An evaluation of constraints and expectations of irrigation information in command areas of Tungabhadra and Upper Krishna Projects

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ABSTRACT

An evaluation of constraints and expectations of irrigation information in command areas was studied in both Tungabhadra (TBP) and Upper Krishna (UKP) Projects during the year 2008-09. The lack of data base software (100%) and proper communication channel (100%) were the major constraints as opined by the irrigation engineers, whereas lack of cooperation from irrigation department (81-97%) followed by lack of education (73-75%) were major constraints as opined by farmers. Information on water losses in canals (80-90%) was the major expectation of engineers, whereas alternative cropping pattern (84-89%), dissemination of irrigation information through mass media (80-82%) and through WUCSs (75-77%) formed the major expectations of farmers in all regions of both the command areas.

INTRODUCTION

A large number of irrigation projects have been commissioned in India in the post-independence era for improving food production and economic development. However, in recent years the performance of irrigation projects is not to the expectations (Rao and Chakraborti, 2000). There are many reasons and one among them, improper maintenance of irrigation information system. The irrigation projects managed based on hardware and software not used. Especially in irrigation information, the irrigation information system is in still in traditional approach of using outdated structures for measuring water, manual documentation in registers, dissemination through reports, news papers, etc. Irrigation information management is the key to efficient and timely water distribution in canal command area. However, spatial coverage of irrigation information is incomplete and as a result little or no information is collected in some areas. Problems are also being experienced with the quality and reliability of information.

Irrigation management information is the broad class of information needed by stockholders to manage operations and maintenance in an irrigation system. It includes information for planning, implementation, monitoring, review and evaluation. It is vital for planning, directing and controlling operation and maintenance activities. Therefore, there is a need to assess the constraints and expectations of the irrigation information system by farmers and irrigation engineers on irrigation information system in command areas (Sankara Reddy and Yellmanda Reddy, 2003). The present study attempts to evaluate the constraints in the present irrigation information system as perceived by farmers and engineers and also throw light on their expectations in the system.

METHODOLOGY

The study was carried out in Tungabhadra (TBP) and Upper Krishna (UKP) Projects of Karnataka during the year 2008-09. Multistage random sampling procedure was adopted for the selection of sample farmers for the study. In case of TBP, three regions were selected namely, head region, middle region and tail region in the first stage. Head region comprised of Koppal and Gangavathi taluks of Koppal district, middle region comprised of Sindhanur taluk of Raichur district and tail region included command areas of Manvi and Raichur taluks. In second stage, 20 farmers were selected randomly from each of the above three regions. Thus, the total sample size constituted 60 in TBP. Similarly, in UKP, command areas of three canals were selected namely Shahapur

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Branch Canal, Indi Branch Canal and Jewargi Branch Canal representing head, middle and tail regions in the first stage. From each of the canal command area, 20 farmers were selected randomly in the second stage. In addition to farmers, ten irrigation engineers were selected randomly from each of the irrigation projects namely TBP and UKP to elicit the constraints and expectations in both the command areas.

RESULTS AND DISCUSSION

The findings of the present study as well as relevant discussion have been presented under following heads:

Constraints in irrigation information :

An opinion survey was carried out to elicit the perception of irrigation engineers and farmers on constraints and expectations in irrigation information system in both the projects. It was found that several factors contributed to the poor irrigation information system and its management at different levels as indicated by irrigation engineers (Table 1) and farmers (Table 2). The lack of measuring devices (50-60%) and destruction of irrigation structures (70-80%) were the major constraints faced by irrigation engineers in documentation of the information at different levels of the projects. Therefore, it is suggested for improvization of measuring structures with state of art technology. Engineers also faced difficulty in proper recording and dissemination of data base since most of data documented were on hard copy. Hence, appropriate software needs to be developed

Table 1 : Constraints faced by irrigation engineers on irrigation information system management (Percentages)

Sr. No.	Particulars	TBP	UKP
1.	Lack of measuring devices	50.00	60.00
2.	Destruction of irrigation structures	80.00	70.00
3.	Manual system of recording and documentation	40.00	90.00
4.	Lack of man power	90.00	80.00
5.	Lack of technical guidance	70.00	70.00
6.	Lack of improved equipments	80.00	90.00
7.	Lack of cooperation from farmers	70.00	60.00
8.	Lack of data base software	100.00	100.00
9.	Lack of proper communication channel	100.00	100.00
10.	Heterogeneity in land	70.00	50.00
11.	Heterogeneity in cropping	90.00	80.00
12.	Failure of WUCSs	60.00	70.00

