

Chapter 19 | WATER

Water is essential to meet the food need for country's growing population. The efficient use of water is an important requirement for sustainable agriculture growth and agriculture oriented activities to tap more benefits from this sector. Increases in agricultural production to meet the needs of a rising population, will require additional water. Based on population growth projections, by 2025 an estimated additional 10 million acre feet (MAF) will be needed at the farm gate.

Water Sector's Policies / strategies focus on bridging the widening gap between demand and supply. The major emphasis is on demand management and enhancing the water availability. The important mechanisms of the above mention strategy are to initiate market forces to convert water from social good to socio-economic good. The technical solution will be based on Integrated Water Resources Management (IWRM) approach, Harnessing flood flows for direct irrigation, Ground water recharge and effective implementation monitoring system and comprehensive set of measures for the development and efficient management of water resources.

Performance review 2016-17

During 2016-17, major focus was timely completion of ongoing priority projects to achieve the planned targets of Vision 2025 and 11th Five Year Plan. An amount of Rs31.72 billion financial resources were allocated for the water sector's development projects / programmes during the year 2016-17, out of which more than 24 billion (76 per cent) are utilized by the end of June 2017.

Box-I

Water Sector's Investment Areas

- Augmentation measures i.e. construction of small/ medium dams to overcome the water scarcity issue
- Conservation measures i.e., lining of irrigation channels, modernization / rehabilitation of irrigation system, Introduction of high efficiency irrigation system
- Protection of infrastructure from onslaught of floods and water logging & salinity

Achievements

- Completion of 92 per cent physical works of Kachhi Canal (Phase-I) in Balochistan & Raine Canal in Sindh for irrigating 0.168 million acres (Phase-I).
- Completion of Gomal Zam Dam in FATA/Khyber Pakntunkhwa and Darawat Dam (near Hyderabad Sindh).
- About Rs1,000 million are expended for on-going works of Nai Gaj dam (near Dadu Sindh) to irrigate 28,800 acres of land and Power Generation of 4.20 MW.
- Initiation of physical works on Kurram Tangi Dam (Phase-I) in North Waziristan Agency and Mohmand Dam in Mohmand Agency FATA.

- To save the water losses of existing irrigation system, about Rs900 million are utilized for lining of small canals & minors in Punjab and Sindh during 2016-17.
- For the rehabilitation and improvement of existing irrigation canals in Punjab, Sindh & Khyber Pakhtunkhwa, an amount of Rs1,100 million are utilized during 2016-17.

In Balochistan, Sindh, Punjab and Khyber Pakhtunkhwa about Rs7.44 billion are utilized during 2016-17 on construction of new small/delay action dams and recharge dams. Province-wise detail is as under:

- Punjab Rs550 million (Ghabir & Papin dam)
- Sindh Rs500 million (Kohistan & Nagarparkar areas of Sindh)
- Khyber Pakhtunkhwa Rs1,450 million (Kundal/Sanam dam, Baran dam & 20 small dam in districts Nowshera, Kharak, Swabi, Haripur & Khohat)
- Balochistan Rs4,936.37 million (Shadi Kaur, Bathozai, Const. of 100 small dams (Package-II&III), Basol dam, Mangi dam & others)

- Due to above mentioned development programme it is expected that water availability at farm gate will remain about 132.70 million acre feet (surface & groundwater) upto June 2017.

Table-1
Key physical targets & achievement for 2016-17 and targets for 2017-18

Item	Unit	Target 2016-17	Achievements 2016-2017		Target 2017-18
			Physical	(%)	
Irrigation					
Water Availability (additional)	MAF	134.56	132.70 *	99	134.22
Earthwork for dams & canals/irrigation System	MCM	12	8	67	10
Concrete work for dams/ canal/ irrigation system	MCM	1	0.60	60	0.60
Const. of delay action/ check / and small dam	Nos.	9	20 (9 new and 11 ongoing)	100	12
Drainage & Reclamation					
a) Surface Drains (Earthwork) (Extension, rehab. & remodelling of drain)	MCM	4	Nil **		6
Flood Control Program					
Under Normal Flood Program (flood scheme)	No	10	8	80	7

(MAF: Million Acre Feet, MCM: Million Cubic Meters,

* Decrease in achievement is mostly due to decrease inflow at Rim station & rainfall

**Allocated budget during 2016-17 cannot be utilized due to unapproved PC-Is of RBOD-I, III and III.

Outlook 2017-18

Following programmes and projects will be implemented in 2016-17 to achieve the goals of the 11th Five Year Plan (2013-18):

- Integrated water resource management approach will be continued to overcome water scarcity issue and future challenges of Pakistan.
- Priority has been given to the augmentation measures (construction of small/medium dams), remaining works of new canal (Kachhi & Ranjee) and disposal of drainage effluent into Sea through construction of RBOD-I, II & III.
- Conservation measures (lining of irrigation channels & rehabilitation of irrigation system) which are being implemented under federal programme are gradually transferred to the provinces.
- Every effort is being made for timely completion of such projects which are near completion in order to lessen the burden of throw-forward.
- Protection of infrastructure, agriculture lands & abadies from onslaught of floods under Flood Control/management programme.
- Climate change, Trans-boundary water issues, demand management, rain water harnessing, resettlement, reuse of waste water, recharging ground water are the main water sector's future pillars for the sustainable development. Annual Plan 2017-18 will be implemented in reconciliation with these facts.

