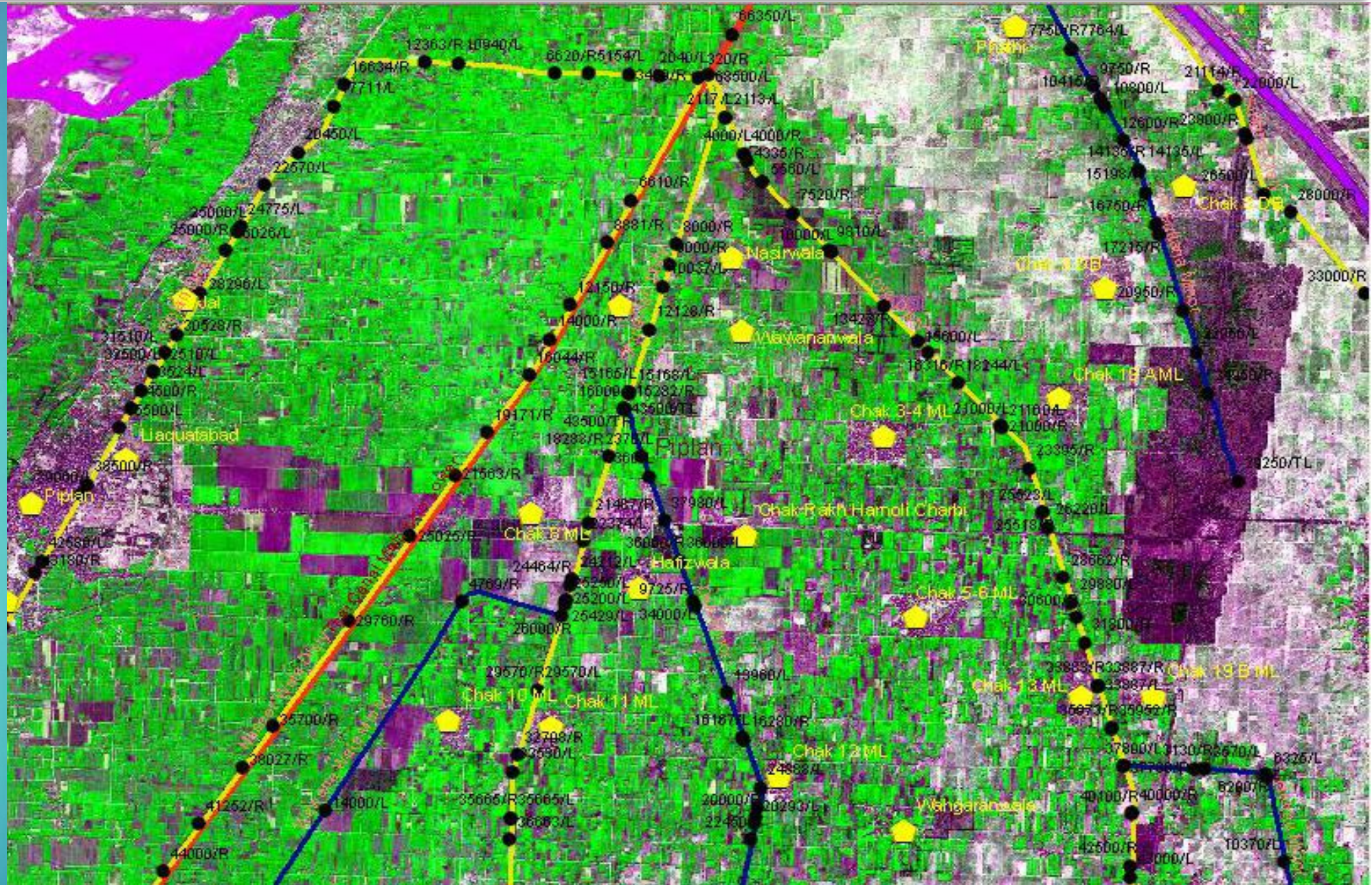


Summary of GIS Based Watercourse Directory (1976-77 to 2020-21)



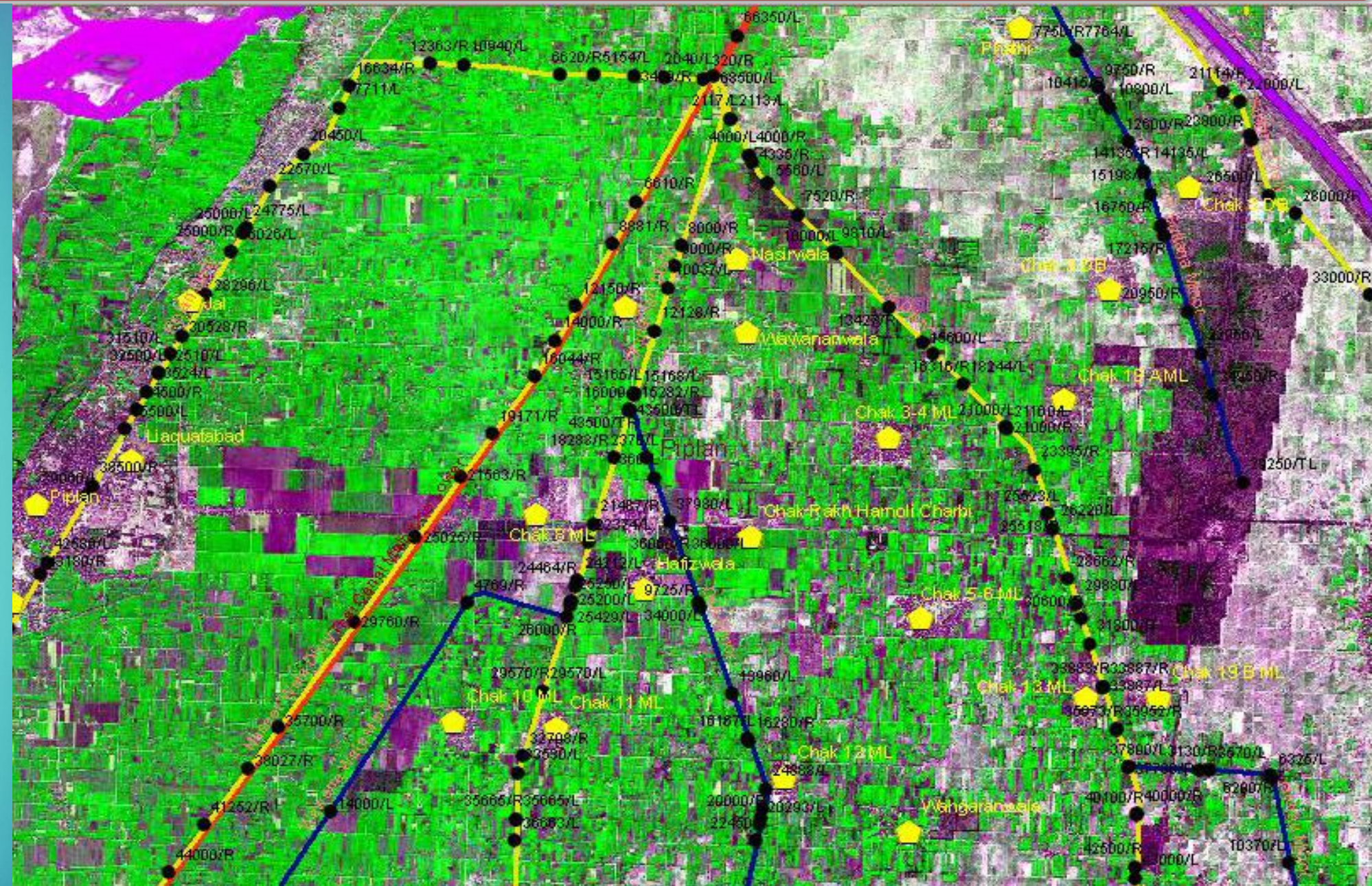
WATERCOURSE
IMPROVEMENT



GIS Based Watercourse Directory of Outlived Watercourses



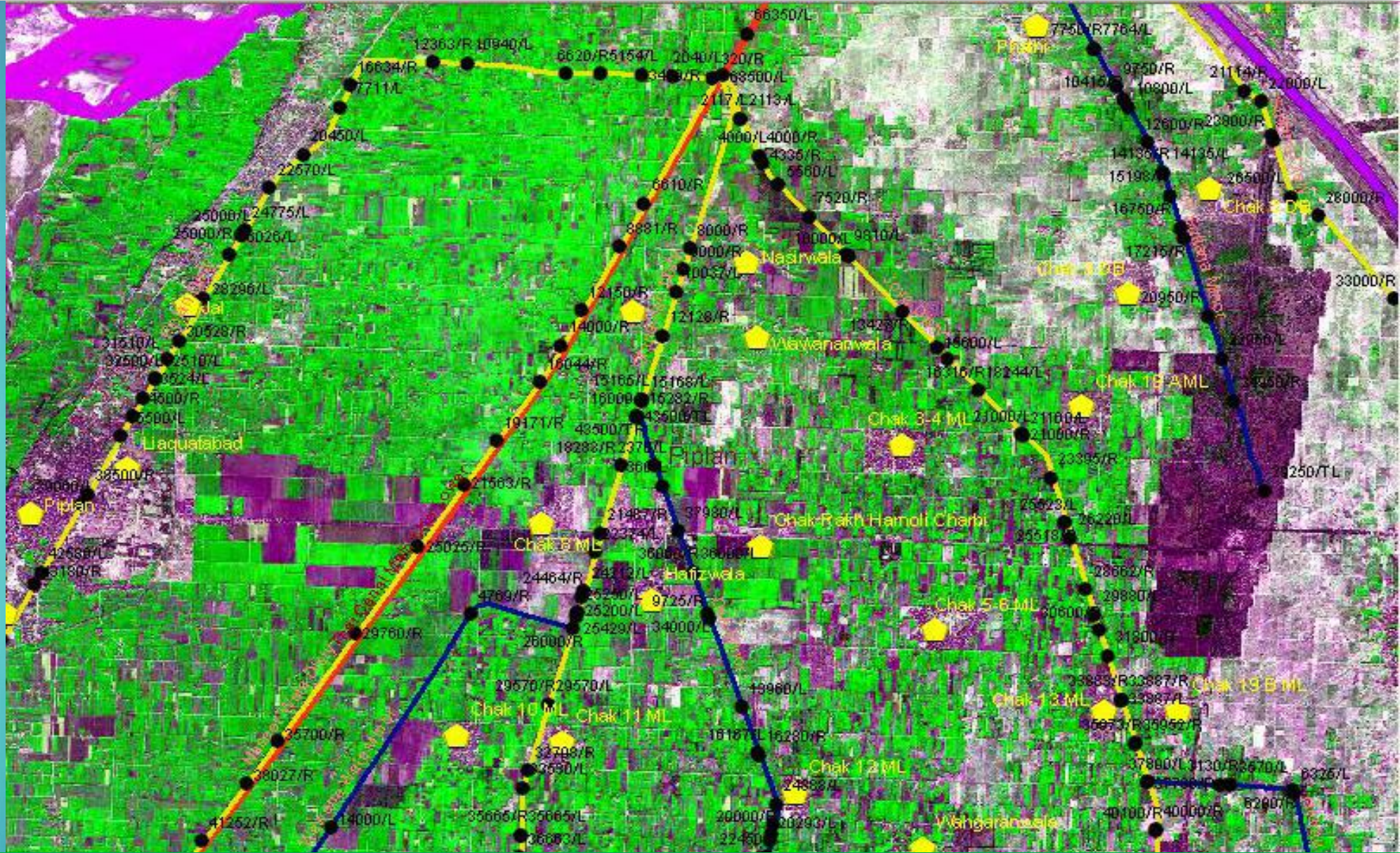
WATERCOURSE
IMPROVEMENT



GIS Based Watercourse Directory (1976-77 to 2020-21)



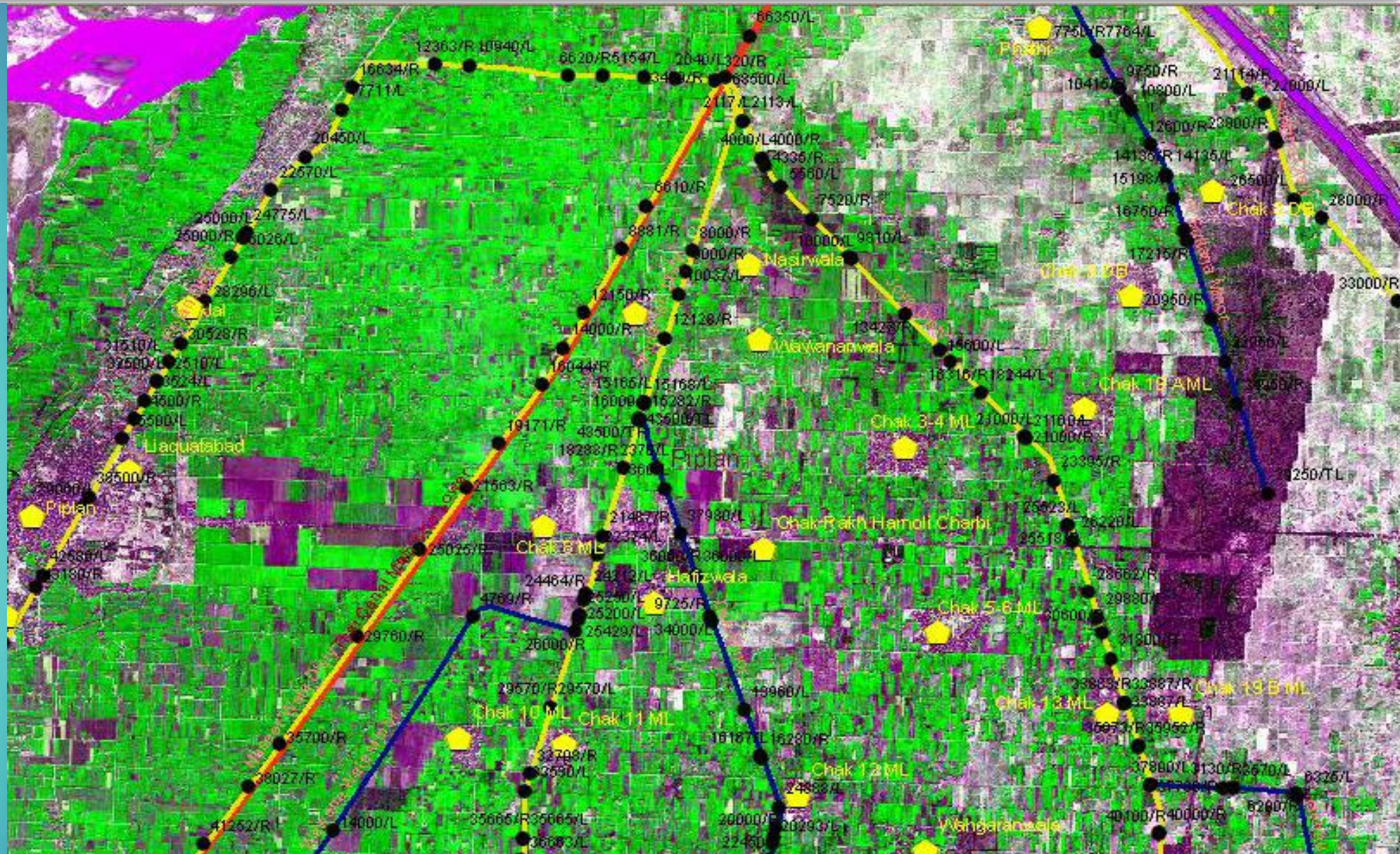
WATERCOURSE
IMPROVEMENT



GIS Based Watercourse Directory (1976-77 to 2020-21)



WATERCOURSE
IMPROVEMENT

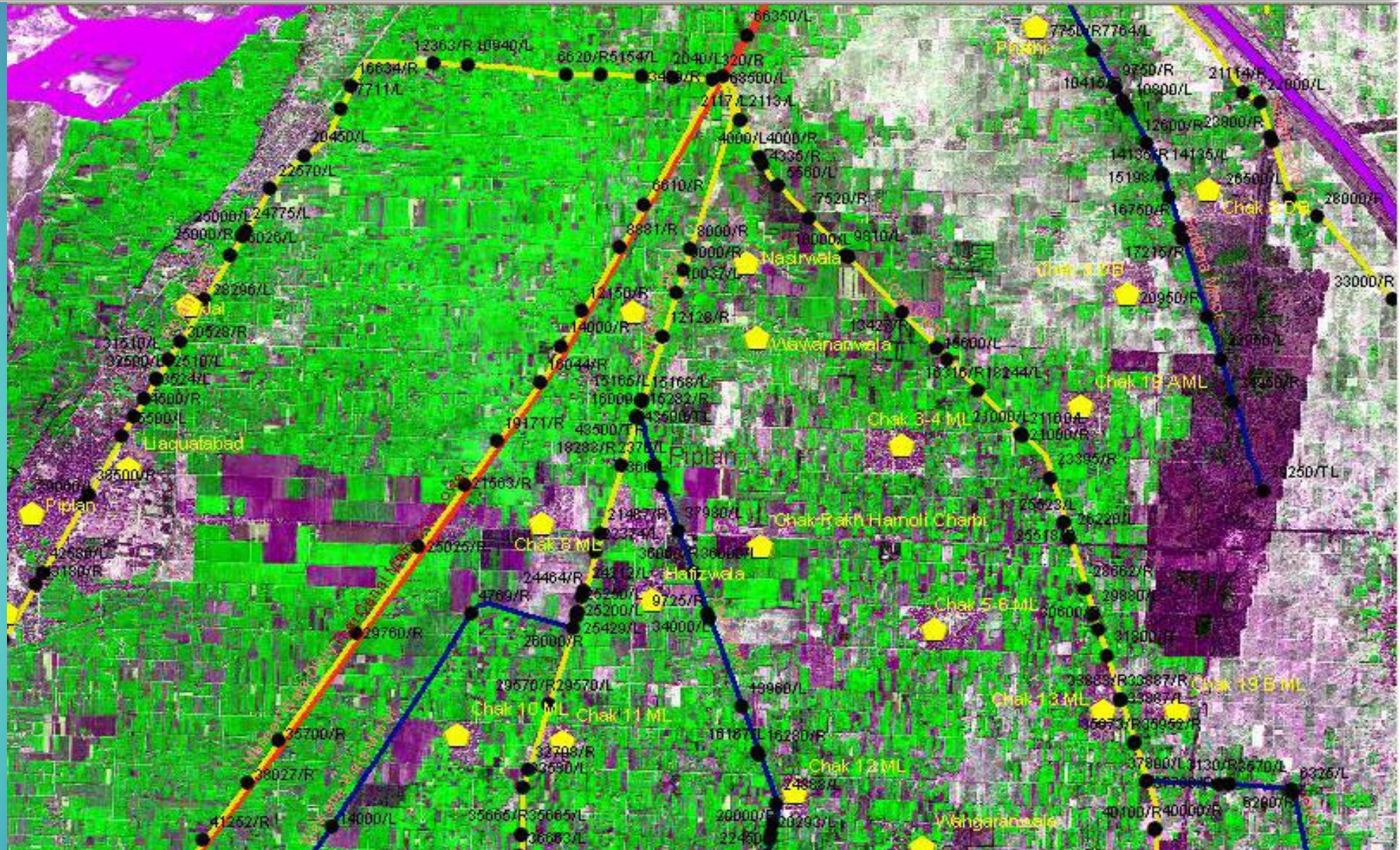


Volume 2 of 3 (Kasur, Khanewal, Khushab, Lahore, Layyah, Lodhran, M.B.Din, Mianwali, Multan, Muzaffargarh, Nankana Sahib, Narowal)

GIS Based Watercourse Directory (1976-77 to 2020-21)



WATERCOURSE
IMPROVEMENT



Volume 3 of 3 (Okara, Pakpattan, Rahim Yar Khan, Rajanpur, Sahiwal, Sargodha, Sheikhupura, Sialkot, Toba Tek Singh and Vehari)

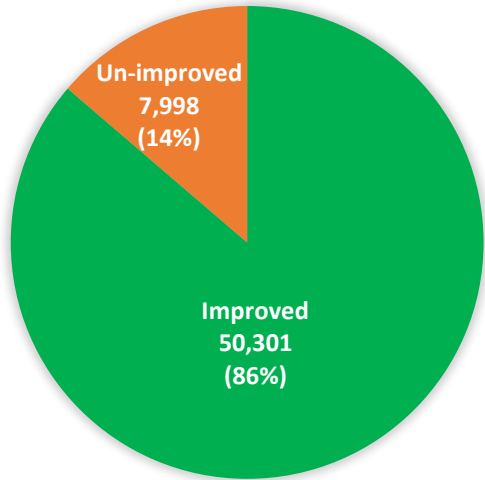
ACRONYMS AND ABBREVIATIONS

AIW	Accelerated Improvement of Watercourses
CCB	Citizen Community Board
CWMP	Command Water Management Project
DGKRDP	DG Khan Rural Development Project (OFWM Component)
DERA	Drought Emergency Rehabilitation Assistance
1st OFWM	First On Farm Water Management
FAO/OFWM	Food and Agriculture Organization/OFWM
FESS	Fordwah Eastern Sadiqia South Drainage Project
KPP	Khushhal Pakistan Program
NRSP	National Rural Support Program
NPIW	National Program for Improvement of Watercourses in Pakistan
NPIW/PRSP	National Program for Improvement of Watercourses/ Punjab Rural Support Program
BRDP	OFWM component of Bahawalpur Rural Development Project
CMP	OFWM Component of Crop Maximization Program
NDP-1	OFWM Component of National Drainage Program-I
NDP	OFWM Component of National Drainage Program
USAID	OFWM Development Project (USAID Assisted)
GADP	OFWM Component of Gujranwala Agricultural Development Project (ADB Assisted)
BRRYK	OFWM project Bahawalpur and Rahim Yar Khan (Local)
SSTP	OFWM Second Scrap Transition Project Sheikhpura

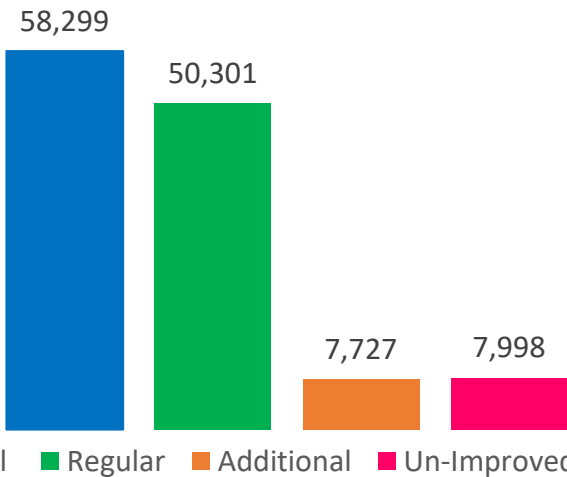
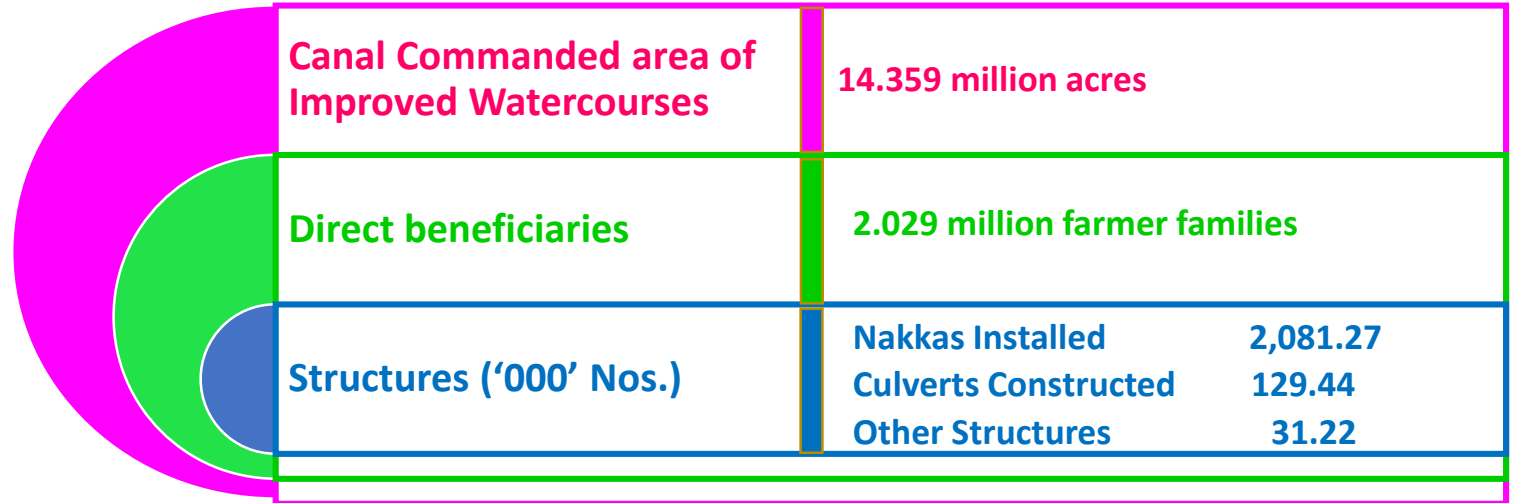
Drainage-IV	OFWM-IV Drainage Project (World Bank Assisted)
OFWM	On Farm Water Management Program
OFWM-I	On Farm Water Management Program-I
OFWM-II	On Farm Water Management Program-II
OFWM-III	On Farm Water Management Program-III
OWC	Optimizing Watercourse Conveyance Efficiency through Enhancing Lining Length
OECF	Oversease Economic Cooperation Fund
PRSP	Punjab Rural Support Program
PIPIP	Punjab Irrigated-Agriculture Productivity Improvement Project
PGW	Punjab Ground Water Development Project
PPSGDP	Punjab Private Sector Groundwater Development Project
PRSP/NRSP	Punjab Rural Support Program/National Rural Support Program
PTDP	Punjab Tubewell Development Project
STP	SCARP Transition (IDA Assisted)
SCARP-K	SCARP-Khushab
2nd OFWM	Second On Farm Water Management
3rd OFWM	Third On Farm Water Management
TMA	Town Municipal Administration
Dist. Govt.	Watercourse Improvement (District Government)
UKG	Watercourse Improvement In Sheikhpura (UK Grant)

OFWM	On Farm Water Management
D. Discharge	Designed Discharge
LPS	Liter Per Second
CCA	Canal Commanded Area
(m)	Meter
SCARP	Salinity Control and Reclamation Programme
OCEP (ADP)	Optimizing Watercourse Conveyance Efficiency Through Enhancing Lining Length (ADP assisted)
NPIW-II	National Program for Improvement of Watercourses in Pakistan (Phase-II) - The Punjab Component

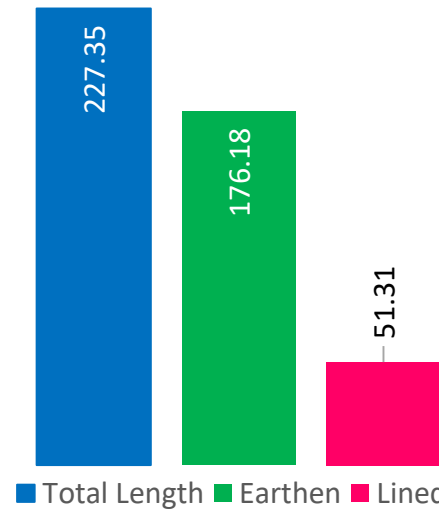
PUNJAB – OVERVIEW



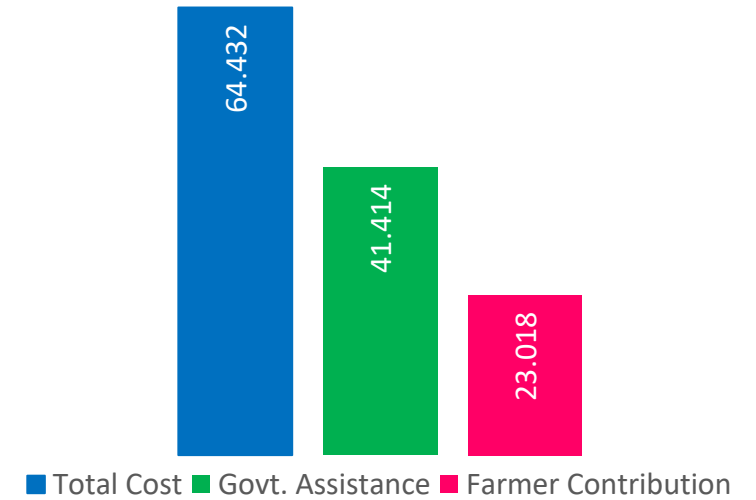
Status of 58,299 Watercourses



Watercourse Improvement Status



Length of Improved Watercourses ('000' KMs)

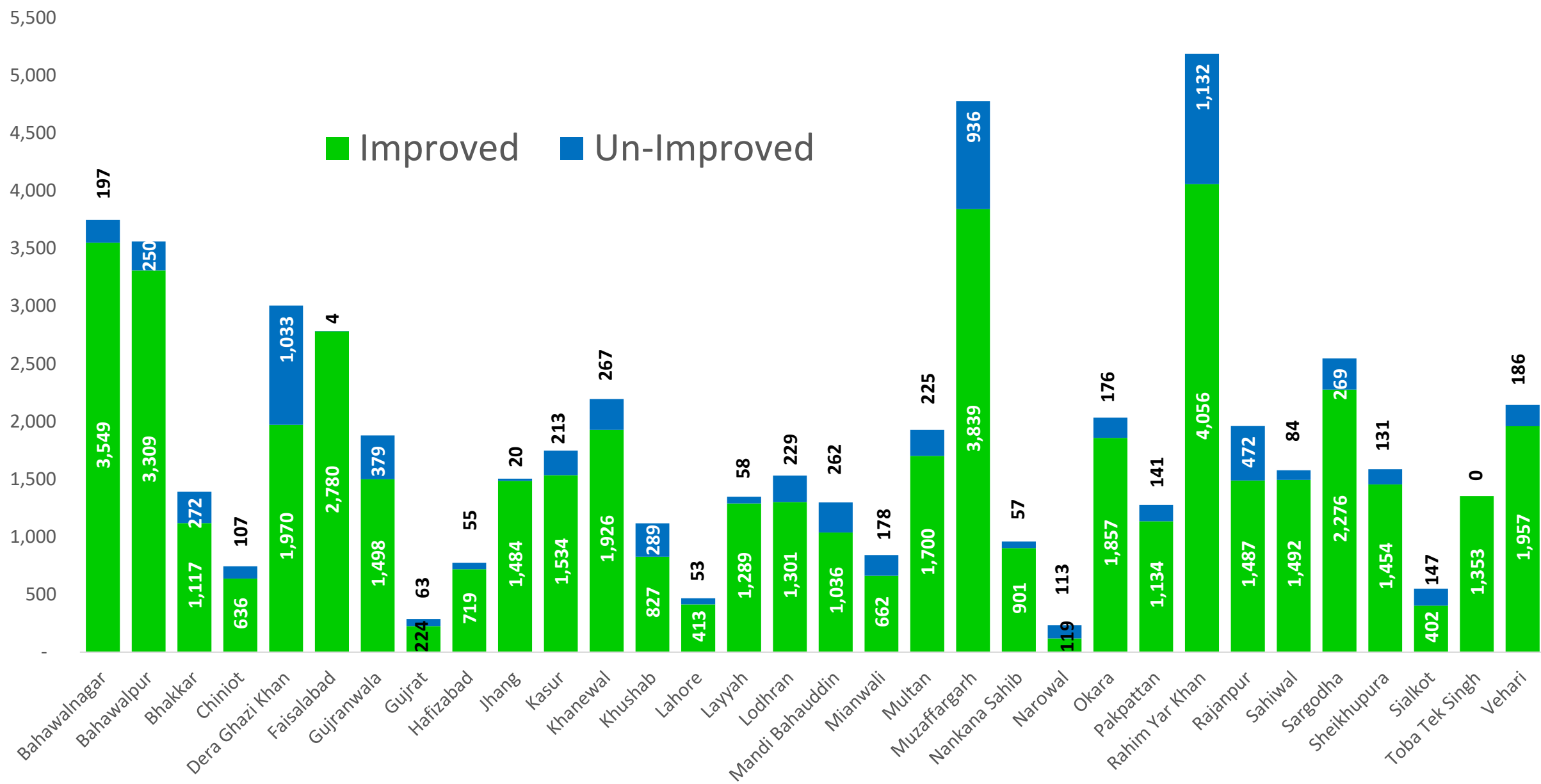


Financial Implication (Rs. Billion)

