. Farmers took active interest in maintenance of field channels. The repairs in filed channels resulted in better irrigation under close supervision of the farmers’ association. The same condition is prevailing in the command areas of U8B council of upper reach with very few minor drawbacks.

But in the lower reach command areas like L14, the LBP main canal is unlined and due to siltation they could not get water for most of the time due to the losses in the above two reaches. Farmers are not interested to contribute much money for maintenance of field channels in the lower reach. Hence the financial and economic performances of the lower reach are not as good as in the middle reach.

The LBP main canal should be lined throughout its length. The canals and the damaged structures should be modernized. Embankment reaches had to be rehabilitated. Farmers belonging to non-ayacut areas or non-turn ayacuts who involve in illegal tapping of water should be penalized. Farmers should cooperate for turn system during lean periods.

**SCOPE**

The sampling procedure can be improved after studying various socio-economic patterns of the area under study to have faithful representation of the population. The stratification for sampling can be done on the basis of more than one criteria. More time and effort can be spent for the field survey and interview with farmers, as this is the basic input for the system. More time would have educated the farmers with respect to the importance of their response. More queries and various performance indicators can be added to the study after consulting the experts in this particular field of study. Due to time constraint, only three councils had been taken for study. This study can be extended to all other 41 councils and command areas of Lower Bhavani Project.

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