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Constraints faced by farmers in canal command areas of upper Krishna project

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Abstract

The farmers in the command areas play a vital role in water management in the command areas. The system of water distribution, cropping pattern and quantity of water allocated depends on the farmers living in the region. Understanding such values of water is very important among stakeholders for efficient allocation of basin water resources. Both primary and secondary data were used for the study. The secondary data on area coverage of different crops grown in both the project command areas was obtained from CADA Bheemaranagudi, Karnataka. Primary data was collected from 200 respondents from head and tail regions of Almatti Left Bank Canal (ALBC), Indi Branch Canal (IBC), Narayanpur Left Bank Canal (NLBC) and Narayanpur Right Bank Canal (NRBC). The data was analyzed using the Garrette ranking technique. It may be concluded that regular meetings should be organized among the farmers and the officials of irrigation department/CADA to study the problems faced by farmers and find possible solutions and adequate representation should be made to small and medium farmers from backward communities in the WUAs. Thus there can be a better and equitable distribution of water if farmers are having appropriate training and capacity building.

Keywords: Constraints, canal commands, water distribution

Introduction

The available Water Resources, both surface and ground, are not adequate enough to cover the entire cultivated area in the country. It is estimated that even on full exploitation, the available water resources could cover only half the cultivated area for irrigation. The farmers in the command areas play a vital role in water management in the command areas. The system of water distribution, cropping pattern and quantity of water allocated depends on the farmers living in the region. Understanding such values of water is very important among stakeholders for efficient allocation of basin water resources. Some disagreements on actual water allocation will still remain due to the differences in values, goals, priorities and aspirations of people (Warner 2006) [5]. The distribution of water is not only unequal over the regions but also varied from farmer to farmer. The increase in the distance of location of farm and the number of farmers intervening have resulted in decrease in the extent of water supply at farm level. The fee collection performance, maintenance efficiency and performance of the existing organizational structure was observed to be poor (Hugar LB, 1997) [3]. The study is an attempt to study the constraints faced by farmers' indifferent canal command areas of Upper Krishna Project.

Materials and Methods

Both primary and secondary data were used for the study. The secondary data on area coverage of different crops grown in both the project command areas was obtained from CADA Bheemaranagudi, Karnataka. Primary data was collected from 200 respondents from head and tail regions of Almatti Left Bank Canal (ALBC), Indi Branch Canal (IBC), Narayanpur Left Bank Canal (NLBC) and Narayanpur Right Bank Canal (NRBC).

The constraints faced by the farmers and staff of different offices of Irrigation department and CADA are documented. They are analyzed using Garrette ranking method. This technique was used to evaluate the problems encountered in sugarcane cultivation and marketing. In this method, the farmers were asked to rank the given problem according to the magnitude of the problem. The orders of merit given by respondents were converted into ranks by using the following formula.

$$\text{Percentage Position} = \frac{100 (R_{ij} - 0.5)}{N_j}$$

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Where,

R_{ij} = Rank given for i^{th} item by j^{th} individual

N_j = Number of items ranked by j^{th} individual

The percentage position of each rank thus obtained was converted into scores by referring to the table given by Garrett. Then for each factor the scores of individual respondents were added together and divided by total number of respondents for whom the scores were added. These mean scores of all the factors were arranged in the order of their ranks and inferences were drawn.

Results and Discussion

Constraints faced by farmers in UKP command area

The constraints faced by the farmers in the command areas were classified into technical, economic and social constraints have been analyzed using Garrette ranking technique. The results are recorded for different canal command areas in UKP area are presented in table 1

It may be observed from the table that (i) change in the localization pattern and adoption of cultivation of light irrigated crops, (ii) no cement lining of FICs to avoid water losses, (iii) un-timely release of water from the canal, (iv) no installation of water meters at the field gates and (v) not providing summer irrigation were important technical constraints considered for the study.