DISTRICT WISE WATERCOURSE IMPROVEMENT STATUS



Watercourses



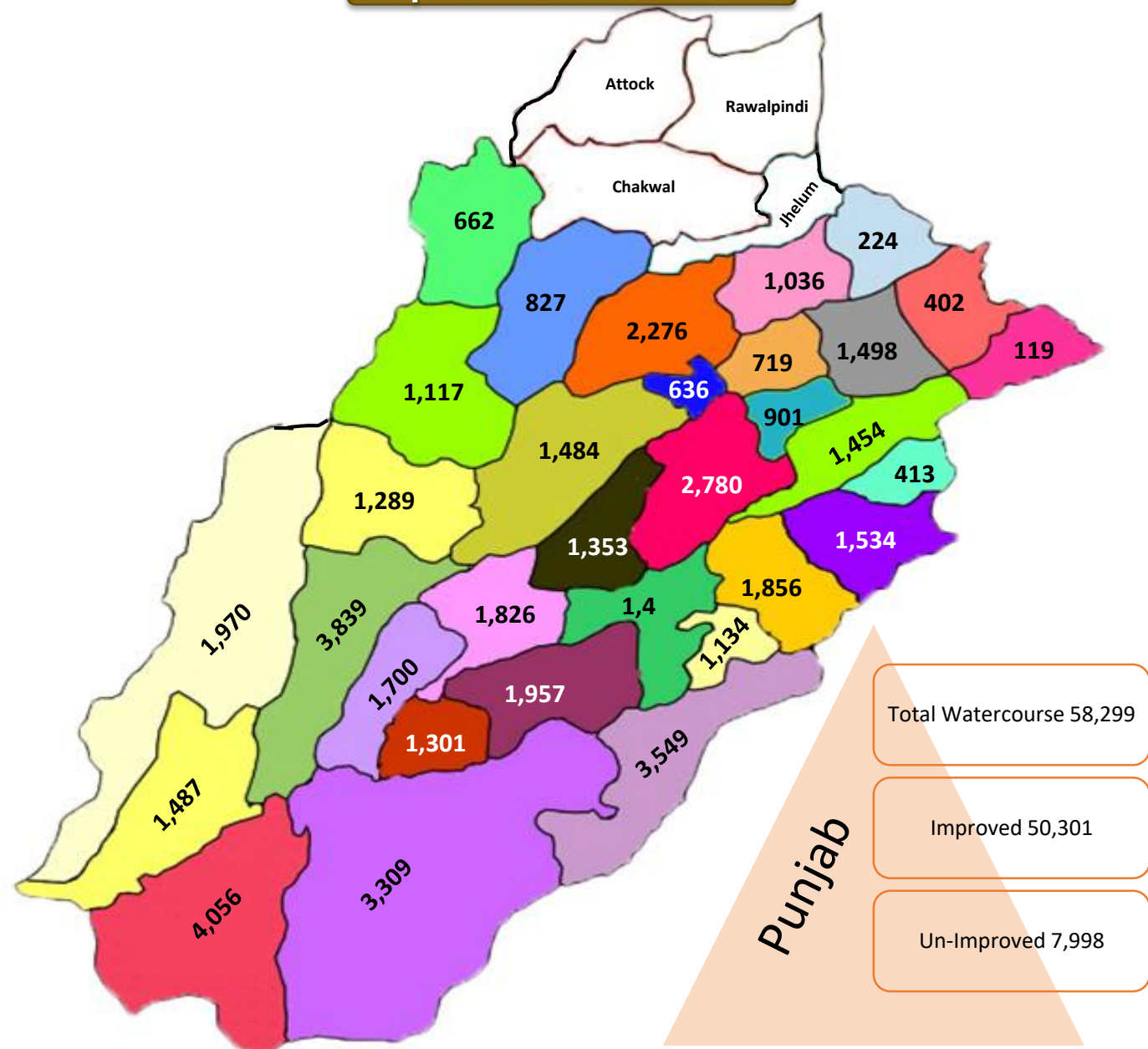
DISTRICTS

DISTRICT WISE WATERCOURSE IMPROVEMENT STATUS

Total Watercourses

Mianwali	840
Khushab	1,116
Bhakkar	1,389
Jhang	1,504
Chiniot	743
Toba Tek singh	1,353
Layyah	1,347
Khanewal	2,193
Vehari	2,143
D.G.Khan	3,003
Muzaffargarh	4,775
Multan	1,925
Lodhran	1,530
Rajanpur	1,959
R.Y.Khan	5,188
Bahawalpur	3,559

Improved Watercourses

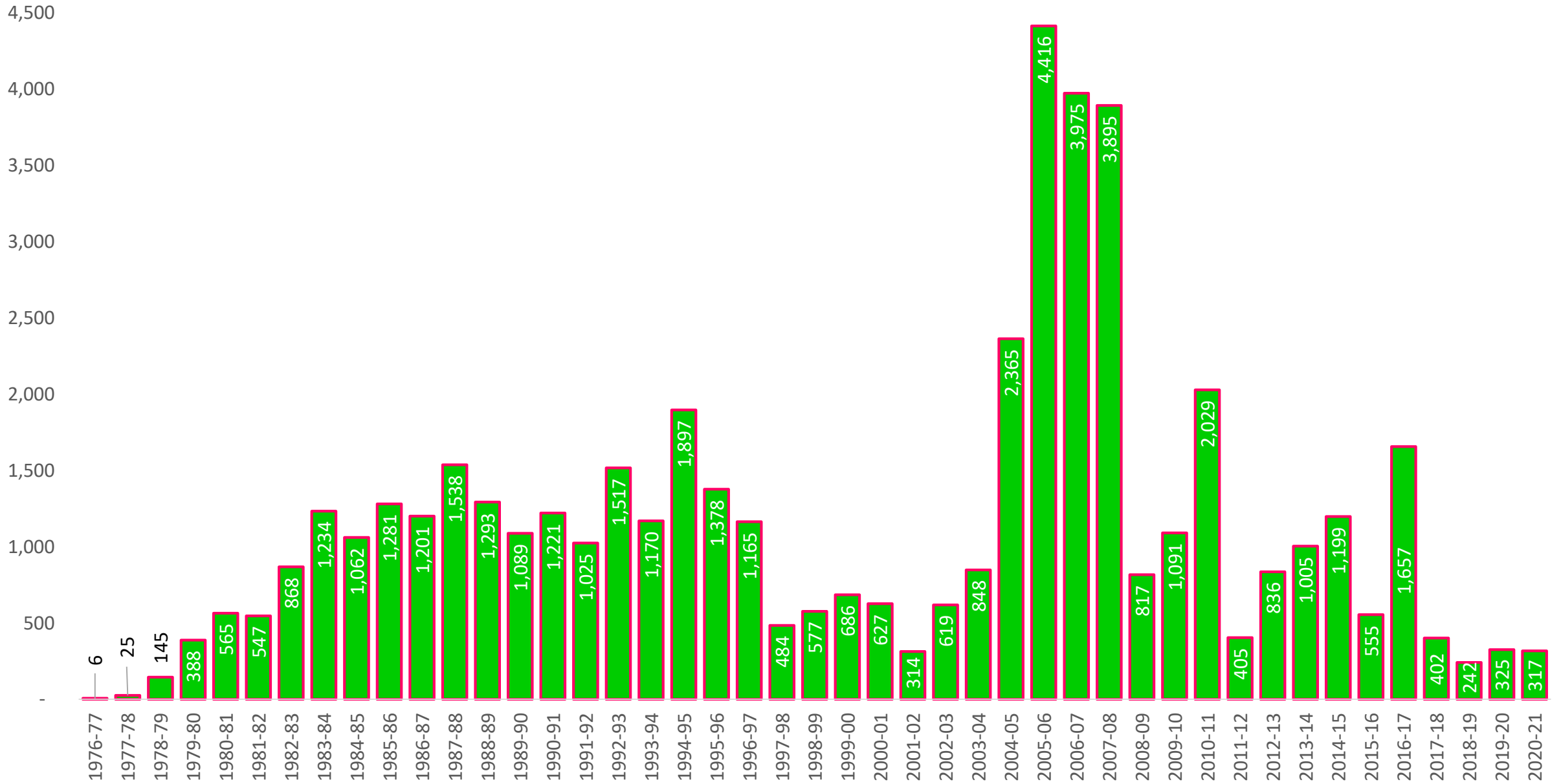


Total Watercourses

Gujrat	287
Sialkot	549
Narowal	232
Mandi B.Din	1,298
Gujranwala	1,877
Sargodha	2,545
Hafizabad	774
Nankana Sahib	958
Sheikhupura	1,585
Lahore	466
Faisalabad	2,784
Kasur	1,747
Okara	2,033
Pakpattan	1,275
Sahiwal	1,576
Bahawalnagar	3,746

YEAR WISE WATERCOURSE IMPROVEMENT TREND

Watercourses

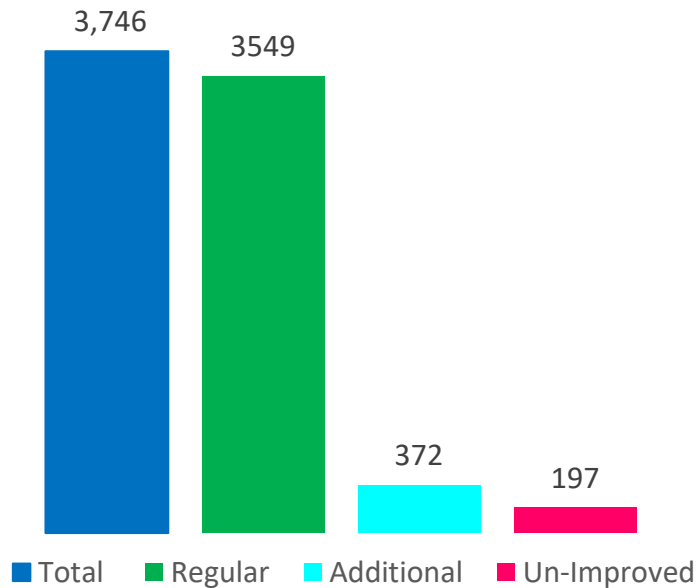
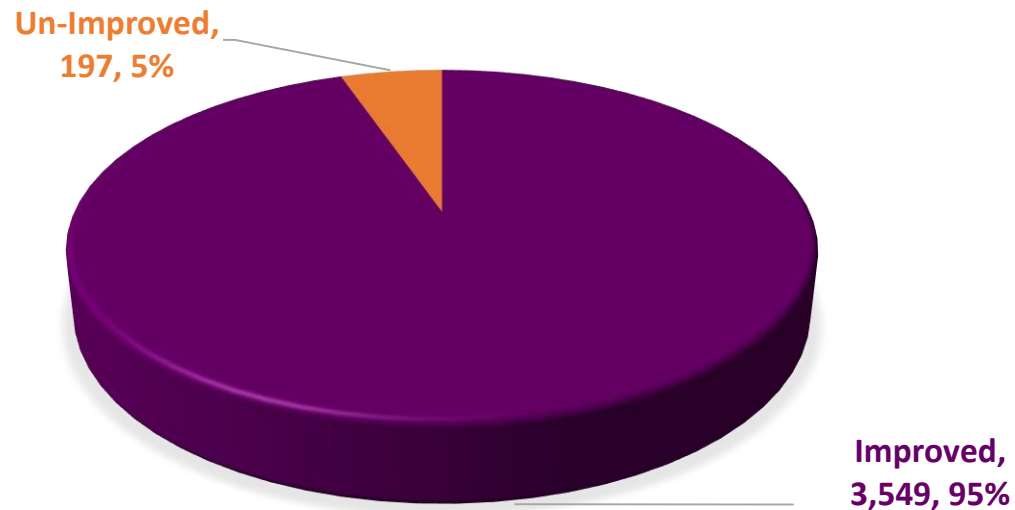


YEAR

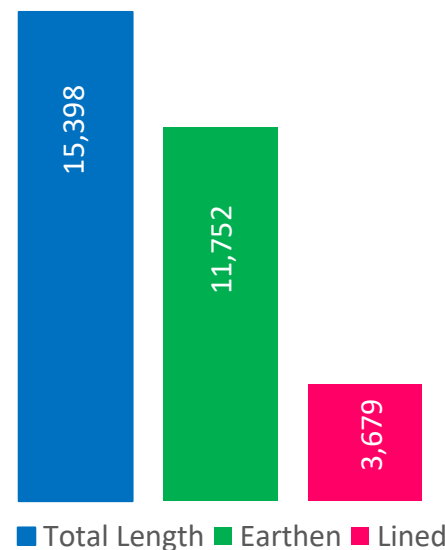
DISTRICT AND AGE WISE TOTAL NUMBER OF IMPROVED WATERCOURSE WITH AVERAGE PERCENT LINING

Sr.#	District Name	Age 1 to 5 Year		6 to 10		11 to 15		16 to 20		21 to 25		26 to 30		31 to 35		36 to 45		Overall	
		16-17 to 20-21		11-12 to 15-16		06-07 to 10-11		01-02 to 05-06		96-97 to 00-01		91-92 to 95-96		86-87 to 90-91		76-77 to 85-86		76-77 to 20-21	
		WCs (Nos.)	Lining % age	WCs (Nos.)	Lining % age	WCs (Nos.)	Lining % age	WCs (Nos.)	Lining % age	WCs (Nos.)	Lining % age	WCs (Nos.)	Lining % age	WCs (Nos.)	Lining % age	WCs (Nos.)	Lining % age	WCs (Nos.)	Lining % age
1	Bahawalnagar	305	43	171	31	830	27	645	25	199	17	486	17	522	20	379	18	3,537	25
2	Bahawalpur	313	43	193	29	782	26	457	27	572	21	586	23	187	20	212	20	3,302	26
3	Bhakkar	240	42	155	26	327	14	178	15	5	24	49	15	89	15	83	13	1,126	21
4	Chiniot	108	42	60	25	162	12	53	17	20	6	65	15	50	18	113	8	631	18
5	Dera Ghazi Khan	332	43	225	28	461	25	241	26	174	20	336	15	195	14	-	-	1,964	21
6	Faisalabad	195	42	113	29	309	25	406	23	43	16	357	18	559	21	786	16	2,768	24
7	Gujranwala	270	40	126	27	358	14	178	14	73	14	251	13	219	15	19	17	1,494	19
8	Gujrat	49	46	8	26	5	17	32	18	44	15	78	13	1	27	-	-	217	20
9	Hafizabad	181	41	45	26	140	14	106	15	32	13	83	10	126	12	10	9	723	17
10	Jhang	216	42	154	26	429	21	213	18	57	4	159	19	149	19	110	15	1,487	20
11	Kasur	269	41	289	27	302	25	243	24	22	23	135	21	142	19	136	16	1,538	24
12	Khanewal	275	37	225	29	439	20	275	21	26	12	199	14	199	16	292	12	1,930	20
13	Khushab	176	49	114	26	132	23	89	20	1	19	138	11	112	18	60	15	822	23
14	Lahore	93	44	38	27	111	26	105	25	23	18	31	15	6	13	8	21	415	24
15	Layyah	226	44	62	31	4	30	68	25	10	14	75	17	223	18	635	17	1,303	25
16	Lodhran	306	41	202	29	286	27	250	23	7	20	116	17	69	18	64	19	1,300	24
17	Mandi Bahauddin	181	44	95	29	251	22	142	23	190	14	91	15	69	15	14	17	1,033	22
18	Mianwali	124	42	69	25	190	16	117	16	5	10	27	18	67	19	55	17	654	20
19	Multan	316	35	241	27	458	24	329	23	2	6	142	13	109	18	97	17	1,694	20
20	Muzaffargarh	353	38	316	27	653	25	394	25	268	16	805	19	781	19	268	20	3,838	24
21	Nankana Sahib	69	40	39	22	258	14	128	15	124	16	81	18	112	18	82	16	893	20
22	Narowal	24	46	7	25	13	13	40	16	19	9	3	15	131	20	-	-	237	18
23	Okara	322	38	222	26	593	19	270	20	8	21	157	19	133	16	151	19	1,856	22
24	Pakpattan	213	41	145	28	406	25	201	23	-	-	85	15	27	-	51	13	1,128	18
25	Rahim Yar Khan	653	42	349	29	908	24	611	25	626	24	527	25	232	22	134	21	4,040	26
26	Rajanpur	265	42	184	28	245	23	168	25	74	10	290	13	244	16	-	-	1,470	20
27	Sahiwal	139	38	125	29	319	25	398	21	29	13	116	19	116	19	233	14	1,475	22
28	Sargodha	267	39	225	28	418	25	298	23	324	12	243	15	192	17	297	17	2,264	22
29	Sheikhupura	226	39	139	26	314	15	162	15	147	15	228	16	164	14	72	13	1,452	19
30	Sialkot	100	45	50	25	62	15	73	14	14	13	39	14	45	15	7	17	390	20
31	Toba Tek Singh	140	43	54	32	158	19	235	23	54	13	173	18	193	20	358	17	1,365	23
32	Vehari	263	37	214	28	349	25	446	24	10	9	250	17	243	20	180	17	1,955	22
Total:		7,209	41	4,654	27	10,672	21	7,551	21	3,202	14	6,401	16	5,706	17	4,906	14	50,301	22

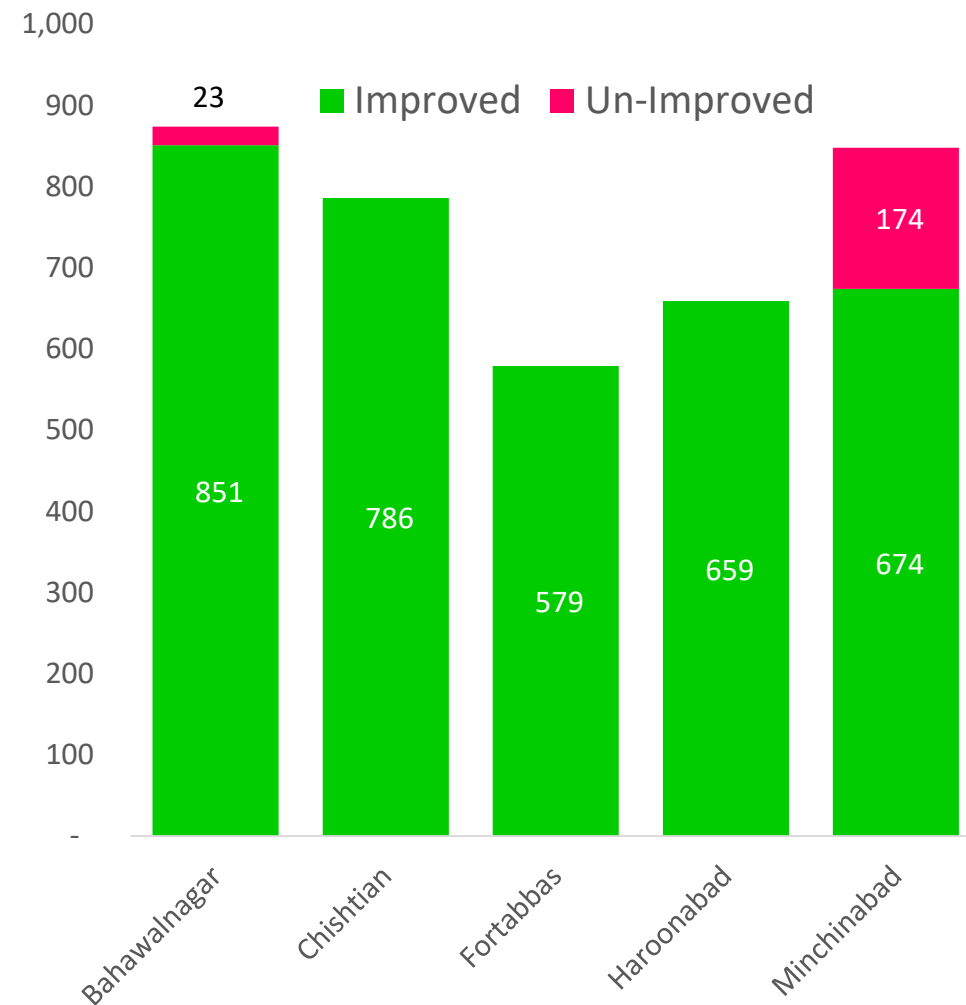
BAHAWALNAGAR OVERVIEW



Watercourse Improvement Status

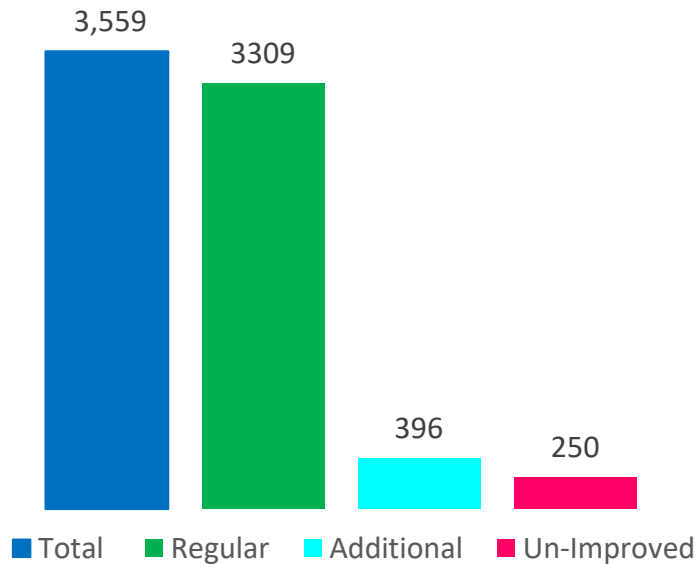
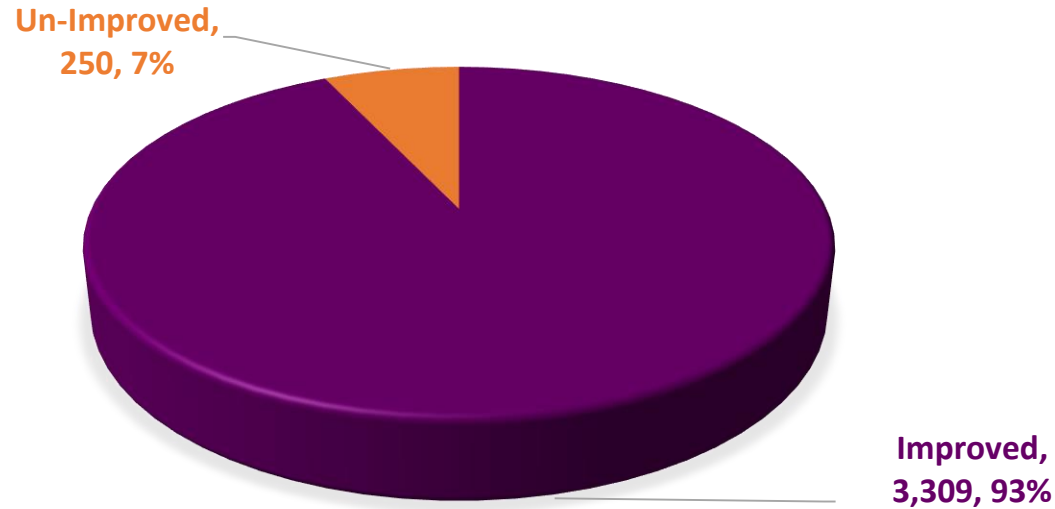


Length of Improved Watercourses (KMs)

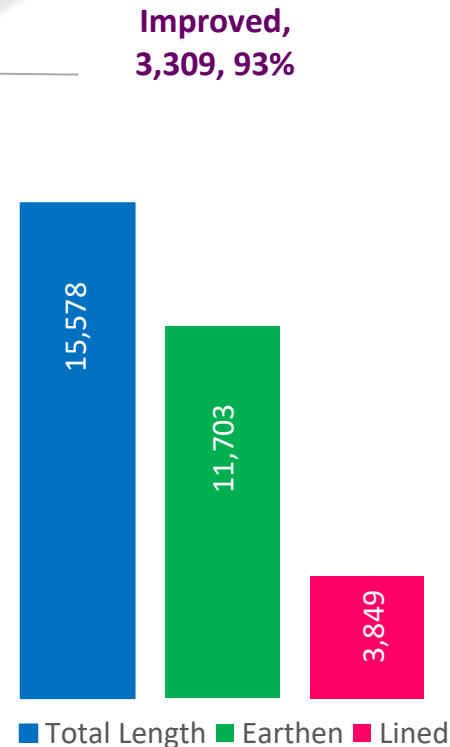


Tehsil wise Watercourse Improvement

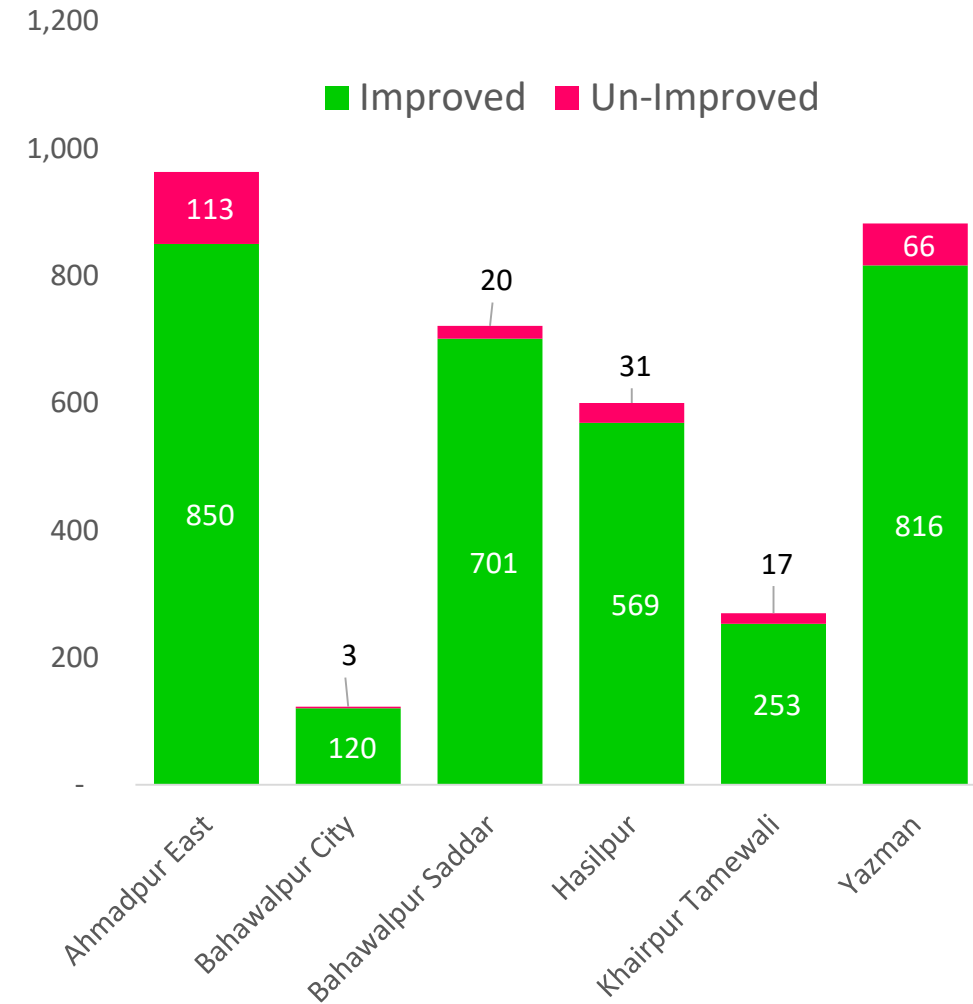
BAHAWALPUR OVERVIEW



Watercourse Improvement Status



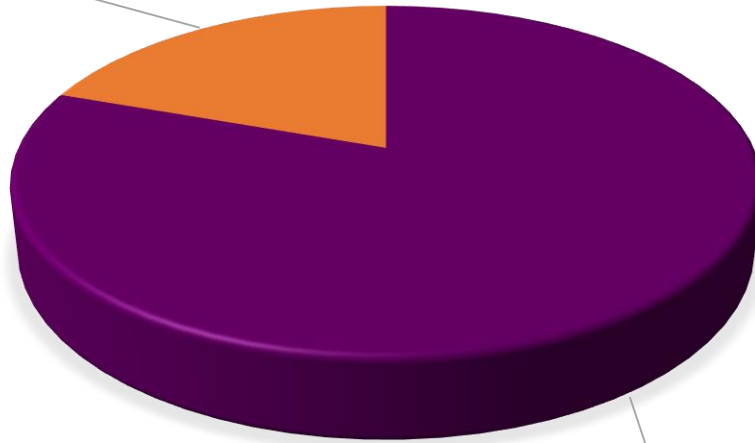
Length of Improved Watercourses (KMs)



