HYDRAULIC POWER PLANTS IN PLANNING 1987 -2005

Name of Plant	Commissioning	Instal.Cap.	Generation (GWh)	
		Kurulu güç	Üretim	
		(MW)		
İkizdere 2	1/1996	90	270	190
Büyükdüz	1/1996	60	174	91
Kandil	1/1996	55	178	115
Karol	1/1996	12	51	41
Muratlı	1/1996	100	500	350
Erçekgölü	1/1997	7	37	25
Yamanlı 1	1/1997	35	206	170
Burgular	1/1997	12	103	93
Kovada 3	1/1997	13	65	36
Akıml ı	1/1997	110	483	338
Avanos	1/1997	20	103	67
Aladereçam	1/1997	7	18	12
Çambaşı	1/1997	65	158	84
Avluca	1/1997	45	125	87
Çileklitepe	1/1997	20	85	49
Ertuğrul	1/1997	16	70	40
Kandil 2	1/1997	103	362	235
Ören 1	1/1987	25	100	70
Yedigöze	1/1997	315	951	414
Kavşak	1/1997	36.6	160	94
Koru	1/1997	16	42	28
Soğukpınar	1/1997	12	42	33
Muradiye	1/1997	34	133	86
Yusufeli	1/1997	700	1780	1245
Alarahan	1/1997	42	115	74
Bedii Yaylası	1/1997	80	300	200
Göcen	1/1997	45	166	122
Kandil 1	1/1997	103	371	240
Kızılağaç	1/1998	9	77	39
Çay	1/1998	8	38	27
Dirgene	1/1998	16	80	56
Bağıştaş	1/1998	186	1042	730
Devrek	1/1998	9	79	30
Yamanlı 2	1/1998	20	170	110
Kamışlı	1/1998	15	116	75
Sonya	1/1998	20	95	66
Garzan	1/1998	90	315	180

1987-2005 DÖNEMİNDE İŞLETMEYE GİRMESİ ÖNGÖRÜLEN HİDROLİK SANTRALLER

HYDRAULIC POWER PLANTS IN PLANNING 1987-2005

Santralin Adı Name of Plant	Commissioning İşletmeye Giriş Tarihi	Instal.Cap. Kurulu Güç (MW)	Generation (GWh) Üretim Ortalama	Güvenilir
Sevimli Kura	1/1998	200	619	324
Başköy	1/1998	28	105	73
Eruh	1/1998	38	134	90
Eskiköy	1/1998	10	31	22
Menge	1/1998	89	247	118
Köprü	1/1998	189	481	249
Ortaca	1/1998	5	17	11
Borçka	1/1998	350	870	610
Geçit	1/1998	20	73	45
Şirvan	1/1998	28	98	65
Güllübağ	1/1998	120	300	230
Alıca	1/1998	11	54	35
Görmel	1/1999	25	128	83
Görmel H	1/1999	40	255	165
Kapusdere 2	1/1999	12	66	43
Kozdere 2	1/1999	5	39	29
Bidar 2	1/1999	36	160	100
Karabük	1/1999	27	129	90
Nurhak	1/1999	16	70	50
Geçimli	1/1999	210	867	477
Alsancak	1/1999	12	23	15
Narlı-Dalaman	1/1999	130	160	100
Kuletaşı	1/1999	30	60	33
Emet - Adranos	1/1999	500	1000	440
Akköprü-Dalaman	1/1999	150	266	170
Gürsöğüt	1/1999	404	197	140
Kargı - Sakarya	1/1999	303	156	125
Tirebolu	1/1999	60	114	59
Gökyar	1/1999	120	150	98
Kuzguh	1/1999	20	38	0
Ören 2	1/1999	10	42	28
Kemah	1/2000	36	203	142
Kapusdere 1	1/2000	8	43	28
Kapusdere 3	1/2000	6	31	20
Tefen	1/2000	15	73	50
Yenice	1/2000	26	126	88
Boloşan	1/2000	72	315	160
Gökçeşeyh	1/2000	34	118	83
Kazan	1/2000	28	97	68

HYDRAULIC POWER PLANTS IN PLANNING 1987-2005

Name of Plant	Commissioning	Instal.Cap.	Generation (GWh)	
		(MW)	Ortalama	Güvenilir
Tozköy	1/2000	160	285	210
Adliye - Kaletepe	1/2000	40	80	50
Artvin	1/2000	1200	2100	1480
Bidar 1	1/2000	46	198	130
Urfa Tüneli	1/2000	48	124	0
Hakkari	1/2000	47	180	91
Zarbana	1/2001	12	59	41
Taşlıköy	1/2001	18	79	55
Kolca	1/2001	29	140	98
Andıraz	1/2001	27	129	90
Zeytinlik	1/2002	500	1300	900
Göksu	1/2002	7	27	18
Üzümlü	1/2002	300	750	525
Çayağzı	1/2003	5	39	39
Dibni	1/2003	44	247	173
Fille	1/2003	8	39	27
Minker	1/2003	5	38	26
Çatalbahçe	1/2003	13	73	52
Sansa	1/2003	44	244	170
Kaleköy	1/2003	189	963	674
Aykırca	1/2003	4	19	10
Çeperdağ	1/2003	154	805	560
Divriği	1/2003	26	114	80
Sincan	1/2003	16	72	50
Çetinboğaz	1/2003	200	525	370
Kılıççı	1/2003	130	350	245
Silvankulp	1/2004	300	1500	1220
Şeyhyusuf	1/2004	30	185	143
Ilıca	1/2004	26	125	88
Olukbaşı	1/2004	19	90	63
Çat 1	1/2004	9	31	22
Hizan	1/2004	9	37	22
Çat 2	1/2004	12	41	28
Pervari	1/2004	4	16	10
İspir	1/2004	130	350	245
Saray	1/2004	120	332	206
Gönbe 1,2	1/2005	5,6	50	30
Kesedağı	1/2005	7	34	24

1987-2005 DÖNEMİNDE İŞLETMEYE GİRMESİ DÜŞÜNÜLEN HİDROLİK SANTRALLAR

HYDRAULIC POWER PLANTS IN PLANNING 1987-2005

Name of Plant Santralın Adı	Commissioning İşletmeye Giriş Tarihi Ay/Yıl	Instal.Cap. Kurulu Güç (MW)	Generation Üretim (GWh) Ortalama	Güvenilir
Keysun	1/2005	5	30	20
Adıyaman	1/2005	75	400	385
Söylemez	1/2005	60	152	142
Karasay	1/2005	4.8	22	9
Çırakdam	1/2005	30	135	54
Akköy	1/2005	12	80	24
Saman	1/2005	10	63	44
Maçka	1/2005	15	99	30
Akocak	1/2005	40	228	68
Üçharmanlar	1/2005	10	49	19
Adaçamı	1/2005	20	101	41
Hısarcık	1/2005	15	87	35
Çamay	1/2005	12	64	26
Başköy	1/2005	10	59	24
Germap	1/2005	6.5	38	25
Pir Ahmet	1/2005	10	55	35
Paşalar	1/2005	30	139	83
Kayalar	1/2005	5	21	15
Kahta 2	1/2005	10	43	30
Abdalan	1/2005	6	21	15
Ortaköy	1/2005	9	36	19
Karataş	1/2005	10.3	43	19
Çavuşlu	1/2005	11	47	23
Bolaman	1/2005	14.5	57	32
Mesudiye	1/2005	20	58	35
Arıcılar	1/2005	45	99	58
Darıca 1,2	1/2005	197	555	312
Kozbükü 2	1/2005	23	69	35
Kelce	1/2005	5	21	15
Şavata	1/2005	5.7	18	13
Mendo	1/2005	4.5	15	10
Kahta 1	1/2005	10	42	30
Kolartepe	1/2005	22.5	85	60
Yenihan	1/2005	60	235	134
Ordu	1/2005	55	215	165
Kovanlık	1/2005	75	208	137
İkisu	1/2005	35	111	61
Kayaköprü	1/2005	55	157	129
Koçlu	1/2005	65	148	53
-	1/2005	30	83	31