Further, change in the localization pattern and adoption of cultivation of light irrigated crops was considered the least important constraint by farmers in IBC while farmers of ALBC, NLBC and NRBC opined that it was slightly important as evident from their ranks V, IV, IV and III, respectively. Similarly, no cement lining of FICs to avoid water losses was felt as most important constraint by farmers of NLBC while the farmers of IBC, NRBC and ALBC felt it was a serious constraint which is evident from their ranks I, II, II and III, respectively. Further, un-timely release of water from the canal was perceived as most serious constraint which is evident from the ranks I, I and II by the farmers of ALBC, NRBC and NLBC while it was perceived as slightly less severe constraint by farmers of IBC. Similarly, no installation of water meters at the field gates was least felt constraint by the farmers of all the canals as evident from their ranks IV and V. Finally, not providing summer irrigation was considered as serious constraint by the farmers of NLBC and ALBC as evident from their ranks I and II, respectively however, it was felt as not so serious constraint by farmers of NLBC and NRBC which may be observed from their ranks III and IV, respectively.

Similarly, with regard to economic constraints (i) collection of water charges on quantitative basis (ii) no release of expected grants by society (iii) no adequate release of funds and no proper repair of canals (iv) no provision of special grants and (v) not creation of financial assistance to office bearers and

directors were important economic constraints considered for the study.

Further, it may be observed from the table that collection of water charges on quantitative basis was felt as the least serious constraint by the farmers of ALBC, IBC and NLBC as evident from the rank V assigned by them. However, it was a slightly felt constraint by the farmers of NRBC which may be observed from the rank III assigned by them. Similarly, no release of expected grants by society was perceived as a serious constraint felt by farmers of NRBC and ALBC while it was not perceived as serious constraint by farmers of IBC and NLBC which is evident from the ranks I, II and IV, respectively. Further, no adequate release of funds and no proper repair of canal was felt as a serious constraint by the farmers of ALBC and IBC as evident from the rank I while it was not felt as serious constraint by farmers of NLBC and NRBC which may be seen from their ranks III and II, respectively. No provision of special grants was perceived as a serious constraint by the farmers of NLBC and IBC as evident from their ranks I and II while it was not felt as a serious constraint by farmers of ALBC and NRBC as evident from rank IV assigned. Finally, not creation of financial assistance to office bearers and directors was perceived as a serious constraint by farmers of NLBC, ALBC and IBC while it was perceived as least serious constraint by farmers of NRBC as evident from the rank V.

Further, with regard to social constraints (i) not conducting regular training and capacity building for office bearers (ii) lack of good co-operation from the staff/officials (iii) lack of inclusiveness among the members in the society (iv) lack of proper functioning of WUAs to ensure equitable irrigation management and (v) no increase in the participation in meetings were considered for the study.

It may be observed from the table that, not conducting regular training and capacity building for office bearers was not considered very serious constraint by the farmers of ALBC, NLBC and IBC which is evident from their ranks III and IV however, farmers of NRBC considered it as serious constraint which may be observed from the rank II. Further, lack of good co-operation from the staff/officials was perceived as most serious constraint by farmers of all canals which is evident from ranks I and II assigned. However, lack of inclusiveness among the members in the society was not perceived as a serious constraint by farmers which is evident from the ranks IV and V assigned. Further, lack of proper functioning of WUAs to ensure equitable irrigation management was felt as slightly serious constraint by farmers of IBC, ALBC and NLBC which is evident from the ranks I and II assigned while it was not perceived as serious constraint by farmers of NRBC which may be seen from the rank IV. Finally, no increase in the participation in meetings was perceived as the least serious constraint by the farmers of ALBC, NRBC and NLBC which is evident from the ranks V and IV while it was perceived as slightly serious constraint by the farmers of IBC which is evident from the rank III.