Out of total proposed water sector's budget (Rs38 billion) for 2017-18, maximum resources have been earmarked for the above mentioned on-going priority development programmes.

Expected water availability

It is expected that the overall water availability at farm gate will remain about 16.56 million hectares meters (MHM) i.e. 134.22 MAF in 2017-18. This would include surface water supplies through canal withdrawals, canal lining/remodelling, irrigation system rehabilitation/ improvement programme, construction of small / medium dams, check dams and retention weirs. About 6.17 MHM (50 MAF) of water would be included in the system from underground fresh water aquifer mainly by private tube wells. Water losses of the existing irrigation system would be improved through water conservation measures such as remodelling/ rehabilitation of existing irrigation system and lining of irrigation channels/watercourses.

Safe disposal of drainage effluent & rehabilitation of irrigation system

In the drainage sub-sector on-going priority works of RBOD-I, II & III will be continued during 2017-18, for this about 6 MCM of earth work for surface drains and concrete/stone work is planned to be completed, more than 10 MCM of earthwork targets have been fixed for rehabilitation of existing channels, small/check dams, irrigation infrastructure/system improvement and construction of major / minor structures. An amount of Rs8,600 million and Rs2,400 million is proposed for both drainage and improvement/rehabilitation of existing irrigation sector respectively.

Flood management

It is proposed to spend an amount of Rs500 million to complete about 8 to 7 on-going/new small emergent flood schemes in Pakistan.

Medium/small dams

An amount of Rs10,310 million (28 per cent of total water sector allocation) has been proposed during 2017-18 for small/medium dams, check and delay action dams in all over Pakistan.

Lining of irrigation channels

Programme for “lining of irrigation channels in saline zones” will continue in Punjab and Sindh to check the seepage and other losses. A sum of Rs800 million has been proposed for this programme for the next fiscal year 2017-18.

Kacchi and Rainees canals

During 2017-18, an amount of Rs10 billion has been proposed for on-going works of Kachhi canal. It is planned that upto August 2017 canal will irrigate 55,000 acres and upto December 2017 it will irrigate 72,000 acres of agriculture land of Balochistan. Phase-I of Rainees Canal (Sindh) is physically completed for irrigation of 412,400 acres of agriculture land. A sum of Rs500 million is proposed to clear outstanding liabilities of completed works of Rainees canal.

Priority ongoing projects

- Gomal Zam Dam (Main dam structure completed work on irrigation network in progress)
- Darawat Dam (substantial completed)
- Naulong Dam (Initial works in progress)
- Nai Gaj Dam (48 per cent completed)
- Mohmand (Munda) Dam Project Khyber Pakhtunkhwa (Initial works in progress)
- Kurram Tangi Dam (Stage-I, Keitu Wier) 13per cent completed
- CRBC (1st Lift-cum-Gravity) canal Project (at approval stage/processing stage)
- Kachhi & Rainees Canals (Phase-I of both canals is substantially completed)
- RBOD-I, II & III (Physical works completed 76per cent, 72per cent & 83per cent respectively)
- Construction of 100 Small dams in Balochistan (Package-I for 20 small dams completed, Package-II for 26 small dams 85per cent completed, Package-III at initial stage)
- Construction of Small/check & recharge dams in Sindh, Khyber Pakhtunkhwa and Punjab
- Remedial measures to Control Waterlogging due to Muzaffargarh & T.P Link canal, Kot Adu Muzaffargarh Punjab

Other ongoing projects/programmes

- Construction of Mohre Shera Dam, Mujahid Dam, Papin & Ghabir Dam Punjab
- Revamping/rehabilitation of Irrigation System in Sindh Punjab & Khyber Pakhtunkhwa

-
- Lining of Irrigation Channels in Punjab, Sindh
 - Makhi Farash Link Canal and Fall Structure on Nara Cana (Sindh)
 - Construction of Shadi Kour Dam and Toiwar/Bathozai Dams in Balochistan
 - Construction of Small Dams in Tehsil Khaliqabab, Distt Kalat
 - Const. of 100 Small Dams in Tehsil Dobandi, Gulistan Qilla Abdullah & Chaman District Qilla Abdullah
 - Construction of Mangi and Basol dams in Balochistan
 - Remodelling of Warsak canal Peshawar Khyber Pakhtunkhwa
 - Construction of Palai, Kundal & Snam dams in Khyber Pakhtunkhwa
 - Construction of Small Dams in Distt Mansehra, Khyber Pakhtunkhwa
 - Implementation of small emergent flood schemes under “Flood Protection Programme”
 - Channelization of Deg Nullah, Punjab