



**PROGRESS IN IRRIGATION DEVELOPMENT (UTILIZATION POTENTIAL)
THROUGH COMMAND AREA DEVELOPMENT PROGRAMME IN INDIRA
GANDHI CANAL COMMAND AREA, RAJASTHAN**

Sunil Kumar

Research Scholar, Department of Geography, K. U. Kurukshetra.

ABSTRACT :

Utilization is generally computed as a ratio between gross area irrigated by the project and the created irrigation potential in terms of percentage. Under utilization of created irrigation potential has been a cause of concern since the beginning of the plan period in India. The gap between created irrigation potential and its utilization has been particularly more in the command areas of major and medium irrigation projects as compared to that of minor projects (mostly tubewells). At the end of First Five Year Plan 90 percent of created irrigation potential of major and medium irrigation projects was utilized followed by 91 and 91.55 percent during Second and Third Plan. But utilization level decreased up to 88.38 and 85.59 percent during Fourth and Fifth Plan respectively. This widening gap indicates the gross under utilization of invested public resources.

KEYWORDS : Main features , Ground Water Resources , public resources .

INTRODUCTION :

Main features of the strategy towards irrigation development in the Fifth Plan were adoption of an integrated approach towards the development of command areas, i.e. Command Area Development. But, it is clear that even this approach has not been able to plug the gap between irrigation potential and its utilization. It is evident from the fact that by the end of Seventh Plan only about 85 percent of created potential was utilized which decreased slightly during Tenth Plan to 84.87 percent. Ultimate irrigation potential (UIP) created during Eleventh Five Year Plan is 139.9 million ha which includes 58.47 million ha from Major and Medium Irrigation Projects, 17.38 million ha from Surface Water Resources and 64.05 million ha from Ground Water Resources (analysis based on the table taken from planningcommission.nic.in).

Some scholars have pointed out that under utilization of created irrigation potential is not realistic and is a result of intensive use of water near the head of the project. The farmers in the upper reaches of the project avail irrigation early than the tails because of the fact that total completion of the project takes time. Hence, the farmers in the upper reaches get some more water and develop water intensive cropping pattern such as paddy and sugarcane. This has resulted in a drastic curtailment in total irrigated area-mainly at the expense of the farmers in the tail reaches-apparently showing underutilization of irrigation potential that is conventionally expressed in term of irrigable land (Dhawan, 1989). It means that the task of the irrigation project does not end with the completion of the network but also they have to ensure equable distribution of water in the command areas. There is a need of an extensive soil and land survey of the command area and

suggesting a cropping pattern keeping in view the availability of water and condition of soil and other environmental characteristics. Enforcement of suitable cropping pattern along with on-farm development and availability of the infrastructure, agricultural inputs and credits could realize not only the equitable distribution of water in the command areas but also help in full utilization of irrigation potential (Jaglan, 1990).

Objective: To assess the progress of utilization level of created irrigation potential in the command area.

DATA BASE AND METHODOLOGY:

Secondary data has been used to analyze various aspects resulted due to increasing level of created irrigation potential in the command area viz. on farm development, afforestation, *abadi* and *chak* planning, road transport, *mandi* development and ground water level monitoring.

RESULTS AND DISCUSSIONS:

Command Area Development

Command Area Development (CAD) programme is an integrated approach towards irrigation development for full utilization of irrigation potential. It began with initiation of a central sector scheme in the Fourth Five Year Plan. This scheme also proposed to finance certain amenities in some project command areas such as market complexes, shops and link roads. The scheme was implemented to provide the State Governments the measures to improve the project administration and other infrastructural development in the command area. Besides, the cooperative sector was assigned the responsibility to provide loans to the needy farmers. However, it could not be implemented in the absence of adequate financial resources, proper studies of requirements of projects and soil survey information.