HYDRAULIC POWER PLANTS IN PLANNING 1987 - 2005

Name of Plant	Commissioning	Instal.Cap. (MW)	Generation (GWh)	
			Ortalama	Güvenilir
Soğanlı	1/2005	3	15	10
Konarı 1	1/2005	1.2	6	4
Eyüpağa	1/2005	0,8	4	3
Kaya	1/2005	4	20	14
Kadı	1/2005	4	20	14
Taşköprü	1/2005	8	45	30
Bulam	1/2005	7	31	22
Karanlıkdere	1/2005	3	16	11
Gökçesu	1/2005	6	29	20
Kahta 3	1/2005	10	54	38
Bakıl	1/2005	8	43	18
Gem	1/2005	2.2	14	9
Ayşehatun	1/2005	21	119	80
Kılıçlar	1/2005	0.9	4	3
Konarı 2	1/2005	6	27	20
Ayder	1/2005	30	115	61
Güroluk	1/2005	60	204	102
Çamlıca	1/2005	110	376	188
Gölyurt	1/2005	23	88	60
Kor	1/2005	33	187	120
Güzeldere	1/2005	10	57	37
Kırkemir	1/2005	20	101	54
Degin	1/2005	60	289	145
Narlı 1-2	1/2005	42	182	120
Derikkanal	1/2005	9	21	15
Aşık	1/2005	10	41	25
Tarihler	1/2005	20	85	60
Geçitli	1/2005	66	183	66
Çukurca	1/2005	80	300	138
Azdavay	1/2005	1.6	8	6
Tor	1/2005	6	28	20
Hatip	1/2005	4.3	21	15
Tuzköy	1/2005	11	54	35
Kızıltepe	1/2005	10	50	35
Denizbağ	1/2005	25	143	100
Kesikköprü	1/2005	63	355	248
Sarsap	1/2005	24	136	95
Yazıhan 1,2	1/2005	17	93	65

HYDRAULIC POWER PLANTS IN PLANNING 1987-2005

Name of Plant	Commissioning	Instal.Cap.	Generation (GWh)	
		(MW)	Ortalama	Güvenilir
Yokuşlu	1/2005	50	133	80
Topçam	1/2005	90	182	138
Kayalar	1/2005	85	176	149
Poyrazalan	1/2005	15	25	18
Gürpınar	1/2005	50	128	86
Kozbükü 1	1/2005	100	283	166
Paşalar	1/2005	26	98	70
Üzümcü	1/2005	74	290	143
Adalar	1/2005	1.5	5	3
Aşağıkent	1/2005	2,1	6	4
Bağışlı	1/2005	16	53	33
Çankara	1/2005	30	102	65
Çaldıran	1/2005	30	70	52
Kızılsu	1/2005	12,4	43	30
Sepker	1/2005	3	12	8
Ulubelen	1/2005	18	77	38
Çat	1/2005	140	405	247
Dilek	1/2005	180	489	321
Çamlıhemşin	1/2005	60	205	103
Durak	1/2005	120	347	208
TOTAL		25933.3	82179,0	54301.0

380 kV TRANSMISSION LINES

Hat LINE	Year	Length Uzunluk (km.)	Cross-section Kesit (MCM.)
Halkalı-Babaeski	1982	170	2X954
Tunçbilek-Bursa	1982	80	"
Keban-Elbistan	1982	160	"
Çarşamba-Kayabaşı	1982	100	"
Soma-Aliağa(İzmir)	1982	128	"
1982 TOPLAMI TOTAL		638	
Elbistan-Osmaniye	1983	188	2X954
Elbistan-Kayseri	"	120	"
Yatağan-İzmir II	"	150	"
Osmaniye-Seydişehir	"	415	"
Seydişehir-Oymapınar	"	70	"
Ümraniye-Boğazatlama II	"	20	3X954
İkitelli-Boğazatlama II	"	34	2 (3X954)
Boğazatlama II	"	3	
Seydişehir TM.-Aluminyum Tesis.	"	6	2X954
Gölbaşı-Gökçekaya	"	7	2 (2X954)
1983 TOPLAMI TOTAL		1013	
Osmanca-Boğazatlama II	1984	185	3X954
Kayabaşı-Cankırı	"	200	"
Oymapınar-Kepez	"	100	2X954
Çankırı-Osmanca	"	220	3X954
Ankara II-Osmanca	"	175	"
Elbistan-Ankara II	"	467	"
Soma-Balıkesir	"	65	2X954
Bursa-Balıkesir	"	120	"
Bursa-Adapazarı	"	140	"
1984 TOPLAMI TOTAL		1672	
Karakaya-Keban	1985	80	2(2X954)
Karakaya-Atatürk-Birecik-Osmaniye	"	308	3X954
Keban-Kayabaşı	"	338	"
Kayabaşı-Ankara	"	286	"
Yeniköy-Yatağan	"	19	2X954
Yeniköy-Aliağa	"	215	"
Keban-Kangal	"	115	"
Kangal-Kayabaşı	"	235	"
1985 TOPLAMI TOTAL		1596	
Çankırı-Ankara	1986	110	2X954
Seyitömer-Seydişehir	"	180	2(2X954)
1986 TOPLAMI TOTAL		290	
Yatağan-Denizli-Kepez	1987	280	2X954)
TOPLAMI TOTAL		5489	

380/154 kV TRANSFORMER STATIONS

	Transformer Numbers 380/154 kV		
EXISTING STATIONS	150 MVA	180 MVA	300 MVA
Adapazarı	2	-	-
Keban	3	-	-
Gölbaşı	3	-	-
İzmir II	3	-	-
Seyitömer	-	1	-
Seydişehir	-	1	-
Çarşamba	2	-	-
Soma	-	1	-
Ümraniye	4	-	-
Kayseri	2	-	-
EXISTING TOTAL	19	3	-
PLANNING STATIONS			
Babaeski (1983)	1	-	-
Ankara II(1983)	2	-	-
Seyitömer(1983)	-	1	-
Aliağa "	4	-	-
Osmaniye "	4	-	-
İkitelli "	2	-	-
Bursa "	2	-	-
Kayabaşı "	2	-	-
Osmanca "	1	-	-
Adapazarı (1984)	2	-	-
Kepez "	2	-	-
Ereğli "	2	-	-
Çankırı "	1	-	-
Gebze "	4	-	-
Kangal (1985)	-	1	-
PLANNING TOTAL	29	2	-

TRANSMISSION LINES AND TRANSFORMER STATIONS
(1983-1992)

Years	Transformer stations (MVA)	380 kV and 154 kV Transmission Lines (km)	Lower than 154 kV Transmission Lines (km)
1983	3800	5400	3200
1984	3850	5500	3300
1985	4000	5700	3400
1986	4400	6300	3700
1987	4850	6900	3900
TOTAL	20900	29800	17500
1988	5150	7400	4200
1989	5700	8100	4800
1990	6150	8800	5100
1991	6600	9500	5400
1992	7550	10800	6300
TOTAL	31150	44600	25800

DISTRIBUTION OF TURKEY'S ELECTRICAL ENERGY CONSUMPTION
ACCORDING TO THE CONSUMER GROUPS
(1970-1981)

Years	Domestic and commercial	Government offices	Street lighting	Idustry	Traction	Total net Consump.	kWh/Capita
1970	1405.5	301.8	193.0	5327.5	80.0	7307.8	205
1971	1594.3	342.4	200.0	6069.6	83.0	8289.3	229
1972	1832.4	393.5	208.0	7005.4	88.0	9527.3	257
1973	2011.0	490.6	216.8	7721.4	90.3	10530.1	277
1974	2314.6	524.9	222.4	8200.2	96.6	11358.7	291
1975	2793.2	565.9	250.6	9780.8	101.2	13491.7	334
1976	3362.1	615.6	295.8	11692.9	112.5	16078.9	393
1977	3568.5	655.0	294.6	13350.3	116.5	17965.0	430
1978	3882.0	668.7	276.4	13901.3	153.5	18937.0	445
1979	4353.6	709.0	290.6	14453.8	177.0	19984.0	459
1980(1)	4361.0	733.0	377.0	15307.6	190.0	20968.0	469
1981(2)	4732.6	796.3	409.6	16609.8	204.8	22753.1	502