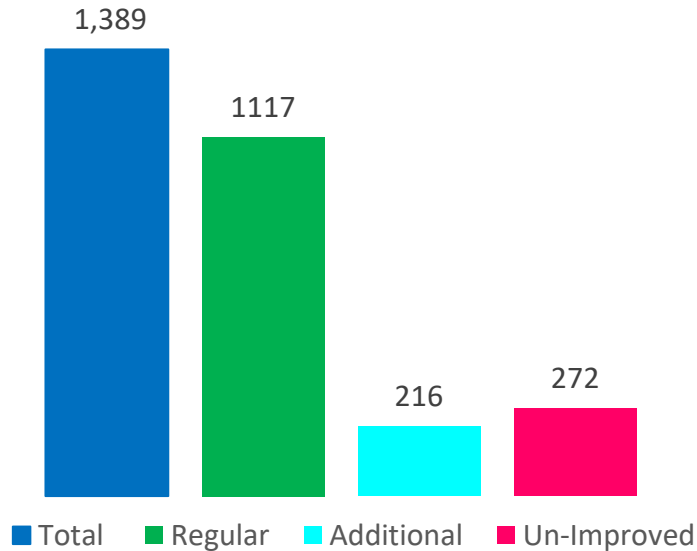
Tehsil wise Watercourse Improvement

BHAKKAR OVERVIEW

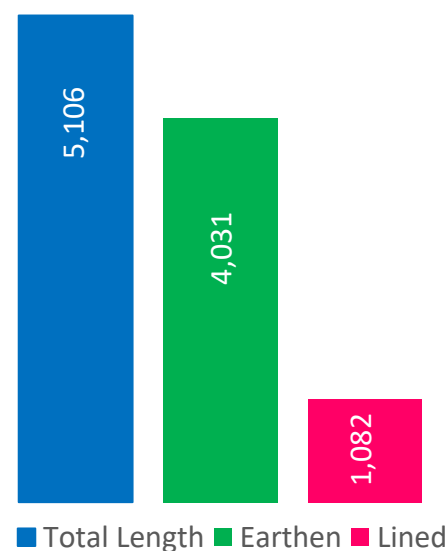
Un-Improved,
272, 20%



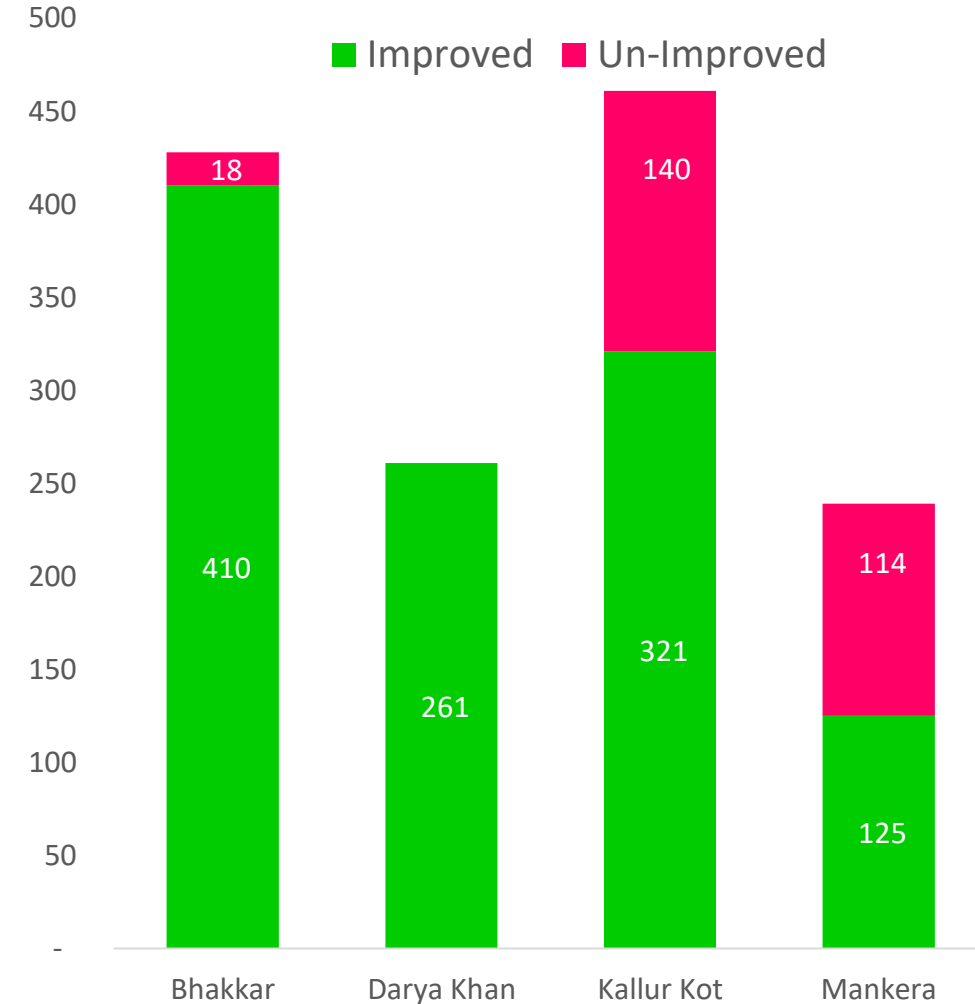
Improved,
1,117, 80%



Watercourse Improvement Status



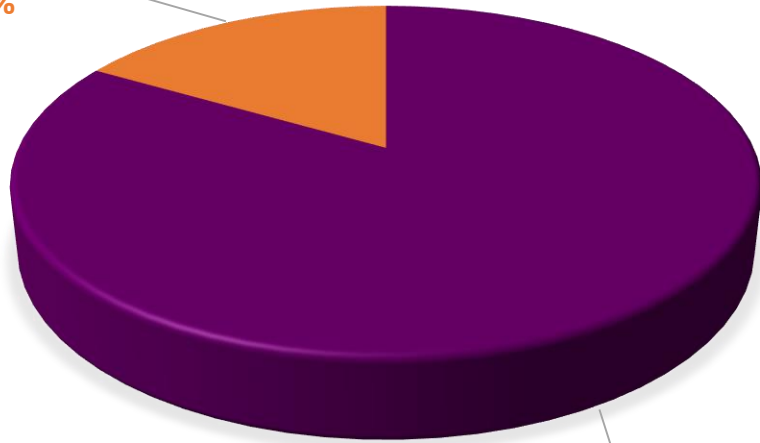
Length of Improved Watercourses (KMs)



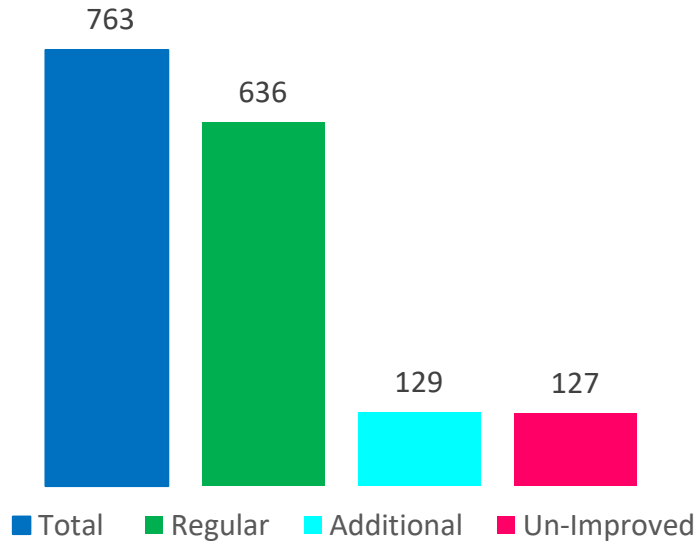
Tehsil wise Watercourse Improvement

CHINIOT OVERVIEW

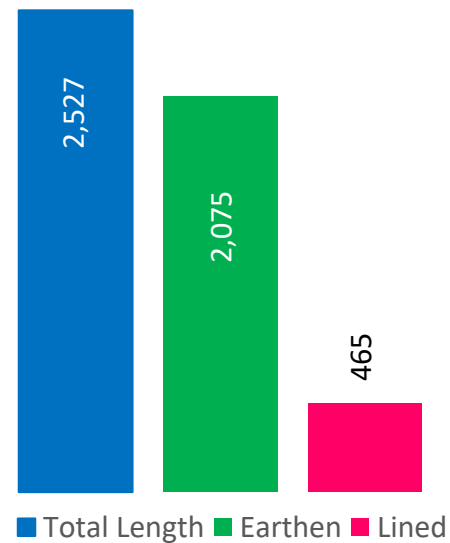
Un-Improved,
127, 17%



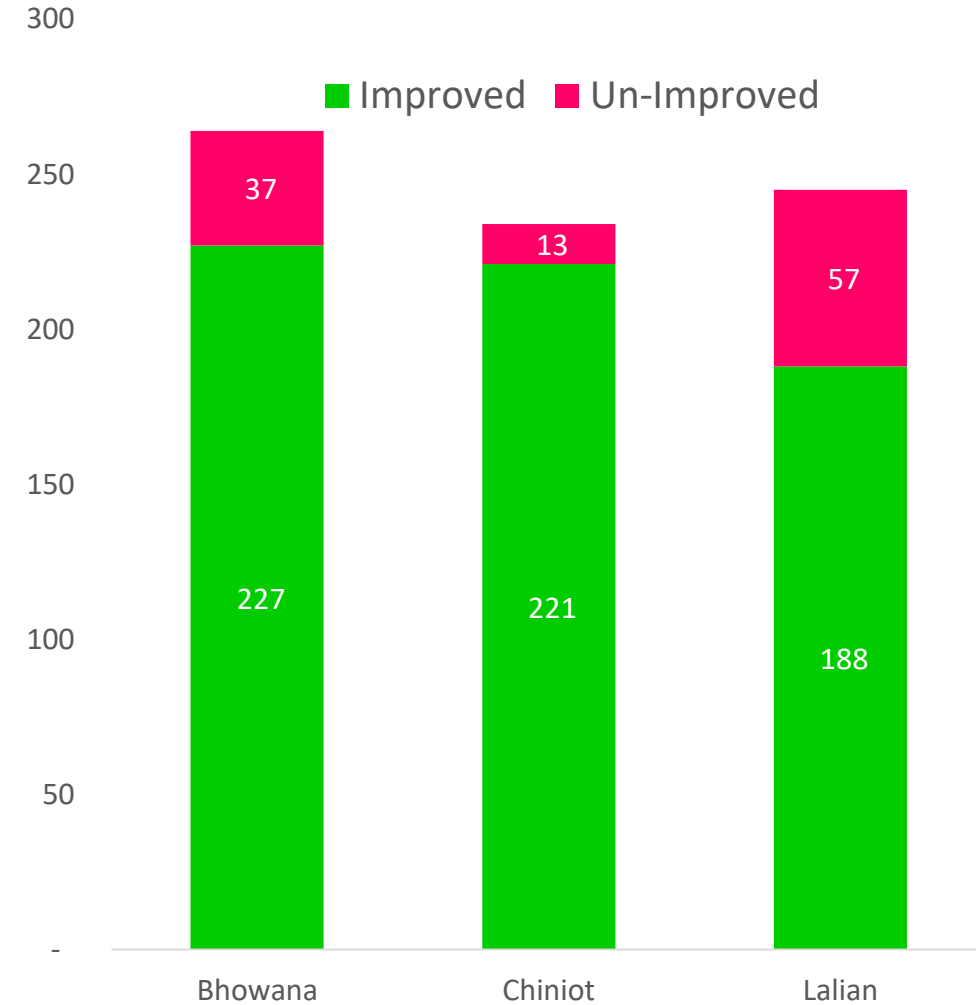
Improved,
636, 83%



Watercourse Improvement Status

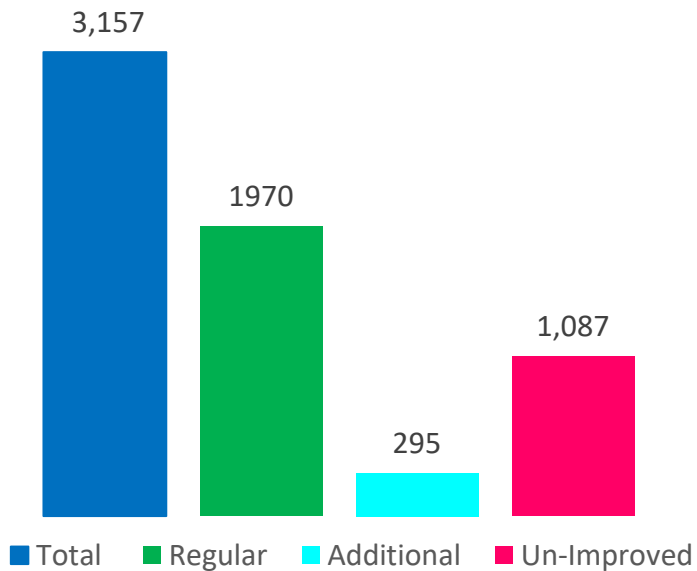
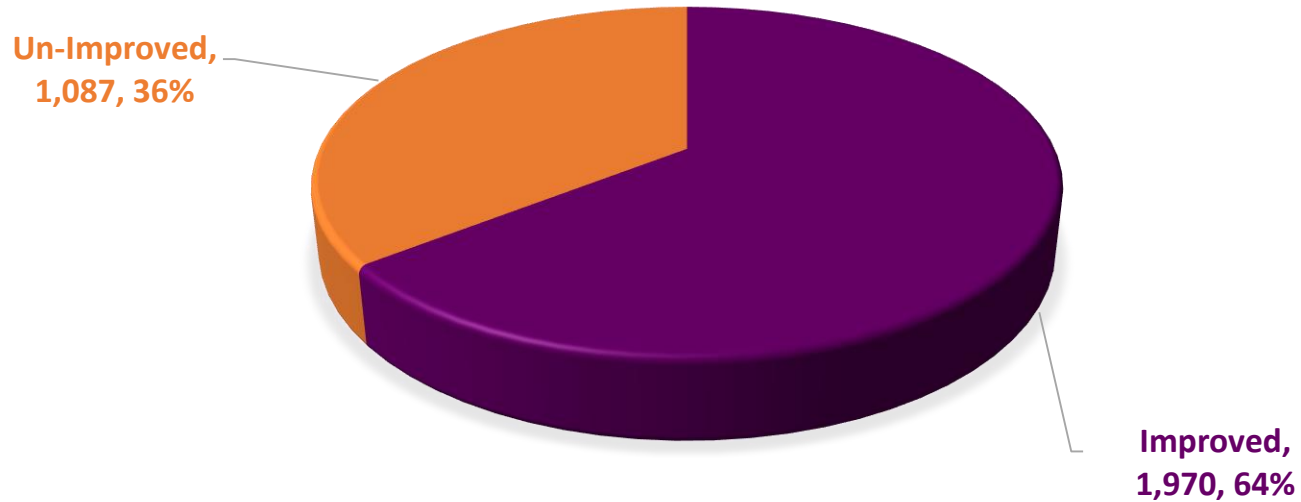


Length of Improved Watercourses (KMs)

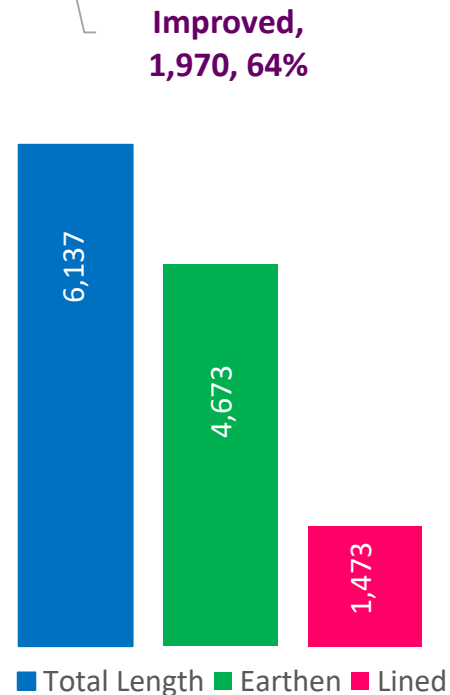


Tehsil wise Watercourse Improvement

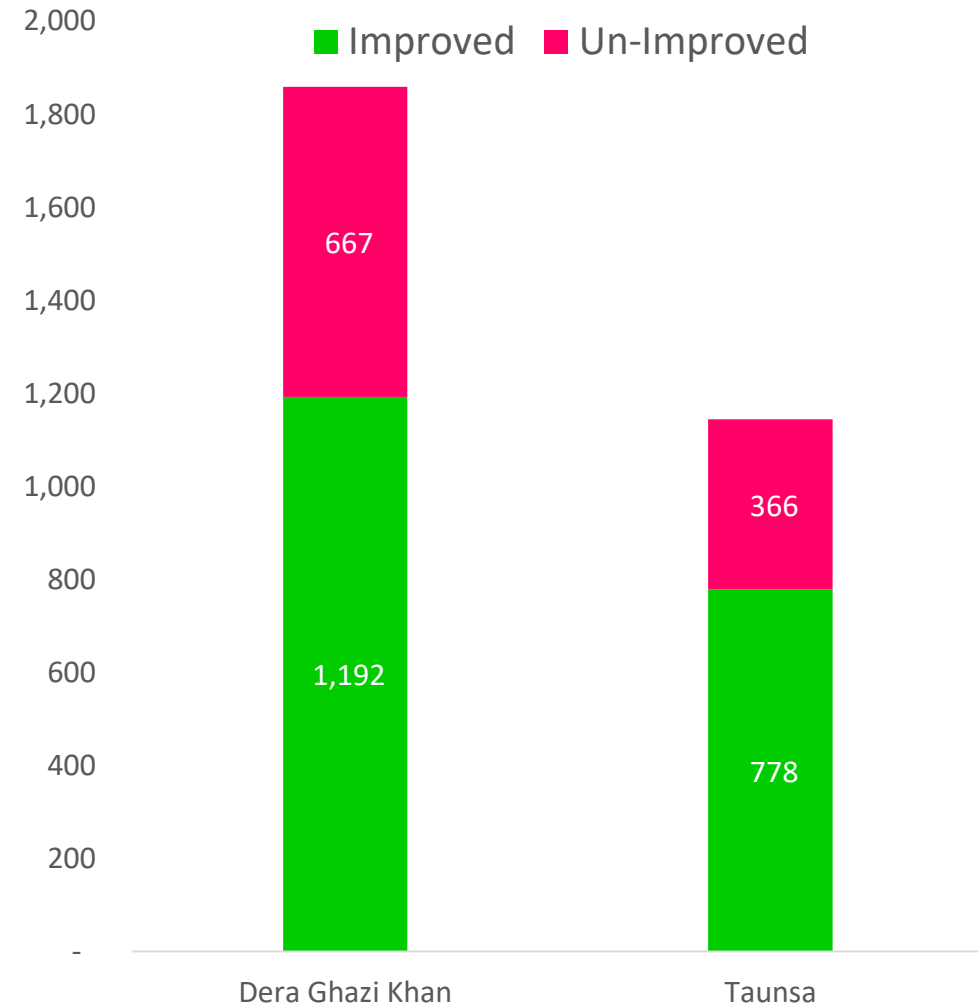
DERA GHAZI KHAN OVERVIEW



Watercourse Improvement Status

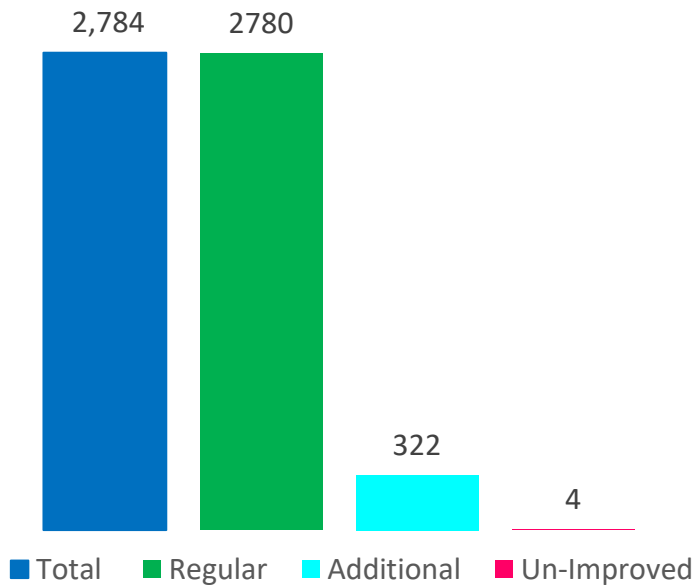
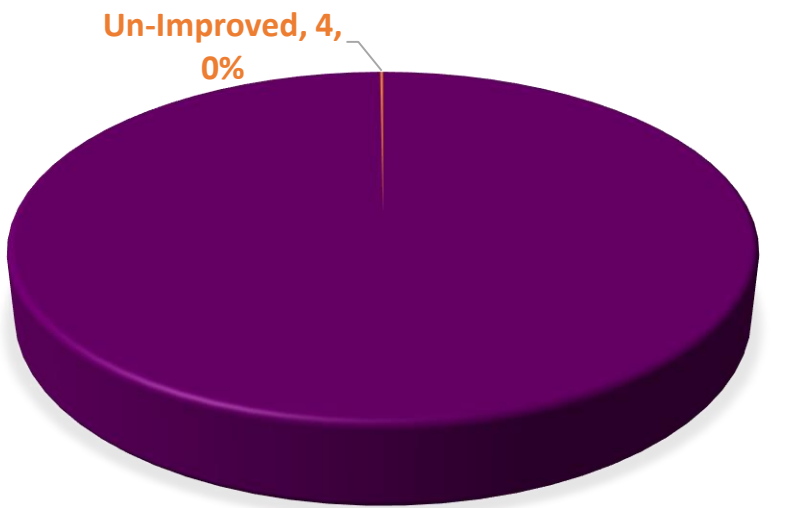


Length of Improved Watercourses (KMs)

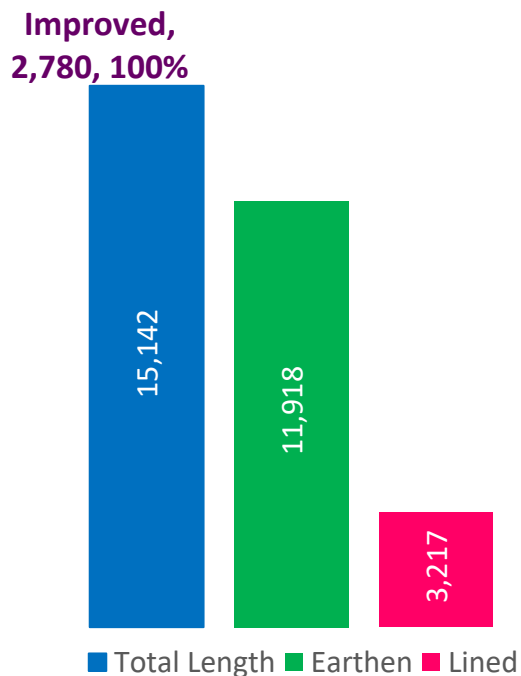


Tehsil wise Watercourse Improvement

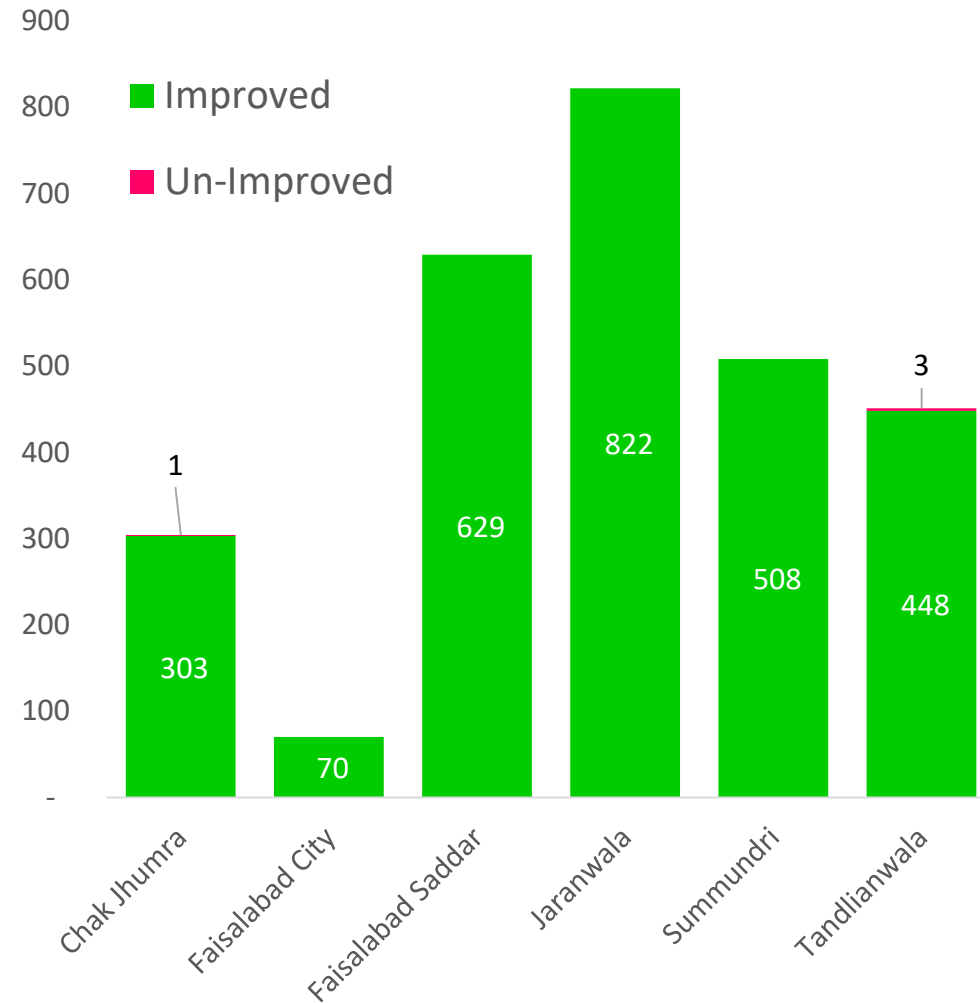
FAISALABAD OVERVIEW



Watercourse Improvement Status



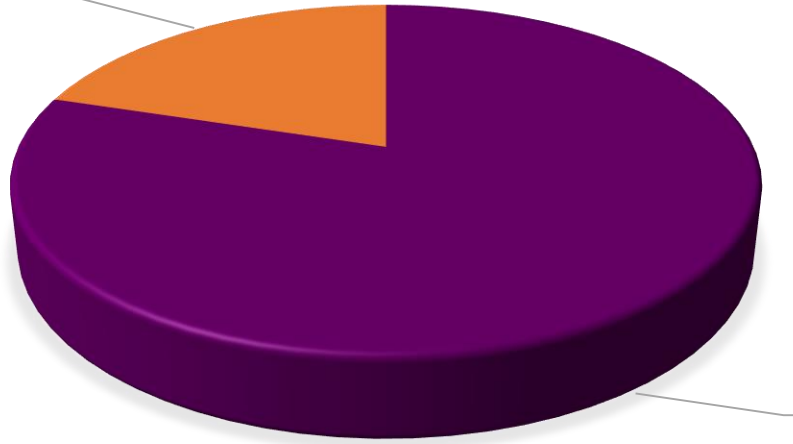
Length of Improved Watercourses (KMs)



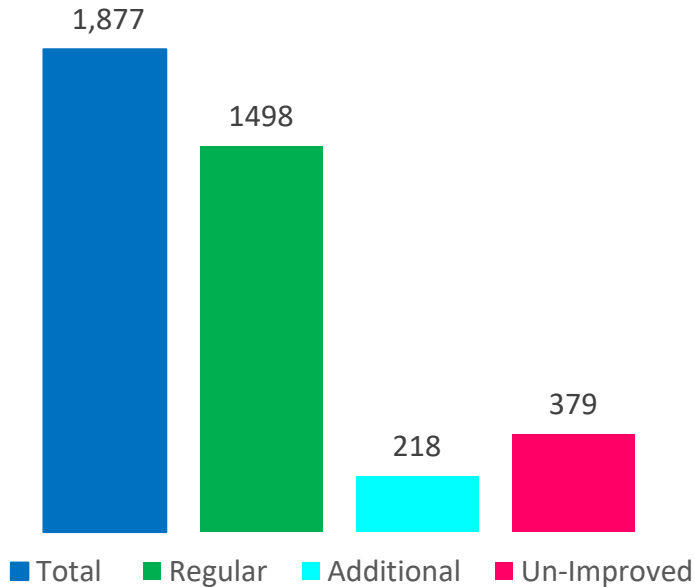
Tehsil wise Watercourse Improvement

GUJRANWALA OVERVIEW

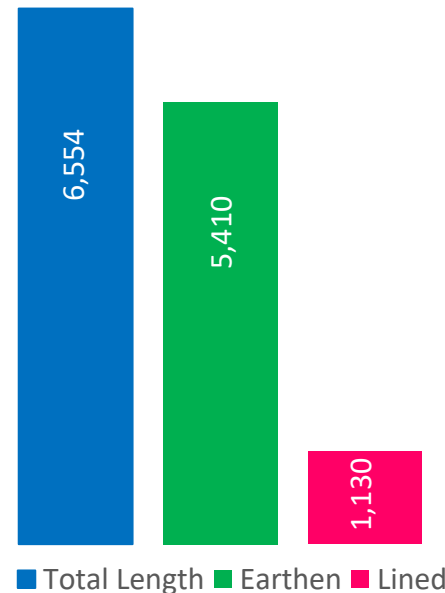
Un-Improved,
379, 20%



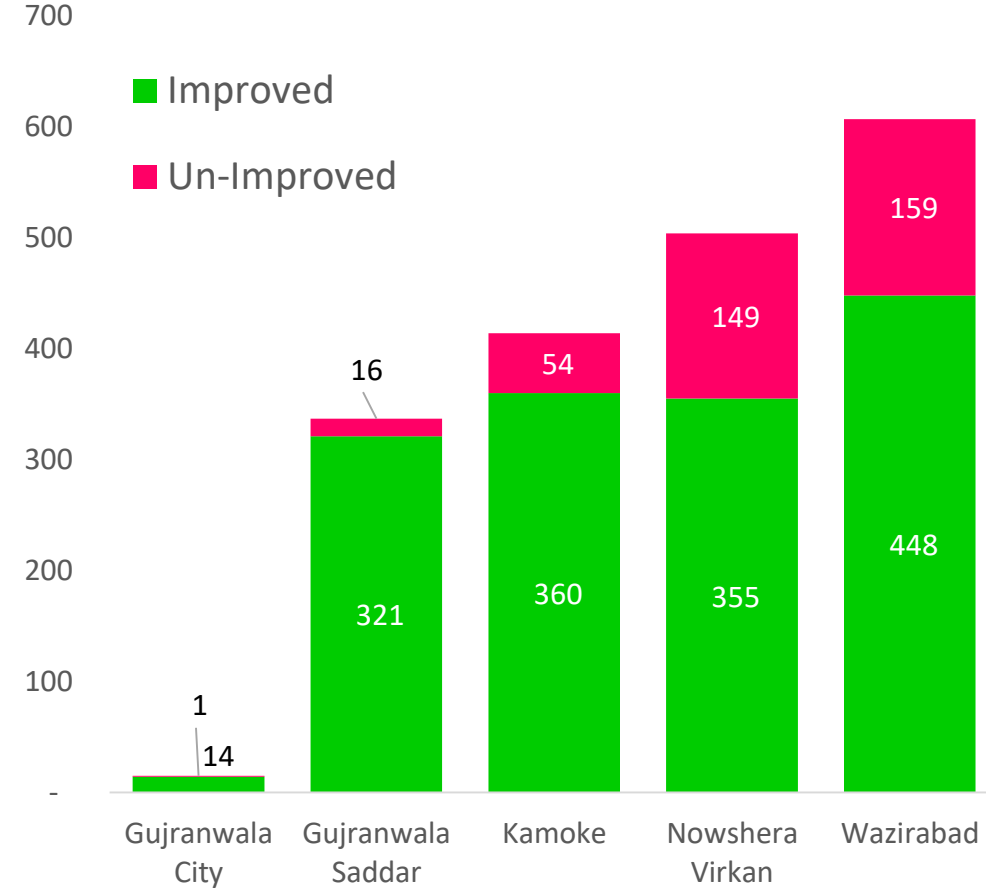
Improved,
1,498, 80%



Watercourse Improvement Status

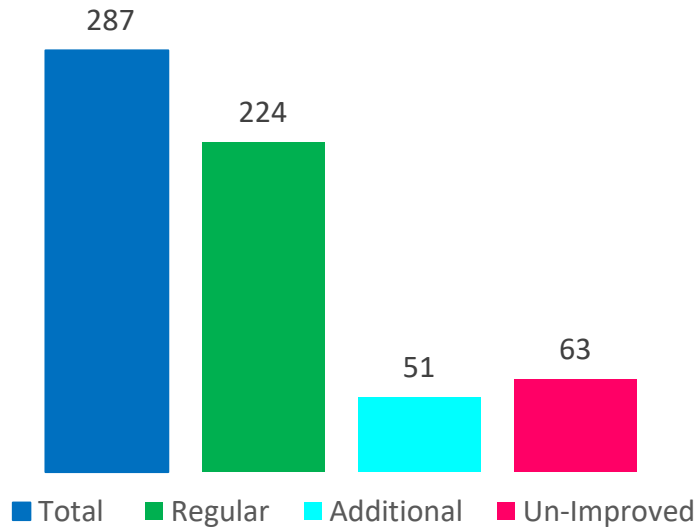
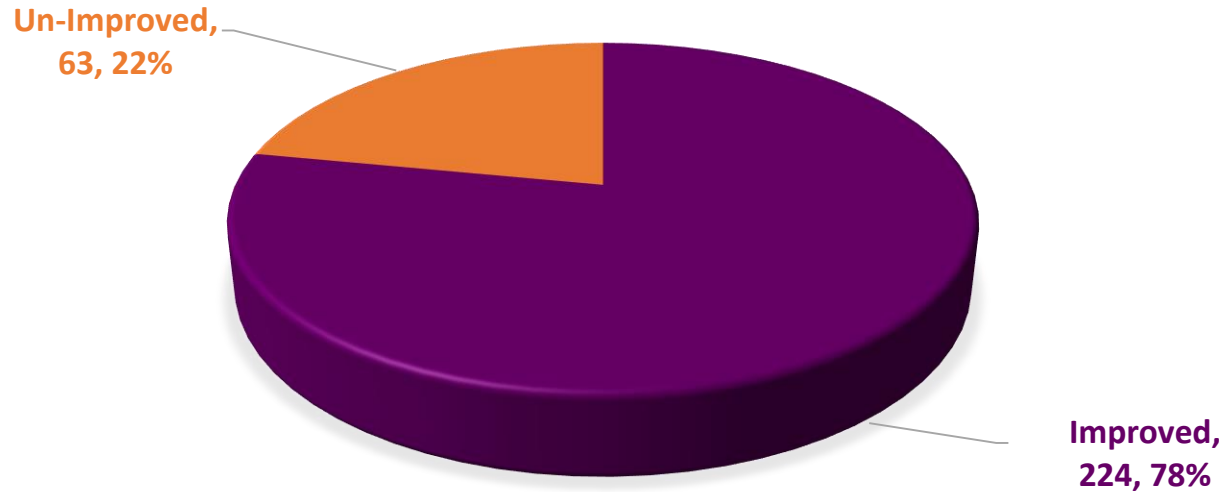


