

REHABILITATION OF WATER SECTOR IN BALOCHISTAN

GOVERNMENT OF BALOCHISTAN
PLANNING & DEVELOPMENT DEPARTMENT

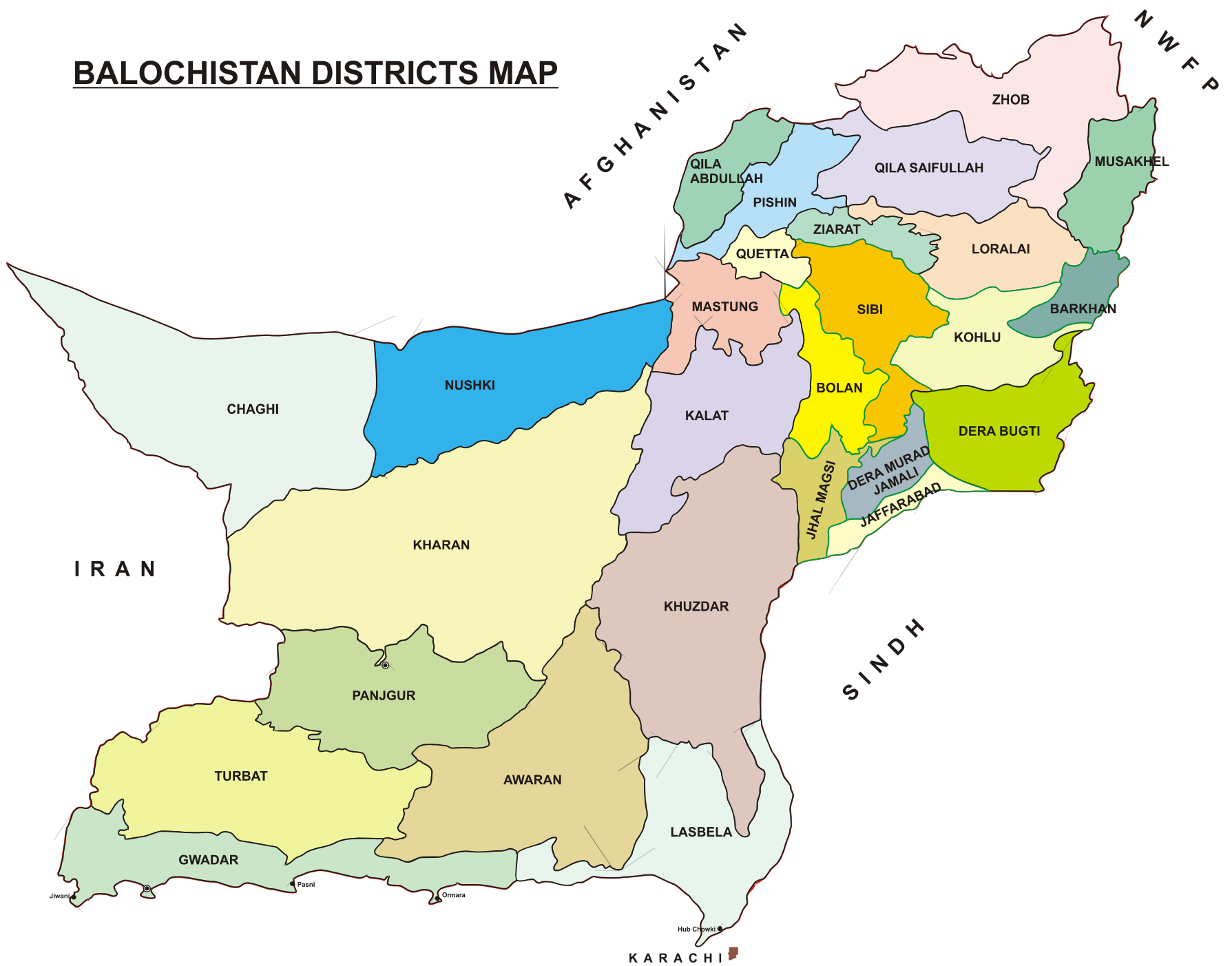
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BALUCHISTAN DISTRICTS MAP



BACKGROUND

- **Area:** **347,185 Sq. Km constituting about 44% of the Country**
- **Population:** **6.566 million (As of 1998 census) 5.3% of the country**
Estimated population as of year 2004 = 7.595 Million

General Characteristics

- **Arid with scanty rainfall varying from 12 inches in the North to 4 inches per annum in the South**
- **Surface water resources are limited. With the exception of Nasirabad area, where, agriculture is practiced on perennial flows from Indus and to a limited extent in Lasbela area, which receives water supply from Hub Dam.**
- **13 major river basins generating about 12.76 MAF annually as assessed by NESPAK – Map follows**