(1) Temporary
(2) Forecast

GENERATION - CONSUMPTION
(1987-1995)

			1987	1988	1989	1990	1991	1992	1993	1994	1995
Chartered Companies Thermal	Ins. Cap.	MW	106	106	106	106	106	106	106	106	106
	Average	GWh	700	700	700	700	700	700	700	700	700
	Firm	GWh	700	700	700	700	700	700	700	700	700
Chartered Companies Hydraulic	Ins. Cap.	MW	220	220	220	220	220	220	220	220	220
	Average	GWh	1157	1157	1157	1157	1157	1157	1157	1157	1157
	Firm	GWh	833	833	833	833	833	833	833	833	833
Chartered Companies Total	Ins. Cap.	MW	326	326	326	326	326	326	326	326	326
	Average	GWh	1857	1857	1857	1857	1857	1857	1857	1857	1857
	Firm	GWh	1533	1533	1533	1533	1533	1533	1533	1533	1533
Auto Producters Thermal	Ins. Cap.	MW	844	844	844	844	844	844	844	844	844
	Average	GWh	2757	2757	2757	2757	2757	2757	2757	2757	2757
	Firm	GWh	2757	2757	2757	2757	2757	2757	2757	2757	2757
Auto Producters Hydraulic	Ins. Cap.	MW	39	39	39	39	39	39	39	39	39
	Average	GWh	65	65	65	65	65	65	65	65	65
	Firm	GWh	65	65	65	65	65	65	65	65	65
TURKEY THERMAL	Ins. Cap.	MW	6830	6930	7030	7330	8530	10550	11450	11750	11750
	Average	GWh	38397	39027	39697	40662	43932	53190	61551	68037	69597
	Firm	GWh	38397	39027	39697	40662	43932	53190	61551	68037	69597
TURKEY HYDRAULIC	Ins. Cap.	MW	6390	7284	7341	7977	8753	10294	11259	12799	16720
	Average	GWh	23512	26331	27093	28572	31797	37962	41723	44885	56043
	Firm	GWh	17579	18902	18966	19919	23162	28544	30512	32521	40861
	Σ80 Ave.	GWh	18809	21064	21674	22857	25437	30369	33378	35907	44834
	Σ90 Ave.	GWh	21160	23697	24383	25714	28617	34165	37550	40396	50618
	Σ110 Ave.	GWh	25863	28966	29802	31429	34976	41758	45895	49373	61647
TURKEY TOTAL	Ins. Cap.	MW	13220	14214	14371	15307	17283	20844	22709	24549	28470
	Average	GWh	61909	65358	66790	69234	75729	91152	103274	112922	125640
	Firm	GWh	55976	57929	58663	60581	67094	81734	92063	100608	110438
	Σ80 Ave.	GWh	57206	60091	61371	63519	69369	83559	94929	103944	114431
	Σ90 Ave.	GWh	59557	62724	64080	66376	72549	87355	99101	108433	120015
	Σ110 Ave.	GWh	64260	67991	69499	72091	78908	94968	107446	117410	131244
HYDRAULIC/TOTAL %	Ins. Cap.	MW	4834	5125	5108	5211	5065	4939	4958	5214	5873
	Average	GWh	3798	4049	4056	4127	4199	4165	4040	3975	4461
	Firm	GWh	3141	3263	3233	3288	3452	3492	3314	3237	3698
	Σ80		3288	3505	3532	3598	3667	3634	3516	3554	3918
	Σ90		3553	3778	3805	3874	3945	3911	3789	3725	4202
	Σ110		4025	4260	4288	4360	4433	4398	4271	4205	4697
CONSUMPTION	Ins. Cap.	MW	8760	9775	10915	12180	13500	14900	16500	18100	19700
	Average	GWh	49100	54800	61200	68300	75600	83700	92600	101500	110400
	Firm	GWh	49100	54800	61200	68300	75600	83700	92600	101500	110400
SPARE	Ins. Cap.	MW	4460	4439	3456	3127	3783	5944	6209	6449	8770
	Average	GWh	12809	10558	5590	934	129	7452	10674	11422	15240
	Firm	GWh	6876	3129	-2537	-7719	-8506	-1966	-537	-892	38
	Σ80 Ave.	GWh	8106	5291	171	-4781	-6231	-141	2329	2444	4031
	Σ90 Ave.	GWh	10457	7924	2880	-1924	-3051	3655	6501	6933	9635
	Σ110 Ave.	GWh	15160	13191	8299	3791	3308	11248	14846	15910	20844
SPARE %	Ins. Cap.	MW	5091	4541	3166	2567	2802	3989	3763	3563	4452
	Average	GWh	2609	1927	913	137	017	890	1153	1125	1380
	Firm	GWh	1400	571	-415	-1130	-1125	- 235	-058	-088	003
	Σ80		1651	966	028	-7.0	- 824	- 017	252	241	365
	Σ90		2130	1446	471	-282	- 604	633	702	683	873
	Σ110		3088	2407	1356	555	438	1344	1603	1567	1898

GENERATION - CONSUMPTION
(1987-1995)

			1987	1988	1989	1990	1991	1992	1993	1994	1995
In operation, T.E.K. Total THERMAL	Ins. Cap.	MW	5680	5680	5680	5680	5680	5680	5680	5680	5680
	Average	GWh	34220	34220	34220	34220	34220	34220	34220	34220	34220
	Firm	GWh	34220	34220	34220	34220	34220	34220	34220	34220	34220
In operation, T.E.K. Total HYDRAULIC	Ins. Cap.	MW	4616	4616	4616	4616	4616	4616	4616	4616	4616
	Average	GWh	19301	19301	19301	19301	19301	19301	19301	19301	19301
	Firm	GWh	14031	14031	14031	14031	14031	14031	14031	14031	14031
In operation, T.E.K. TOTAL	Ins. Cap.	MW	10296	10296	10296	10296	10296	10296	10296	10296	10296
	Average	GWh	53521	53521	53521	53521	53521	53521	53521	53521	53521
	Firm	GWh	48251	48251	48251	48251	48251	48251	48251	48251	48251
In operation, Chart. C. Total THERMAL	Ins. Cap.	MW	106	106	106	106	106	106	106	106	106
	Average	GWh	700	700	700	700	700	700	700	700	700
	Firm	GWh	700	700	700	700	700	700	700	700	700
In operation, Chart. C. Total HYDRAULIC	Ins. Cap.	MW	220	220	220	220	220	220	220	220	220
	Average	GWh	1157	1157	1157	1157	1157	1157	1157	1157	1157
	Firm	GWh	833	833	833	833	833	833	833	833	833
In operation, Chart. C. TOTAL	Ins. Cap.	MW	326	326	326	326	326	326	326	326	326
	Average	GWh	1857	1857	1857	1857	1857	1857	1857	1857	1857
	Firm	GWh	1533	1533	1533	1533	1533	1533	1533	1533	1533
In operation, Auto Pro. Total THERMAL	Ins. Cap.	MW	844	844	844	844	844	844	844	844	844
	Average	GWh	2557	2557	2557	2557	2557	2557	2557	2557	2557
	Firm	GWh	2757	2757	2757	2757	2757	2757	2757	2757	2757
In operation, Auto Pro. Total HYDRALIC	Ins. Cap.	MW	39	39	39	39	39	39	39	39	39
	Average	GWh	65	65	65	65	65	65	65	65	65
	Firm		65	65	65	65	65	65	65	65	65
In operation Total THERMAL	Ins. Cap.	MW	6630	6630	6630	6630	6630	6630	6630	6630	6630
	Average	GWh	37677	37677	37677	37677	37677	37677	37677	37677	37677
	Firm		37677	37677	37677	37677	37677	37677	37677	37677	37677
In operation Total HYDRAULIC	Ins. Cap.	MW	4875	4875	4875	4875	4875	4875	4875	4875	4875
	Average	GWh	20523	20523	20523	20523	20523	20523	20523	20523	20523
	Firm	GWh	14929	14929	14929	14929	14929	14929	14929	14929	14929
In operation TOTAL	Ins. Cap.	MW	11505	11505	11505	11505	11505	11505	11505	11505	11505
	Average	GWh	58200	58200	58200	58200	58200	58200	58200	58200	58200
	Firm	GWh	52606	52606	52606	52606	52606	52606	52606	52606	52606
In planning Total THERMAL	Ins. Cap.	MW	200	300	400	700	1900	3920	4820	5120	5120
	Average	GWh	720	1350	2020	2985	6255	15513	23874	30360	31920
	Firm	GWh	720	1350	2020	2985	6255	15513	23874	30360	31920
In planning Total HYDRAULIC	Ins. Cap.	MW	1515	2409	2466	3102	3878	5419	6384	7924	11845
	Average	GWh	2989	5808	6570	8049	11274	17439	21200	24362	35520
	Firm	GWh	2650	3973	4037	4990	8233	13615	15583	17642	25912
In planning TOTAL	Ins. Cap.	MW	1715	2709	2866	3802	5778	9339	11204	13044	16965
	Average	GWh	3709	7158	8590	11034	17529	32954	45074	54722	67440
	Firm	GWh	3380	5323	6057	7975	14488	29128	39457	55002	57832
T. E. K. Total THERMAL	Ins. Cap.	MW	5880	5980	6080	6380	7580	9600	10500	10800	10800
	Average	GWh	34940	35570	36240	37205	40475	49733	58094	66580	66140
	Firm	GWh	34940	35570	36240	37205	40475	49733	58094	64580	66140
T.E.K. Total HYDRAULIC	Inv. Cap.	MW	6131	7025	7082	7718	8494	10035	11000	12540	16441
	Average	GWh	22290	25109	25871	27350	30525	36740	40501	43663	54821
	Firm	GWh	16681	18004	18068	19021	22264	27646	29614	31673	39963
T.E.K. TOTAL	Ins. Cap.	MW	12011	13005	13162	14098	16074	19635	21500	23340	27261
	Average	GWh	57230	60679	62111	64555	71050	86473	98595	108243	120961
	Firm	GWh	51621	53574	54308	56226	62739	77379	87708	96253	106083