Table 2 : Constraints faced by farmers on irrigation information system in TBP and UKP (Percentages)

Sr. No.	Particulars	TBP	UKP
1.	Political interference	65.00	55.00
2.	Lack of dissemination through mass media	65.00	78.33
3.	Lack of education	73.33	75.00
4.	Lack of awareness	65.00	71.67
5.	Lack of co-operation from Irrigation department	81.67	96.67
6.	Lack of co-operation from CADA	81.67	96.67
7.	Failure of WUCSs	73.33	95.00
8.	Lack of dissemination through display boards	46.67	46.67
9.	Not following the decision taken in ICC meeting	45.00	38.33

and used in documentation and dissemination of irrigation information.

The farmers faced the problem of poor irrigation information system due to political interference, lack of education and awareness, poor dissemination to mass media and failure of WUCSs (Table 2).

Expectations on irrigation information :

It is worth noting that the irrigation engineers as well as farmers expected much more sophisticated information on irrigation in both the projects. They opined that the existing system of irrigation information was inadequate and took more time in documentation, dissemination and analysis. Irrigation engineers in both the projects expect information on water loss data in main canal (80-90%) and distributories (80%) with use of quick measuring devices and software (Table 3). Similarly, majority of the farmers from both TBP and UKP projects expected dissemination of up to date irrigation information at distributory and field irrigation canals level through mass media (Table 4).

Therefore, the existing system of irrigation information and its management need to be reorganized well to meet the expectations of different stakeholders of irrigation projects. In this regard, there is a need to develop scientific and automatic measuring devices and software for better data base management. Information and communication technology (ICT) to be used for dissemination of irrigation information. Such system would facilitate in better irrigation water management in command areas. Similar observations were made by Makin and Corrish, 1996.

Sr. No.	Particulars	TBP	UKP
	Table 3 : Expectation of irrigation engineers on different components of irrigation information (Percentages)		
1.	Water losses in canals	90.00	80.00
2.	Water losses in distributories	80.00	80.00
3.	Siltation in canals	50.00	60.00
4.	Seepage losses	30.00	50.00
5.	System losses	40.00	20.00
6.	Expected area of irrigation	70.00	50.00
7.	Drainage system in command area	30.00	20.00
8.	Physico-chemical condition of soil in command area	40.00	40.00
9.	Cropping pattern	80.00	80.00
10.	Field irrigation requirement	70.00	60.00
11.	Field capacity	40.00	50.00
12.	Infiltration capacity	60.00	40.00
13.	Advanced censor based automatic irrigation water measurement devices to be installed	80.00	80.00

Sr. No.	Particulars	TBP	UKP
	Table 4 : Expectation of farmers on irrigation information in TBP and UKP (Percentages)		
1.	Water level in reservoir	20.00	30.00
2.	Inflow into reservoir	25.00	33.33
3.	Average canal drawals	21.67	31.67
4.	Expected area of irrigation	21.67	35.00
5.	Alternative cropping pattern	84.67	88.33
6.	Water discharge from canal	13.33	33.33
7.	Distributory discharge/depth	23.33	25.00
8.	On/Off cycle at distributory	18.33	30.00
9.	Pipe outlet size	41.67	73.33
10.	Area under each pipe outlet	31.67	68.33
11.	Dissemination of irrigation information through village panchayath	63.33	56.67
12.	Dissemination of irrigation information through display boards	33.33	36.67
13.	Anticipated irrigation information from village level workers	63.33	65.00
14.	Dissemination of irrigation information through bulletins	16.67	20.00
15.	Dissemination of irrigation information through mass media	80.00	81.67
16.	Dissemination of information through mobile phones	21.67	25.00
17.	Dissemination of irrigation information through WUCSs	76.67	75.00

Conclusion:

The lack of measuring devices and destruction of irrigation structures were major constraints faced by irrigation engineers. The farmers also faced the problems of political interference, lack of education and awareness, poor dissemination through mass media and failure of WUCSs. Major expectations of irrigation agencies were water losses data in main canal and distributories. Similarly, majority of farmers expected dissemination of up to date irrigation information through mass media.

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