Length of Improved Watercourses (KMs)

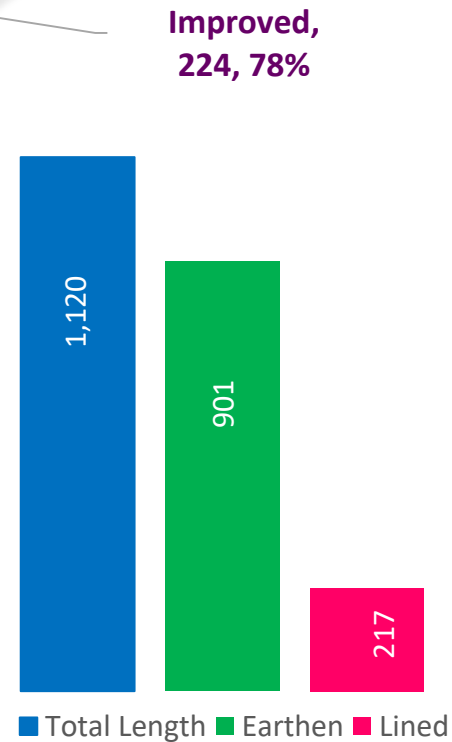


Tehsil wise Watercourse Improvement

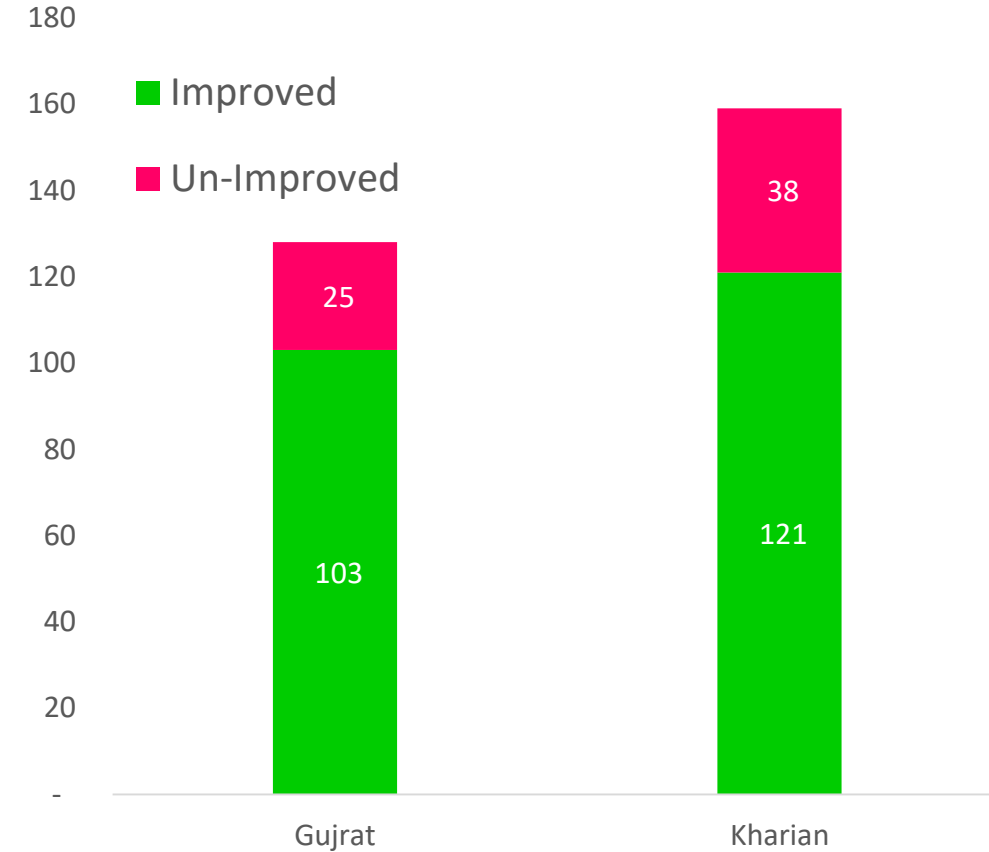
GUJRAT OVERVIEW



Watercourse Improvement Status



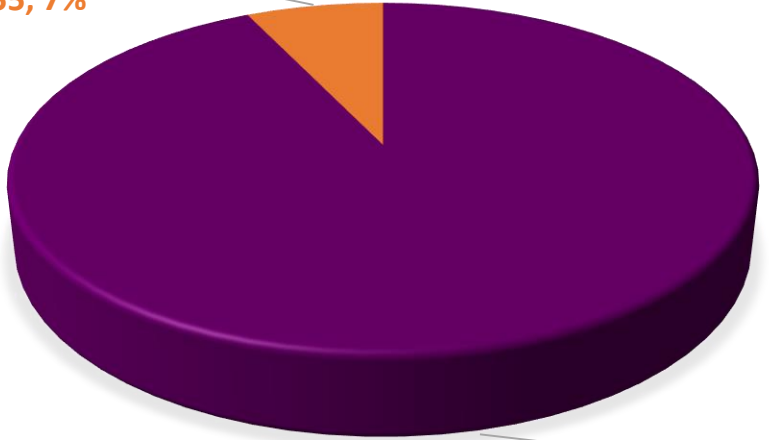
Length of Improved Watercourses (KMs)



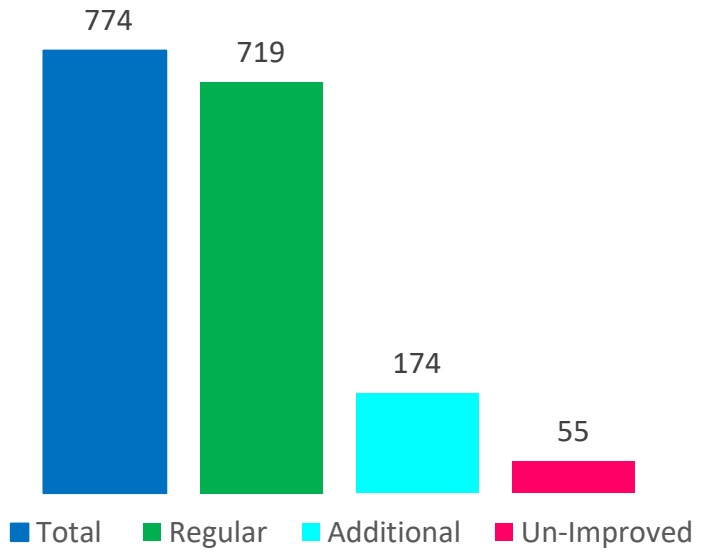
Tehsil wise Watercourse Improvement

HAFIZABAD OVERVIEW

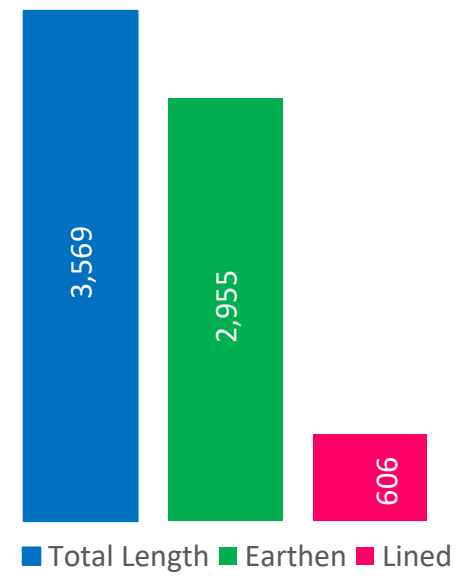
Un-Improved,
55, 7%



Improved,
719, 93%

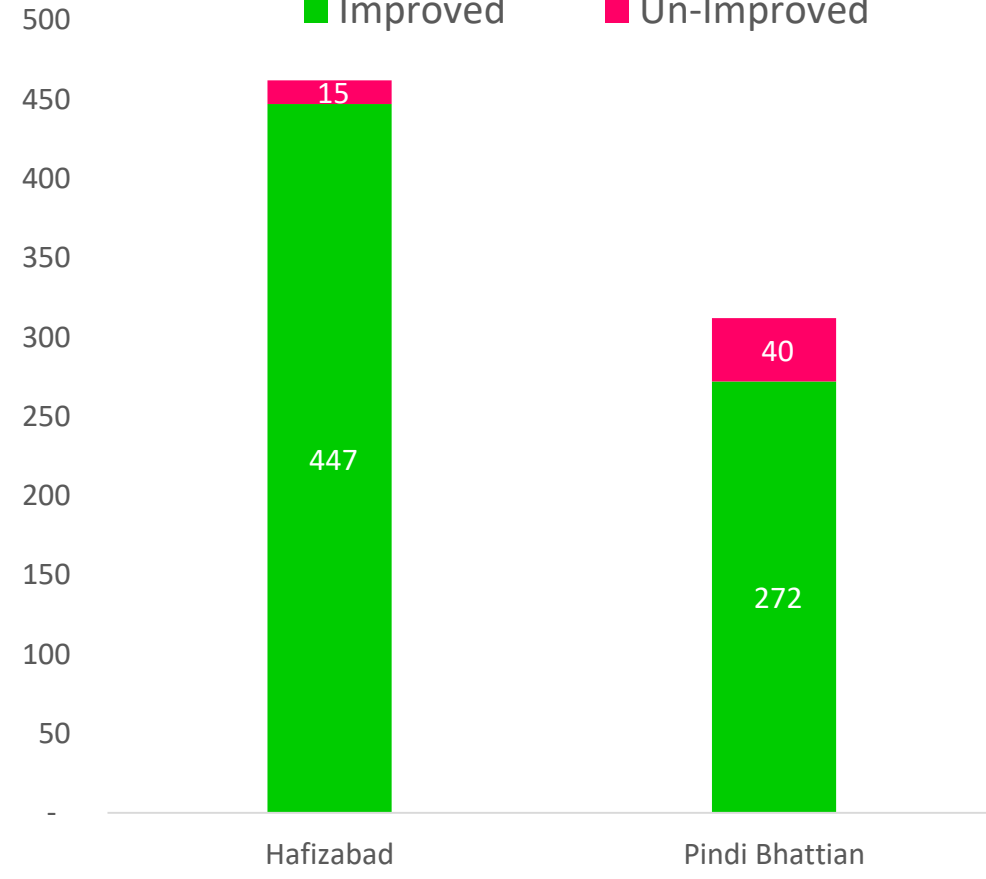


Watercourse Improvement Status



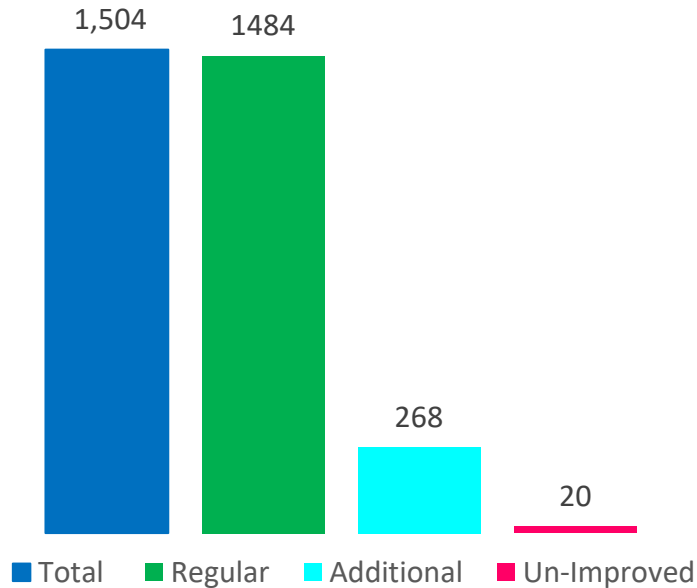
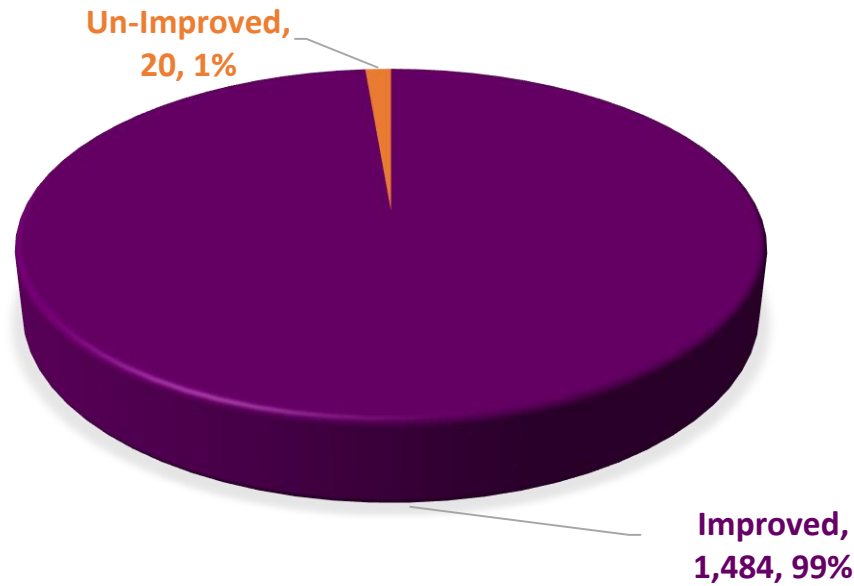
Length of Improved Watercourses (KMs)

Improved Un-Improved



Tehsil wise Watercourse Improvement

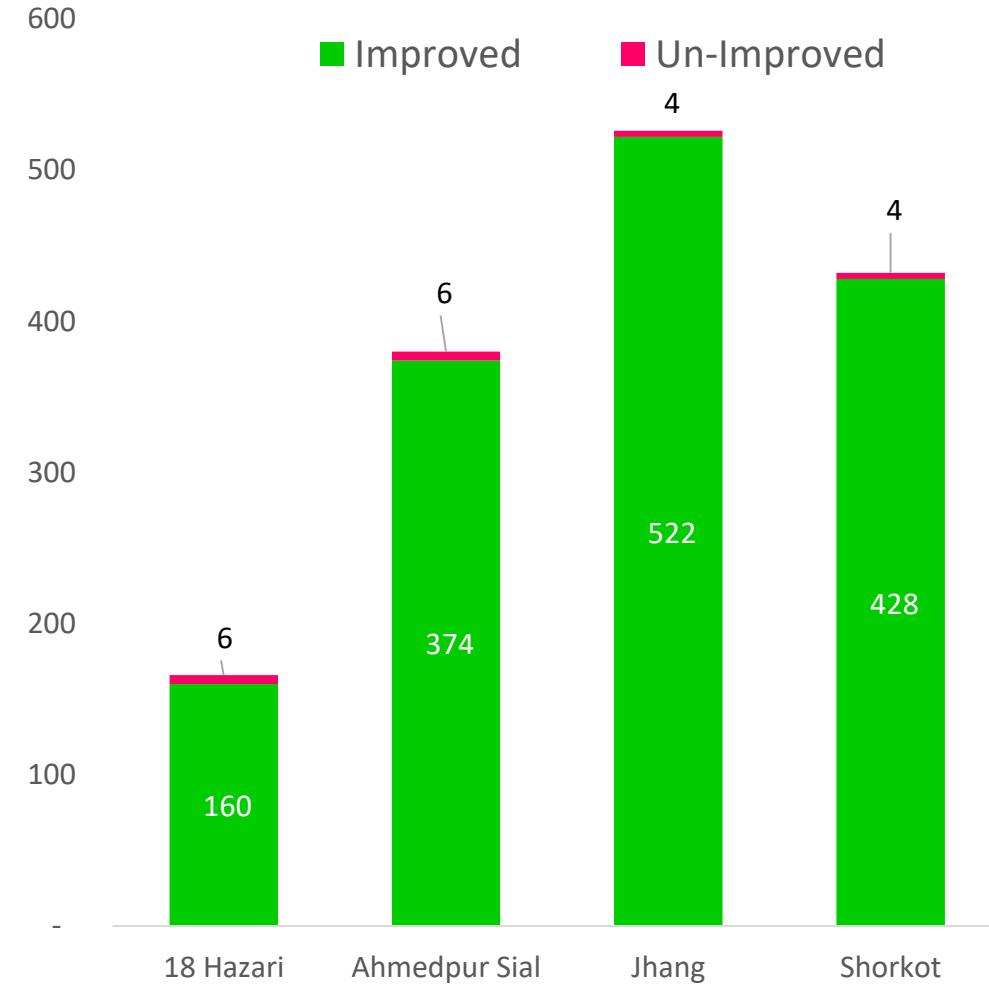
JHANG OVERVIEW



Watercourse Improvement Status



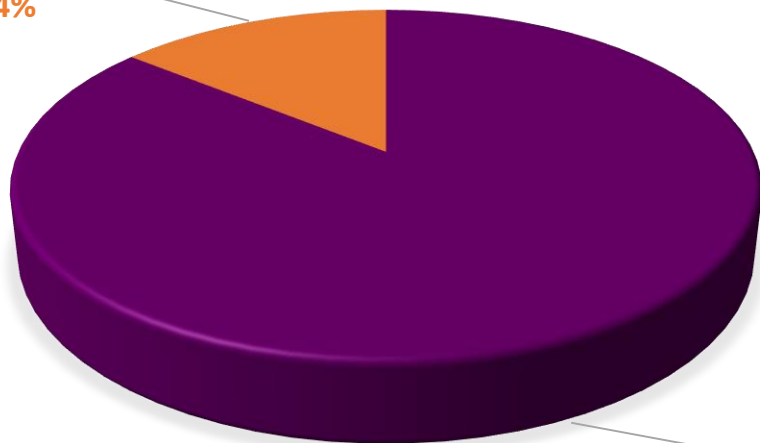
Length of Improved Watercourses (KMs)



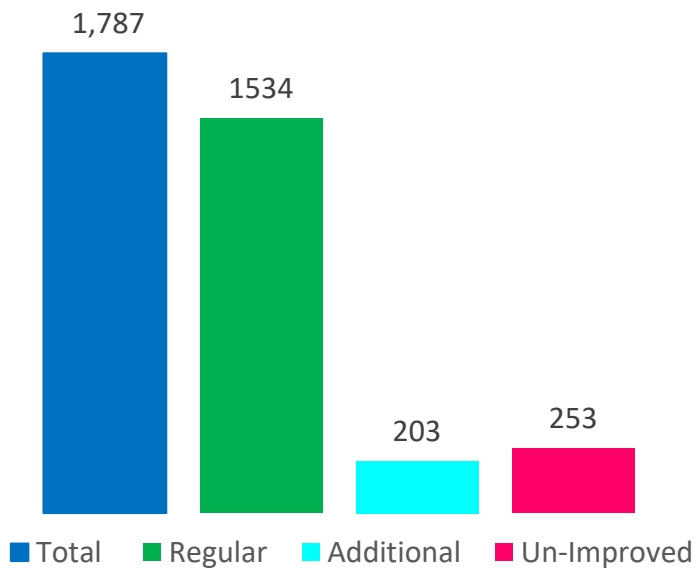
Tehsil wise Watercourse Improvement

KASUR OVERVIEW

Un-Improved,
253, 14%



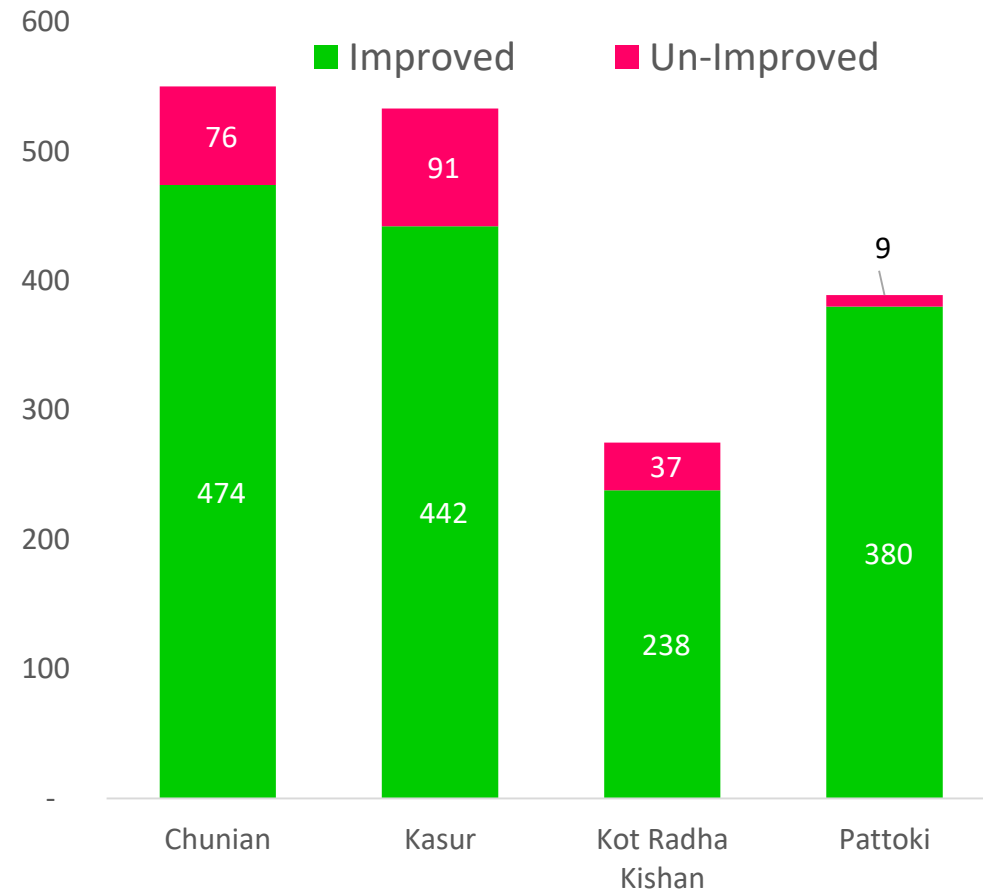
Improved,
1,534, 86%



Watercourse Improvement Status



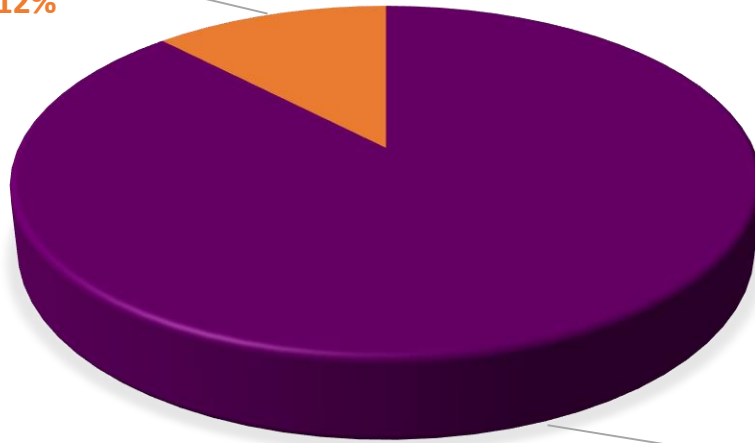
Length of Improved Watercourses (KMs)



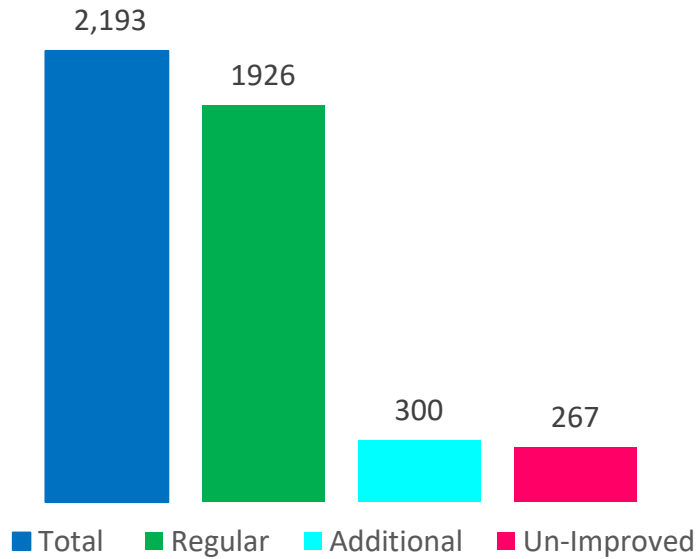
Tehsil wise Watercourse Improvement

KHANEWAL OVERVIEW

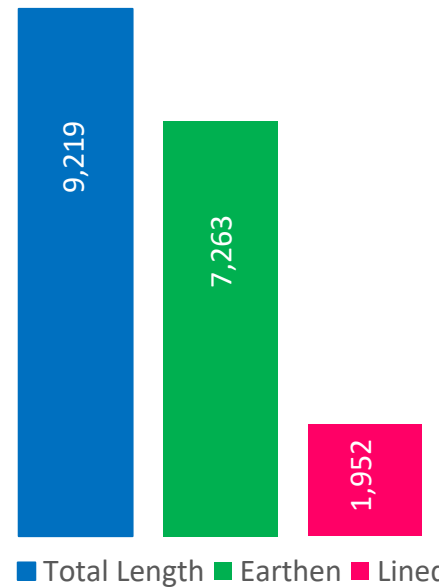
Un-Improved,
267, 12%



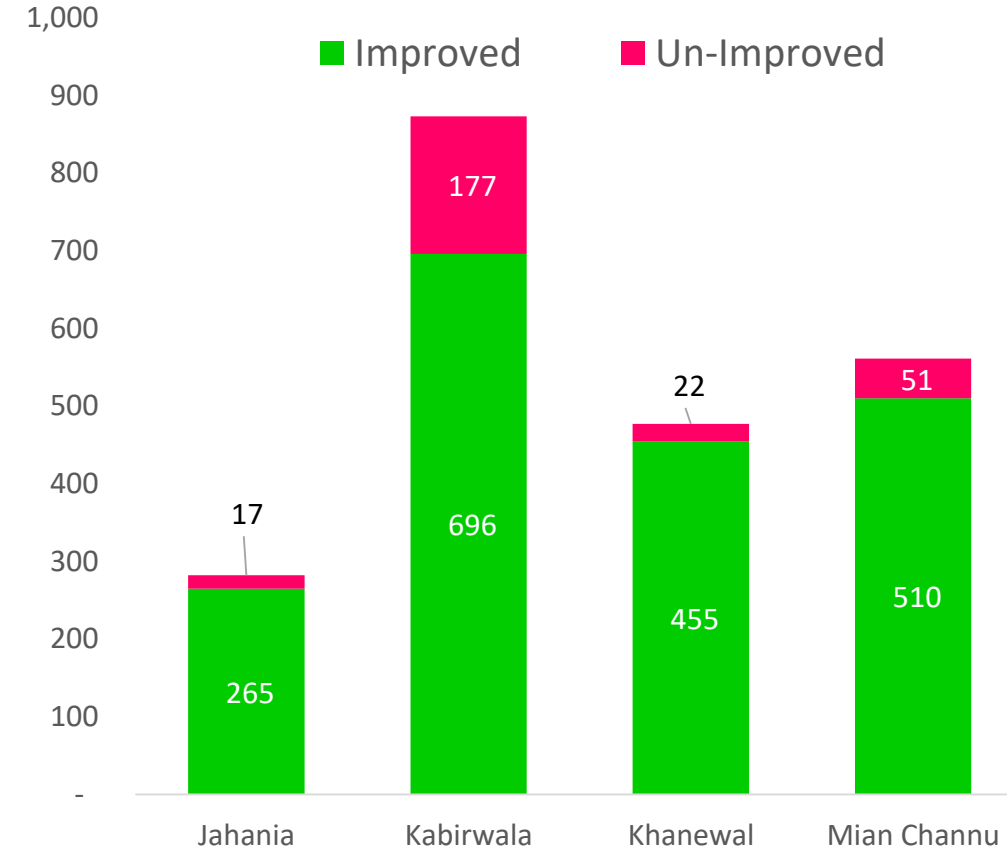
Improved,
1,926, 88%



Watercourse Improvement Status

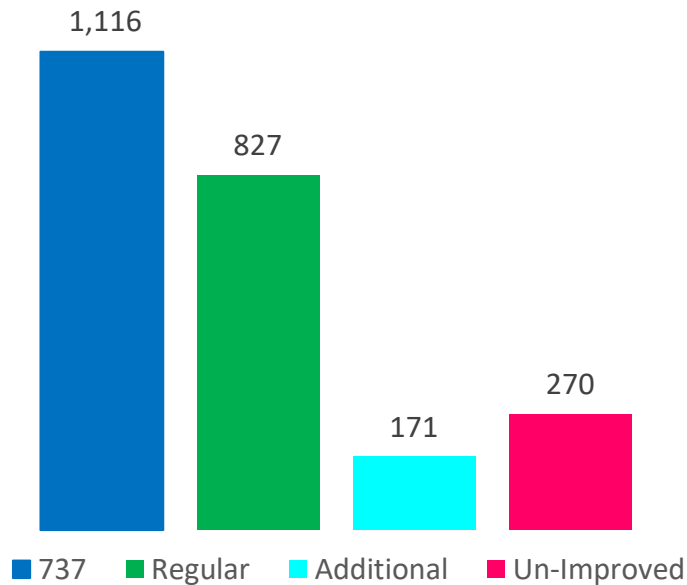
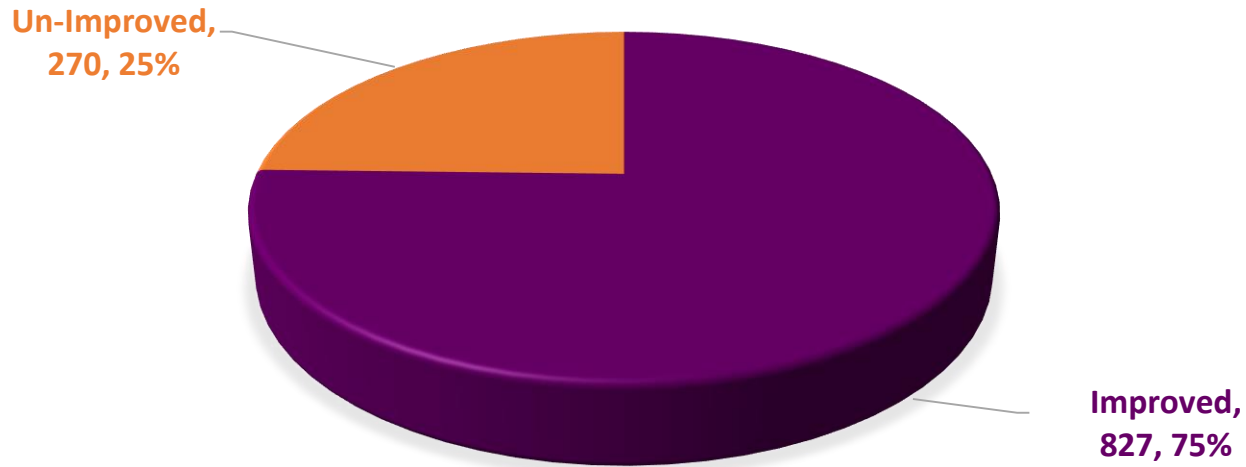