T.E.K. = Turkish Electricity Authority
Chart. C. = Chartered Companies
Auto Pro. = Auto Producers

XXÇIXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX

TÜRETİM TAHMİNLERİ

(1987 - 2005)

CONSUMPTION FORECASTS

YEARS XXXXXX YILLAR	Power Demand XXXXXXXXXXX (MW) Güç İstemi (MW)	Energy Demand XXXXXXXXXXXXXX (GWh) Enerji İstemi (GWh)
1987	8760	49100
1988	9775	54800
1989	10915	61200
1990	12180	68300
1991	13500	75600
1992	14900	83700
1993	16500	92600
1994	18100	101500
1995	19700	110400
1996	21350	119800
1997	23200	130000
1998	25000	140400
1999	27000	151600
2000	28900	162200
2001	31000	173500
2002	33100	185600
2003	35400	198600
2004	37900	212500
2005	40500	227400

1. Sayım yıllarına göre nüfus, sayımlar arası yıllık artış oranı ve yıl ortası nüfus tahmini
Population by census years, annual intercensal rate of increase and population estimates

Bin — Thousands

Yıllar Years	Sayım yılları nüfusu Population in census years	Yıllık artış oranı Annual increase rate ‰ (3)	Yıl ortası nüfus tahmini Mid - year population estimate (3)	Yıllar Years	Sayım yılları nüfusu Population in census years	Yıllık artış oranı Annual increase rate ‰ (3)	Yıl ortası nüfus tahmini Mid - year population estimate (3)
1927 (1)	13 648		13 562				
1928			13 851	1965 (1)	31 391		31 151
1929			14 146	1966			31 934
1930			14 448	1967			32 750
1931		21.10	14 756	1968		25.19	33 585
1932			15 071	1969			34 442
1933			15 392				
1934			15 721	1970 (1)	35 605		35 321
1935 (1)	16 158		16 046	1971			36 215
1936			16 350	1972			37 132
1937		(2) 17.02	16 631	1973		25.00	38 072
1938			16 916	1974			39 036
1939			17 369				
		(2) 19.59		1975 (1)	40 348		40 078
1940 (1)	17 821		17 723	1976			40 915
1941			17 953	1977		20.65	41 768
1942		10.59	18 144	1978			42 640
1943			18 337	1979			43 530
1944			18 533				
				1980 (1)	44 737		44 438
1945 (1)	18 790		18 664	1981			45 366
1946			19 074	1982			46 312
1947		21.73	19 493	1983			47 279
1948			19 921	1984			48 265
1949			20 359				
				1985			49 272
1950 (1)	20 947		20 809	1986			50 301
1951			21 352	1987			51 350
1952		27.75	21 953	1988			52 422
1953			22 571	1989			53 516
1954			23 206				
				1990			54 633
1955 (1)	24 065		23 859	1991			55 773
1956			24 442	1992			56 937
1957		28.53	25 252	1993			58 125
1958			25 983	1994			59 338
1959			26 735				
				1995			60 576
1960 (1)	27 755		27 509	1996			61 840
1961			28 233	1997			63 130
1962		24.62	28 933	1998			64 448
1963			29 655	1999			65 793
1964			30 394	2000			67 166

(1) *Sayım yıllarına ilişkin kesin sonuçlardır.*

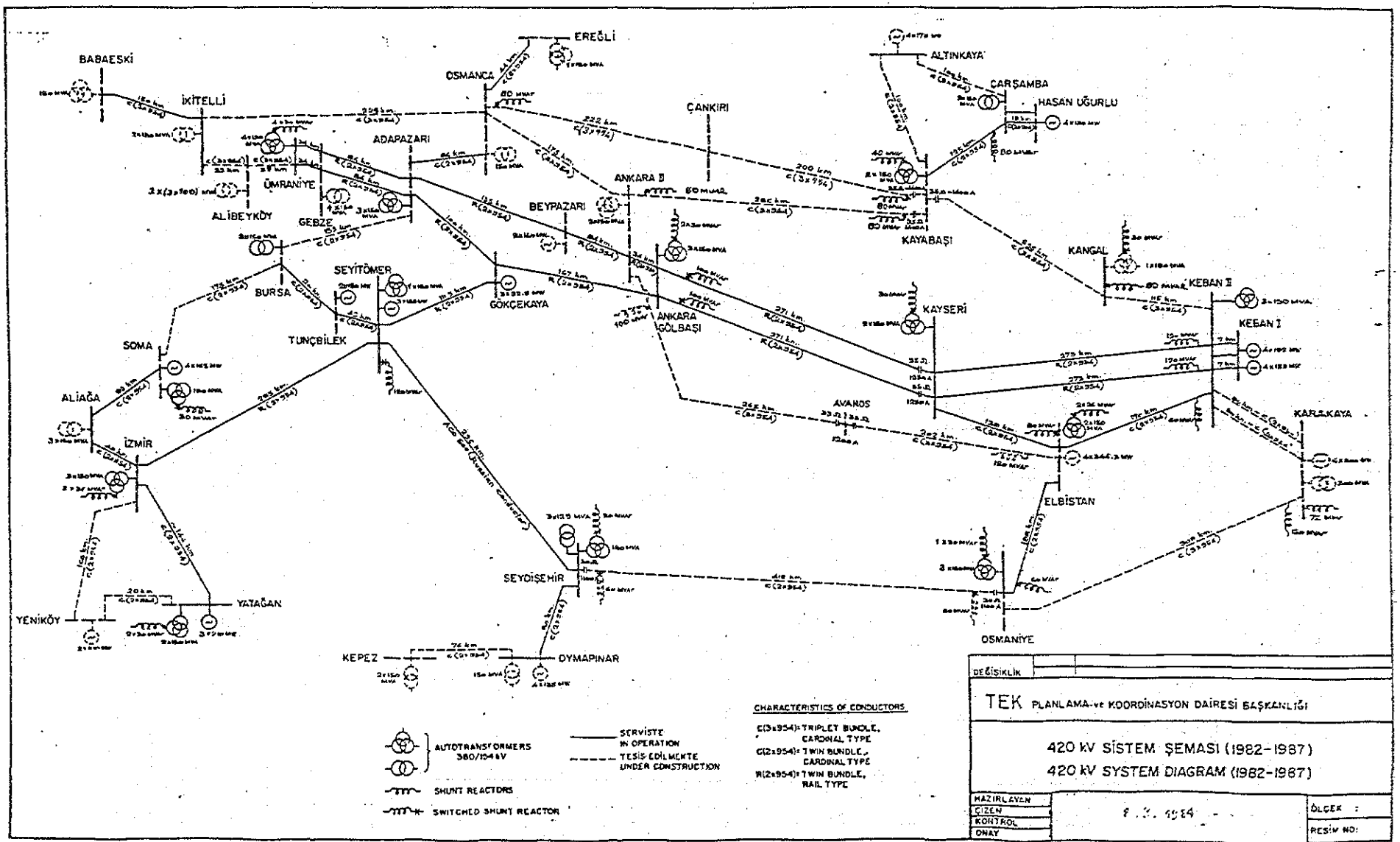
(2) 1939 ve 1940 yıl ortası nüfus tahminlerinde 23 Haziran 1939 yılında Anavatana katılan Hatay ilinin nüfusu (208116) göz önüne alınmıştır. 1936, 1937, 1938 yıl ortası nüfuslarında ise Hatay ilinin nüfusu göz önüne alınmadan hesap edilmiştir. Bu dönemde yıllık artış oranı ‰ de 17.02'dir.

