

## PROBLEMS OF THE RIVERAIN AREA OF SINDH

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Riverain area extends from Kashmore to Keti Bander and lies between flood protective embankments constructed between 1860-1960. Important statistics connected with the area are:

Sr. No.		
1.	Total area.	Acres 2,112,000 (855,100 hectares)
2.	Main channel, Dhoros, Dhoris and mud flats, as per aerial photographs.	Acres 612,000 (29% of area).
3.	Forest area.	Official 550,000 area Actual areas 450,000
4.	Settlements roads etc.	Acres 50,000 acres
5.	Agriculture land approximately: (a) Kabuli land (appears). (b) Nakabuli (Government land appears).	Acres 1,000,000 -Acres 450,000 -Acres 550,000
6.	Historical position of flooding before 1976 (based on statistic from 1907-1976). (a) Flood exceeding 300,000 cusecs. (b) Flood exceeding 400,000 cusecs. (c) Flood exceeding 500,000 cusecs. (d) Flood exceeding 600,000 cusecs. (e) Flood exceeding 700,000 cusecs. (f) Flood exceeding 800,000 cusecs.	-98% years -86% years -77% years -55% years -28% years -13.3% years
7.	Minimum area flooded at various discharges. (a) 300,000 cusecs. (b) 400,000 cusecs. (c) 500,000 to 600,000 cusecs. (d) 800,000 cusecs.	-66% -80% -95% -100%
8.	Economy. (a) Forest land.  (b) Dhoros, Dhoris, main channel.  (c) Agriculture land.	-Timber, fire wood, grazing animals, honey, and game birds.  -Fisheries. (Sindh produced 80% fisheries of Pakistan before 1960).  -Water for agriculture.  Winter crops: -Wheat, oil seeds, beans, melons and cucurbitae and

	(d) Boat traffic before 1980.	vegetables. -40,000 boats plied in 1600 AD. Number reduced due to railways.
9.	Population of riverain area: (a) 1972 census. (b) 2000 estimated.	-750,000 -200,000
10.	Ground water:  (a) Fresh ground water in about (b) Saline ground water. (c) Saline ground water areas: (i) Kashmore to 10 miles down Gudu Barrage on both embankments. (ii) Sukkur-Rohri area.  (iii) Daulatpur north and south. (iv) Matiari to Shah Bander on left bank. (v) Talti to Ketri Bander on right bank.  Fresh water Rest of area.	-50% area. -50% area -10 miles -5 miles north -3 miles south -10 miles wide -More than 100 miles. -180 miles  -About 50% of total area.
11.	Fresh ground water quality in riverian area: (a) pH (b) Total soluble solids.	-7.6 - 7.8 -250-1250 ppm
12.	Saline water quality.	Over 70,000 ppm.
13.	Impact of tube-wells: (a) Water drawn by tube-well within one mile from river stream. (b) Water drawn by tube-wells within 2 miles from river stream.	-97% from river.  -75% from river.
14.	Number of tube wells of one cusec needed to irrigated 1.5 million acres for winter crops only.	16,000
15.	Water requirement for raising field crops at 0.65 crop factor (a) Summer crops 15 <sup>th</sup> April to 30 <sup>th</sup> September. (b) Winter crops 1 <sup>st</sup> November to end March. (c) Water requirement for fresh ground water area. (d) Water requirement for saline ground water area including 33% transport loss. (e) Total water requirement. (f) Right to water share.	-60 inches. -30 inches. -1.8 million acre feet.  -2.7 million acre feet. -4.5 million acre feet. -Historical.
16.	Water table drop caused by tube wells in fresh ground water area for pumping 1.8 MAF.	15 feet.
17.	Regenerated water: Minimum regenerated water from river embankments in 1960-1970, between Sukkur to Kotri. All this will be utilised by tube-wells and Kotri Barrage will not get regenerated water.	3000 cusecs.
18.	Solutions. Ultimately 4.5 MAF of water is needed to meet water requirement of riverain area	4.5 MAF
19.	Under ground water storage capacity of 50% area having fresh	

	ground water area to a depth of 50 feet.	10 MAF
20.	Future of ground water in Sindh.	16,000 tube wells
	(a) Water required for 50 fresh ground water area for winter crop only.	-1.8 MAF
	(b) Water required for saline ground water area for winter crop only.	-2.7 MAF