Length of Improved Watercourses (KMs)

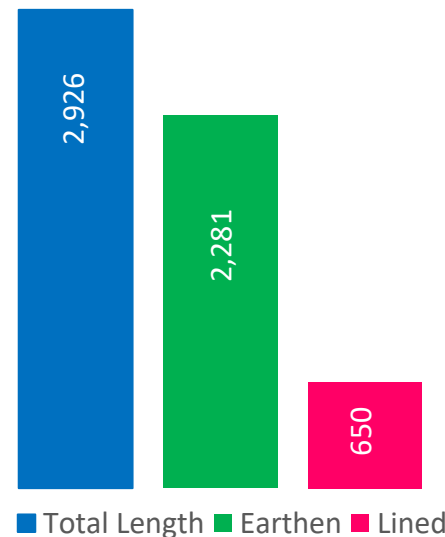


Tehsil wise Watercourse Improvement

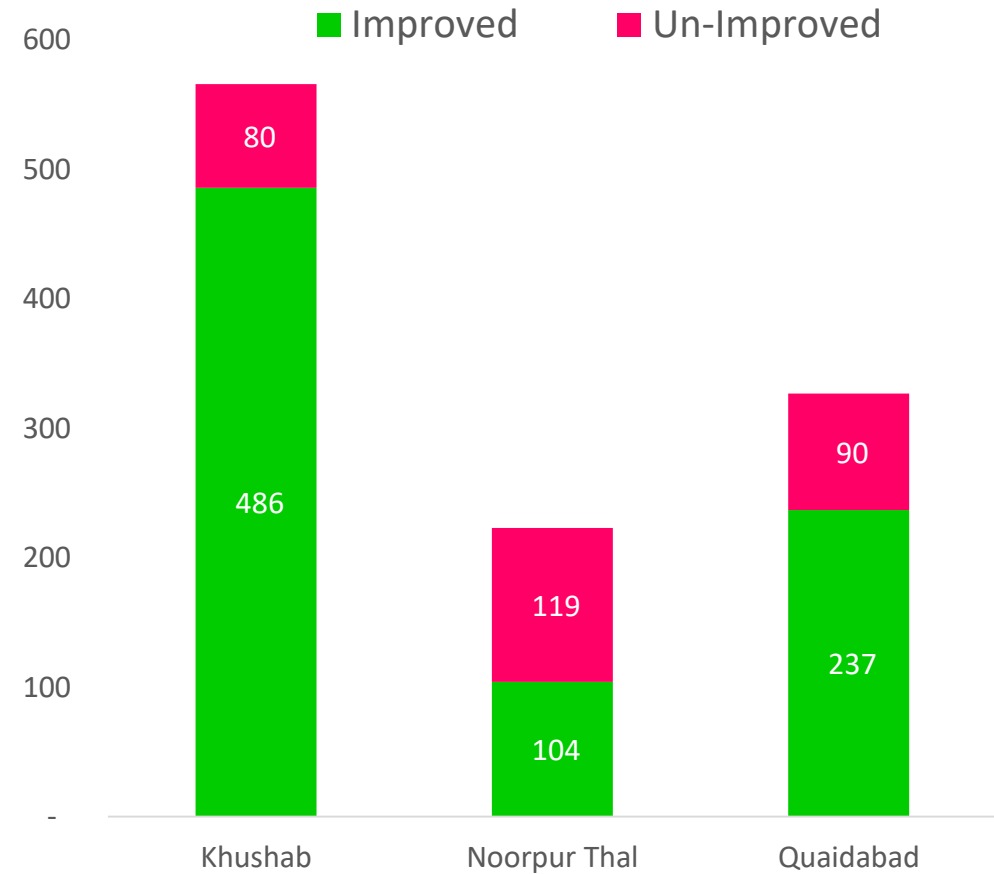
KHUSHAB OVERVIEW



Watercourse Improvement Status



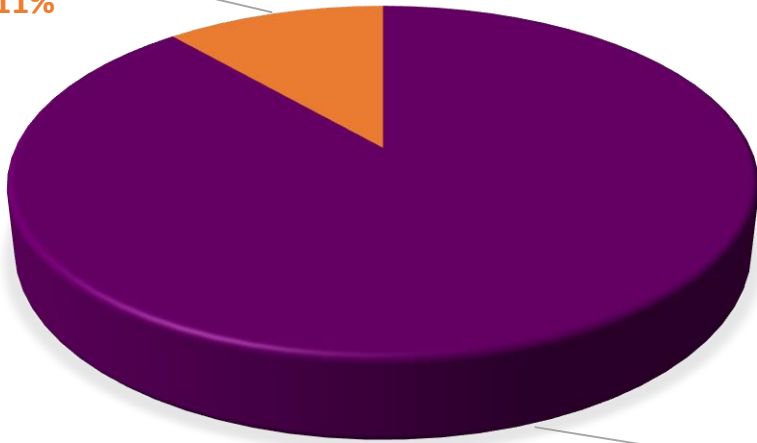
Length of Improved Watercourses (KMs)



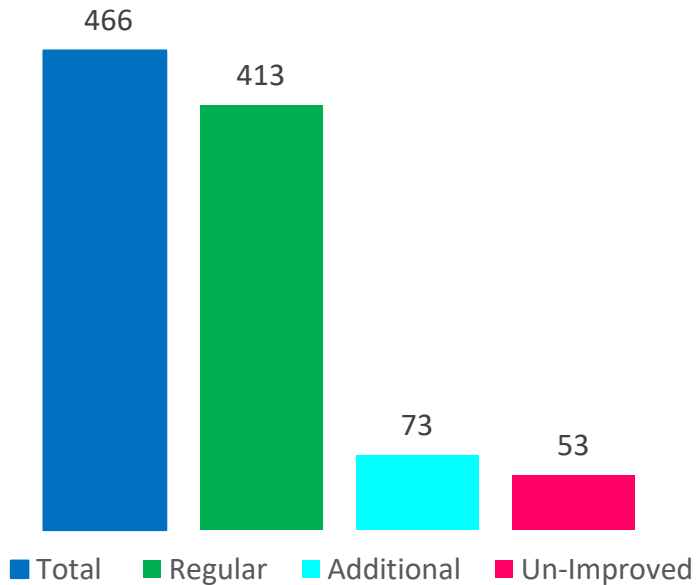
Tehsil wise Watercourse Improvement

LAHORE OVERVIEW

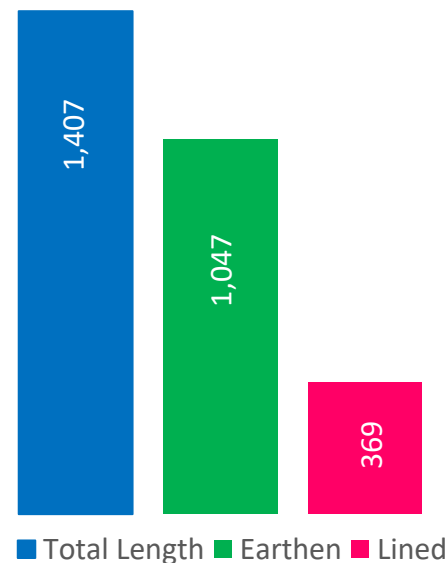
Un-Improved,
53, 11%



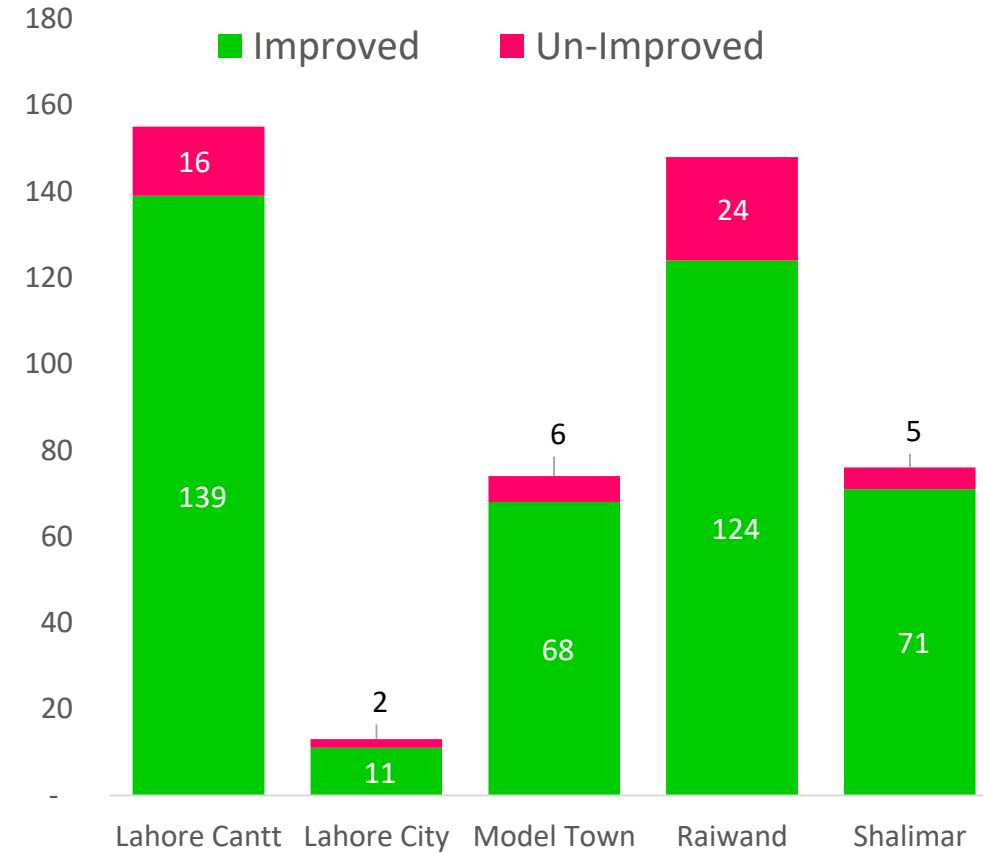
Improved,
413, 89%



Watercourse Improvement Status

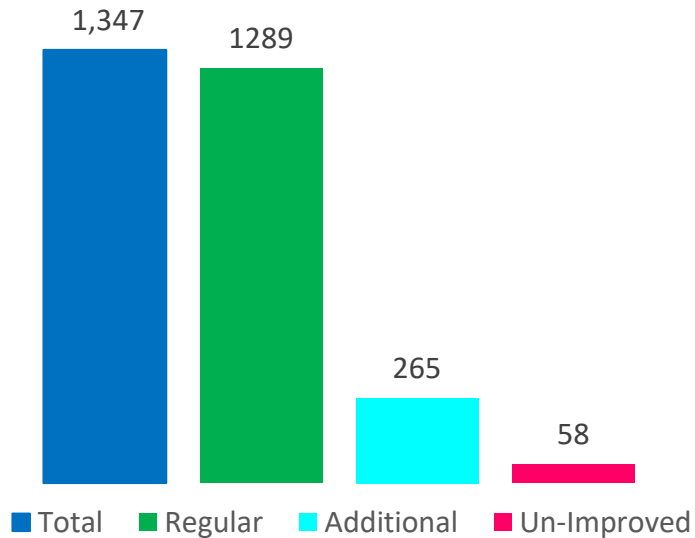
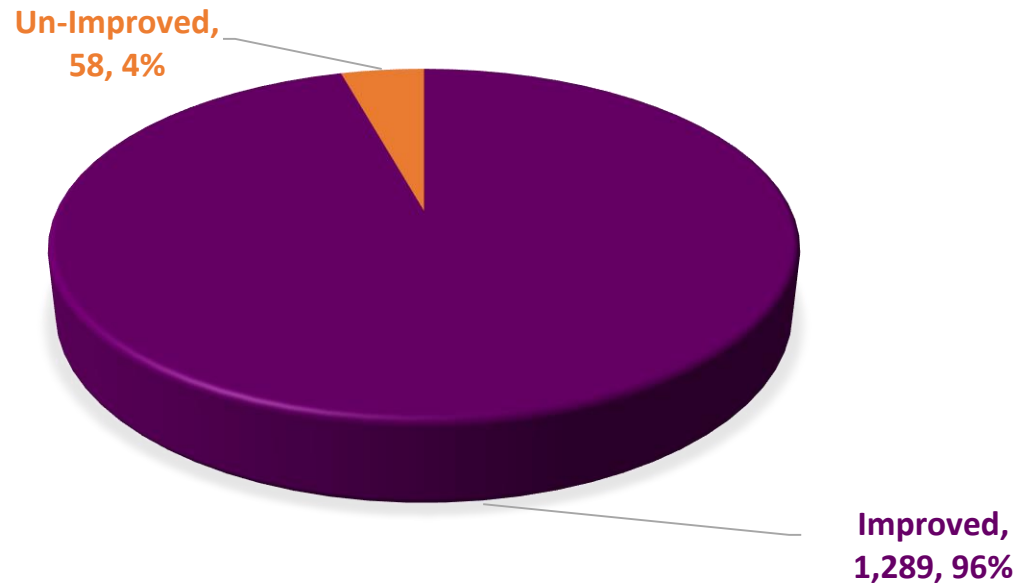


Length of Improved Watercourses (KMs)

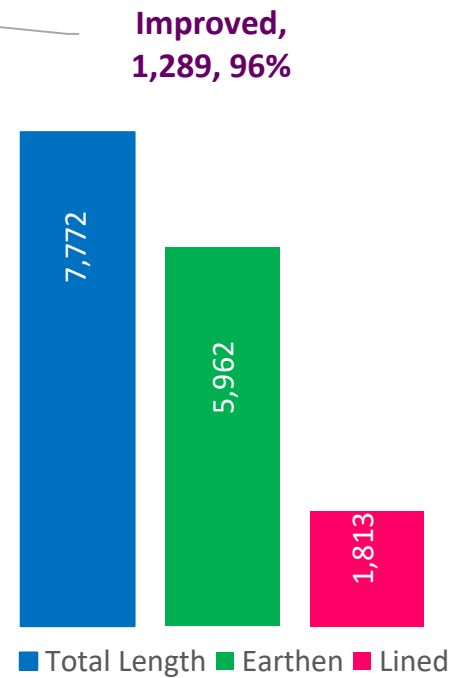


Tehsil wise Watercourse Improvement

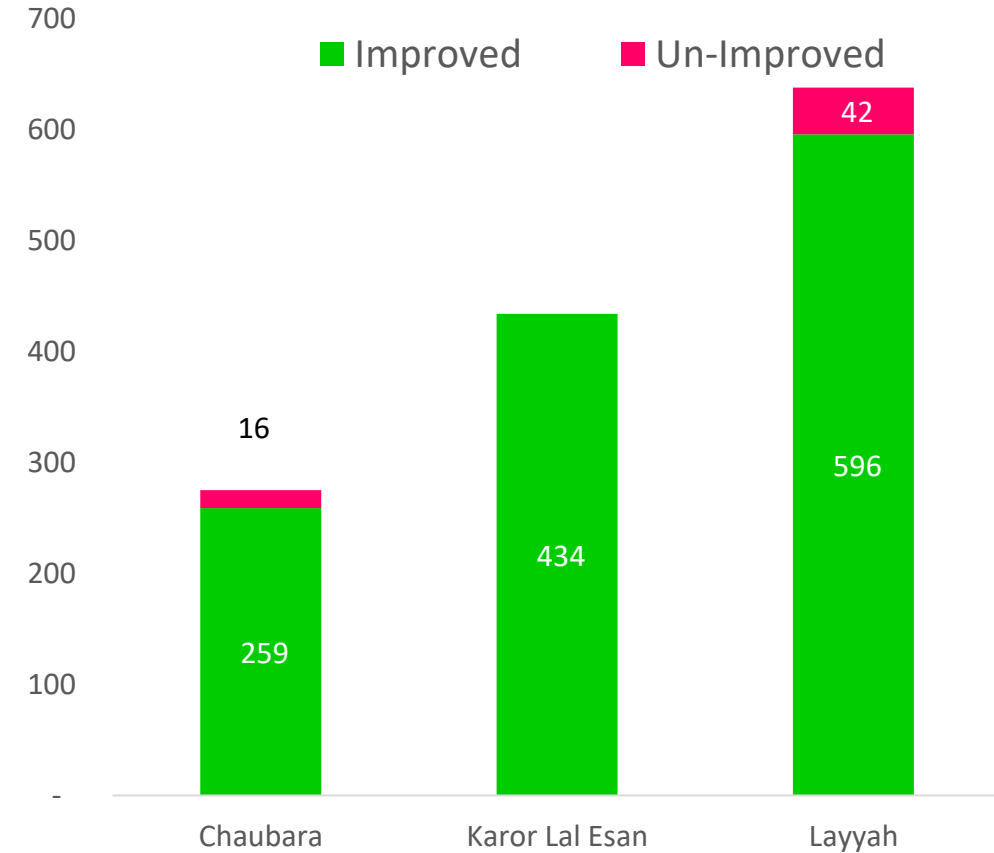
LAYYAH OVERVIEW



Watercourse Improvement Status



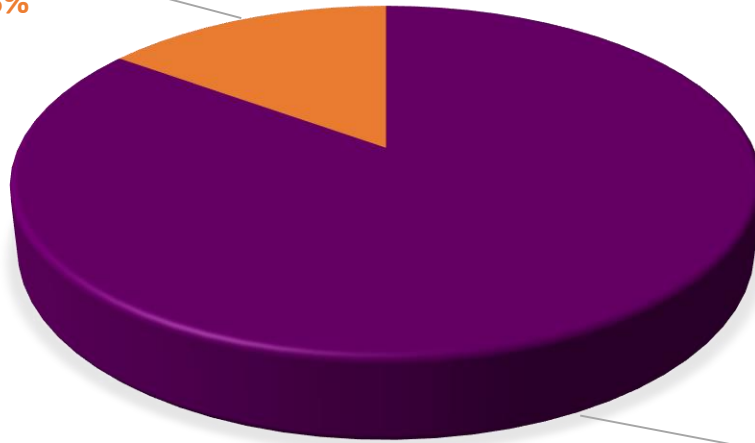
Length of Improved Watercourses (KMs)



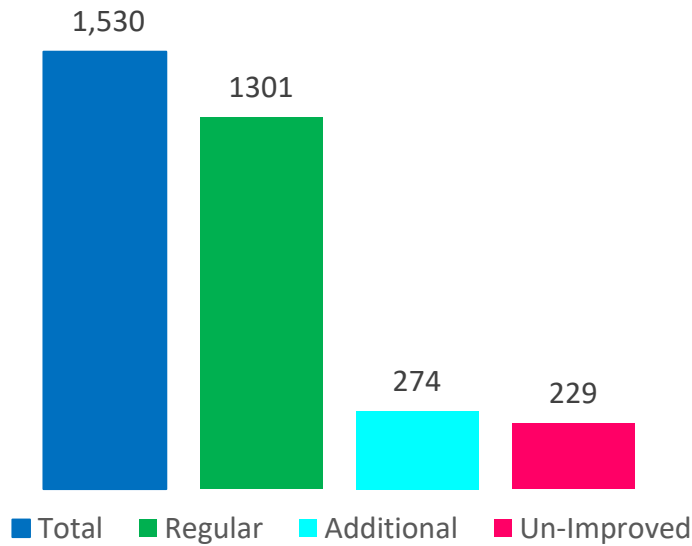
Tehsil wise Watercourse Improvement

LODHHRAN OVERVIEW

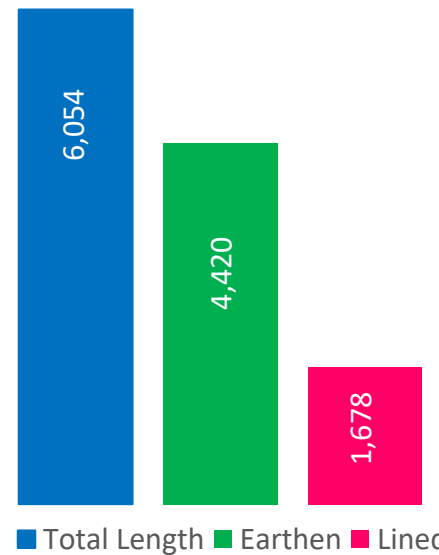
Un-Improved,
229, 15%



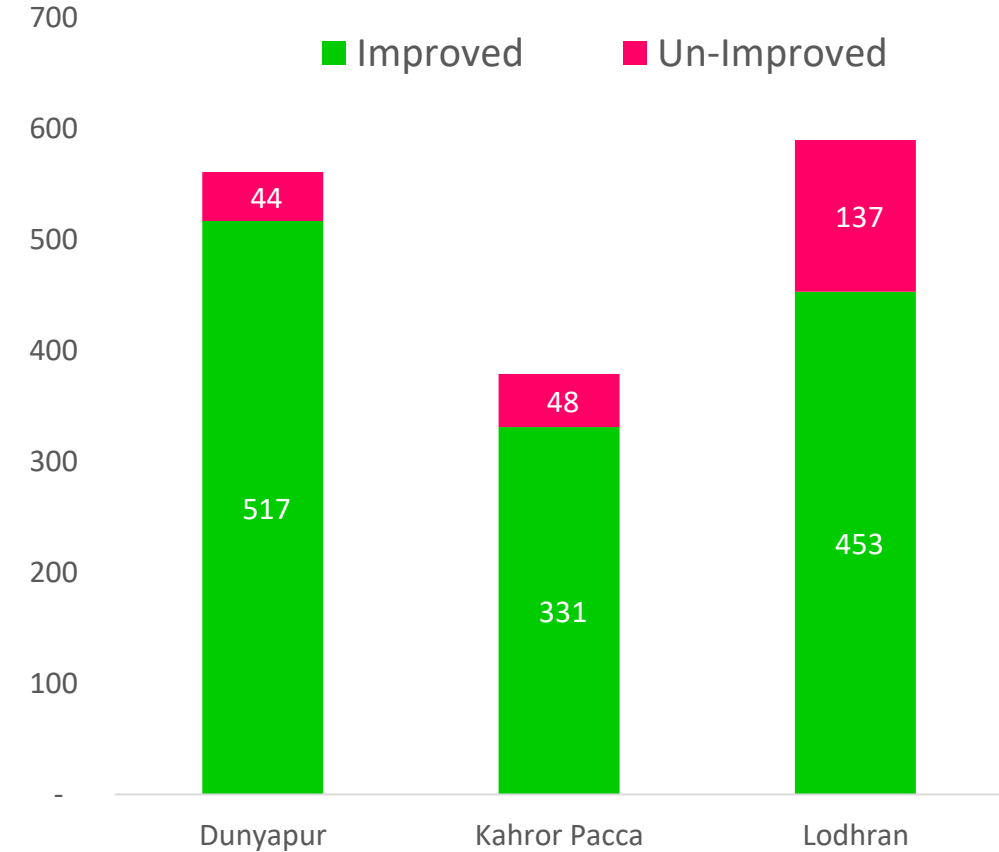
Improved,
1,301, 85%



Watercourse Improvement Status

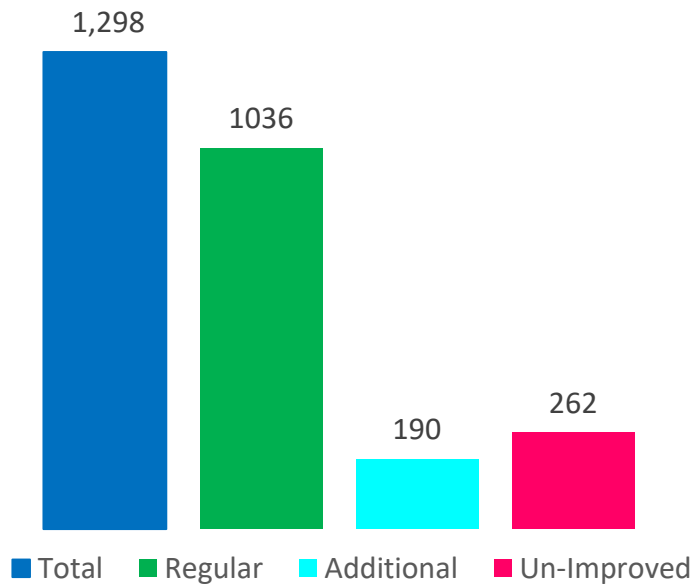
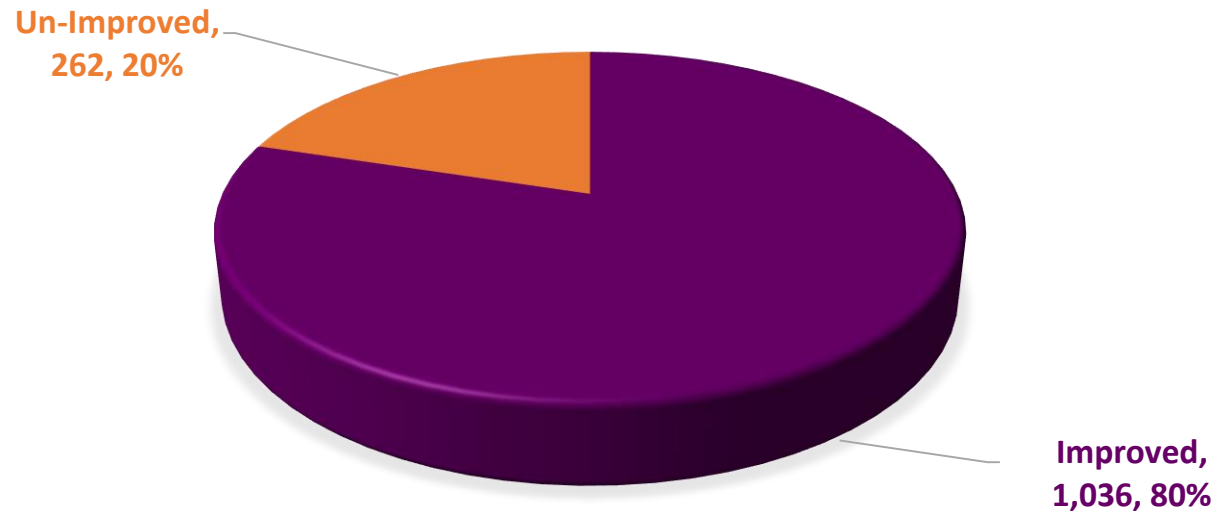


Length of Improved Watercourses (KMs)