It was realized that problems in water management of major and medium irrigation projects can be overcome and optimum

agricultural productivity from the irrigated land can be achieved only through a successful implementation of CAD programme. A general programme of Command Area Development as adopted by the Fifth Five Year Plan and its main elements are as under:

- (i). Adoption of area development approach.
- (ii). To provide credit and loans for land leveling, shaping the field channels and drainage facilities.
- (iii). Speedy acquisition of land to construct distributaries and minors.
- (iv). Ensuring equity in water distribution through the implementation of *Warabandi* system.
- (v). Evolving suitable cropping pattern and its implementation (Report on Fifth Five Year Plan).

CAD PROGRAMME OF IGC COMMAND AREA:

For ensuring optimum utilization of irrigation water for maximizing agricultural production and productivity through a multi-disciplinary approach, a Command Area Development Authority (CADA) was set up for Indira Gandhi Canal in July, 1974. Besides, the reasons of introduction of this programme there are some specific features which make it necessary to adopt integrated area development approach in Indira Gandhi Canal Command Area. These are enumerated as under:

- (i). Most of the command area is newly settled and new settlements require to be connected with roads, communication, civic amenities like drinking water, electricity, education and health services and also require easy access to market, agricultural inputs, credit and loan, agricultural extension and facilities of training and demonstration and agricultural outputs processing.
- (ii). Command area of the canal has an undulating topography, infested with sand dunes rising to the height of 60 meters. It is impossible to irrigate the land and utilize the irrigation potential unless it is leveled and shaped. Moreover,

- texture of the soils is sandy and sandy loam and percolation rate of water is very high. This results into overuse of water and heavy conveyance losses in the absence of lined watercourses. Hence, on farm development is a precondition for the efficient utilization of irrigation resources in the canal command area.
- (iii). Wind erosion is very severe in the command area, particularly during the months of May and June. This poses very serious threat to cultivation in depressions in the cultivated land. Wind deposition also leads to silting and choking of the canal and water courses. Measures required to check the hazards of wind erosion are large scale afforestation, particularly raising shelter belt, canal side and road side plantation, not only in the command area but also in the adjoining areas.
 - (iv). Soils, particularly in the command area of Stage II, have under them lime concretions or hard pan of calcareous and clay material. Depth of this hard pan varies from one meter to ten meters below the surface. Growing water intensive crops with intensive irrigation in the command area may lead to water logging and soil salinity. Some areas of Stage I and also of Stage II of the command area have already developed salinity and waterlogging. Hence, determination and enforcement of a suitable cropping pattern is compulsory in this region.
 - (v). Traditional economy of the canal command area particularly that of Stage II has been pastoral. Hence, pastures also should be developed with the help of irrigation so that its benefit can also reach the local population. Furthermore, pasture development is expected to also help in stabilization of shifting sand dunes and arresting wind erosion.

Keeping these facts in view Command Area Development Programme has taken up following tasks in the command area:

- (a) On-farm development i.e. soil survey and planning, water course lining, land shaping and land reclamation.
- (b) Afforestation which includes block plantation on culturable wasteland, fuel wood plantation, canal and roadside plantation.
- (c) Development of district and village roads.
- (d) Construction of waterworks for drinking water supply.
- (e) Monitoring groundwater table.
- (f) Agriculture extension and training.

IMPLEMENTATION OF CAD PROGRAMME

Schemes of Stage I:

CAD programme implementation has been a long drawn process in the command area of Indira Gandhi Canal. This programme was carried out through two phases in Stage I of the command area. Phase I of the programme covered 2.42 lakh ha culturable command area (CCA) of the canal in Stage I. The integrated development was started in July, 1974 with the assistance from the International Development Agency (IDA). All command lands whose canal systems off take between 0 and 74 km of main canal lie in phase I. The area comprised of 1350 *chaks* having 1.08 lakh ha is already irrigated whereas, 34000 ha flood plain area requiring reclamation and 58,000 ha low area requiring leveling and shaping was developed under CAD programme. The area lies in the command of Rawatsar system (40,000 ha), Naurangdesar system (27,200 ha), direct outlets from Lakhuwali to 74 km of main canal (23,600 ha). An additional 35,000 ha of the project area, with high dunes and excluded from irrigation, requiring sand dune stabilization and controlled pasture development works was also included. In addition to 242,000 ha, another adjoining area of 46,000 ha (known as extended area) was also taken up for development with the saving of phase I project (Indira Gandhi Nahar Board, 2001).