(3) Sayımlararası yıllık artış : Birbirini izleyen iki sayımın kesin sonuçlarına dayanılarak, doğal artış bağıntısının ($P=P_o.\ e^{rn}$) yardımıyla hesaplanmaktadır.
Yıl ortası nüfus : Aynı doğal artış bağıntısı kullanılarak bulunan 1 Temmuz tahmini nüfuslarıdır.

(1) *Indicates final results of censuses.*

(2) *Estimates of mid - year population for 1939 and 1940 include (208 116) population of Hatay province annexed on June 23, 1939. Mid - year population for 1936, 1937 and 1938 exclude the population of Hatay province. Annual rate of increase during these periods is 17.02 ‰.*

(3) *Annual intercensel increase : Annual intercensal increase between two consecutive censuses are calculated by natural increase formula ($P=Po.\ e^{rn}$) on the basis of results obtained from two censuses.*
Mid - year population : Mid - year population is calculated by the same natural increase formula as of 1 st july.


BABAESKİ
İKİTELLİ
ALİBEYKÖY
ÜMRANİYE
GEBZE
ADAPAZARI
OSMANCA
EREĞLİ
ÇANKIRI
ALTINKAYA
ÇARŞAMBA
HASAN UĞURLU
ANKARA II
BEYPAZARI
KAYABAŞI
KANGAL
KEBAN II
KEBAN I
KAYSERİ
SEYİTÖMER
BURSA
GÖKÇEKAYA
TUNÇBİLEK
ANKARA GÖLBAŞI
SOMA
ALİAĞA
İZMİR
AVANOS
KARAKAYA
ELBİSTAN
SEYDİŞEHİR
OSMANİYE
YENİKÖY
YATAĞAN
KEPEZ
DYMAPINAR
AUTOTRANSFORMERS 380/154 kV
SHUNT REACTORS
SWITCHED SHUNT REACTOR
SERVİSTE IN OPERATION
TESİS EDİLMEKTE UNDER CONSTRUCTION
CHARACTERISTICS OF CONDUCTORS
T(3x954)= TRIPLET BUNDLE, CARDINAL TYPE
T(2x954)= TWIN BUNDLE, CARDINAL TYPE
R(2x954)= TWIN BUNDLE, RAIL TYPE
DEĞİŞİKLİK
TEK PLANLAMA-ve KOORDİNASYON DAİRESİ BAŞKANLIĞI
420 kV SİSTEM ŞEMASI (1982-1987)
420 kV SYSTEM DIAGRAM (1982-1987)
HAZIRLAYAN
ÇİZEN
KONTROL
ONAY
ÖLÇEK :
RESİM NO:

III. Available Data and Information related to Çoruh River Hydroelectric Power Development

(A) Hydrological and Meteorological Data

Item	Description	Notes
1. Temperature	Monthly and/or daily max., average and min.	Monthly values for observation period given in Table 6.
2. Humidity	Monthly max., average and min.	Mean monthly values given in Table 6.
3. Evaporation	Monthly average observed or arranged	Monthly amounts given in Table 19.
4. Duration of sunshine	Number of days for each month	No need at this stage.
5. Precipitation	All available precipitation record including location map	Mean monthly values for observation period given in Table 2.
6. Run-off	All available daily data at water guaging stations including location map	Monthly flows for damsites given in Tables annex 5 and 6.

The requested data are presented in the file "Hydrologic Data for Yusufeli and Inanlı Damsites".

Item	Description	Notes
7. Flood flow	- Record max. flood observed and its hydrograph	Observed flood hydrographs at gauging stations No.2322,2323,2321 and 2305 presented in the graph papers.
8. Sedimentation	- Suspended material and bed load material	Total sediment transport at the damsites are given in page 2 of summary hydrology report in English.
9. Hydro-geology	- Observed Underground water level - Spring spots - Water examination pumping test, chemical analysis	These subjects are not covered by hydrological Survey Department.

Table
TABLO 6 – Çoruh Nehri Yağış Alanı İçindeki DMİ Meteoroloji İstasyonlarının Sıcaklık Gözlem Sonuçları, °C.

{Temperature values for meteorological stations within the catchment area of Coruh River, °C}

Station / İstasyon	Elevation / Kot m.	Period of observation / Gözlem Süresi		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Annual / Yıllık
			Max. Mak.	16.2	13.9	18.5	24.8	27.4	31.8	36.2	36.5	31.9	27.3	20.0	11.5	36.5
Bayburt	1550	961-76	Mean Ort.	-7.3	-5.7	-0.4	6.7	11.4	15.1	18.7	18.4	14.1	9.1	2.9	-3.6	6.6
			Min. Min.	-31.3	-27.2	-23.3	-12.7	-3.2	-1.2	2.4	3.4	-1.5	-7.4	-23.6	-24.0	-31.3
			Mak.	10.5	17.0	20.5	28.8	31.7	35.2	37.8	39.5	35.6	28.4	22.7	12.7	39.5
İspir	1200	964-76	Ort.	-4.3	-2.6	3.5	9.8	14.6	18.6	22.9	22.4	17.3	11.1	4.8	-1.3	9.8
			Min	-29.6	-27.5	-19.5	-8.4	-1.3	0.7	7.8	8.2	0.7	-6.3	-20.3	-22.0	-29.6
		965-66	Mak.	16.8	22.2	24.0	34.0	36.1	40.0	43.2	43.8	39.0	33.0	26.0	17.6	43.8
Yusufeli	611	969-74	Ort.	1.2	3.7	9.1	14.4	19.1	22.5	25.9	25.9	21.9	15.9	8.7	3.7	14.3
		976	Min.	-14.3	-11.6	-7.0	-2.5	6.0	10.0	14.0	14.0	8.3	-0.5	-2.5	-9.5	-14.3
			Mak.	14.3	11.4	16.0	25.1	28.1	32.0	35.4	36.0	32.0	26.4	20.6	12.6	36.0
Tortum	1602	964-76	Ort.	-4.1	-3.0	1.4	7.4	12.3	16.0	19.8	19.5	15.4	10.0	4.1	-1.6	8.1
			Min.	-23.0	-22.6	-19.0	-12.7	-3.0	-3.3	5.5	5.6	-0.6	-8.0	-15.3	-19.0	-23.0
			Mak.	11.5	16.8	19.6	30.0	30.7	36.5	36.6	38.6	32.6	26.8	19.8	12.8	38.6
Oltu	1275	965-72	Ort.	-3.6	-2.2	3.5	9.9	14.6	18.1	22.3	22.0	17.4	11.0	5.3	-0.9	9.8
		1976	Min	-24.1	-22.4	-16.8	-6.4	1.3	0.4	7.4	8.7	1.5	-4.2	-15.2	-14.8	-24.1
			Mak.	11.6	12.7	18.4	24.1	26.6	28.0	28.9	30.1	29.0	25.4	19.5	13.5	30.1
Artvin	597	949-77	Ort.	2.9	4.1	7.2	12.2	16.2	18.9	20.8	20.9	18.0	14.0	9.6	4.7	12.5
			Min.	-5.7	-3.6	0.7	3.3	9.3	12.1	15.0	14.4	13.1	6.7	2.3	-2.1	-5.7
			Mak.	19.4	21.5	26.0	33.5	36.7	40.5	41.0	42.5	38.8	34.1	27.4	19.0	42.5
Ardanuç	900	965-77	Ort.	0.6	2.5	7.6	13.2	17.4	20.4	23.3	23.2	19.6	13.8	7.9	2.6	12.3
			Min	-14.8	-19.5	-11.4	-3.5	1.5	3.0	7.9	7.2	3.4	-4.0	-7.5	-13.6	-19.5
			Mak.	14.5	18.5	19.5	29.0	31.5	35.5	37.5	38.8	35.1	29.0	24.0	15.2	38.8
Şavşat	1100	965-75	Ort.	-1.0	0.0	4.2	9.5	14.6	17.2	20.3	20.2	16.7	11.6	5.9	0.0	9.9
			Min.	-19.0	-17.6	-16.0	-4.5	-1.1	0.0	4.0	5.0	1.0	-7.5	-10.5	-14.0	-19.0
			Mak.	21.5	25.0	27.0	37.8	36.5	41.7	41.1	35.5	35.2	29.0	27.8	22.2	41.7
Muratlı	250	966-78	Ort.	4.0	5.2	7.4	12.1	16.2	18.8	21.0	20.8	17.9	13.7	9.8	5.2	12.7
			Min.	-15.2	-16.1	-10.5	-3.2	2.5	2.4	9.9	10.8	4.4	0.4	-6.7	-12.8	-16.1