LAND USE STATISTICS IN BALOCHISTAN

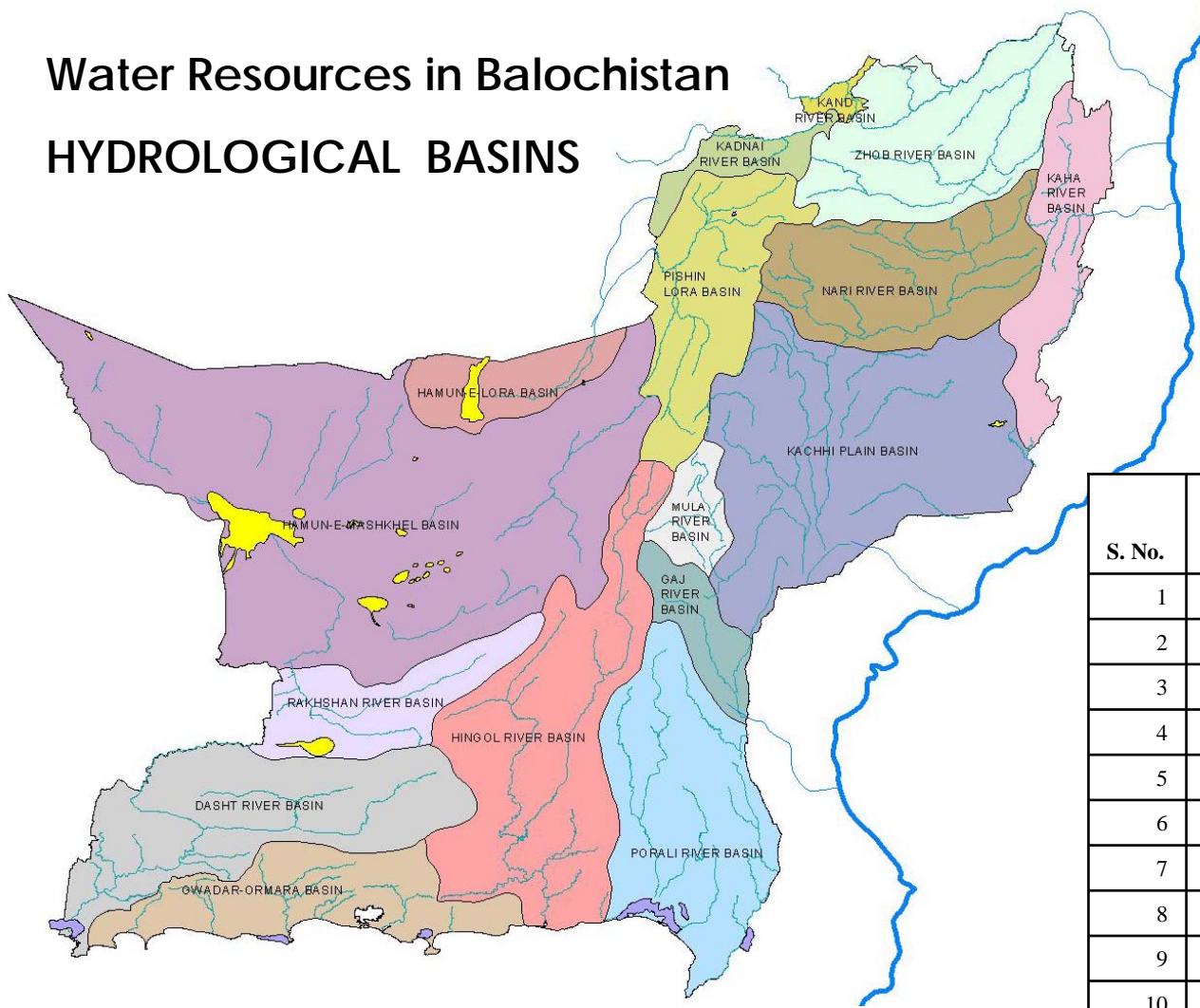
Total Geographical area =	85.758 Million acres
Area Suitable for Agriculture =	33.155 Million acres
	(38.66% of Total Geographical area)

➤ **Area Cultivated**

- **Perennial/Canals/Tube wells/
Karezes/springs (All Means) = 2.390 Million acres**
- **Perennial/Canals = 1.540 Million Acres**
- **Wells = 0.020 Million Acres**
- **Tubewells = 0.650 Million Acres**
- **Karezes/Springs = 0.180 Million Acres**
- **Sailaba/Flood Irrigation = 2.110 Million acres**
- **Total area under Irrigation by all
sources (Perennial cum floods) = 4.500 Million acres (13.60% of CCA)**
- **Balance area that can be brought
under cultivation (If water is made
available). = 28.655 Million acres**

Water Resources in Balochistan

HYDROLOGICAL BASINS



S. No.	River Basin	Available Water (MCM)	Extracted (MCM)	Balance Available (MCM)
1	Hamun-e-Lora	33.9	16.84	17.06
2	Kachhi	37.8	11.9	25.9
3	Nari	25.6	25.6	0
4	Pishin Lora	129.6	129.6	0
5	Porali	149.1	74.6	74.5
6	Hab	119.4	59.6	59.8
7	Windar Nai	10.9	5.2	5.7
8	Zhob	111.7	102.4	9.3
9	Dasht	45.5	8.9	36.6
10	Rakhshan	24	4.4	19.6
11	Hamun-e-Mashkhel	61	4.7	56.3
12	Hingol	265	132.7	132.3
13	Gaj	34	18	16
14	Mula	23	9	14
	Total	1070.5	603.44	467.06

WATER RESOURCES OF THE PROVINCE

Million Acre Feet

S.#	Description	Quantity (MAF)		
		Available	Utilized	Balance
A. Indus Water as per Indus Accord				
1	Perennial	3.870	3.052	0.820
2	Flood	4.620	--	4.620
Total		8.490	3.052	5.440
B. Non Indus Basin				
1	Flood Runoff	12.756	3.000	9.756
2	Groundwater	0.870	0.490	0.380
Total		13.626	3.490	10.136
G. Total		22.116	6.542	15.577

AVAILABILITY, PRESENT AND PROPOSED UTILIZATION OF WATER AS PER INDUS WATER ACCORD 1991

WATER AVAILABILITY

● Perennial as per Water Accord	= 3.870 MAF
● Share of Balochistan as result of Mangla Dam Raising	= 0.360 MAF
● Flood Supplies	= <u>4.620 MAF</u>
Total	= 8.850 MAF

