ACHIEVEMENTS OF SINDH IRRIGATION DEPARTMENT (1919 – 2012)

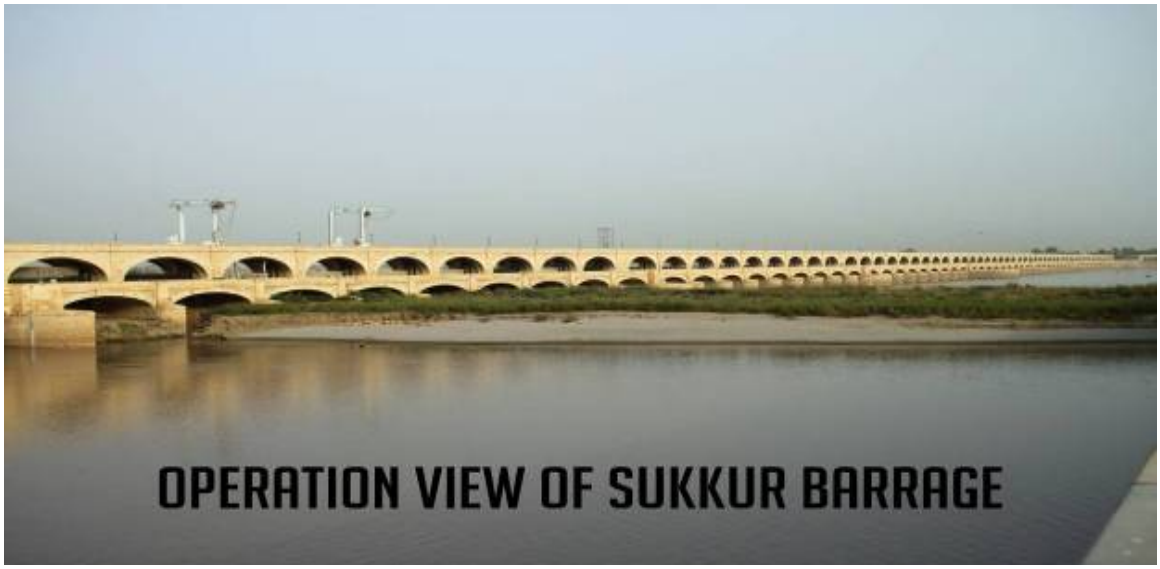
History of Sindh Irrigation Department with reference to Canal Irrigated Agriculture spans over almost a century. Irrigation supplies are provided through 14 canals systems fed by 3 gigantic barrages on Indus River.

Sukkur barrage project was the first mega intervention in this direction. Design of this world's largest barrage and canal network was done in 1919, construction commenced in 1923 and the barrage was completed and commissioned in April 1932 to provide assured irrigation supplies for the first time in Sindh.

The Sukkur Barrage feeding 3 canals on the right bank and 4 canals on the left bank, has a total command area of 8.24 million acres. The Sukkur Barrage was also named as Lloyd Barrage as a token of recognition of the interest and efforts taken by Sir Lloyd George, Governor of the Bombay Residency, governing the Sindh affairs. It was initiated by the Viceroy of India, Lord Wellington and assured Irrigation supplies started for the 1st time in Sindh.