Tablo 19 – Yusufeli ve İnanlı Baraj Göllerinden Aylık Net Buharlaşma, mm

Monthly evaporation values from Yusufeli and Inanli reservoirs, mm

(Year) Yıllar	A Y L A R (MONTHS) I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Yıllık Top. (Annual total)
1965	11.6	15.2	59.7	83.2	136.3	161.8	182.1	191.2	158.6	80.2	46.3	24.6	1150.8
66	39.3	52.6	68.4	108.2	130.	164.2	202.7	201.	152.2	122.2	78.7	38.	1357.4
67	8.1	2.7	46.3	86.9	120.6	145.	161.	172.3	144.2	109.8	52.6	10.4	1059.8
68	D	6.4	44.9	109.8	141.8	151.4	187.	179.7	151.4	112.	69.9	17.	1171.2
69	9.8	16.5	61.2	84.7	141.1	179.7	176.4	198.5	151.4	94.4	48.3	34.	1195.9
1970	25.3	41.4	67.7	122.9	132.4	164.2	192.8	174.8	152.2	96.7	68.4	16.5	1255.3
71	12.7	25.3	60.4	98.3	137.9	147.4	196.1	177.3	180.5	98.3	54.7	6.4	1190.4
72	D	4.8	47.7	112.1	126.1	159.4	196.9	203.5	157.8	123.7	44.9	7.5	1184.2
73	D	34.6	49.1	92.3	130.	141.8	183.8	178.1	165.4	114.4	31.9	9.8	1121.
74	D	18.3	66.2	72.1	140.2	175.6	180.5	182.9	141.1	135.5	64.1	24.6	1201.1
75	9.8	8.6	48.4	122.9	133.9	177.2	195.2	188.7	151.4	135.3	58.3	0.35	1230.1
76	D	D	41.4	95.2	127.6	149.8	177.2	185.4	151.4	106.7	56.8	26.6	1118.3
77	4.8	37.3	54.0	99.	126.8	145.	179.7	187.	149.8	81.7	51.9	11.	1128.1
78	3.7	29.3	65.5	78.7	127.6	124.5	179.7	172.3	151.4	112.	36.0	11.	1091.7
79	4.8	27.3	65.5	98.3	141.8	158.6	177.9	203.5	162.6	104.4	64.8	15.2	1228.3
1980	3.7	11.0	58.3	90.	132.4	169.9	198.5	178.9	141.8	94.4	61.9	32.6	1173.3
81	25.3	38.6	63.4	82.5	112.8	165.1	199.4	188.7	165.1	116.7	47.7	40.	1245.2
Average													1182.5

This table is taken from EIE report No:37, May 1984.

Tablo 2 – Çoruh Nehri Yağış Alanı İçinde ve Çevresindeki Meteoroloji İstasyonlarının Aylık ve Yıllık Ortalama Yağışları (mm)

Monthly and annual average precipitation values for meteorological stations within and around the catchment area of Coruh River, mm

A) YAĞIŞ ALANI İÇİ (WITHIN THE CATCHMENT)

	Elevation Kot m.	(Period of observation) Gözlem Süresi Yıl (year)	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	(Annual) Yıllık Topl.
Aydıntepe	1500	14	31.5	25.7	42.2	62.6	60.0	38.2	9.7	11.3	18.0	39.0	32.5	41.5	412.1
Bayburt	1550	53	24.4	27.4	38.8	57.7	66.8	53.1	21.8	13.8	20.2	38.2	33.5	26.8	422.5
Kırık	2015	13	41.2	36.8	49.1	67.2	76.0	59.0	24.4	18.8	18.6	37.6	41.0	45.6	515.3
Pazaryolu	1481	17	32.4	32.9	41.4	64.6	53.6	46.0	15.6	10.4	19.6	32.3	34.2	43.7	427.0
İspir	1200	29	30.0	39.7	38.8	59.5	60.1	45.8	23.8	15.3	21.7	30.2	33.2	40.1	438.2
Çamlıkaya	1250	18	39.8	36.6	48.1	61.2	64.8	53.9	25.6	22.6	27.0	38.2	35.3	54.8	507.9
Kılıçkaya	1150	17	24.1	23.2	37.9	43.4	62.6	60.3	20.4	28.2	22.3	29.3	29.4	36.3	417.4
Yusufeli	611	22	18.6	16.7	25.7	33.9	42.4	43.7	24.3	15.2	16.9	20.3	25.1	24.4	307.2
Tortum	1070	29	28.1	29.5	38.7	55.4	67.8	62.4	35.5	23.8	19.7	37.5	32.5	25.6	456.3
Uzundere	1300	14	11.6	14.6	18.4	34.9	51.7	48.7	27.3	17.1	12.7	26.7	20.2	15.6	301.5
Narman	1700	24	20.4	20.9	30.4	48.1	70.4	64.6	33.6	31.0	17.6	31.3	27.3	18.7	414.3
Oltu	1275	24	19.4	22.4	26.4	42.1	65.4	55.1	42.5	23.2	18.8	28.3	23.4	18.3	385.3
Olur	1300	24	19.9	21.0	28.7	47.6	62.3	52.6	38.8	25.1	17.8	27.5	28.3	24.2	393.8
Şenkaya	1850	19	14.5	15.6	25.0	48.3	82.1	67.3	39.5	31.6	23.5	36.7	23.6	15.9	423.6
Demirkent	500	17	22.1	18.8	26.2	38.4	48.2	43.1	20.9	26.0	17.2	26.2	22.8	32.0	341.9
Zeytinlik	350	14	25.2	30.8	22.5	38.2	41.7	42.5	15.7	27.3	17.0	36.4	40.4	50.9	390.6
Ardanuç	900	19	30.1	32.2	35.7	46.6	46.0	45.2	24.2	26.1	20.7	40.3	48.0	52.6	453.7
Aş.Irmaklar	1100	14	24.6	35.6	43.1	50.9	61.8	55.8	27.0	31.6	30.4	40.6	42.3	44.3	488.0
Şavşat	1100	22	40.3	51.9	65.4	79.0	85.0	85.9	49.7	47.5	45.7	53.6	61.8	67.1	732.9
Veliköy	1350	14	51.4	53.3	53.2	69.7	77.5	84.7	41.1	46.6	46.2	67.3	69.6	79.3	739.9
Meydancık	1050	17	67.4	58.9	40.2	50.4	59.8	63.4	32.2	45.7	40.4	65.0	76.3	103.7	705.4
Artvin	597	52	74.4	68.6	55.3	50.3	48.3	48.3	28.5	27.0	35.9	57.9	70.4	87.5	652.4
Ögdem	2000	13	18.5	24.7	31.1	50.3	53.8	47.4	22.6	21.8	16.4	33.5	24.8	38.4	383.3
Göktaş	800	5	88.0	109.9	56.0	52.6	51.3	60.6	29.9	62.4	96.5	120.7	71.9	159.3	961.1
Borçka	100	28	132.3	127.4	85.6	55.8	46.0	64.4	56.6	51.4	91.0	134.6	165.5	184.1	1194.7