PRESENT UTILIZATION

● Patfeeder Canal	= 1.8604 MAF
● Khirther Canal	= 0.8586 MAF
● Uch Canal	= 0.0989 MAF
● Manuthi Canal	= 0.0566 MAF
● Khan Wah, Faizabad and Direct Outlets	= <u>0.1775 MAF</u>
Total	= 3.0520 MAF

PROPOSED UTILIZATION AGAINST BALANCE AVAILABILITY

● Patfeeder Remodelling and Extension	= 0.2020 MAF
● Kachhi Canal (0.616 MAF Perennial + 1.305 MAF Flood)	= <u>1.9210 MAF</u>
Total	= 2.1230 MAF

PROVINCIAL PSPD ALLOCATIONS 1994-95 TO 2004-05 IN WATER SECTORS

YEAR	ALLOCATIONS			SCHEMES
	GOB	FPA	TOTAL	
1994-95	157.540	120.682	278.168	48
1995-96	383.782	105.676	489.458	22
1996-97	168.679	243.568	412.247	15
1997-98	194.951	152.200	347.151	25
1998-99	199.824	450.000	649.824	21
1999-2000	189.110	794.533	983.643	11
2000-01	227.388	850.000	1077.388	27
2001-02	373.931	146.841	520.772	48
2002-03	588.527	-	588.527	84
2003-04	909.469	-	909.469	157
2004-05	264.887	-	264.887	99
TOTAL	3658.088	2863.500	6521.534	557

CURRENT PLAN FOR WATER RESOURCES DEVELOPMENT

The following portfolio of projects has been launched in the Province.
PSDP (Provincial Resources)

No. of Schemes	Estimated Cost			Exp: upto 30-6-2004	Allocation 2004-05		
	Local	FPA	Total		Local	FPA	Total
On-Going (36)	1990.483	2057.00	4047.483	683.013	259.386	--	259.386
New (03)	12.500	--	12.500	--	5.500	--	5.500
Total	2002.98	2057.00	4059.983	683.013	264.886	--	264.886

The schemes after completion will benefit 20,000 acres.

WATER RESOURCES DEVELOPMENT AS OF JUNE 2004

Government of Balochistan has developed the Water Resources with assistance from Government of Pakistan, donors and through its own resources as shown in the table as under :-

S. No	Description	No of Schemes	Completion cost (Rs. In Million)	Area Benefited (M. Arces)
1.	Indus System Patfeeder, Khirther, Uch & Manuthi Canals	4	10000.000	1.000
2.	Minor Perennial (I) Scheme	525	2628.000	0.263
3.	Rehabilitation of Karezes	705	194.000	0.050
4.	Flood Irrigation Scheme	93	253.500	1.100
5.	Delay Action / Storage Dams	200	1005.285	Recharge purpose
6.	Flood Protection Schemes	132	619.000	Agri: Land and population Protected
7.	Drainage Schemes	4	295.000	0.200
Total :-		1663	14994.79	2.613