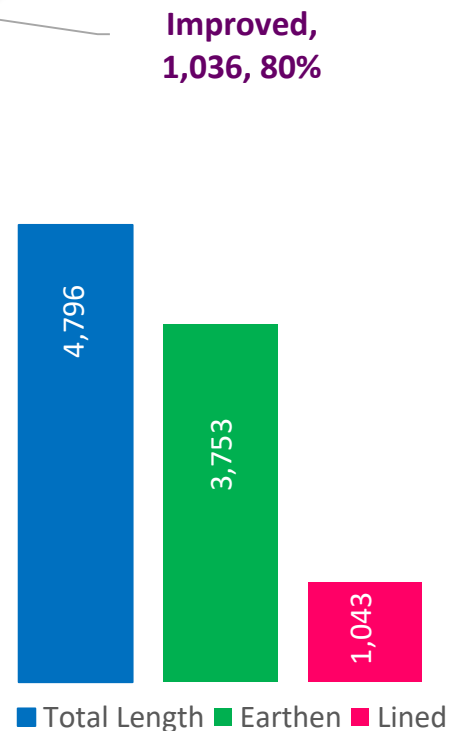


Tehsil wise Watercourse Improvement

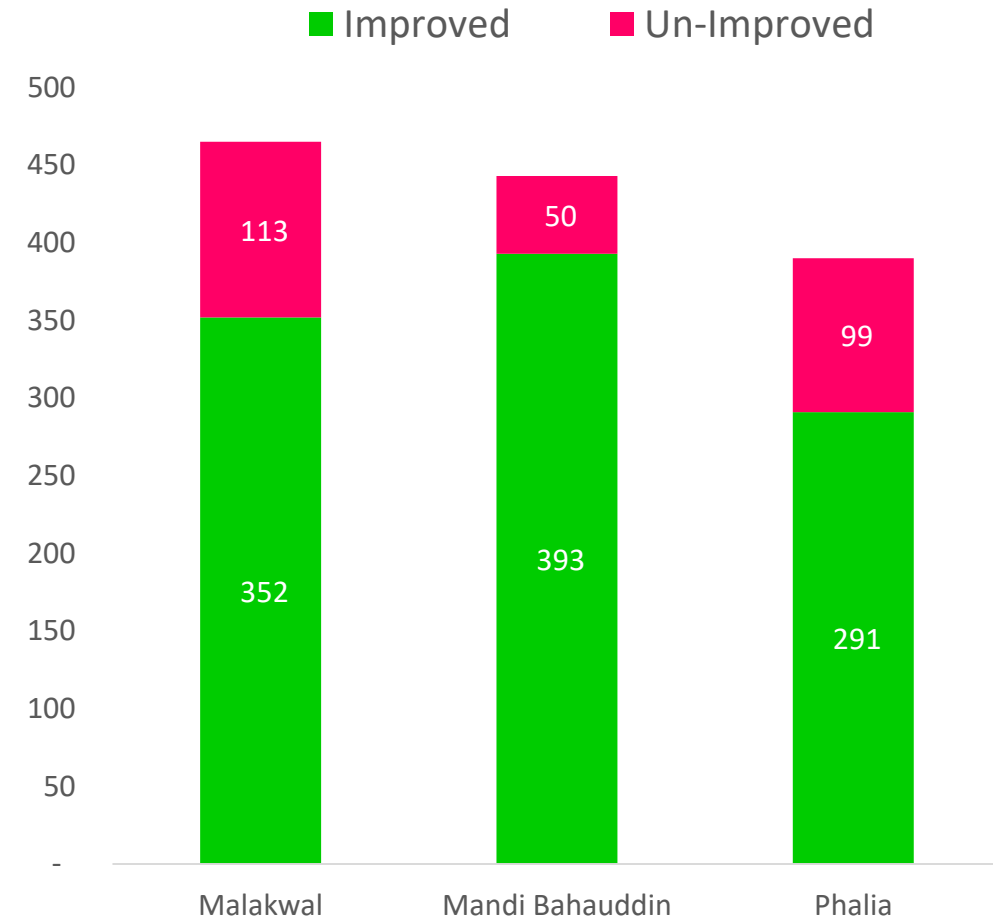
MANDI BAHAUDDIN OVERVIEW



Watercourse Improvement Status

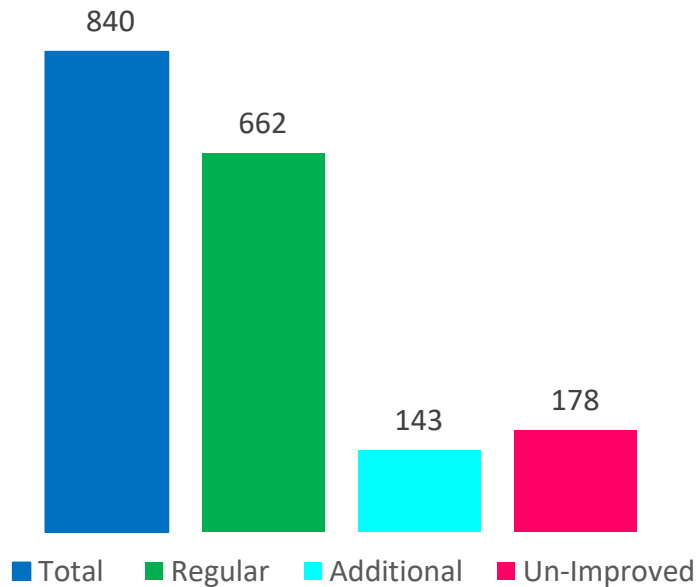
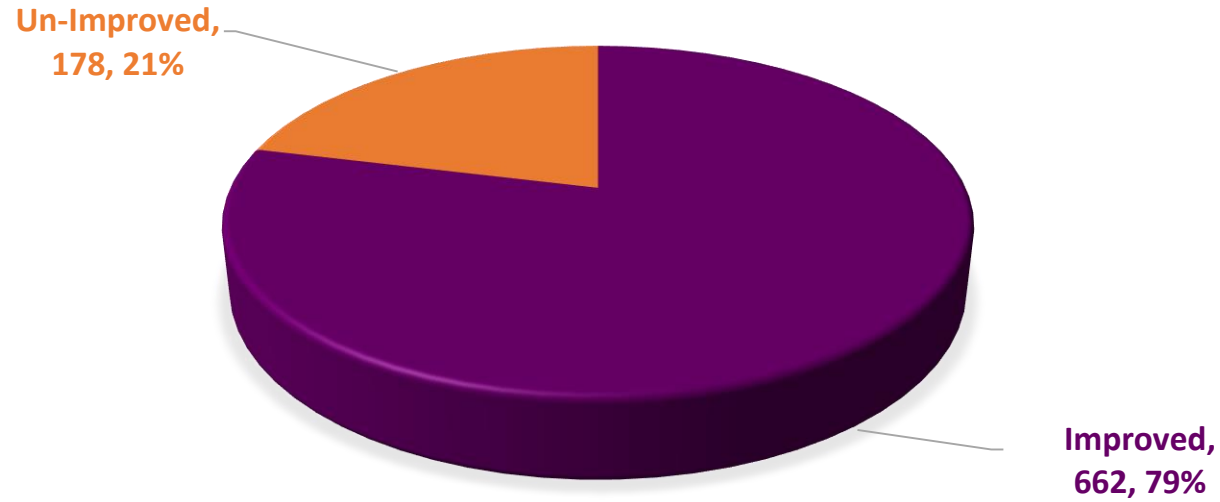


Length of Improved Watercourses (KMs)

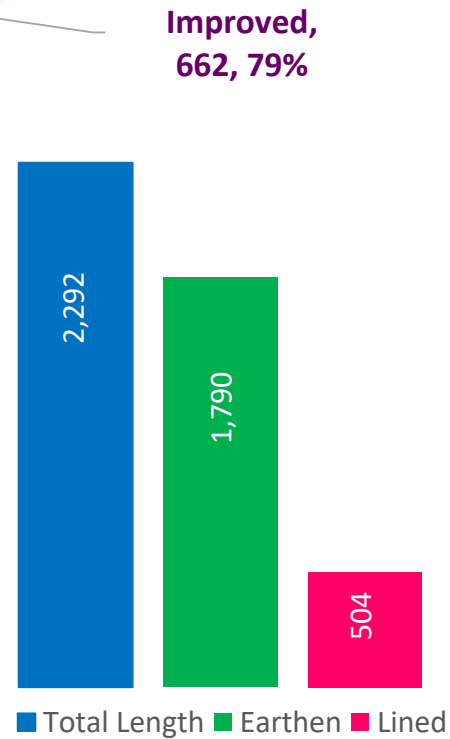


Tehsil wise Watercourse Improvement

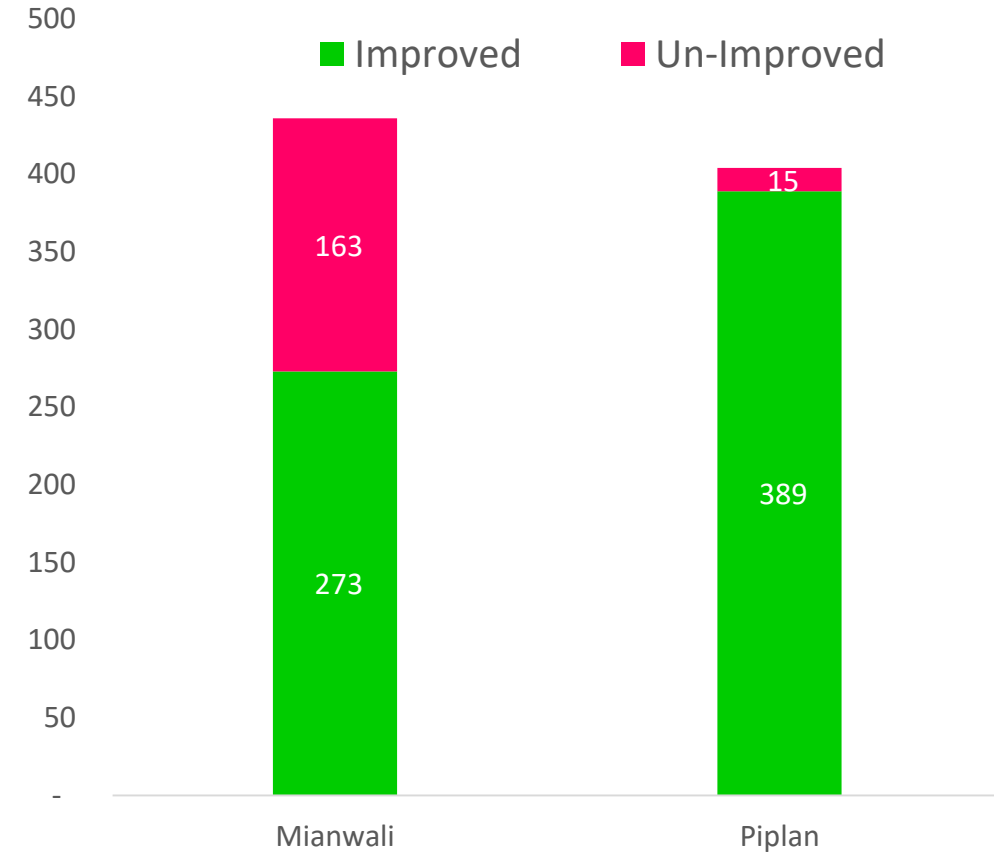
MIANWALI OVERVIEW



Watercourse Improvement Status



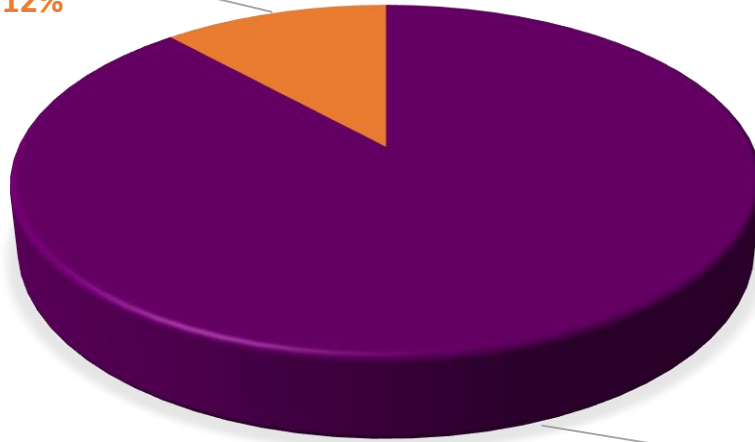
Length of Improved Watercourses (KMs)



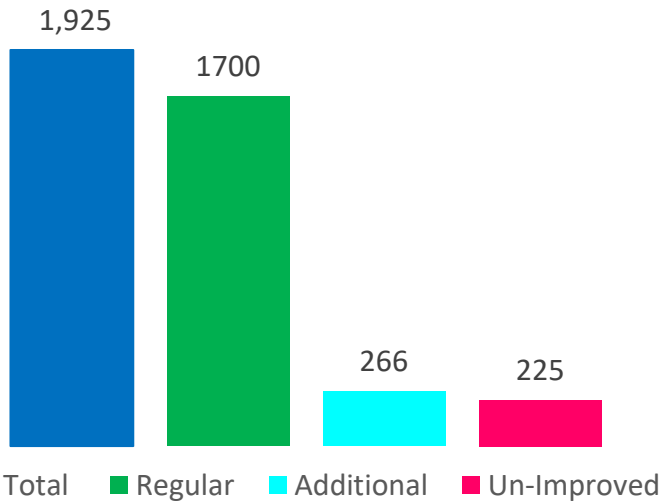
Tehsil wise Watercourse Improvement

MULTAN OVERVIEW

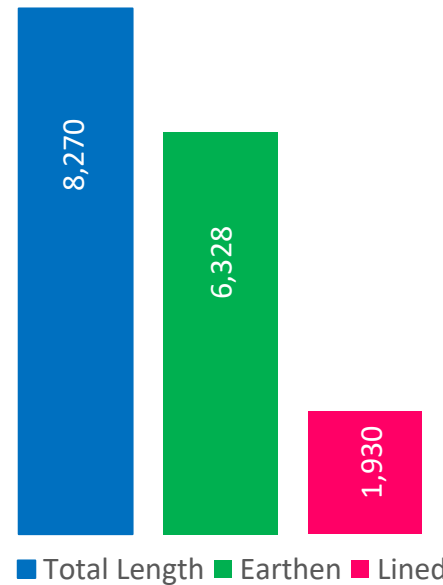
Un-Improved,
225, 12%



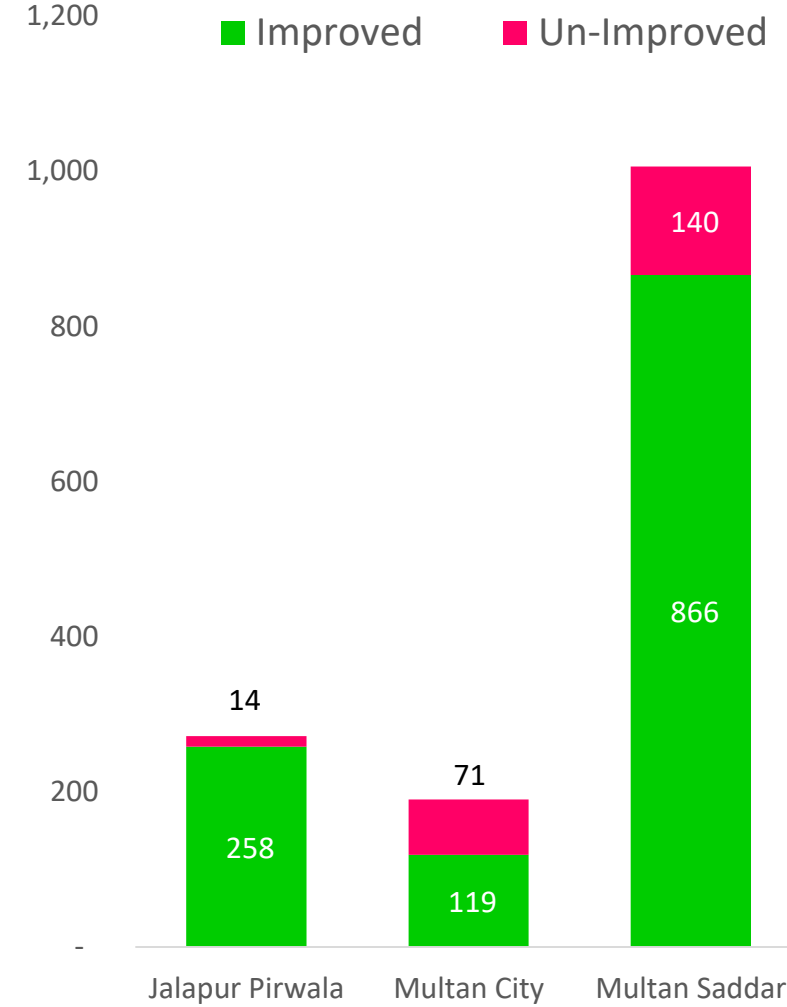
Improved,
1,700, 88%



Watercourse Improvement Status



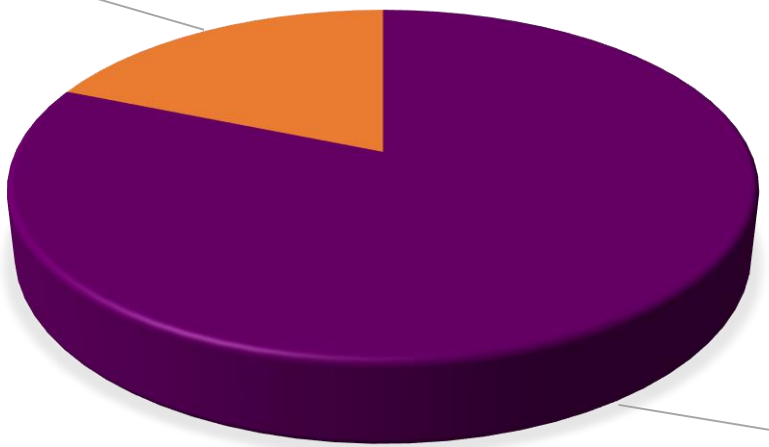
Length of Improved Watercourses (KMs)



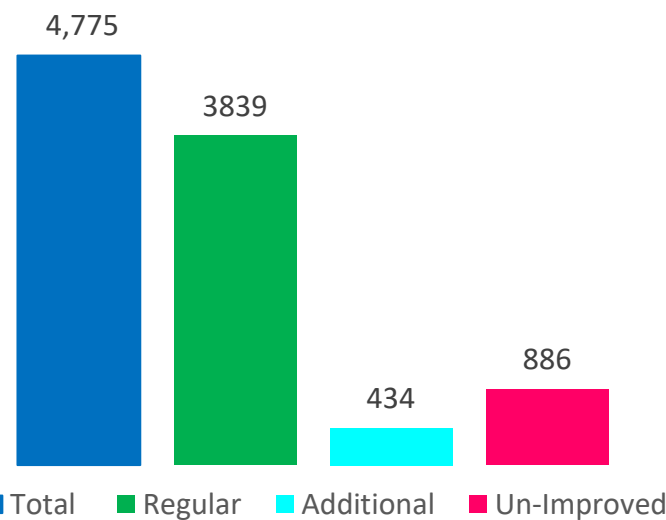
Tehsil wise Watercourse Improvement

MUZAFFARGARH OVERVIEW

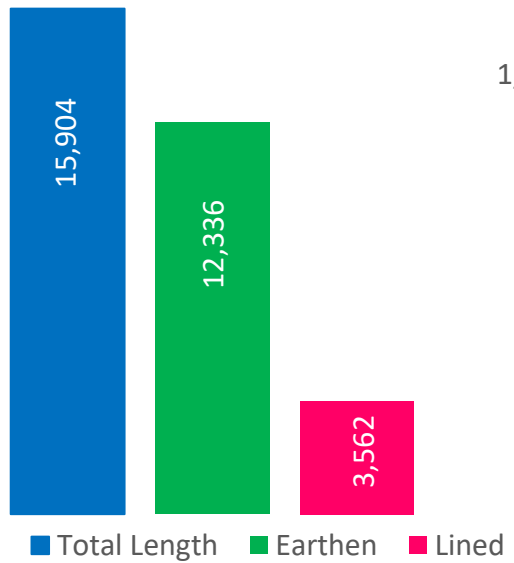
Un-Improved,
886, 19%



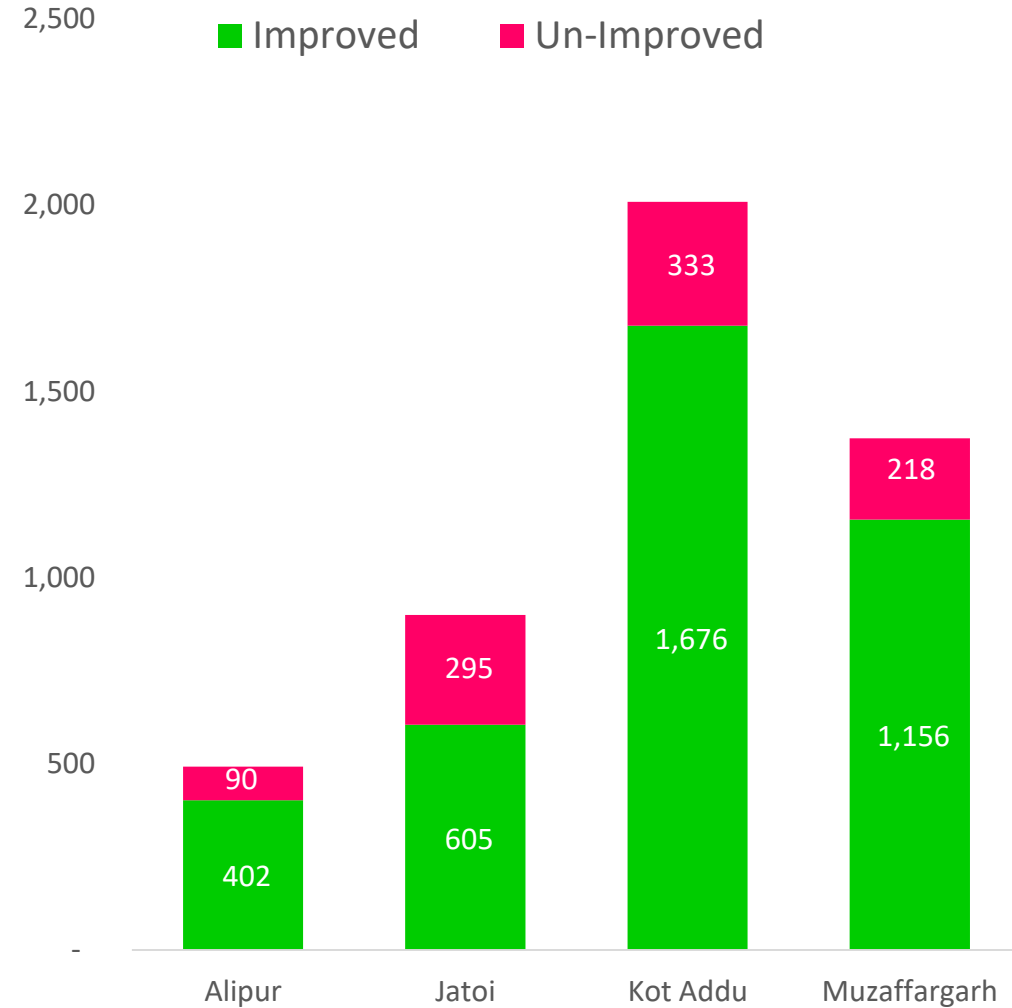
Improved,
3,839, 81%



Watercourse Improvement Status



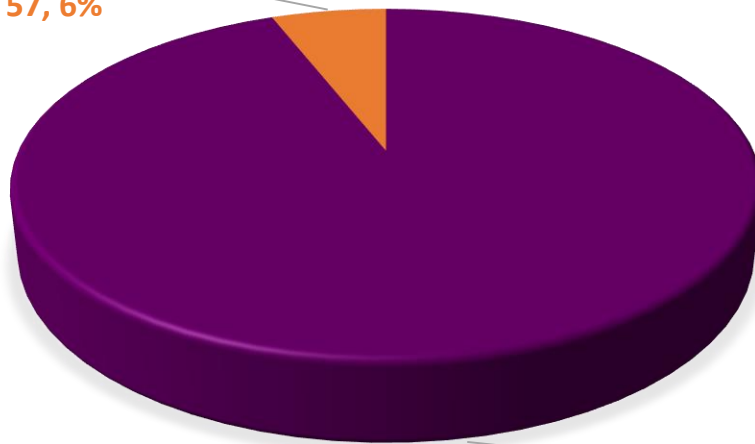
Length of Improved Watercourses (KMs)



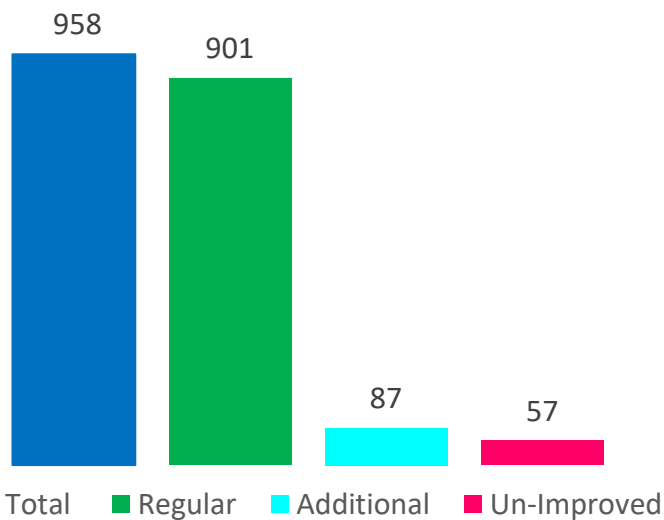
Tehsil wise Watercourse Improvement

NANKANA SAHIB OVERVIEW

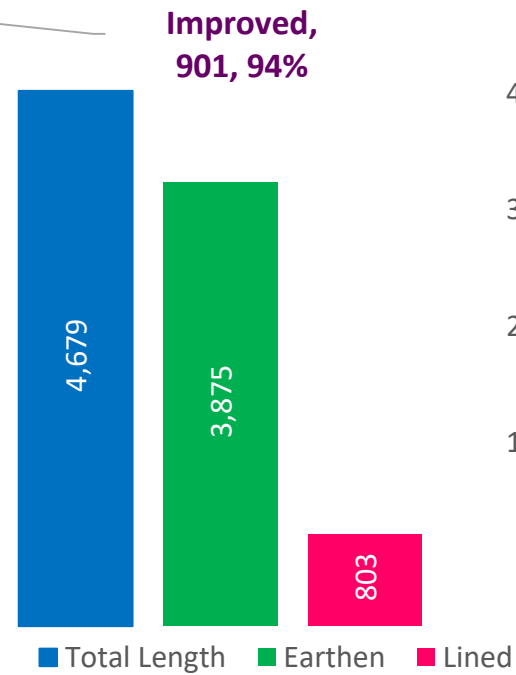
Un-Improved,
57, 6%



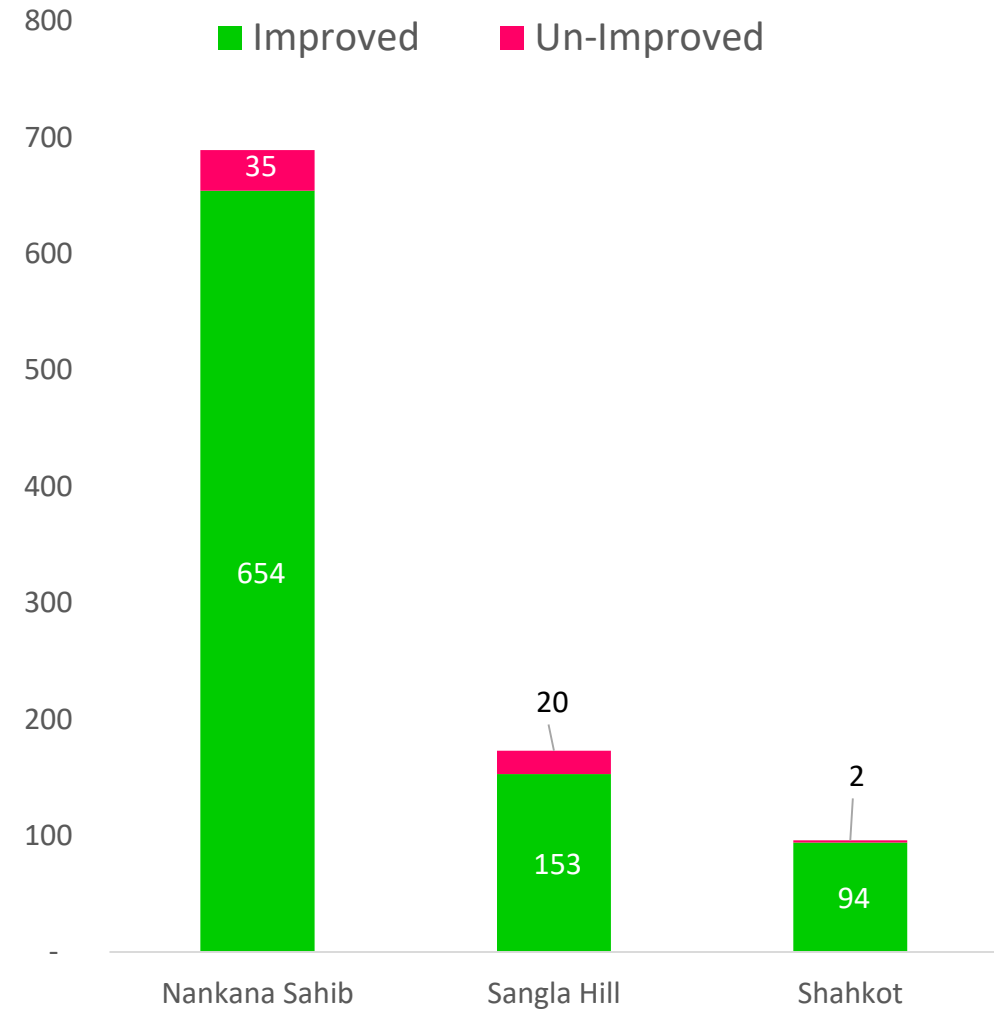
Improved,
901, 94%



Watercourse Improvement Status

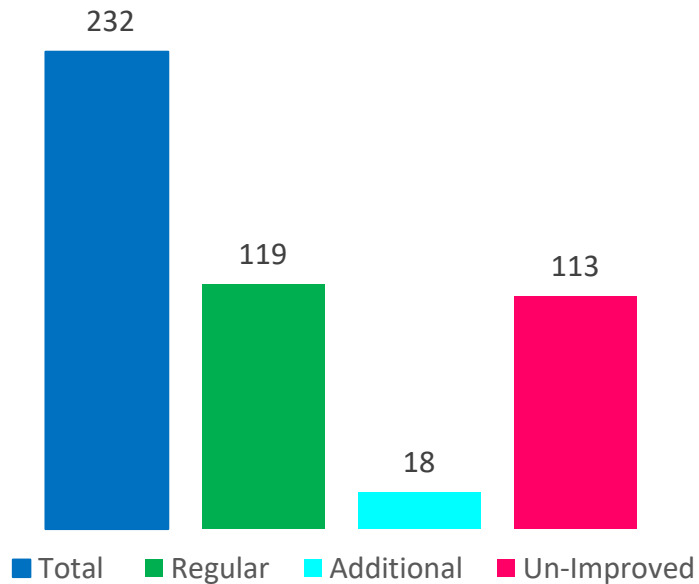
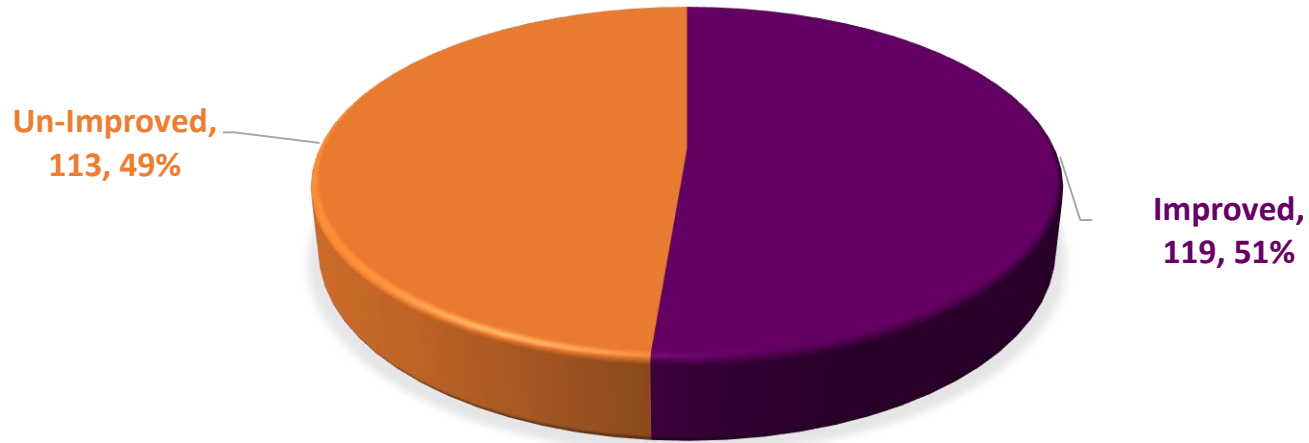


Length of Improved Watercourses (KMs)