This project has not been successfully implemented in case of one of the most important tasks, i.e. water course lining. The project completed water course lining providing

water to 189,299 ha of the appraised target of 244,000 ha. However, progress in respect of other component of the programme was quite satisfactory.

Phase II: Under this phase another Command Area Development project covering some 2.46 lakh ha area downstream of phase I area was taken up in January, 1980 with assistance of International Fund for Agricultural Development (IFAD). The project covered 1,750 *chaks* lying in Naurangdesar System (3,900 ha), direct outlets from tail of feeder canal to Lakhuwali head (12,200 ha), north Ghaggar canal system (10,500 ha), Anoopgarh branch (101,300 ha), Pugal branch (42,000 ha) and direct outlets from km 74 to km 189 of the main canal (67,000 ha). The lining of distribution system was excluded from CAD work and included in canal project in this phase. Monitoring of ground water status was included in the CAD project. It was completed on December 30, 1998. The area below 74 km was quite thinly populated. Government land in this area was allotted to landless farmers of adjoining areas. To accelerate the slow progress of settlement in this area construction of watercourses by the project was started with 50 percent share of the Government of India in 1980-81 (Indira Gandhi Nahar Board, 2001). Progress in this phase regarding construction of roads, village water supply and sanitary *diggis* (water tanks), afforestation and monitoring of water table was stated to be better.

Schemes of Stage II:

Development of infrastructure, providing assistance for settlement and provision of ration are prerequisite to initiate the process of development in Stage II command area. Hence, some preliminary programmes such as development of settlements, construction of roads, afforestation and soil survey were carried out between 1980 and 1986-87 under pre-project stage. Integrated Area Development Project commenced in Stage II in July, 1987. It included on-farm development works, afforestation, construction of roads, village water supply, land

development, settlement motivation, agricultural extension and research, settlement planning, animal husbandry services, agricultural input (seeds, fertilizers, insecticides, loans etc) services and drainage trials. A number of planning studies, semi-detailed soil survey and intensive hydro-geological investigations has been carried out for better understanding of the area and planning of CAD works. It is necessitated as the area is significantly different from upper command area and requires special attention on account of harsh climatic conditions, inferior soil and presence of *kankar* and gypsum layers at shallow depths. Special efforts are also made for prevention of waterlogging conditions and soil salinity. But, scenario is somewhat different actually. The construction of lined watercourses is not satisfactory because, in March 2005, area covered by lined water courses was only 6.37 lakh ha (includes some areas of Stage I also) out of total 8.73 lakh ha CCA under flow channels. The lining of water courses in the lift canals command areas has not been taken in large area. Irrigation intensity of the Stage II is 80 percent (36 percent in *kharif* and 44 percent in *rabi* season) and lift canal command area utilizes the irrigation water only for *rabi* crop, during *kharif* crops lift channels supply only drinking water in the command areas of Stage II (Status of CAD Activities, 2004-05).

Significantly, the Command Area Development programme was closed in Indira Gandhi Canal Project area with effect from 31st August, 2010 in spite of above discussed deficiencies. This can prove to be a serious blow to the efforts of colonization in this water scarce area.

REFERENCES

- Dhawan, B.D. (1989). Water Resource Management in India: Issues and Dimension. Indian Journal of Agricultural Economics. Vol XLIV. No. 3. July-September. 233-241.
- Indira Gandhi Nahar Board (2001), History of Indira Gandhi Nahar.

PROGRESS IN IRRIGATION DEVELOPMENT (UTILIZATION POTENTIAL)

Jaglan, M.S., (1990). Impact of Irrigation on Environmental and Socio-Economic Conditions: A Case Study of Indira Gandhi Canal Command Area. Ph.D. Thesis. CSRD. SSS. JNU. New Delhi.

Planning Commission, Govt. of India, Report of Steering Group on Fifth Five Year Plan Relating to Agriculture, Irrigation and Allied Sector, July, 1973.

planningcommission.nic.in

Status of CAD Activities, 1994-95 to 2004-05, IGNP, Bikaner.