

## **CHAPTER - 6**

### **RECOMMENDATIONS**

#### **INTRODUCTION**

Studies to evaluate efficiency of conveyance and distribution network and productivity per unit volume of water have been conducted from time to time ever since the commissioning of U.G.C. system. Determination of losses, assessing capacity of channels, silt load, rationalisation of water allowance & its modification from time to time and the practice of issue of guidelines and standing instructions have been in vogue. Calibration of gauges at various control points on meterflumes, falls, even face wall of outlets was being done and efficiency diagrams used to be maintained in divisions for each outlet & channel. Even though the technical know-how, tools & aids have been modernised, crop-scheduling & pattern diversified, the culture of regime in upkeep of hydraulic section, sanctity of precise drawal of outlets & offtakes and monitoring & consequent remedial measures have been given the go-by. The function of releases have been delegated to mere signallers & gauge readers. Discharge tables once framed continue for years. Non-maintenance of regime, avoidable vegetal growth, unauthorised drawal, wastage & leakages responsible for reducing water use efficiency are realized but only lamented with a shrug off as system-failure due to reasons which are controllable but not controlled. The present status of existing Upper Ganga Canal System has been studied afresh and conclusions drawn as given in Chapter-5.

In view of above the following recommendations are made to improve upon affairs & thus achieve better water use efficiency.

1. Even though lean supplies during winter months of Feb/March compel running of channels by rotation on UGC; correct appraisal

and mid-course correction in releases based on i) crop water requirement specially at its critical stage of growth and ii) conjunctive use of surface & ground water, as per ground scenario, will result in better water management of surface water without compromising with quality & quantity of crop-produce. It has been observed that supplies continue to flow down when demand slackens due to shower (rain) in area or when other areas look up to any other alternative of ground water resources. Only the tail areas suffer essentially & generally. This can be re-organised.

2. The UGC command has extensive soil and watertable variation. It also have variable, fluctuating & vastly different ground water potential. The soil moisture available at the end of monsoon & during sowing of Rabi should be accounted for while working out water shares & releases in various parts of the irrigaiton command.
3. The head reach areas in large tracts have adequate availability of surface canal water as also fresh ground water in plenty. Besides over-use and raising of water intensive crops, there is wastage as well as would the figures of delta suggest. There is strong case for carrying surface water to areas of scarcity or where ground water table is either deep or saline to draw a balance. The incentive for ground water use can be introduced by rationalizing energy charges to match with flow water rates & simultaneously upgrading existing water rates which are low. Any discrimination in this can be avoided without financial burden.
4. Augmentation Tubewells do not run all the time during peak demand & sometimes run when not needed. Power shortage problem need to be tackled to make full use of heavy investment & recurring O&M of such tubewells. The discharge of tubewells gradually dwindles & falls; upkeep by re-development etc. is necessary.

5. In the programme of lining of canal; piecemeal taking up of lining of canal at random should be avoided. System-wise lining of canal irrespective of jurisdiction of division, circle or district should be the sole criteria so that additional working head derived due to reduction in slope of lined canal is available right from branch to minor and lift areas or areas served by Jhallari are converted into flow areas as far as possible and command area enlarged.
6. Rather than planning to utilise water saved due to lining on the same system by increasing water allowance, this saving should be carried to areas of scarcity, if there are any possible areas to be so covered; exception can be demand for rural or urban drinking water supply needs on the existing system. This step shall also directly evaluate reduction in seepage losses after modernisation.
7. An integrated system of practices need to be evolved over a sub-branch unit / branch-unit to optimise use of ground water, surface water and micro irrigation practices like sprinkler, drip etc. by appropriating differential water charge & area specific water application practices.
8. Territory channels be handed over to water-users society for effective cooperative maintenance since it would i) reduce O&M cost; ii) facilitate collective decision of cropping pattern & iii) impart flexibility of concessional water at head for bulk supply with freedom to have differential rates as per crop sown.
9. The practice of forming outlet committies is counter productive on UGC as expenditure & assistance on watercourses runs counter to canal act where farmer is obliged to maintain it at his own cost. These can be discontinued.
10. Drainage & Irrigation go hand in hand and areas of drainage congestion need to be tackled by sub-surface and surface drainage to avoid water logging & deterioration productivity levels. Drainage

cess can be imposed where problem is created by unhealthy practices.

11. Irrigation Officers be empowered to enforce canal act to penalise farmers with deterrent fines for unauthorised acts of irrigation and wastage by them.
12. Farmers should be motivated for installation of sprinklers and / or drip irrigation system not only in sandy & areas of water scarcity but also in areas of plenty to avoid water logging.
13. Volumetric charges be introduced on experimental basis on a sub-branch system to bring home value of water. Water rates are one of the lowest in our country & there is no incentive for economical use or disincentive for over-use. Rationalisation is necessary.
14. Zoning be done on the UGC command for areas under :-
  - i) Predominantly lift irrigation by micro-irrigation practices, water harvesting structures, tanks etc.
  - ii) Only surface irrigation through canals
  - iii) Surface irrigation with conjunctive use of surface water & ground water.
  - iv) Predominantly ground water irrigation through tubewells / wells.
  - v) Irrigation through drains & needing recharge should be identified. The cropping zones be superimposed on these zones as per soil & SSWL characteristics.
15. The tail areas being chronic sufferers, the deptt. should ensure as its responsibility to feed tail areas whether through surface water or augmentation through alternative or additional source.
16. Efficiency diagram of each outlet be maintained.
17. Tatiling of outlets be done to discourage unauthorized acts.
18. Regular hydraulic survey of channels should be done to keep channels nearest to its design hydraulic parameters.
19. Discharge tables of all canals upto disty. level be revised at beginning of each crop.

20. Automatic gauge recorders be installed on main canals.
21. Gates & Gearing for regulations be done within a phased programme to be completed in 3 years. Automation in control be expedited.
22. Communication system despite facilities is slack & tardy; it should match computer based automation.
23. Attitudinal change in personnel-matrix is needed from official-dom to a sellers-perception.
24. Participatory involvement in decision making on cropping pattern, releases, rotational programme, conjunctive use, is essential for transparency in system management.
25. Recovery of water charges & realistic water rates are essential to bridge the gap between escalating O&M cost & existing water rates. Penalty like fines on delayed payment as done on electricity bills & WS Bills be introduced in irrigation water bills or Khatauni's also.