Table 1 Constraints faced by farmers in UKP command area

Sl. No	Constraints	ALBC	IBC	NLBC	NRBC
I	Technical	Rank			
1	No change the localization pattern and adopt cultivation of light irrigated crops.	IV	V	IV	III
2	No cement lining of FICs to avoid water losses.	III	II	I	II
3	Untimely release of water from the canal	I	III	II	I
4	No installation of water meters at the field gates.	V	IV	V	V
5	Not providing summer irrigation	II	I	III	IV
II	Economical				
1	No collection of water charges on a quantitative basis	V	V	V	III

2	No release of expected grants by the society	II	IV	IV	I
3	Inadequate release of funds and proper repair of canals.	I	I	III	II
4	No provision of special grants	IV	II	I	IV
5	No creation of financial assistance to office bearers and directors	III	III	II	V
III	Social				
1	No regular training and capacity building for office bearers	III	IV	III	II
2	Lack of good cooperation from the staff/ officials	I	II	I	I
3	Lack of inclusiveness among the members in the society	IV	V	V	III
4	No proper functioning of WUCs to ensure efficient irrigation management.	II	I	II	IV
5	No increase in the participation in the meetings	V	III	IV	V

Note: Ranks have been assigned based on Garrette Score

Constraints faced by staff of irrigation department /CADA

The constraints faced by the staff of irrigation department/CADA in the command areas were classified into technical, economic and social constraints have been analyzed using Garrette ranking technique. The results are recorded for different canal command areas in UKP area are presented in table 2.

It may be observed from the table that (i) fast tracking of MoUs and other orders (ii) scientific quantification of water at field level (iii) proper lining of FICs to ensure natural flow (iv) installation of water meters at farm gates and (v) timely inspection and supervision of canal sites were important technical constraints considered by the farmers.

Further, it may be noted that proper lining of FICs to ensure natural flow was perceived as most serious constraint as evident from its rank I with mean score of 55.69. Similarly, timely inspection and supervision of canal sites was felt as a serious constraint which may be observed from the rank II with mean score 50.81. Further, fast tracking of MoUs and other orders was perceived as slightly serious constraint which is evident from the rank III with mean score of 30.18. Similarly, installation of water meters at farm gates and scientific quantification of water at field level were considered as least serious constraint as evident from their ranks IV and V with mean scores 26.54 and 20.83, respectively.

Similarly, it may be observed that (i) inadequate release of funds for canal repairs (ii) no taking up of development activities by WUAs (iii) no sanction of expected grants (iv) lack of timely collection of water charges and (v) lack of proper utilization of OTGs were the important economic constraints considered for the study.

Further, it may be noted inadequate release of funds for canal repairs was perceived as most serious constraint as evident from its rank I with mean score of 61.92. Similarly, lack of timely collection of water charges was felt as a serious constraint which may be observed from the rank II with mean score 56.88. Further, lack of proper utilization of OTGs was perceived as slightly serious constraint which is evident from the rank III with mean score of 50.94. Similarly, no taking up of development activities by WUAs and no sanction of expected grants were considered as least serious constraint as evident from their ranks IV and V with mean scores 42.18 and 33.52, respectively.

Further, (i) lack of good co-operation from farmers (ii) lack of good co-operation from line departments (iii) not conducting of regular meetings and field visits to farmers' fields (iv) no training and capacity building to farmers and (v) lack of inclusiveness in the society were important social constraints considered for the study.

Further, it may be noted that lack of good co-operation from farmers was perceived as most serious constraint as evident from its rank I with mean score of 56.81. Similarly, not conducting of regular meetings and field visits to farmers' fields was felt as a serious constraint which may be observed