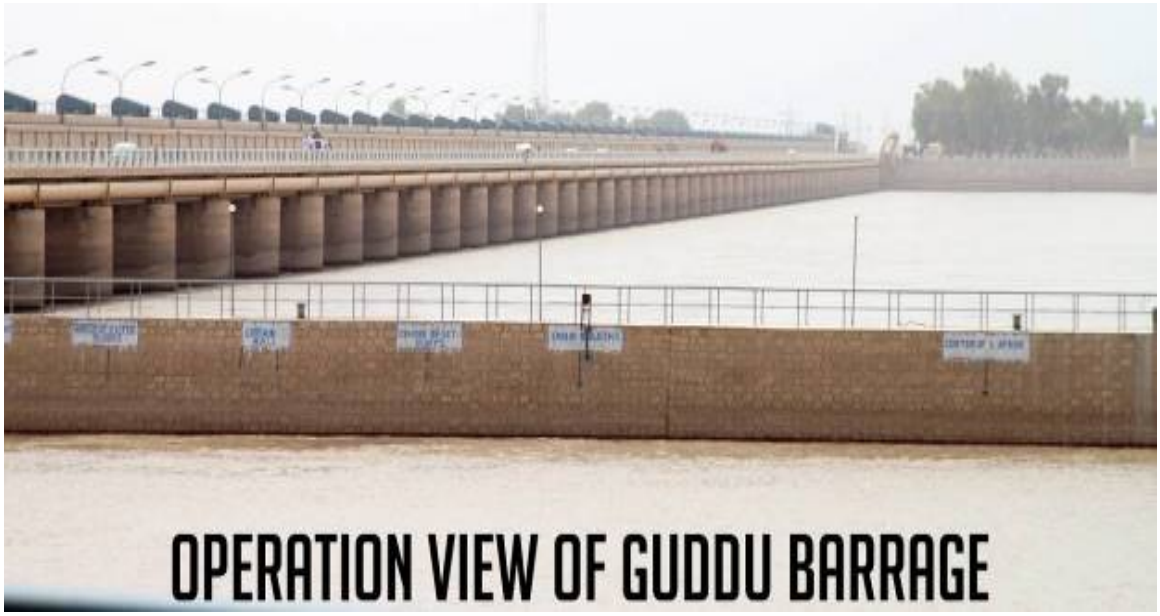
Construction Stage of Sukkur Barrage



After the construction of Sukkur Barrage which ensured controlled supplies to the eastern and middle portion of the alluvial belt, another barrage across the Indus upstream of Kotri was considered necessary to assure water supplies to the southern part. The Kotri barrage was, therefore, constructed in the year 1955. Under supervision of Chief Engineer, Mr. T. A. W. Foy. The Kotri Barrage has a discharge capacity of 875,000 cusecs with 44 Bays each 60 ft. wide and feeding more than 3 million acres of land.



The latest barrage constructed in Sindh is Guddu Barrage, whose foundation stone was laid by President Iskandar Mirza on 2nd Feb 1957, located in the extreme north of Sindh, near the city of Kashmore. It was completed in the year 1962. The Guddu Barrage has a discharge capacity of 12 lac cubic feet per second with 64 bays, each 60 ft. wide. Guddu Barrage feeds more than 2.5 million acres of land of Sindh and Balochistan Provinces.



Development of Canal Systems in Sindh

Sindh Province is benefited by both perennial and non-perennial Irrigation canal systems taking off from the three barrages constructed on the River Indus. Canal systems of Sukkur, Kotri and Guddu were completed in 1932, 1955 & 1962 respectively.

1	**Guddu Barrage.**	
i)	Left Bank Canals:	The Ghotki Feeder (non-perennial) is the only canal that off takes from the Guddu Barrage
ii)	Right Banks Canals:	Two main canals that off take on right side are the Desert Pat Feeder & the Begari Sindh Feeder, both are non-perennial canals.
2.	**Sukkur Barrage.**	
i)	Left Bank Canals:	Four Canals off take on the left side of the Sukkur Barrage namely Khairpur west canal, Rohri Canal, Khairpur East Canal & Eastern Nara Canal.
ii)	Right Banks Canals:	Three Canals take off on the Right Bank of Sukkur Barrage namely North West Canal, Rice Canal & Dadu Canal.
3.	**Kotri Barrage**	
i)	Left Bank Canals:	Three Canals namely the Akram Wah (Lined Canal), The Fuleli Canal & the Pinyari Canal take off on the left side of the Kotri Barrage.
ii)	Right Banks Canals:	There is only one Canal of taking on the right side namely the Kalri Baghar Feeder.

In all 14 Main canals, 109 branches, 509 distributaries, and 902 minors' off-take from the above 3 barrages receiving their apportioned irrigation supplies in accordance with the 1991 water accord and irrigate over 13 million acres of fertile lands.