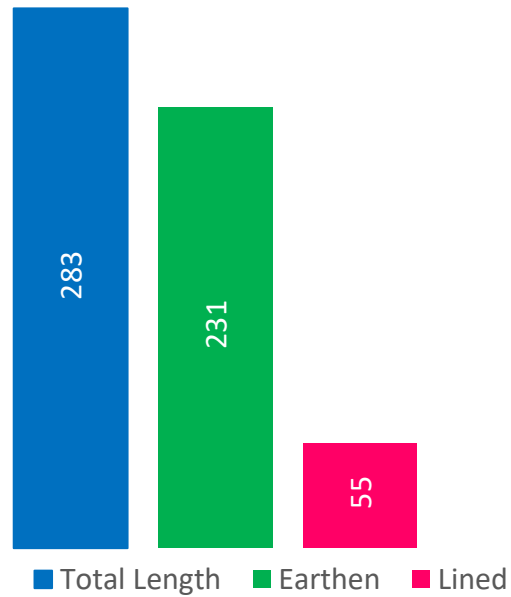


Tehsil wise Watercourse Improvement

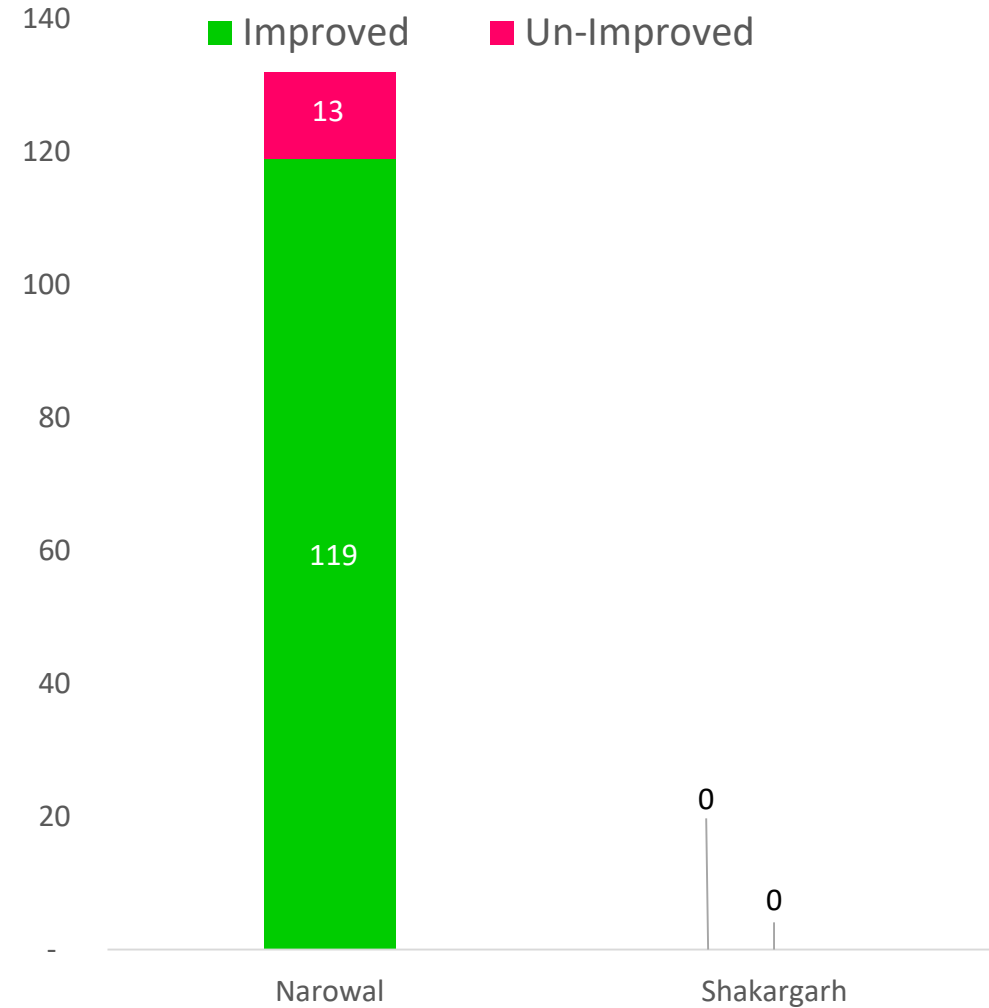
NAROWAL OVERVIEW



Watercourse Improvement Status



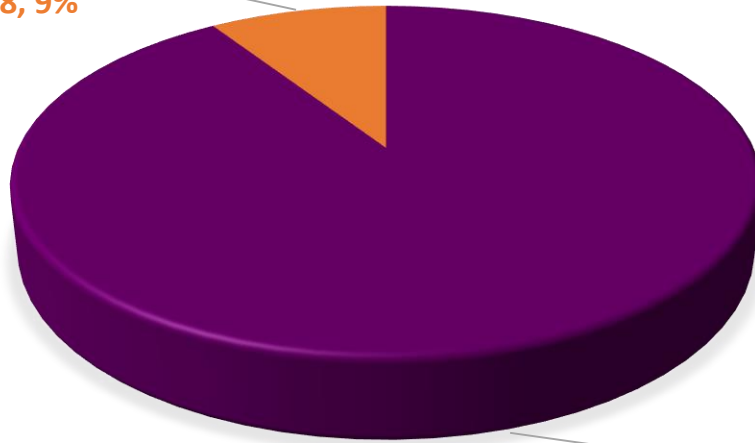
Length of Improved Watercourses (KMs)



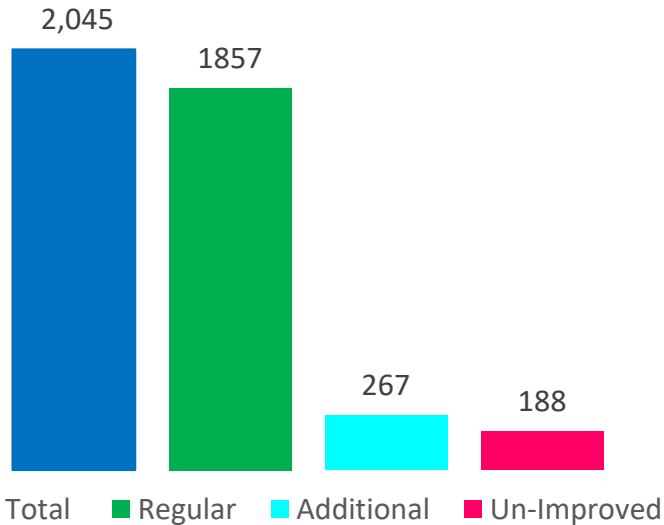
Tehsil wise Watercourse Improvement

OKARA OVERVIEW

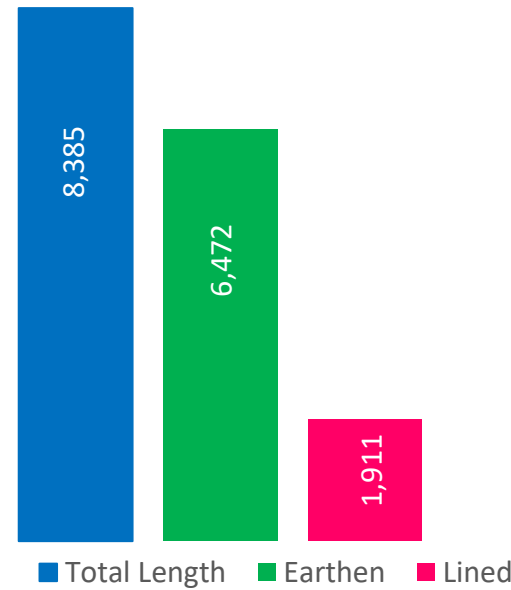
Un-Improved,
188, 9%



Improved,
1,857, 91%

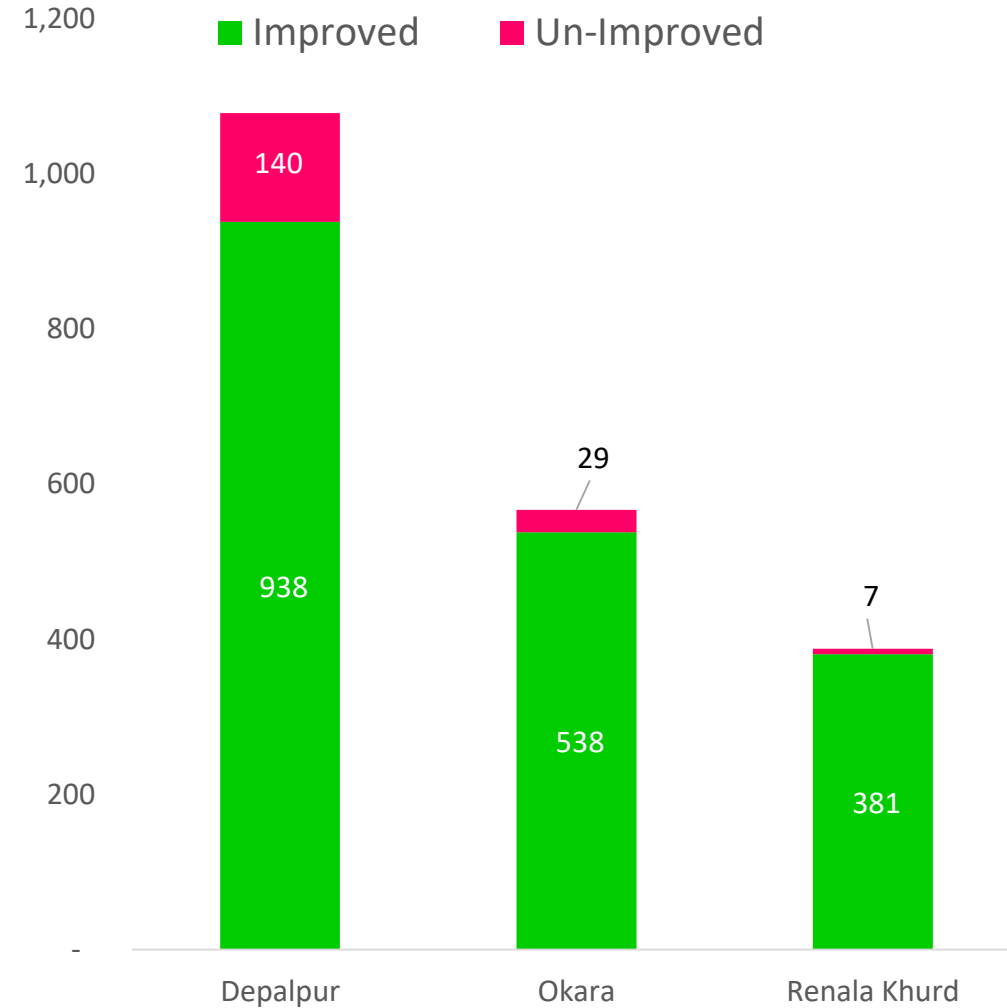


Watercourse Improvement Status



Length of Improved Watercourses (KMs)

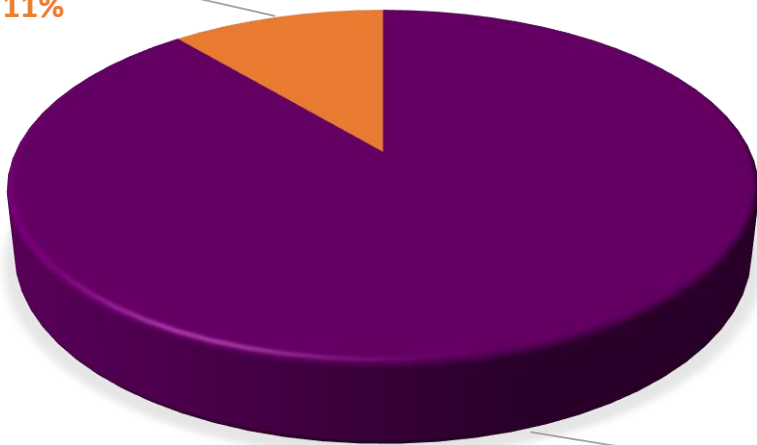
Improved Un-Improved



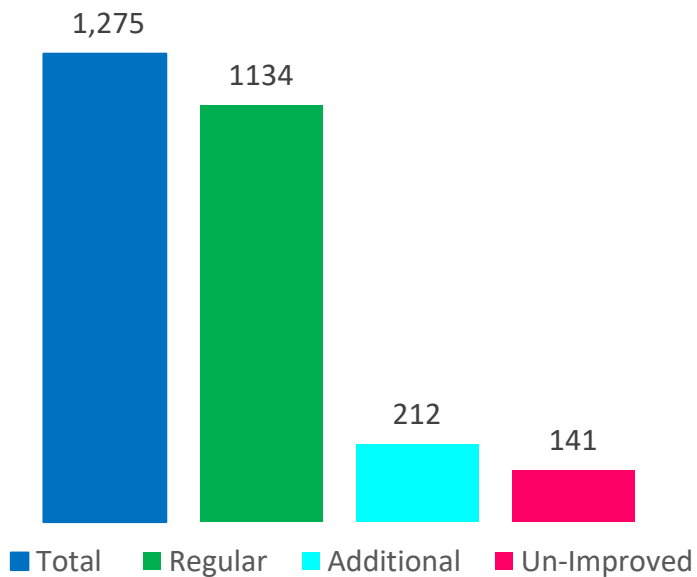
Tehsil wise Watercourse Improvement

PAKPATTAN OVERVIEW

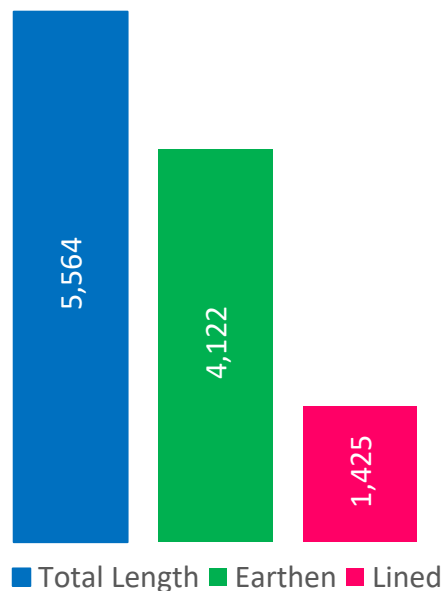
Un-Improved,
141, 11%



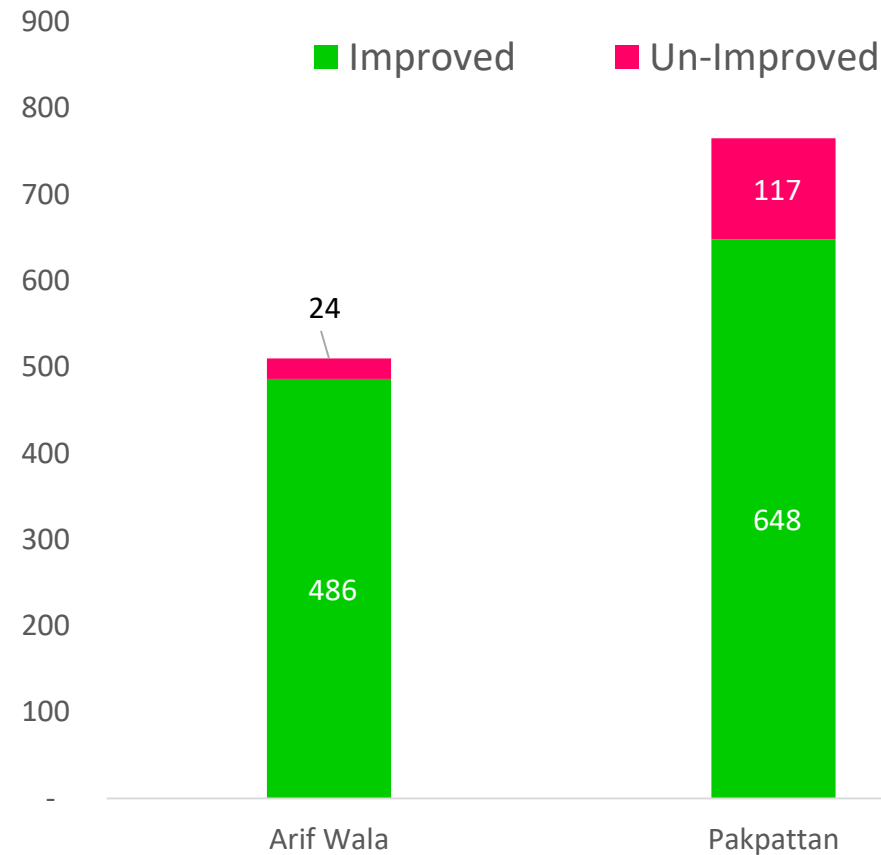
Improved,
1,134, 89%



Watercourse Improvement Status



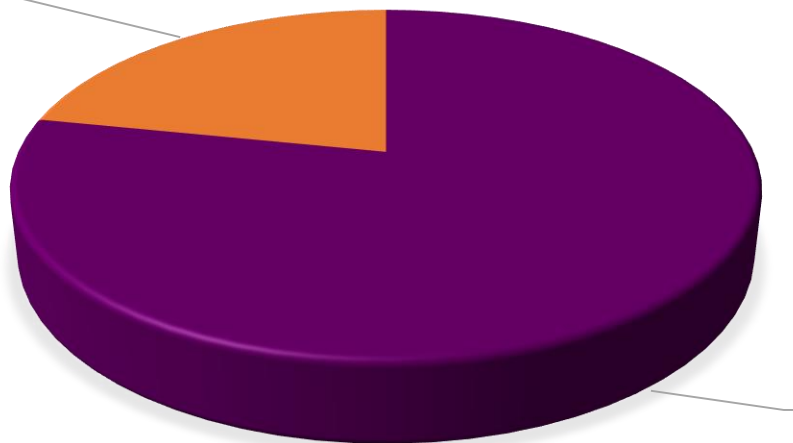
Length of Improved Watercourses (KMs)



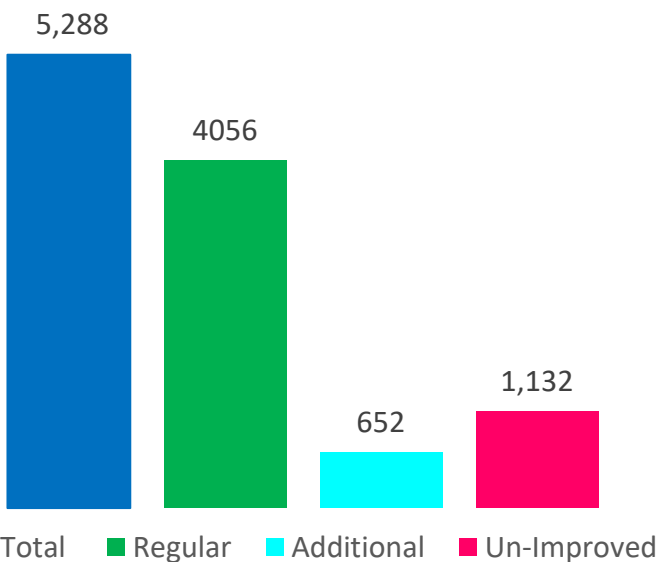
Tehsil wise Watercourse Improvement

RAHIM YAR KHAN OVERVIEW

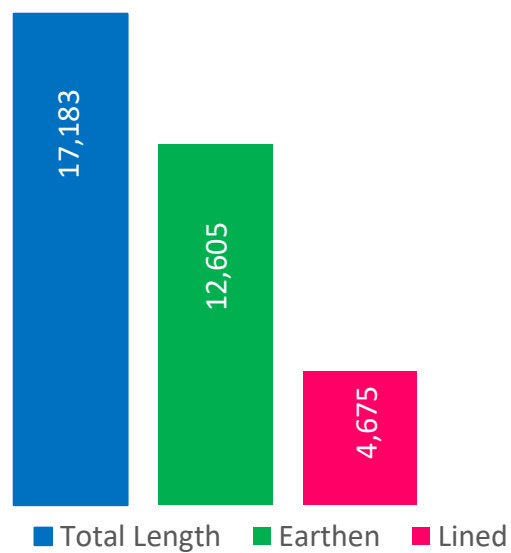
Un-Improved,
1,132, 22%



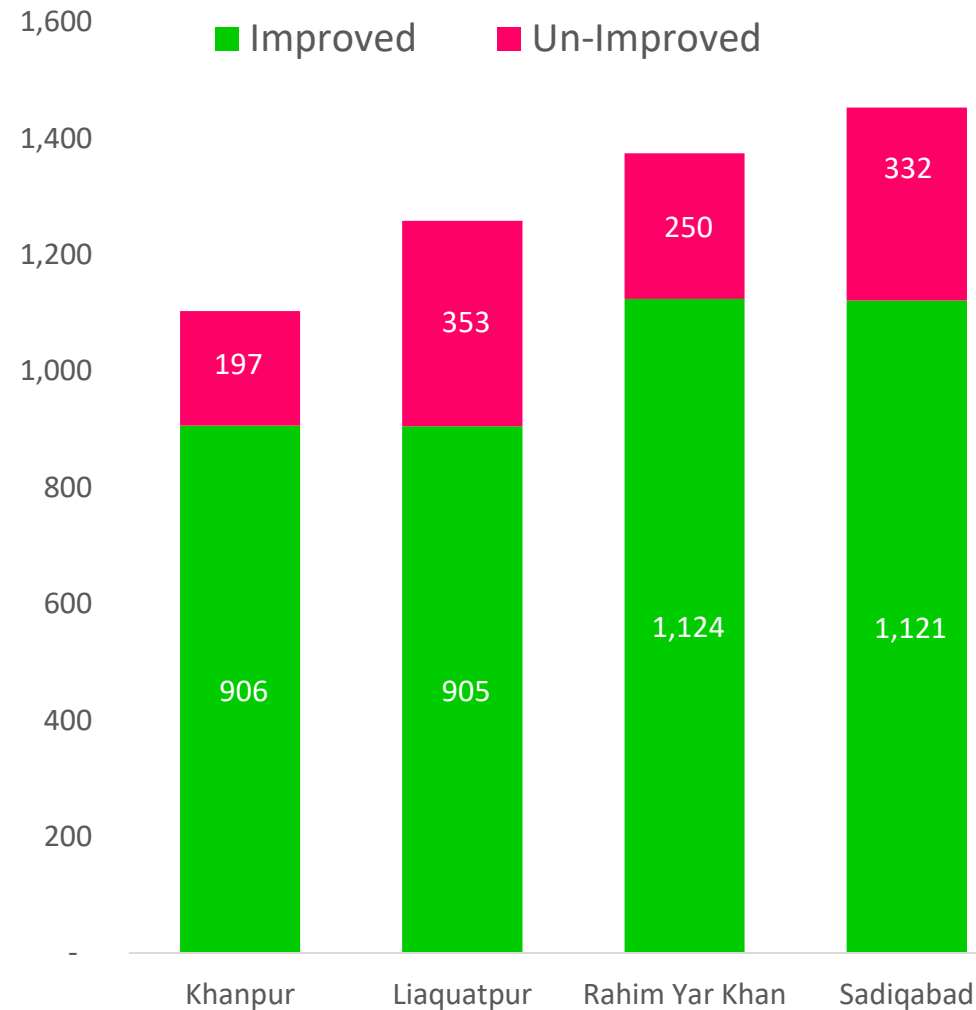
Improved,
4,056, 78%



Watercourse Improvement Status

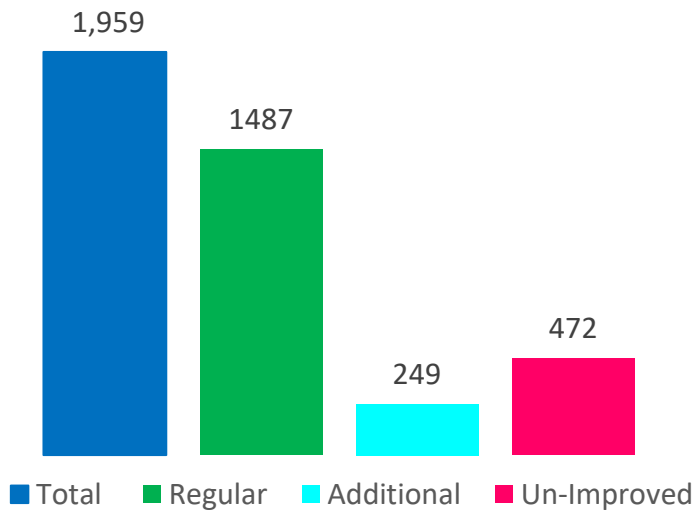
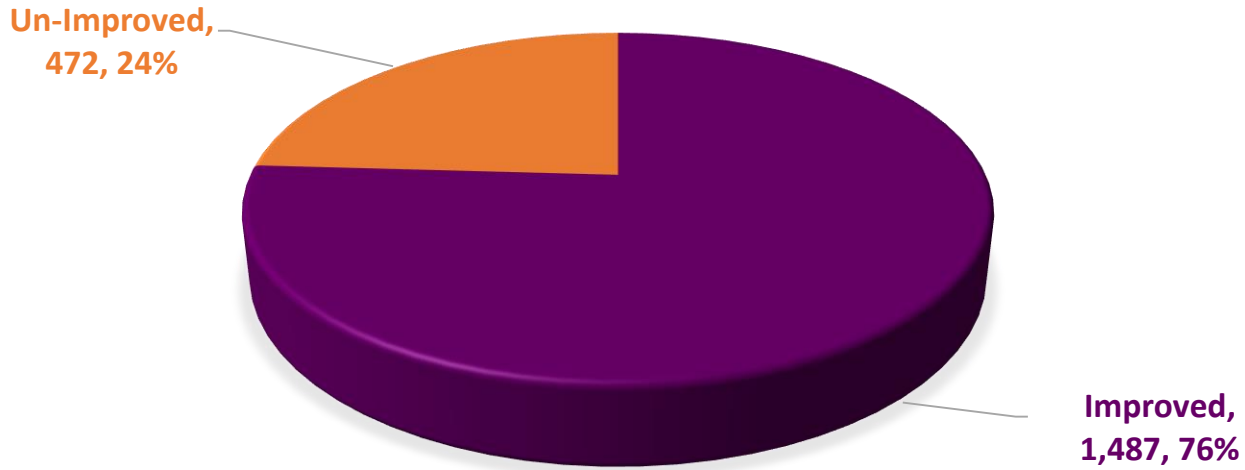


Length of Improved Watercourses (KMs)

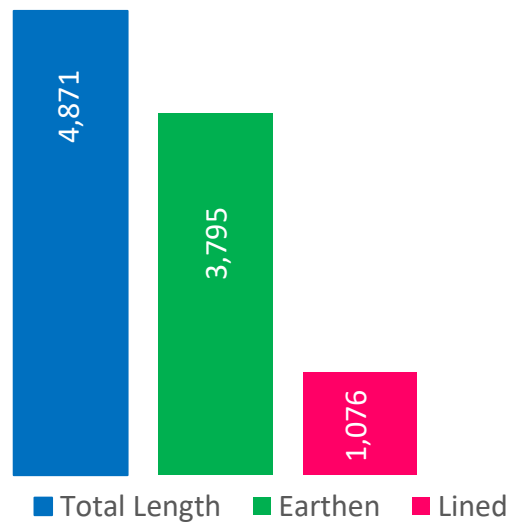


Tehsil wise Watercourse Improvement

RAJANPUR OVERVIEW



Watercourse Improvement Status



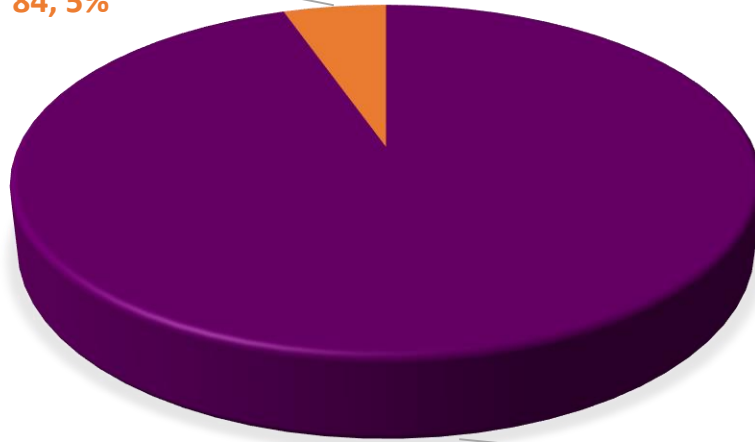
Length of Improved Watercourses (KMs)