Devamı Var
Continued

Tablo 2'nin Devamı

Sarıgöl (DSİ)	1300	18	30.1	34.1	38.4	54.6	56.8	61.6	32.3	27.6	35.5	41.1	47.7	55.0	514.8
Demirözü "	1720	9	16.8	12.5	26.9	49.0	74.4	49.9	13.4	8.4	17.5	34.8	25.6	22.2	353.4
Sarımeşe "	1700	12	28.4	24.0	44.6	75.4	60.4	43.0	9.4	14.2	16.0	39.4	31.1	41.1	427.0
Ozansu "	1750	9	27.2	21.6	36.0	78.4	70.8	47.4	17.3	12.6	22.2	40.4	39.9	26.8	440.6
Çalıdere "	1970	2	13.3	16.4	57.0	36.6	88.9	49.9	1912	61.4	10.2	57.6	28.2	47.3	486.0
Tortum HES."	1602	8	16.2	17.9	20.7	36.7	51.8	50.6	28.3	14.2	14.6	25.8	22.8	20.2	319.8
Yolboyu "	1150	3	13.7	10.8	17.3	27.3	37.8	27.1	32.8	20.5	9.3	21.0	12.6	22.4	252.8
Kömürlü "	1165	19	14.6	15.1	22.7	45.5	64.0	59.0	39.0	32.7	21.3	30.9	28.1	22.0	394.9
Damar "	1550	7	75.2	95.7	64.0	68.9	67.7	87.7	39.9	80.2	92.2	131.8	92.0	150.7	1046.0
Gölbaşı "	1010	5	9.6	12.3	22.6	23.3	52.4	45.0	24.2	37.5	18.8	37.1	19.3	34.3	336.4

B) YAĞIŞ ALANI DIŞI (AROUND THE CATCHMENT)

Gümüşhane	1219	52	32.7	28.1	40.1	58.5	70.6	44.7	13.1	12.1	19.9	37.4	39.6	37.0	433.8
Pülümür	1550	29	99.7	98.4	99.1	105.5	90.1	32.1	6.7	4.0	13.6	51.1	85.0	107.8	793.1
Kelkit	1430	29	22.5	23.3	35.1	50.1	53.7	43.0	11.4	8.3	16.0	29.4	28.3	24.1	345.2
Tercan	1448	27	34.1	34.5	49.7	64.3	63.4	38.4	12.7	8.0	11.5	37.0	40.9	36.5	431.0
Ardahan	1829	44	18.2	20.8	27.7	41.2	77.5	89.0	58.7	61.8	36.5	31.2	24.1	18.2	504.9
Ovacık	1300	9	34.8	40.8	48.5	72.8	74.9	59.5	30.9	33.2	25.6	50.0	36.3	46.3	553.6
Ilıca	1700	17	20.2	19.7	26.4	51.1	62.0	42.2	16.8	14.1	14.0	38.5	26.6	20.0	351.6
Sarıkamış	2092	51	36.0	42.1	52.6	63.6	83.6	72.9	48.0	32.4	30.4	43.8	41.6	35.6	582.6
Pasinler	2175	29	26.1	27.0	33.3	51.9	62.5	43.6	26.6	16.4	17.7	34.3	32.0	21.7	393.1
İkizdere	800	25	96.7	82.0	77.4	73.6	85.9	90.0	64.7	63.0	77.4	114.4	126.2	126.5	1078.8
Yağmurdere	1850	10	33.0	30.6	50.0	64.9	84.0	73.9	19.7	19.9	33.3	58.0	49.1	46.0	562.4
Köse	1600	16	25.1	20.6	33.3	49.4	55.0	49.1	11.7	9.9	14.8	35.6	24.7	29.4	358.6
Muratlı	53	21	152.2	133.1	107.4	95.8	65.5	111.7	83.4	104.6	151.7	211.6	197.2	236.5	1650.7
Çamili	600	15	131.8	132.1	83.9	109.6	75.7	111.8	75.5	94.4	145.2	178.9	182.6	283.1	1554.5
Kale	1520	25	26.4	21.2	36.0	58.1	75.0	53.7	17.0	14.2	17.1	32.1	30.1	32.8	413.7
Karakulak	1465	17	42.9	33.0	51.4	76.6	76.3	55.8	16.3	15.1	18.0	41.5	37.9	40.0	504.8
Ortacalar	350	13	186.0	130.7	112.8	99.2	77.0	134.1	111.1	132.1	210.4	241.1	208.3	215.7	1858.5
Karaurgan	1775	15	25.9	27.5	37.8	53.6	72.4	54.9	29.1	23.7	18.1	45.1	34.0	27.7	449.8
Göle	2000	26	26.6	35.0	43.0	61.2	86.7	89.2	72.6	56.0	38.4	39.7	34.3	32.8	608.6

Devamı Var
Continued

Tablo 2'nin Devamı

Erzurum	1869	53	25.5	28.7	37.1	52.6	73.8	54.0	29.3	18.1	25.0	45.9	36.4	22.7	449.4
Dumlu	1825	19	23.3	23.0	34.1	51.7	65.6	49.5	26.1	15.9	18.8	37.7	29.0	26.5	405.0
Aşkale	1700	16	26.7	31.8	36.6	53.7	69.4	46.5	20.0	11.5	10.7	36.3	31.4	28.8	403.4
Uzungöl	1450	13	64.0	61.0	66.2	95.7	101.0	87.7	69.2	66.6	63.5	89.1	91.9	81.7	937.6
Dikyamaç	250	17	226.7	202.2	198.3	124.6	107.8	173.2	163.2	183.5	269.1	279.2	254.2	244.6	2426.6
Hopa	33	38	203.8	154.0	141.0	93.0	86.3	133.3	138.9	173.6	227.0	301.6	219.2	227.1	2098.8
Yalnızçam	1850	18	27.9	29.4	43.1	49.4	75.2	70.0	63.0	55.1	31.6	34.0	26.2	33.6	538.5
Selim	1800	18	18.4	19.5	27.4	37.7	76.1	61.7	38.1	33.7	24.5	34.0	21.0	19.4	411.5
Erzincan	1215	51	29.4	31.4	41.6	53.7	51.8	32.6	11.4	6.5	14.4	35.6	32.9	29.7	371.0
Horasan	1540	19	25.3	25.3	37.1	49.9	60.3	54.7	30.6	22.3	13.1	30.4	33.5	24.0	406.5
Çayırlı	1525	16	41.9	22.6	56.8	65.4	78.7	39.4	13.0	13.0	16.4	42.8	38.9	27.4	456.3
Dağbaşı	1450	14	54.1	56.4	66.0	69.9	69.6	71.7	41.1	37.0	55.2	70.8	74.8	69.5	736.1
Arhavi	10	27	229.2	191.7	160.2	100.1	80.2	155.1	150.1	170.1	279.3	291.0	254.1	277.7	2338.8
Çamlıhemşin	500	14	100.3	71.5	88.4	108.2	80.3	123.6	98.0	94.1	134.0	142.2	173.3	140.1	1354.0
Kalkandere	400	17	180.4	166.7	147.2	132.4	115.8	157.5	166.7	205.0	194.8	239.4	223.3	199.2	2128.4
Rize	4	53	244.7	193.7	170.8	102.9	96.5	129.6	149.1	202.9	262.2	271.5	263.6	243.2	2330.7

Not: Tabloda belirtilen gözlem süreleri, DMİ ve DSİ istasyonlarının işletmeye açılışından 1982 yılı sonuna kadar olan periyodu kapsar. Bazı istasyonların gözlemlerinde kesiklikler vardır.