FEDERAL PSDP

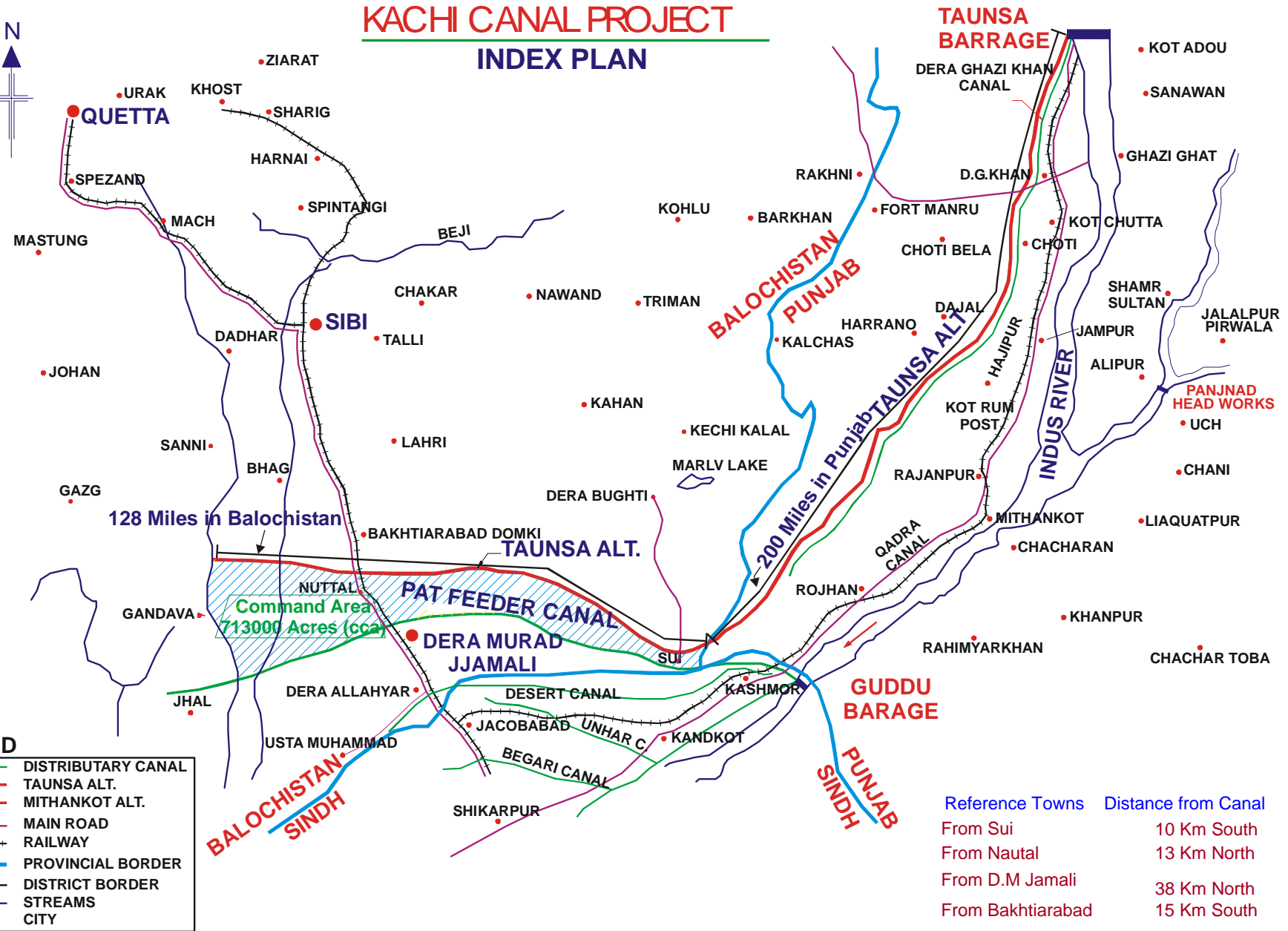
S.No	Description	No of Sub Projects	Estimated Cost (Million Rs)	Expend: upto 30/6/04	Allocation for 2004-05	Area to Benefit (Acres)
1	Flood Management of Marri Bugti Hill Torrents Completed 1, In progress 3	5	125.00	42.190	15.00	25000
2	Ground Water Recharge Project Quetta, Pishin & Mangocher. Completed 3, In progress 11	54	436.00	60.66	38.00	Recharge Purposes
3	Constt: of 43 Minor Canals and R&Ext: of existing 49 Minor Canals in the command of Patfeeder	92	700.00	159.00	50.00	75000
4	Kachhi Canal Project	1	31204.00	1287.418	1600.00	713000
5	Ext: of Patfeeder Canal Project	1	2243.00	--	500.00	159000
6	Kirther Canal Project	1	1000.00	--	110.00	70000
7	Sabakzai Dam Project	1	1010.325	114.075	500.00	6680
8	Mirani Dam Project	1	5811.00	1972.365	1500.00	33000
9	Balochistan Effluents Disposal through RBOD III	1	4485.200	122.226	800.00	50000
10	Prime Minister Special Drought Package for Balochistan	205	175.837	33.991	127.775	9400
TOTAL		362	47190.360	3791.925	5240.775	1141080

KACHHI CANAL PROJECT

- **Location.** Punjab : D.G.Khan Rajan Pur, Districts.
Balochistan : Dera Bugti, Nasirabad, Bolan, Jhal Magsi District.
- **Canal Capacity.** 6000 Cusecs
Rabi Season Kharif Season
Oct – March May-Sept.
Perennial 0.425 MAF 0.386 MAF
Flood 0.197 MAF 1.013 MAF
(Total Rabi + Kharif = 2.021 MAF)
- **Length of Main Canal.** 500 Km (300 Km in Punjab- Lined and 200 Km in Balochistan - Unlined)
- **Length of Distr:/ Minors** 2000 km.
- **Project Benefits.** 713,000 acres to be irrigated (Irrigation intensity 80.4%)
Dera Bugti – 100,200 Acres, Nasirabad – 277,900 Acres,
Bolan- 127,400 Acres, Jhal Magsi – 207,500 Acres
- **Execution by.** WAPDA
- **Date of commencement.** October, 2002.
- **Date of completion.** June, 2008.
- **Financial Progress.** i) Total Cost Rs. 31204.000 Million
ii) Expenditure 30-6-04 Rs. 1287.418 Million
iii) Allocation for 2004-05 Rs. 1600.000 Million
- **Physical Progress** 4.00%

Status : PC-I was approved by ECNEC at a cost of Rs. 31.204 billion on 27-9-2003. The project has been divided into 7 contracts work on contract KC-1 (RD 20+600 to RD 39+270) is complete (100%)

KACHI CANAL PROJECT INDEX PLAN



128 Miles in Balochistan

200 Miles in Punjab

LEGEND

	DISTRIBUTARY CANAL
	TAUNSA ALT.
	MITHANKOT ALT.
	MAIN ROAD
	RAILWAY
	PROVINCIAL BORDER
	DISTRICT BORDER
	STREAMS
	CITY

Reference Towns	Distance from Canal
From Sui	10 Km South
From Nautal	13 Km North
From D.M Jamali	38 Km North
From Bakhtiarabad	15 Km South

EXTENSION OF PATFEEDER CANAL

Total cost	: Rs. 2243.00 million
Allocation for 2004-05	: Rs. 500.00 million
Executing Agency	: Irrigation & Power Department (GOB) Through Consultants

- Project Components**
- i) Remodelling of Existing Patfeeder Canal for enhanced capacity of 8560 Cft.**
 - ii) Extension of Canal 37 km**
 - iii) Constt: of 7 No Distributaries/Minors in a length of 134 km.**
 - iv) Constt: of cross drainage, foot bridges & F/P Bund.**
 - v) Remodelling of existing X-Regulators.**

Physical Achievements

The scheme has been reflected in PSDP 2004-05. Consultant are being engaged for detailed design and construction supervision.