Mega Drainage Projects

The Irrigation Department is also responsible for surface and subsurface drainage system, which can be divided into two main systems, left bank out fall drain (LBOD) located on left side of river-Indus , and right bank outfall drain (RBOD), located on right side of river-Indus. The RBOD project is aimed to provide the facility to carry the drainage effluent of Sindh and Baluchistan provinces from Karampur (Dadu District) area in Sindh to Arabian Sea at Gharo creek (Thatta District).



View of RBOD (Sim Nala)

The LBOD project was (Drainage portion) constructed by WAPDA. It is designed to control ground water levels and improve the collections and disposal of saline effluent from areas on the left bank of river Indus to the Arabian Sea, which is for the first time ever in Pakistan. It's really honor to have one of the world's largest drainage engineering projects.



Operational View of LBOD (Left Bank Outfall Drain)





Operational View of LBOD (Left Bank Outfall Drain)

In the command areas of Guddu and Sukkur Barrages SCARP Projects are operating to supplement the canal water supplies in deficient areas by extracting under ground/ subsoil sweet water. Drainage Tubwells were also installed in saline areas for control of water logging and salinity.



Operational View of a SCARP-Tubewell

Mega Projects of Prominence in pipeline of Sindh Irrigation Department.

Every year, Irrigation Department Sindh has to execute a large number of development schemes and Mega Projects to improve irrigation system to ensure economic and social fortune of the province. In recent years, some really remarkable projects were launched by Irrigation department. These include the **Project of Revamping and Rehabilitation** of Irrigation and Drainage System which is under-progress; to improve the operational efficiency of irrigation-system.





An-other project pertains to **construction of small storage dams and recharge structures in Kohisatan and Nangarparkar Regions of Sindh.** Most of these have been completed while others scheduled are to be completed soon. The project has not only created employment opportunities but also ensures water-supply in arid regions of Sindh Province, thus boosting up the National economy as well.

	
A general view of Rani kot Dam in Dadu	**A general view of Ranpur Dam in Nagarparkar**
	
A general view of Bandhani-I, Dam in Dadu	**A general view of Bandhani-II, Dam in Dadu**



A general View of Lining of Minor in Sindh

The third mega project is of **Lining of distributaries and minors for 109 channels**, which is still in progress. Once completed, it will cut huge water-losses due to seepage and the sand water can be utilized to irrigate a vast area.

It is important here to mention the role of **Chotiari Reservoir project in district Sanghar of Sindh,** which is also in progress. On completion, this project will provide additional water to 324000 acres of land in districts Sanghar and Umerkot.



A general view of Chotiari Reservoir in Sanghar



View of Land Side stone pitching and stone masonry wall (Phase-II)

Another Mega Project (under urban water supply) for **assuring water supply Karachi by upgrading Keenjhar Lake system**, the work is under progress.



View of Keenjhar Lake Side stone pitching and stone masonry wall (Phase-II)



View of K. B. Feeder Upper (PHASE-I)

The Sindh Irrigation Department played significant role in implementation of Irrigation reforms by establishing **Sindh Irrigation & Drainage Authority (SIDA)** along with Area Water Boards on Ghotki, Nara Canal & Left Bank on three canal command covering 35% of total irrigated area of Sindh province on the strength of the success achieved by Sindh province in implementation of Irrigation reforms process, the World Bank offered financial assistance to Sindh for continuation of irrigation reform activities and to address modernization needs of system through long term follow up projects to the tune of one billion dollar over coming years.



Social mobilization officers of SIDA hold meeting with farmers



De-silting work of a minor channel on self help basis under SIDA

The **Sindh Water Sector Improvement Project Phase-I (WSIP)** has been launched. The objective of the WSIP Project is quite comprehensive and visionary which includes capacity building of water resources management institutions, civil works for rehabilitation, improvement of irrigation and drainage system, feasibility study, design for rehabilitation of three barrage, master planning for floods / drainage issues and designing measures for improvement of Indus Delta + Coastal Zone.