from the rank II with mean score 49.96. Further, no training and capacity building to farmers was perceived as slightly serious constraint which is evident from the rank III with mean score of 44.51. Similarly, lack of good co-operation from line departments and lack of inclusiveness in the society were considered as least serious constraint as evident from their ranks IV and V with mean scores 38.71 and 26.84, respectively. A close observation of the table indicates that (i) change in the localization pattern and adoption of cultivation of light irrigated crops, (ii) no cement lining of FICs to avoid water losses, (iii) un-timely release of water from the canal, (iv) no installation of water meters at the field gates and (v) not providing summer irrigation were important technical constraints considered for the study. Similarly, with regard to economic constraints (i) collection of water charges on quantitative basis (ii) no release of expected grants by society (iii) no adequate release of funds and no proper repair of canals (iv) no provision of special grants and (v) not creation of financial assistance to office bearers and directors were important economic constraints considered for the study. Further, with regard to social constraints (i) not conducting regular training and capacity building for office bearers (ii) lack of good co-operation from the staff/officials (iii) lack of inclusiveness among the members in the society (iv) lack of proper functioning of WUAs to ensure equitable irrigation management and (v) no increase in the participation in meetings were considered for the study (Table 1)

The farmers opined that releasing water at regular intervals was the top priority alongside the providing summer irrigation. The formation of WUAs will lead to uniform, efficient and timely distribution of water to the fields. Collection of water on quantitative basis and good cooperation from the officials and staff of the departments and CADA was expected by the farmers. Installation of water meters at the field gates was suggested by the farmers which will result in scientific quantification of the water in the command areas which will enhance the agriculture productivity and create sustainability in water resource management.

Similarly, the constraints faced by the staff of irrigation department/CADA in the command areas were classified into technical, economic and social constraints and results are recorded for different canal command areas in UKP command area.

It may be observed from the table that (i) fast tracking of MoUs and other orders (ii) scientific quantification of water at field level (iii) proper lining of FICs to ensure natural flow (iv) installation of water meters at farm gates and (v) timely inspection and supervision of canal sites were important technical constraints considered by the farmers. Further, it may be observed that (i) inadequate release of funds for canal repairs (ii) no taking up of development activities by WUAs (iii) no sanction of expected grants (iv) lack of timely collection of water charges and (v) lack of proper utilization of OTGs were the important economic constraints considered for the

study. Similarly, it may be note that (i) lack of good co-operation from farmers (ii) lack of good co-operation from line departments (iii) not conducting of regular meetings and field visits to farmers' fields (iv) no training and capacity building to farmers and (v) lack of inclusiveness in the society were important social constraints considered for the study (Table 2) It may also be observed that the opinion of opinions staff of irrigation departments (ID) and Command Area Development Authority (CADA) moves around adequate release of funds

and effective training and capacity building for farmers to enhance water productivity was need of the hour. This is mainly due to inadequate release of funds for canal development works and lack of training and capacity building to farmers and officers

The results obtained in the study were similar to those obtained by Hugar LB, 1997^[3] in Tungabhadra command area and Molden *et al.*, in 2002.

Table 2: Constraints as expressed by staff of irrigation departments/CADA

Sl. No	Constraints	Staff of CADA/ID	
		Mean Score	Rank
I			
Technical			
1	Fast tracking of MoU & other orders	30.18	III
2	Scientific quantification of water at field level	20.83	V
3	Proper lining of FICs to ensure natural flow	55.69	I
4	Installation of water meters at farm gates	26.54	IV
5	Timely inspection and supervision of canal sites	50.81	II
II			
Economical			
1	Adequate release of funds for canal repairs	61.92	I
2	Taking up development activities by WUCs	42.18	IV
3	Sanctioning expected grants	33.52	V
4	Timely collection of water charges	56.88	II
5	Proper utilization of OTGs	50.94	III
III			
Social			
1	Lack of good cooperation from farmers.	56.81	I
2	Lack of good cooperation from line departments	38.71	IV
3	Conducting regular meeting and field visits to farmers' fields	49.96	II
4	Lack of training and capacity building to farmers	44.51	III
5	Lack of inclusiveness in the society (WUAs).	26.84	V

Conclusion

It may be concluded that regular meetings should be organized among the farmers and the officials of irrigation department/CADA to study the problems faced by farmers and find possible solutions and adequate representation should be made to small and medium farmers from backward communities in the WUAs Thus there can be a better and equitable distribution of water if farmers are having appropriate training and capacity building.

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