KIRTHER CANAL REMODELING

(Nasirabad, Jaffarabad & Jhal Magsi Districts)

Total cost : **Rs. 1000.00 million**

Allocation for 2004-05 : **Rs. 110.00 million**

Executing Agency : **Irrigation & Power Department (GOB)
Through Consultants**

Project Components : **i) Remodelling of Main Canal.
ii) Remodelling of Distributaries.
iii) Remodelling of Regulator Structures.
iv) Remodelling of F/P Bund.
v) Lining of Minor Canals.**

Physical Progress

PC-I has been approved by CDWP on 18-09-2004. Approval of ECNEC is awaited.

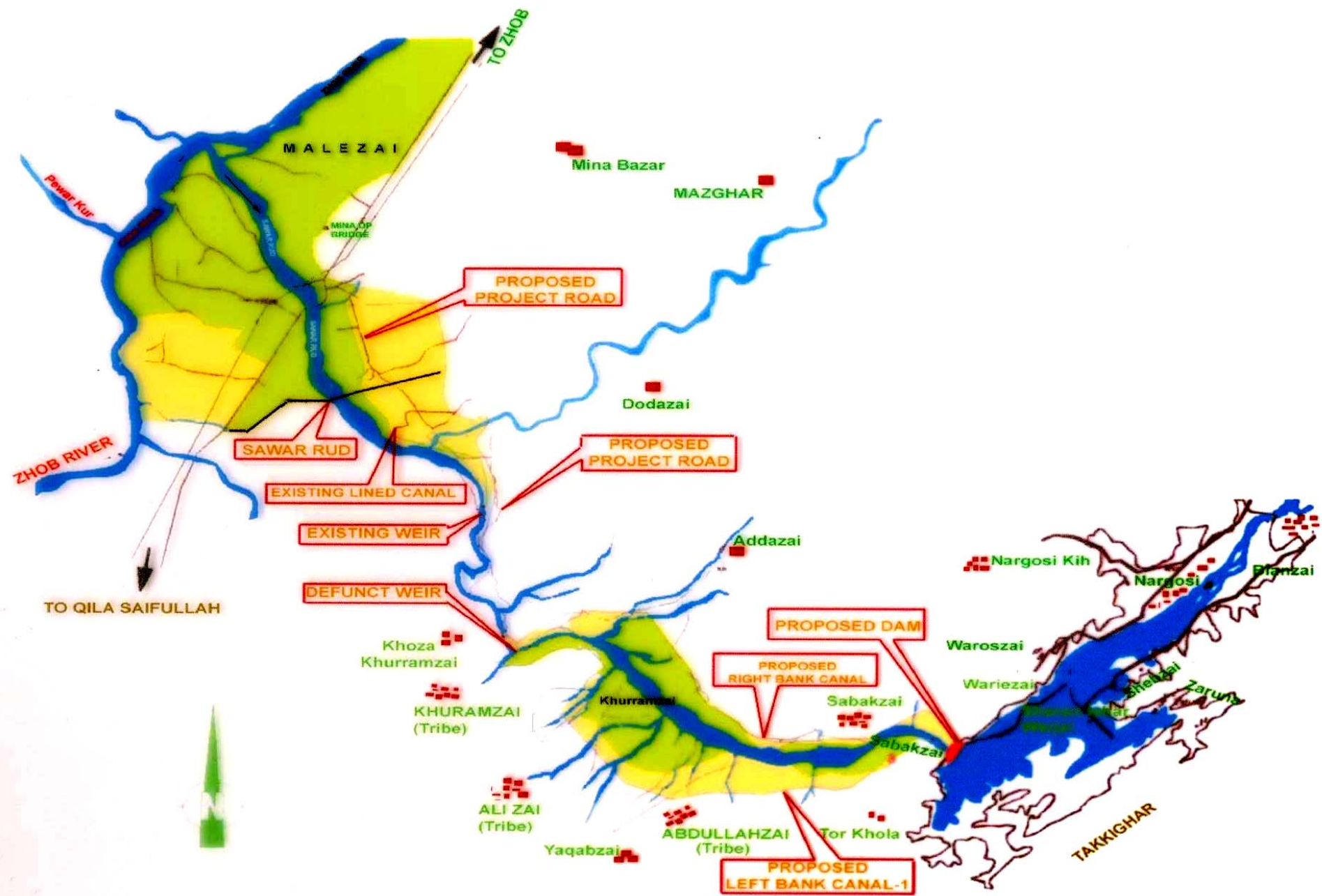
SABAKZAI DAM PROJECT

- **Location.** Sawar Rud, Tributary of Zhob River, Zhob District, Balochistan.
- **Executing Agency.** Water & Power Development Authority (WAPDA)
- **Brief Scope of The Project.**
 - 33 meters high Earth Fill Dam, Length 396 meters.
 - Gross storage 0.02 MAF
 - Command area 6,680 Acres
- **Commencement Date.** 01-01-2003
- **Completion Date** December, 2006
- **Financial Progress**
 - i) Total Cost Rs. 1010.325 Million
 - ii) Expenditure 30-6-04 Rs. 114.075 Million
 - iii) Allocation for 2004-05 Rs. 500.000 Million
- **Physical Progress** 10.50%

Current Status/Progress:

- **Feasibility report completed by WAPDA in March 2003.**
- **PC-I approved by ECNEC in its meeting held on 27-9-2003 for Rs.1010.325 Million.**
- **Contract for O&M of colony and access road has been awarded and progress achieved is 72%**
- **GOB expressed reservation on storage capacity, height of the dam and area to be irrigated. Meeting held with WAPDA on April 24, 2004 where it was decided that data of Hydrology will be shared between WAPDA & I&P GOB and design reviewed as result of consensus data. ECNEC directed to under take sedimentation and Hydrology data for which NESPAK appointed as consultant by WAPDA.**