Meeting regarding Rehabilitation of NARA Canal

A number of times in history, Sindh has witnessed devastating floods. The floods of 1973, 1976 & 2010 turned out to be the worst in terms of floods-destructions in Sindh. However, the flood of 2010 had out-reaching effects on the irrigation system of the Sindh Province. After the flood the Sindh Irrigation Department focused upon rehabilitation of irrigation network. Surveys were carried-out and later analyzed for further actions. The Department prepared an umbrella PC-I amounting to Rs. 18.5 billion for flood emergency construction works in collaboration with Federal Government and Asian Development Bank. The scheme **"Sindh Flood Emergency Reconstruction Project for Bunds & Canals (Flood 2010-11)"** has been approved and work is in progress at a fast pace.



Rehabilitation of Bunds along River Indus

The Sakrand Regulator on Rohri Main Canal collapsed and was later reconstructed within a very short period of 3 months.



Sakrand Regulator in Construction Stage



Sakrand Regulator after Re-construction

STATUS OF COMPLETED SCHEMES (WATER & DRAINAGE SECTOR).

- Establishment of GIS of Irrigation Net Work in I&P Department. Costing Rs. 35.000 million.
- Rehabilitation of Existing Drains and Tubewells in Drainage Division LBOD Nawabshah. Costing Rs. 77.120 million.
- Construction of Bund Weir-III across River Malir at RD-62.4 Demlottee Well No.3&4. Costing Rs. 469.475 million

- Constructing Retaining Wall along Kazia Wah near Badin City. Costing Rs. 76.273 million.
- Stone Pitching of Nabisar Branch RD-0 to 103 (B/S). Costing Rs. 294.902 million
- Improvement / Rehabilitation of Umarkhas Wah & Patni System. Costing Rs. 107.930 million.
- Construction of Retaining Walls and Allied Structures / Dev: Works in Larkana Drainage Division & North Dadu Drainage Division, Larkana. Costing Rs. 150.00 million.
- Remodelling the Arthar Branch from Rice Canal. Costing Rs. 53.307 million
- Stone Pitching along Rohri Main Canal from RD-480 to 680 I.P./NIP. Costing Rs. 130.00 million.
- Rehabilitation of Karo Gungro Outfall Drain from RD-128.0 to 211.0. Costing Rs. 95.00 million.
- Rehabilitation of Choi Branch, Bhatti Distry and Kalhora Distry. Costing Rs. 97.732 million.
- R&S banks of Gajrah Branch from RD-0 to 91.4 & Constructing Retaining wall from RD-75 to 91.4 B/Sides. Costing Rs. 350.00 million.
- R&S Banks along Amerji Branch from RD-0 to 81.200 B/S and constructing retaining wall from RD-0 to 12.500 B/S (Darya Khan Mari Town). Costing Rs. 250.00 million.

STATUS OF SCHEMES IN PROGRESS (WATER & DRAINAGE SECTOR)

- Establishment of Planning, Monitoring & Evaluation Cell. Costing Rs. 50.603 million.
- Rehabilitation of existing Drainage Network to control the seepage and salinity in District Khairpur. Costing Rs. 140.656 million physical progress 70%.
- Surface Drainage scheme in Deh 35, 36, 37 & 38 Dad Taluka Nawabshah and Deh Bio Taluka Sakrand. Costing Rs. 148.559 million physical progress 75%.
- Surface Drainage Scheme in Deh 11 Rahib Shah, 03 Samo Raho,Tail Bhoura Bio & 22 Dino Shah Taluka Sakrand. Costing Rs. 163.302 million physical progress 80%.
- Surface Drainage scheme in Deh Jado Juno, Deh 25 Batho, Deh 19 Jalalani, 29 Bhutta & 21 Dadh, Taluka Sakrand, Distt: ShaheedBenazirabad. Costing Rs. 59.00 million physical progress 80%.
- Construction of Chandio Link Drain RD-0.0 to 15.0 Outfalling in Saeedpur Sub Drain at RD-11.0 and Rehabilitation of Kara Kungro Outfall Drain from RD-0.0 to 152.0 Costing Rs. 80.00 million physical progress 90%.
- Surface Drainage scheme in Deh Jhol / Ararro, Kandiyari & Jarioon District Tando Allahyar. Costing Rs. 73.277 million physical progress 40%.
- Assuring Water Supply for Karachi upgrading Kinjhar Lake System (under Urban Water Supply). Costing Rs. 3422.782 million physical progress 70%.
- Construction of Pumping Scheme at Dadu Canal Mile 132. Dadu Tail (Revised). Constructing stone pitching along RMC RD-737 to 750 both sides & RD-790 to 800 NIP Sides. Costing Rs. 184.236 million physical progress 40%.