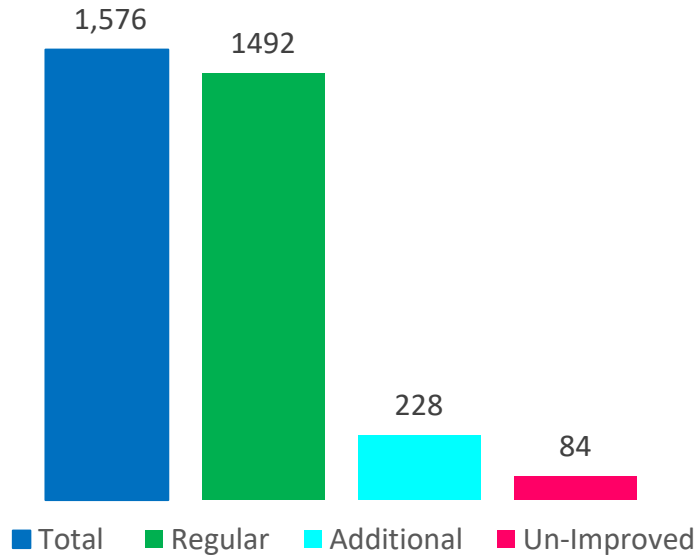
Tehsil wise Watercourse Improvement

SAHIWAL OVERVIEW

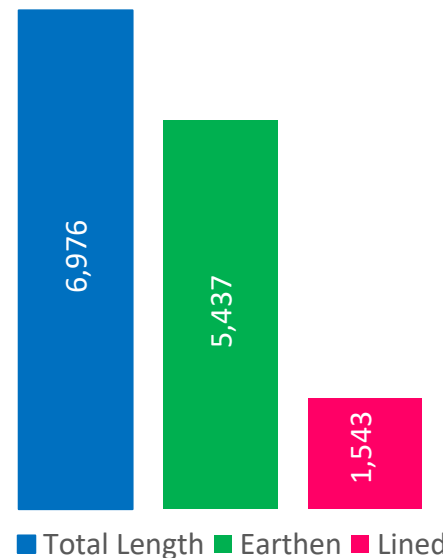
Un-Improved,
84, 5%



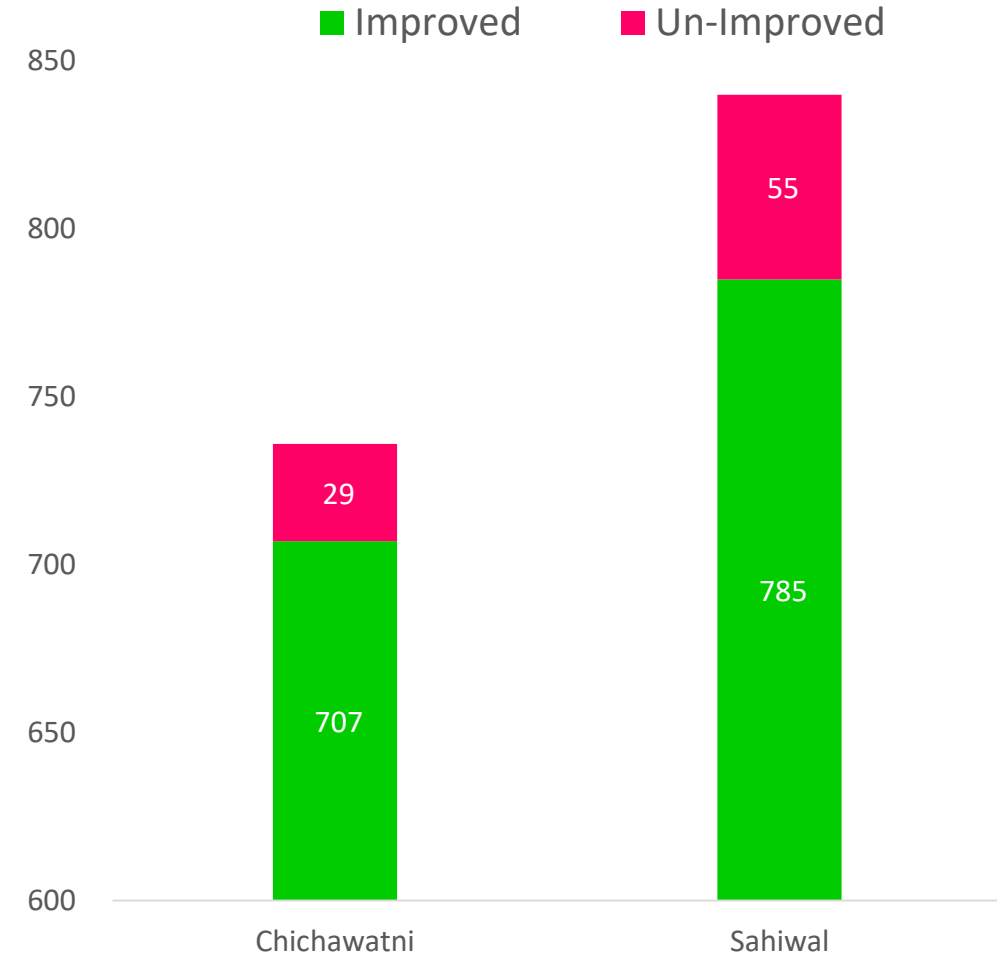
Improved,
1,492, 95%



Watercourse Improvement Status

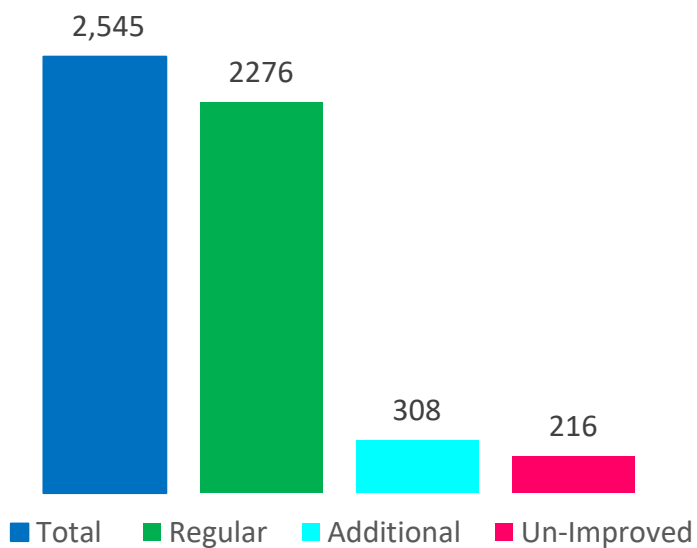
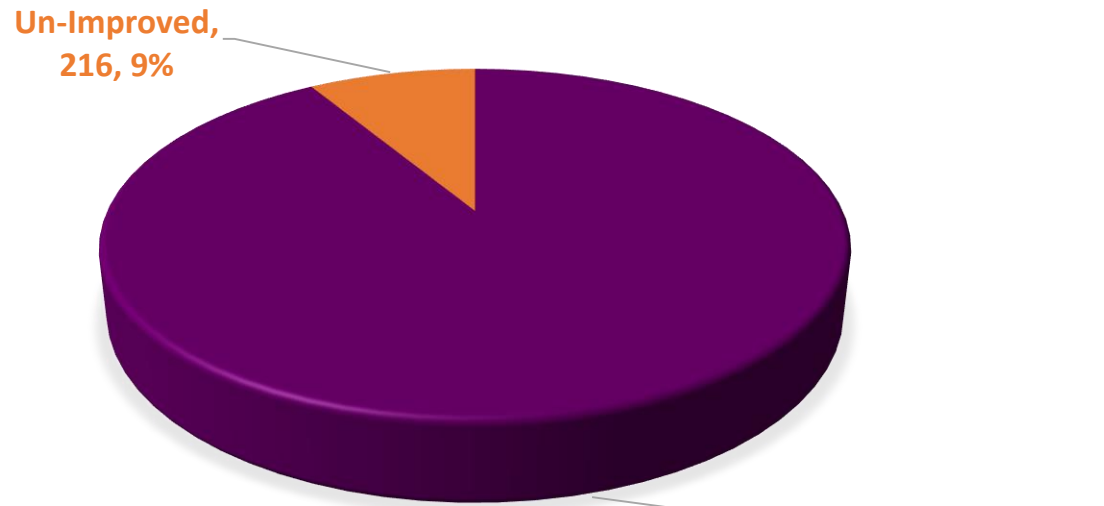


Length of Improved Watercourses (KMs)

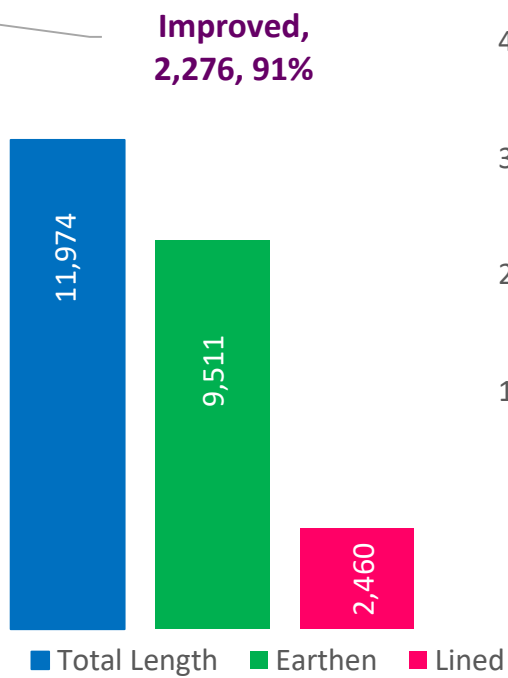


Tehsil wise Watercourse Improvement

SARGODHA OVERVIEW



Watercourse Improvement Status

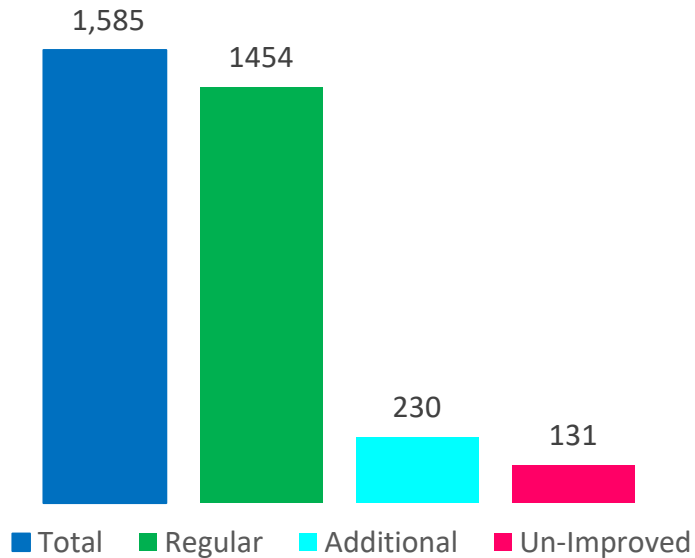
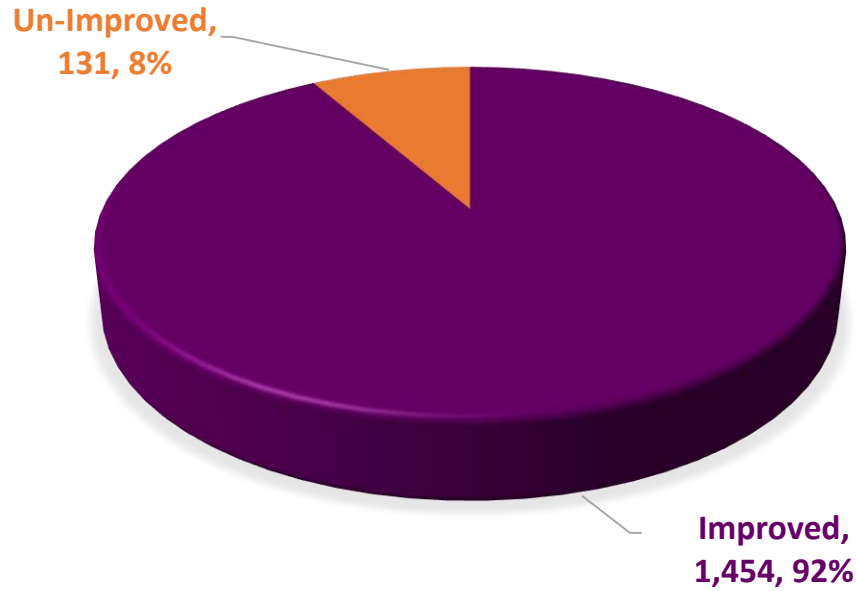


Length of Improved Watercourses (KMs)

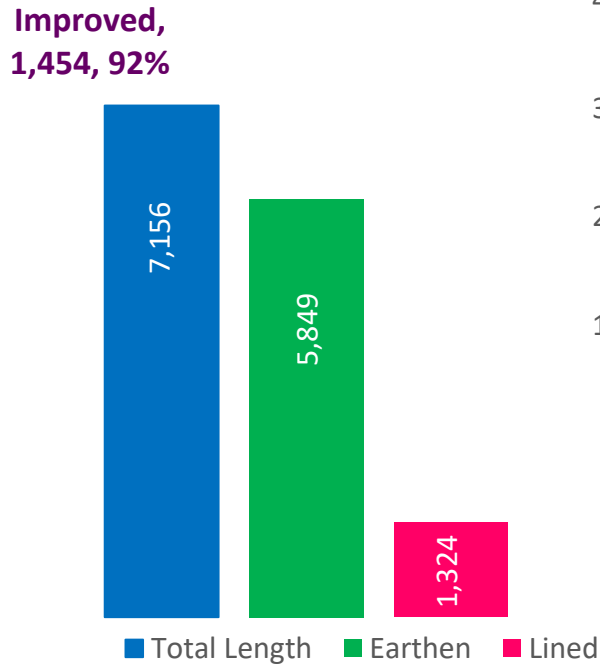


Tehsil wise Watercourse Improvement

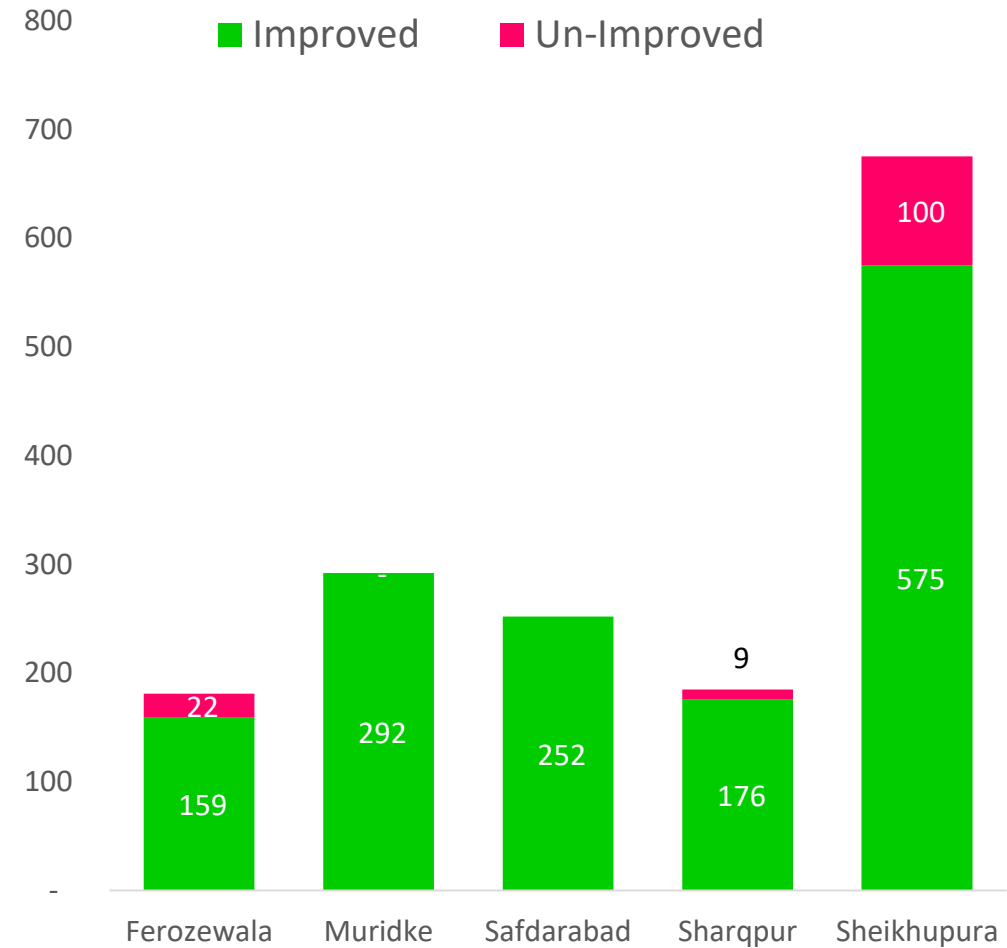
SHEIKHUPURA OVERVIEW



Watercourse Improvement Status

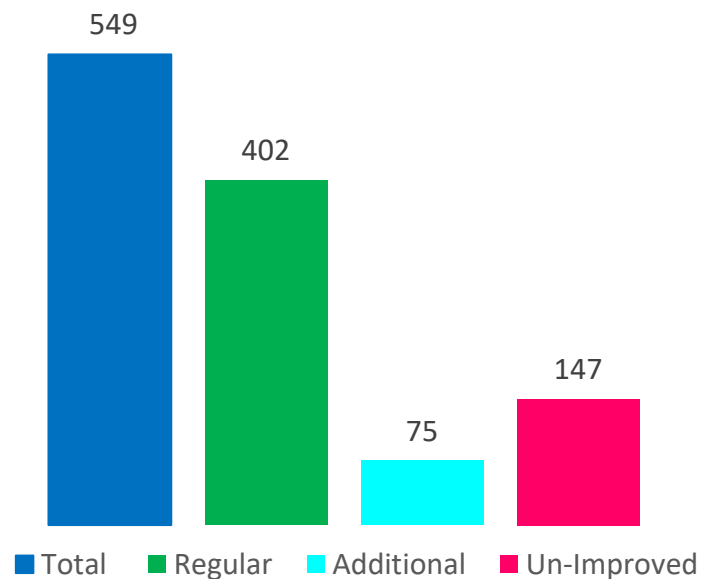
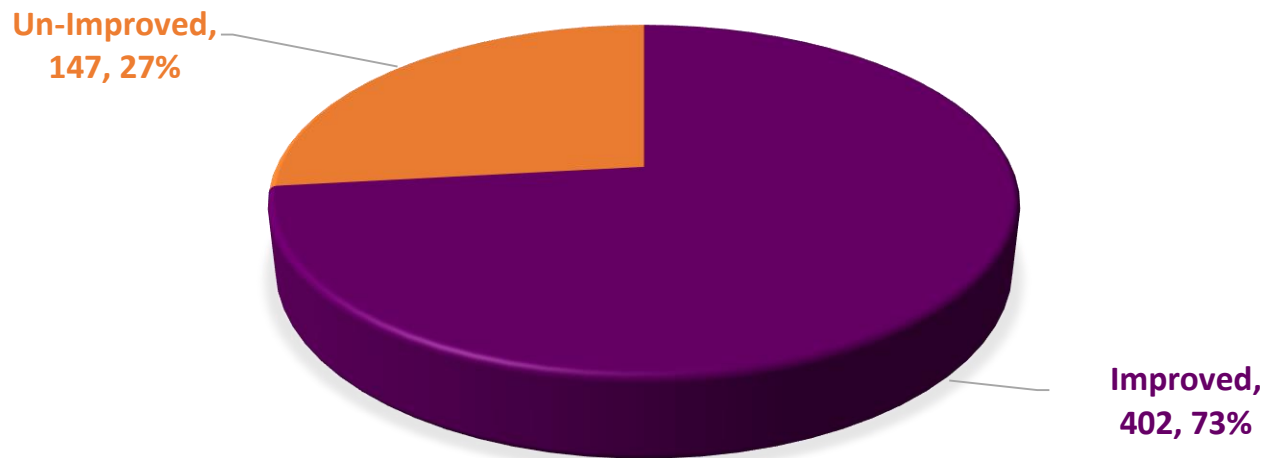


Length of Improved Watercourses (KMs)

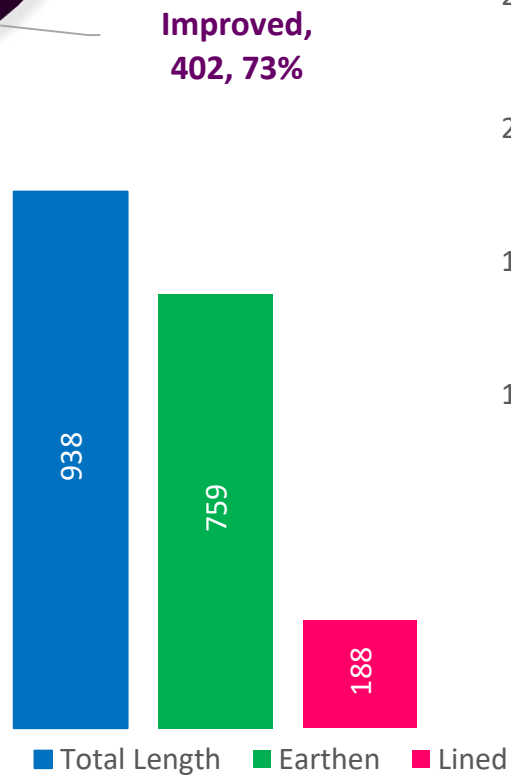


Tehsil wise Watercourse Improvement

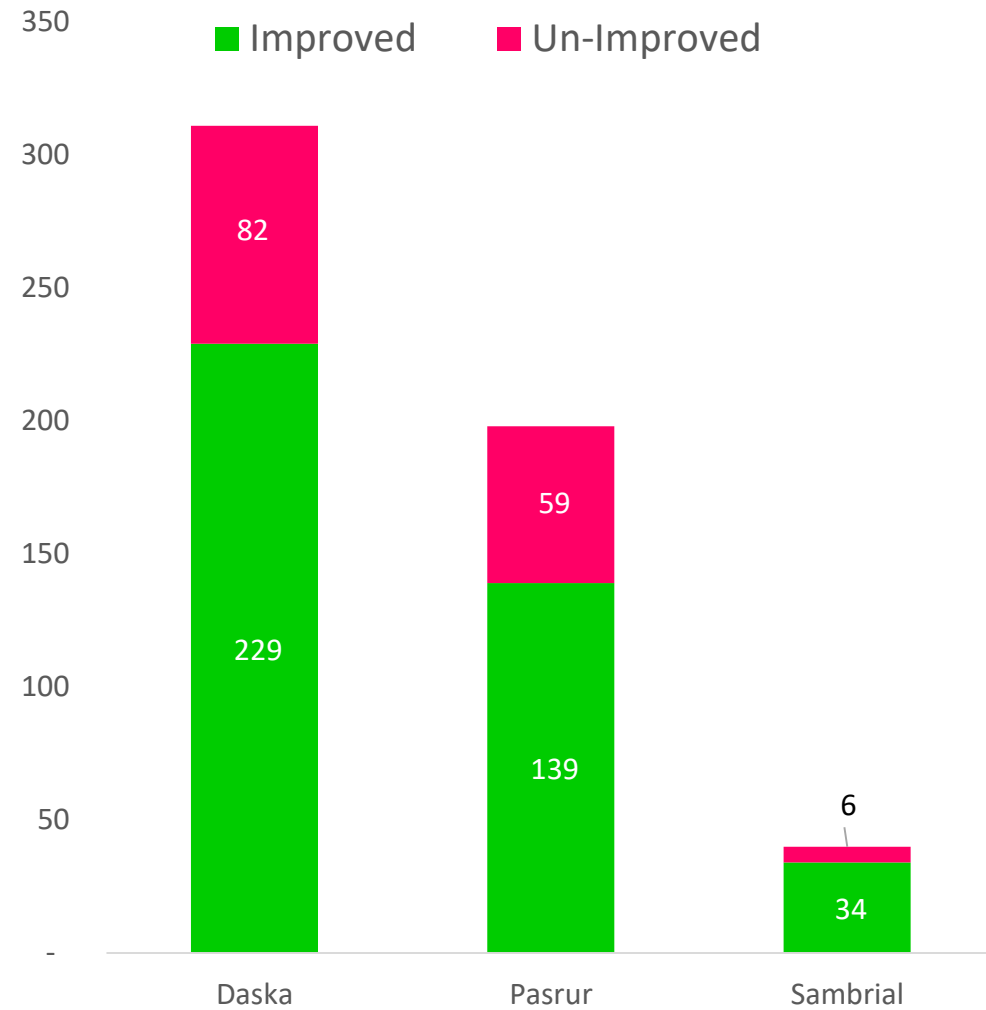
SIALKOT OVERVIEW



Watercourse Improvement Status

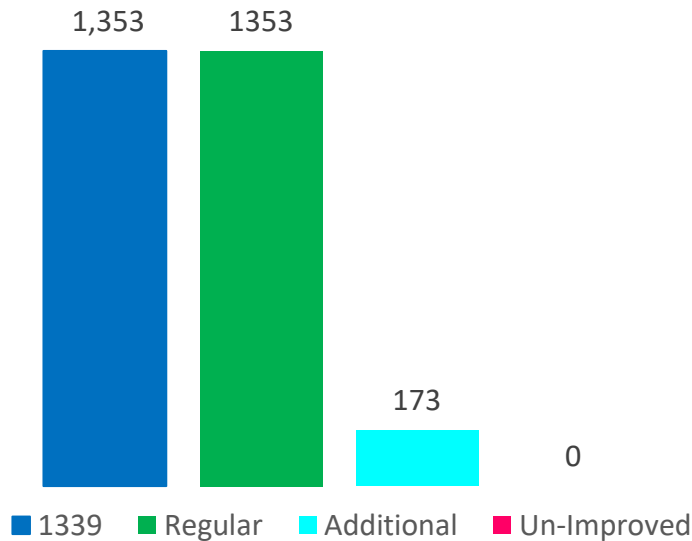
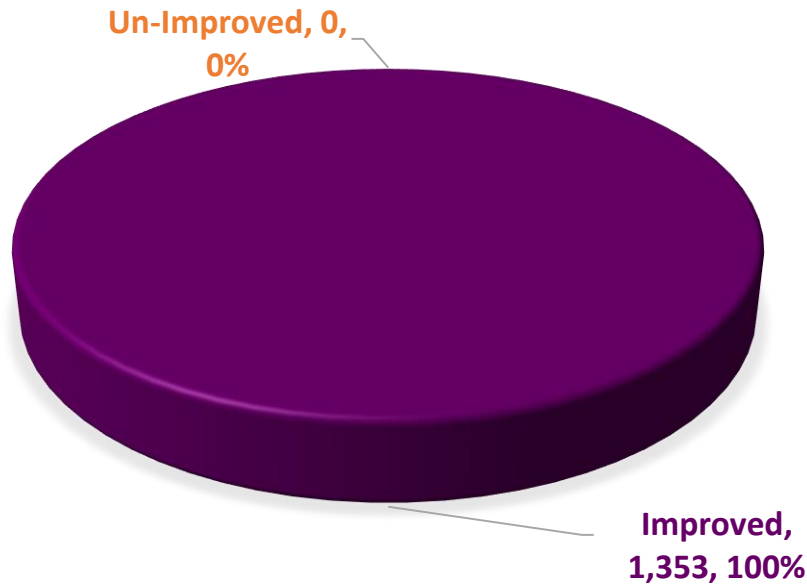


Length of Improved Watercourses (KMs)

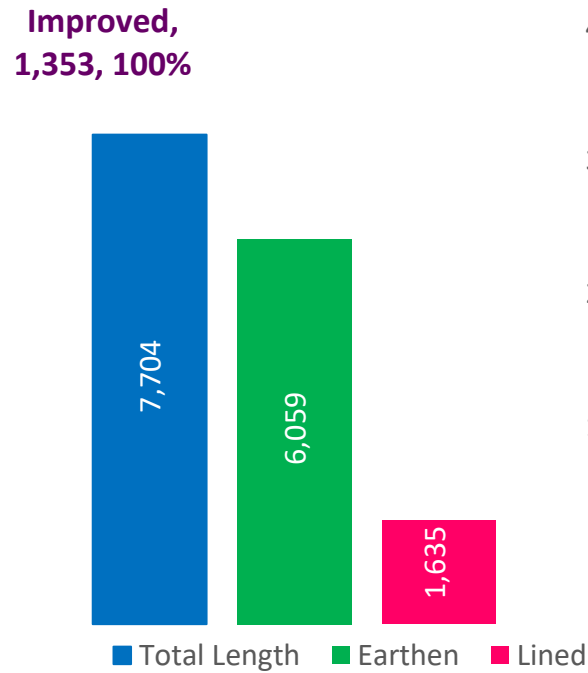


Tehsil wise Watercourse Improvement

TOBA TEK SINGH OVERVIEW



Watercourse Improvement Status



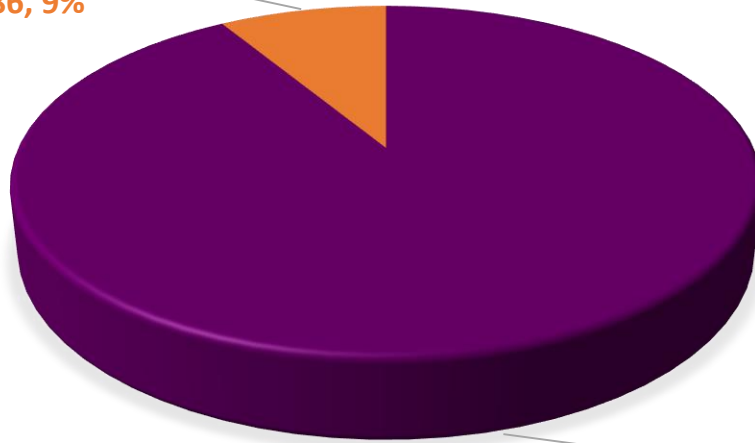
Length of Improved Watercourses (KMs)



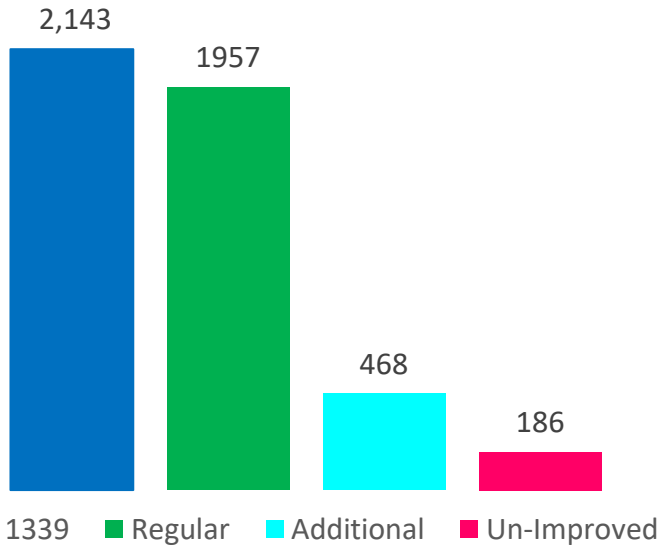
Tehsil wise Watercourse Improvement

VEHARI OVERVIEW

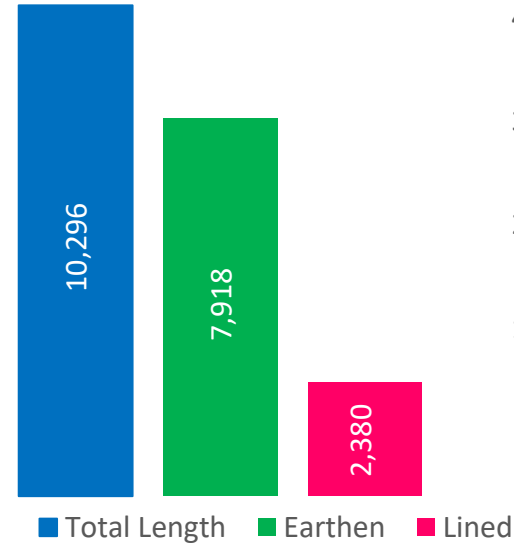
Un-Improved,
186, 9%



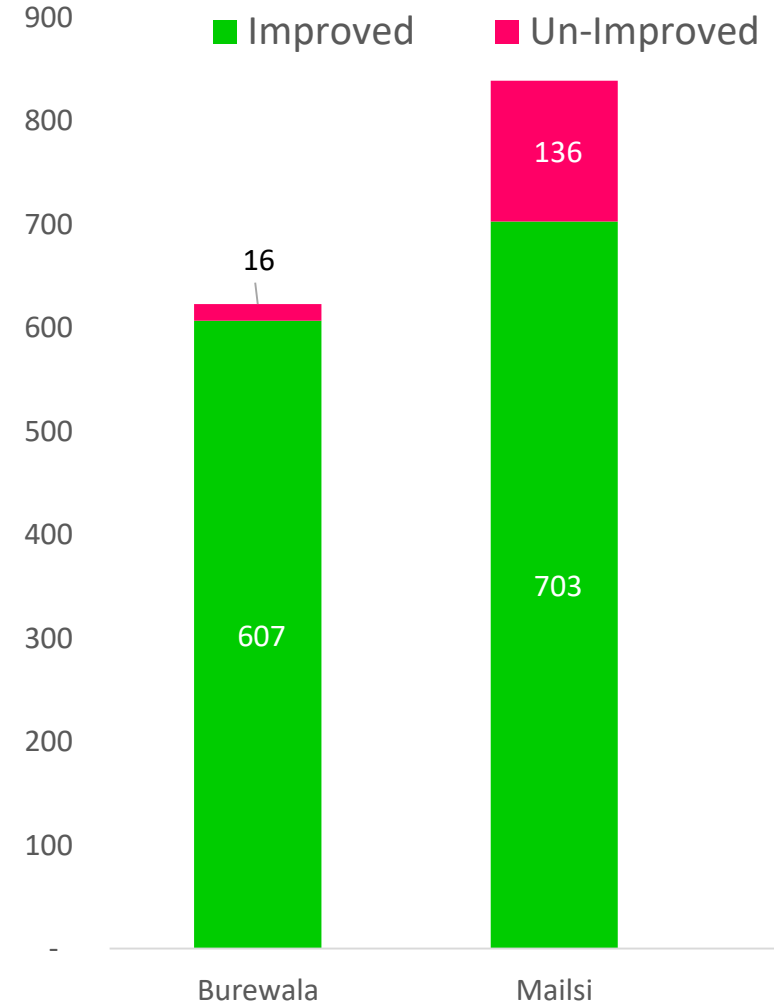
Improved,
1,957, 91%



Watercourse Improvement Status



Length of Improved Watercourses (KMs)



Tehsil wise Watercourse Improvement