SABAKZAI DAM PROJECT

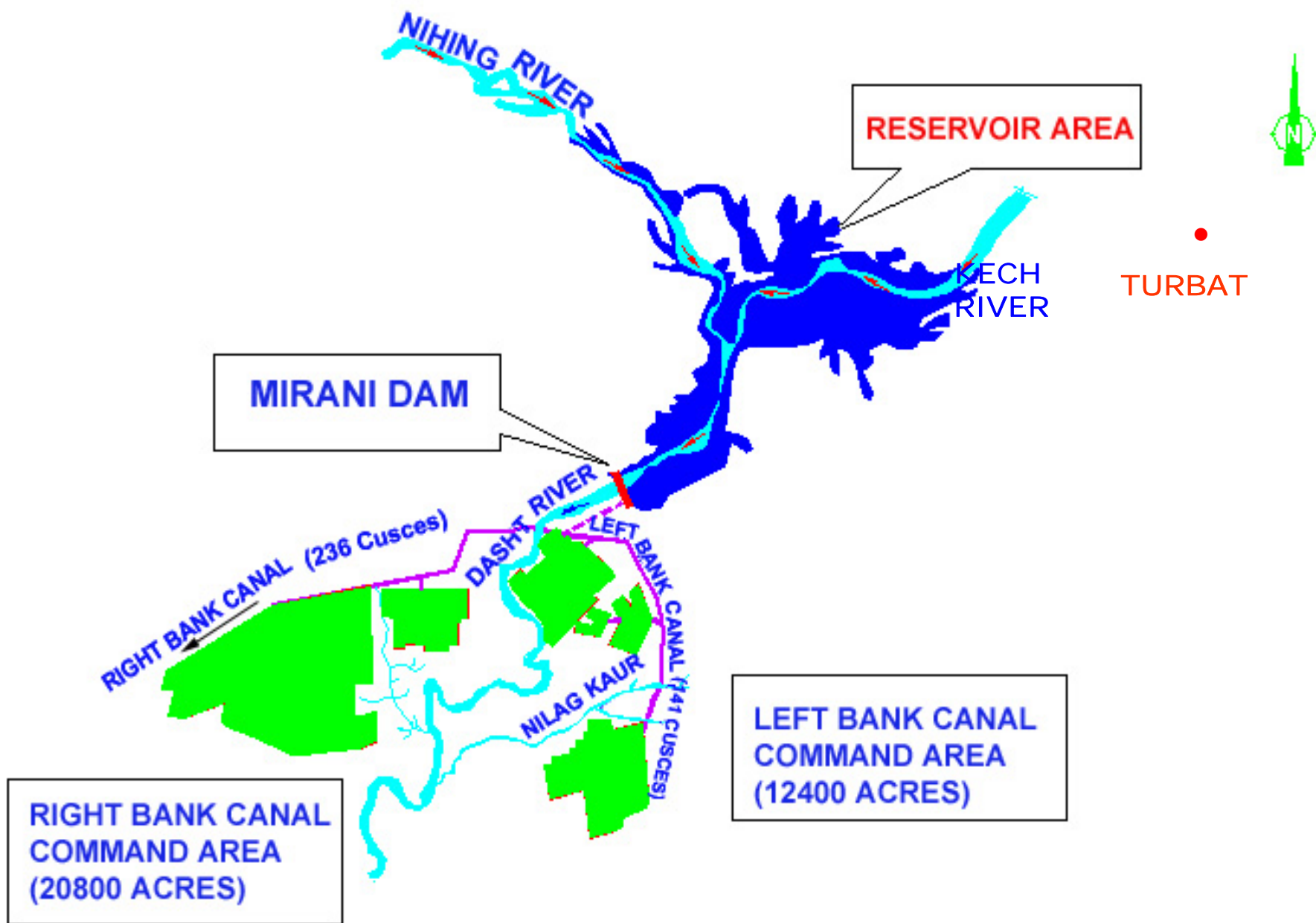


MIRANI DAM PROJECT

- **Location.** **Turbat District Kech, Balochistan, On River Dasht.**
- **Executing Agency.** **Water & Power Development Authority (WAPDA)**
- **Brief Scope of The Project.**
 - **127 Ft. High Earth Fill Dam with Crest length of 3350ft.**
 - **Reservoir Capacity (Gross) 302000 AFt.(Live 152000 Aft.)**
 - **Command Acre 33200 acres.**
 - **Canal Capacity, Right 236 cusecs & Left 141 cusecs.**
 - **Generation capacity 350 Kw.**
- **Donor Agency.** **Government of Pakistan (GOP)**
- **Commencement Date.** **01-7-2002.**
- **Ground Breaking Ceremony** **17-08-2001**
- **Targeted date of completion** **30-6-2006**
- **Financial Progress**
 - i) **Total Cost (Civil Works)** **Rs. 5811.000 Million**
 - ii) **Expenditure upto 30-6-04** **Rs. 1972.365 Million**
 - iii) **Allocation for 2004-05** **Rs. 1500.000 Million**

- **Physical Progress** **48%**
- **Status:**

Contract for the construction of project on EPC/Turnkey basis awarded to Mirani Dam Project joint Venture lead by M/s DESCON on 15-06-2003. Dam area land handed over to the Contactor on 16-09-2003. Work is in progress.