- Rehabilitation X-Regulators of Rohri Main Canal. Costing Rs. 203.00 million physical progress 80%.
- Constructing Stone pitching along RMC from RD-67 to 71 B/Sides, RD 141 to 143, 186 to 191 NIP & RD-158 to 161+500, RD-48 to 53 Both Sides & D/S Therhi Bridge. Costing Rs. 146.925 million physical progress 90%.

- Providing Back Berm & Stone Pitching along K.B.F. Lower RD-0to22 & Pinyari Feeder Lower RD-90 to 100. Costing Rs. 150.907 million physical progress 60%.

- Raising / Resectioning and Stone Pitching along B.S. Feeder RD-45 to 60 both sides and RD-82, 114, 151, 169 D/S Unhar Canal and Begari Canal D/S Head Regulator. Costing Rs. 386.522 million physical progress 95%.

- Rehabilitation of Akram Wah & Guni Canal System. Costing Rs. 193.527 million physical progress 30%.

- Rehabilitation / Replacement X-Regulators Head Regulators in SIDA. Costing Rs. 199.00 million physical progress 25%.

- Construction Stone Protection Wall along Old Fuleli Canal passing City Area, P.F.L. and 4 to 6 and 16 R/S and Stone Dumping / Filling for recoping of stone apron D/S Dino Shah X-Regulator Ex.P.F.L. RD 114.135 and Providing Stone Masonry Compound Wall around irrigation Colonies & Inspection Bungalows in Upper Pinyari. Costing Rs. 85.00 million physical progress 95%.

- Construction of Over Head Bridge on Rohri Canal Opposite Village Majedana, U.C. Khahi Qasim Taluka Bhiria. Costing Rs. 57.079 million physical progress 20%.

- Enhancing Capacity Building of Discharge Observation in the Command of Three Barrages and Up-Gradation of Soil Mechanics & Hydraulic Laboratory Karachi and Workshop of Gauging Sub-Division. Costing Rs. 199.00 million physical progress 20%..

- Installation of 10 Nos. Desalination Plants (i) 6 Nos. around Manchar (Court Decision) (ii) 04 Nos. as per public demand. Costing Rs. 37.842 million physical progress 80%.

- Construction of Delay Action Dams Small Dams in Central Kohistan. Costing Rs. 632.524 million physical progress 50%.

- Construction of four (4) Malir Detention Weirs near Memon Goth Across Malir Nadi, Karachi (C.M. Directive). Costing Rs. 421.00 million.

Future Plans

1. To introduce trickle drip and sprinkler type high efficiency and innovative irrigation practices which require less water per acre of cropped area.

2. To construct Rain Water Dams (Reservoirs) along both side of River Indus on recommendation of consultants through feasibility study.

3. To construct more and more Small Storage, Recharge Delay Action Dams and Detention Weirs to harness Rain water generated from Hill Torrents of Nagarparkar and Kohistan areas of Sindh Province, for the purpose of storing water on surface and recharge aquifer.

4. To prepare project for saving of Irrigation Water such as Lining of the earthen channels in saline zone areas and other such measures.

Organization Chart of Irrigation Department Sindh