BALUCHISTAN EFFLUENTS DISPOSAL THROUGH RIGHT BANK OUT FALL DRAIN PROJECT-III

Estimated Cost	: Rs. 4480.00 million.
Sponsoring Agency	: WAPDA
Executing Agency	: I&P Department
Area to be benefited	: 1.00 million acres and lands of Balochistan canals command.
Completion period	: 24 months
Project Components	i) Extension of Hairdin Drain from Hairdin pumping station to Miro Khan Zero point. ii) Extension of outfall drain from Chuter to Miro Khan zero point. iii) Construction of 6.00 k.m outfall drain from Kot Magsi Road to Chuter Sindh Balochistan Boarder.

- iv) Remodeling of Main NARA valley Drain (MNUD) from Huwad Lake to shevan Sharif.
- v) Construction of Drain from Miro Khan zero point Complex to Hawad Lake outfall.

Note :- *The above components (i–v) will be executed by WAPDA*

- vi) Construction of Usta Mohammad Drainage Unit. (Balochistan Khirther Canal Command).
- vii) Construction of Irrigation Channel of 17.00 km for utilization of 400 drainage effluents for irrigation purpose of 50000 agriculture land in Balochistan Province.

Note :- *The components at S.No. vi and vii will be executed by I&P Department.*

- Status**
- PC-I approved by ECNEC as 07-01-2004
 - Pre-qualification application of contractors received and are under process of evaluation.

FOREIGN AIDED PROJECTS

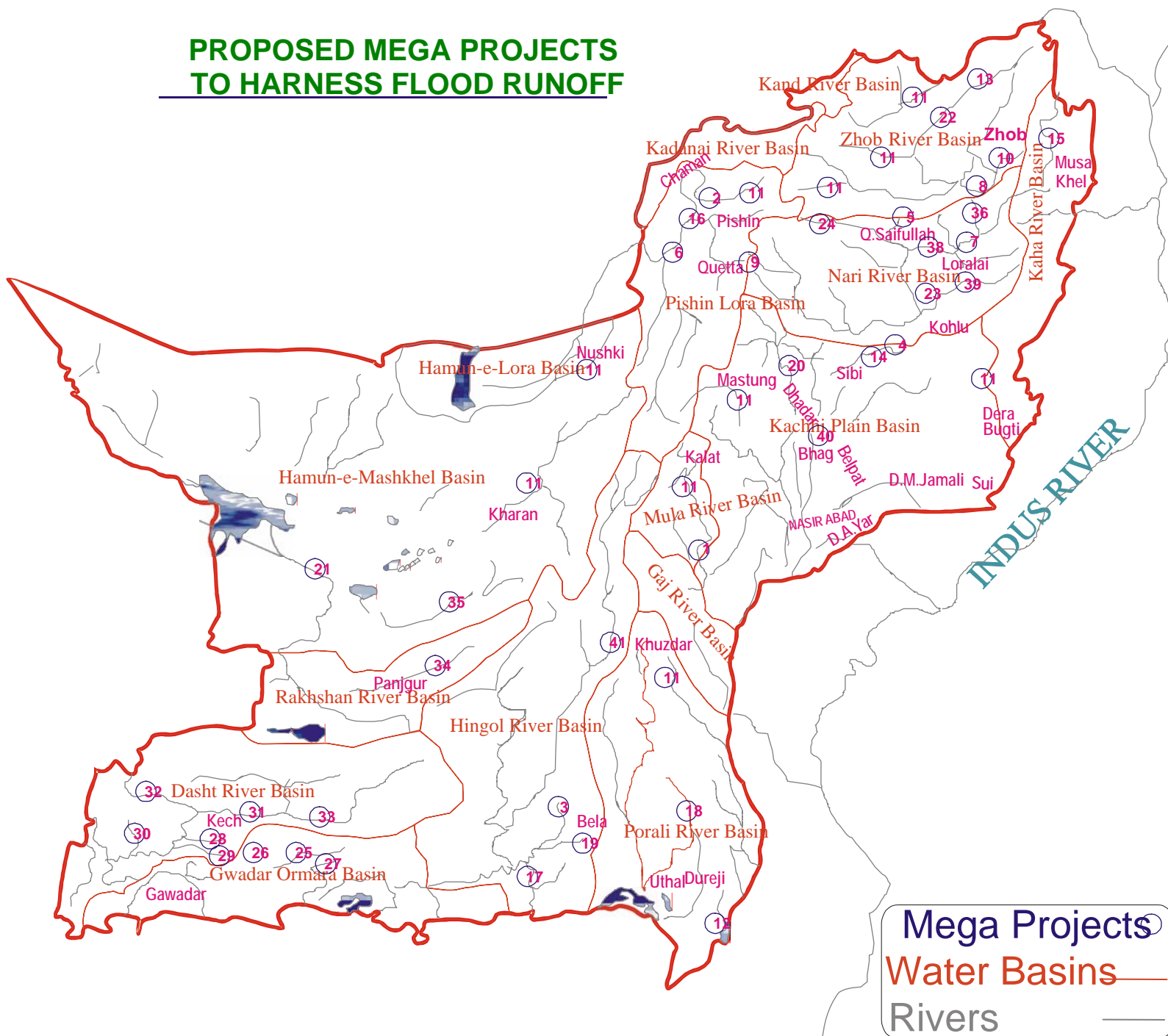
Sr#	Description	No of Sub Projects	Estt: Cost (Million Rs)	Expend: upto 30/6/04	Area to Benefit (Acres)
1	Flood Protection Sector Project-II 2 Core Projects = Rs. 100 Million 16 Sub Projects = Rs. 188 Million	18	288.80	9.233 (SNE)	Protection of land and population
2	National Drainage Programme	68	2834.40	144.50	55000
3	DERA/DIMRC Programme *	460	3016.312	1559.454	76890
TOTAL		546	6139.512	1713.187	131890

CURRENT PROGRAMMERS UNDER IMPLEMENTATION TO HARNESS FLOOD WATER

ABSTRACT

Name of Programme	No. of Dams	Estimated Cost (Rs, in Million)	Total Storage Capacity (Acre-feet)
A) Completed Dams			
Dams Completed by June 2004	200	1005.285	66556
B) On-Going Dams			
PSDP 2004-05	58	1225.19	106305
Ground Water Recharge Project	11	119.77	3331
DERA/DIMRC Programme	32	345.71	21667
FPSP-II	7	134.85	7444
Total (A+B)	308	2830.805	205303

PROPOSED MEGA PROJECTS TO HARNESS FLOOD RUNOFF



FUTURE PROPOSED MEGA PROJECTS TO HARNESS FLOOD RUNOFF

S. No	Name of Project	Estimated Cost (Pak Rs)	Area to Benefit (Acres)	Runoff to be utilized (MAF)
A. PRIORITY -1				
1	Naulang Dam , District Jhal Magsi	6000.00	26000	0.13
2	Rehabt: of Khushdil Khan Bund, District Pishin.	1008.00	12000	0.06
3	Reconstruction of Bolan Dam Project	284.00	17000	0.04
4	Winder Storage Dam, District Lasbela.	500.00	12500	0.07
5	Badenzai Storage Dam, District Zhob.	5000.00	25000	0.11
6	Tank-e-Zorati Storage Dam, District Kharan	350.00	21000	0.15
7	Pilar Dat Storage Dam, District Awaran.	2000.00	25000	0.09
8	Porali Dam, District Lasbela	4000.00	50000	0.15
9	Ajram Shadezai Flood (I) Sch:District K-Abdullah	100.00	10000	0.09
10	Construction of 200 Delay Action Dams in different parts of Balochistan Province (Sites already identified)	5000.00	150000	0.93
TOTAL FOR PRIORITY -1		24242.00	348500	1.820

S. No	Name of Project	Estimated Cost (Pak Rs)	Area to Benefit (Acres)	Runoff to be utilized (MAF)
B. PRIORITY -2				
1	5 Nos. Flood Dispersal Structures along with conveyance system on Nari River, District Bolan	500.00	250000	1.01
2	Murgha Faqirzai Dam , District Killa Saif ullah	1000.00	25000	0.09
3	Burj Aziz Khan Dam , District Killa Abdullah	6000.00	30000	0.09
4	Sehan Flood Irrigation scheme, District Loralai.	200.00	10000	0.03
5	Siri Toi Dam , District Zhob	300.00	2000	0.02
6	Kuchnai Dara Dam, District Quetta.	300.00	500	0.01
7	Saliaza Dam , District Zhob.	300.00	20000	0.13
8	Raising of Hub Dam Project, District Lasbela.	2000.00	20000	0.09
9	Mir Ali Khail Dam Project ,District Zhob	3000.00	15000	0.10
10	Babar Kach Dam, District Sibi	3000.00	100000	0.65
11	Kingri Dam, District Musakhail.	250.00	15000	0.11
12	Hingol Dam, District Gawadar	10000.00	50000	0.27

S. No	Name of Project	Estimated Cost (Pak Rs)	Area to Benefit (Acres)	Runoff to be utilized (MAF)
13	Porali Flood Management and Dispersal System, District Lasbela.	500.00	150000	0.76
14	Khori Storage Dam, District Lasbela.	100.00	8000	0.08
15	18 Delay Action & Storage Dams in upper catchment of Nari River, District Ziarat and Sibi.	1000.00	5050	0.01
16	Anambar Storage Dam, District Loralai.	1000.00	50000	0.21
17	Usha Manda Storage Dam, District Killa saifullah	300.00	1500	0.01
18	Basol Storage Dam, District Gwadar.	200.00	6000	0.03
19	Sheh Zanic Storage Dam, District Gwadar.	100.00	2500	0.01
20	Tirandaz Storage Dam, District Gwadar.	100.00	10000	0.07
21	Guhrad-e-Bagh Storage Dam, District Kech.	100.00	1500	0.01
22	Sensori Storage Dam, District Kech.	60.00	2000	0.02
23	Noken Rah Delay Action Dam, District Kech.	60.00	1500	0.01
24	Rindani Gat Flood Irr: Scheme, District Kech.	80.00	9000	0.06

S. No	Name of Project	Estimated Cost (Pak Rs)	Area to Benefit (Acres)	Runoff to be utilized (MAF)
25	Tradan Flood Irrigation Scheme, District Kech.	50.00	2500	0.02
26	Scargo Flood Irrigation Scheme, District Kech.	57.00	5000	0.05
27	Banjahi flood Irrigation Scheme, District Panjgur.	68.00	10000	0.09
28	Tangsar Storage Dam, District Zhob.	1500.00	10000	0.09
29	Gaz Nullah Storage Dam in K/Saifullah	100.00	1500	0.03
30	Narachi Storage Dam in Loralai	3000.00	150000	0.45
31	Flood Dispersal structures and canals system on Lehri and Talli Rivers	500.00	30000	0.09
32	Extension of Rabi Canal, Patfeeder	300.00	75000	0.004
TOTAL FOR PRIORITY – 2		36225.00	1018550	4.87
G.TOTAL FOR PRIORITY – 1+2		60467.00	1367050	6.69

Besides, basin wise comprehensive study is required to be carried out to identify feasible locations for conservation of flood water.

Thank You