This table is taken from EIE report No: 37, May 1984

Table annex 5

Tablo Ek 5- Yusufeli baraj yeri Aylık Akım, 10^6 m^3

Monthly Flows for Yusufeli Damsite,

A Y L A R

Yıllar	X	XI	XII	I	II	III	IV	V	VI	VII	VIII	IX	Yıllık
1942	213.	400.	214.	190.	212.	340.	1400.	1871.	868.	402.	213.	172.	6494.
1943	189.	210.	202.	160.	136.	173.	520.	879.	532.	288.	176.	133.	3598.
1944	143.	155.	150.	134.	140.	313.	556.	1879.	917.	513.	207.	160.	5267.
1945	147.	161.	128.	111.	97.2	129.	390.	814.	716.	292.	145.	111.	3255.
1946	119.	117.	113.	103.	98.8	161.	476.	948.	901.	399.	257.	162.	3855.
1947	228.	175.	145.	138.	135.	344.	523.	446.	367.	195.	115.	106.	2915.
1948	122.	191.	133.	123.	114.	126.	516.	932.	900.	270.	159.	152.	3738.
1949	138.	124.	110.	102.	91.2	149.	320.	917.	499.	168.	122.	109.	2849.
1950	117.	106.	95.0	93.3	92.9	195.	643.	953.	533.	271.	140.	102.	3345.
1951	172.	143.	120.	117.	105.	171.	516.	772.	647.	268.	153.	159.	3349.
1952.	264.	198.	155.	141.	151.	189.	730.	927.	676.	370.	179.	134.	4116.
1953.	119.	115.	111.	103.	103.	109.	434.	932.	697.	324.	183.	156.	3457.
1954	133.	134.	114.	113.	113.	213.	639.	1200.	972.	550.	226.	164.	4576.
1955	148.	131.	122.	103.	97.8	143.	303.	593.	339.	114.	75.0	72.1	2241.
1956	81.5	82.6	92.6	85.5	114.	146.	485.	678.	648.	300.	146.	119.	2978.
1957	115.	103.	97.1	86.2	104.	257.	534.	824.	694.	299.	139.	113.	3370.
1958	120.	126.	117.	105.	100.	138.	494.	779.	636.	260.	131.	127.	3183.

Continued

Devamı Var

Table 5 in Devamı

1959	122.	115.	115.	116.	90.8	203.	537.	1003.	765.	325.	191	151.	3738.
1960	188.	175.	142.	207.	310.	452.	1110.	1374.	833.	450.	226.	144.	5611.
1961	121.	107.	102.	77.6	77.4	131.	451.	584.	390.	113.	62.1	57.7	2274.
1962	69.6	85.0	122.	95.0	99.7	348.	628.	880.	564.	247.	112.	104.	3354.
1963	101.	105.	106.	113.	113.	163.	934.	1638.	1472.	786.	355.	156.	6042.
1964	170.	150.	130.	117.	108.	225.	743.	1220.	906.	282.	139.	123.	4313.
1965	124.	121.	132.	110.	99.4	283.	765.	1000.	714.	314.	147.	113.	3922.
1966	174.	153.	140.	160.	152.	266.	670.	1087.	618.	268.	127.	123.	3938.
1967	113.	110.	116.	102.	88.7.	154.	520.	1211.	636.	562.	238.	174.	4025.
1968	149.	145.	183.	151.	145.	312.	1729.	1736.	944.	426.	240.	214.	6379.
1969	228.	239..	173.	148.	132.	339.	826.	1342.	559.	239.	159.	147.	4532.
1970	189.	135.	132.	118.	120.	238.	734.	621.	347.	185.	129.	117.	3065.
1975	144.	122.	121.	101.	86.8	241.	483.	1053.	714.	264.	217.	103.	3650.
1972	120.	115.	143.	104.	100.	189.	757.	819.	772.	327.	154.	160.	3760.
1973	158.	151.	114.	103.	125.	160.	420.	821.	673.	302.	115.	93.0	3235.
1974	126.	140.	116.	89.1	85.9	243.	387.	928.	454.	153.	108.	164.	2994.
1975	98.5	97.0	99.9	93. 6	81.8	197.	685.	737.	558.	210.	95.2	99.6	3052.
1976	127.	106.	85.8	99.7	96.3	227.	753.	1239.	841.	403.	166.	133.	4277.

Devamı Var
continued

Tablo IX 5 ' in Devamı

1977	178.	140.	125.	99.5	110.	207.	514.	992.	634.	282.	149.	114.	3544.
1978	140.	124.	106.	102.	137.	271.	698.	1222.	717.	361.	154.	106.	4138.
1979	121.	120.	123.	221.	137.	208.	519.	330.	771.	400.	145.	97.8	3643.
1980	155.	256.	181.	142.	128.	297.	1024.	1088.	510.	222.	126.	99.0	4230.
1981	131.	127.	127.	110.	93.8	183.	398.	756.	920.	375.	152.	116.	3519.
1982	124.	134.	133.	115.	87.7	134.	731.	1033.	579.	246.	119.	103.	3538.
Ort.	145.	145.	129.	117.	117.	220.	647.	1014.	693.	318.	161.	128.	3838.
Ort. İkişimun													251.0

Not : Yusufeli Baraj Yeri Aylık Akım Değerleri Aşağıdaki Formülle hesaplanmıştır.

$$Q_{Yusufeli} = (Q_{2305} + Q_{2321} + Q_{2323}) + \left[Q_{2322} - (Q_{2305} + Q_{2321} + Q_{2323}) \right] \times 0.150$$

This table is taken from EIE Engineering Hydrology Report, No 37, May 1984

Table annex

Tablo sk 6– İnanlı baraj yeri aylık akım, 10^6 m^3

Monthly Flows for Inanli Damsite

Yıllar	X	XI	XII	I	II	III	IV	V	VI	VII	VIII	IX	Yıllık
1942	216.	408.	218.	193.	216.	346.	1434.	1889.	874.	406.	215.	174.	6586.
1943	192.	214.	206.	162.	133.	176.	530.	889.	539.	291.	179.	135.	3651.
1944	145.	157.	153.	136.	142.	319.	563.	1905.	930.	521.	209.	162.	5342.
1945	148.	163.	123.	112.	98.1	130.	397.	843.	719.	295.	146.	112.	3286.
1946	120.	118.	114.	104.	99.7	163.	486.	996.	962.	402.	258.	162.	3885.
1947	230.	176.	144.	139.	136.	350.	530.	451.	370.	196.	116.	107.	2945.
1948	123.	193.	134.	125.	115.	128.	526.	940.	903.	272.	160.	153.	3771.
1949	139.	125.	111.	103.	91.9	151.	326.	922.	502.	170.	123.	110.	2874.
1950	113.	106.	99.7	94.0	93.7	198.	654.	960.	536.	274.	141.	102.	3377.
1951	174.	144.	127.	118.	106.	172.	525.	777.	631.	271.	154.	160.	3379.
1952	267.	200.	156.	142.	153.	191.	739.	932.	680.	373.	180.	134.	4147.
1953	120.	115.	111.	103.	103.	131.	492.	936.	701.	326.	184.	157.	3481.
1954	134.	135.	114.	114.	120.	217.	652.	1212.	976.	550.	227.	164.	4615.
1955	148.	131.	123.	104.	98.5	145.	307.	595.	342.	116.	75.8	72.8	2258.
1956	82.0	83.0	93.1	85.9	115.	148.	494.	687.	653.	302.	146.	119.	3008.
1957	115.	103.	97.1	86.2	105.	261.	543.	834.	701.	302.	140.	118.	3405.
1958	121.	120.	118.	105.	101.	191.	504.	793.	642.	263.	132.	128.	3224.

Devamı Var
Continued

Table Ex 6 'aaa Devaai

1959	123.	116.	117.	117.	91.5	207.	547.	1021.	774.	330.	193.	152.	3788.
1960	190.	177.	143.	211.	313.	463.	1135.	1398.	846.	456.	228.	144.	5709.
1961	123.	108.	103.	78.1	78.1	133.	463.	596.	397.	115.	63.1	58.6	2316.
1962	70.6	86.4	125.	96.7	102.	358.	642.	895.	574.	251.	114.	106.	3421.
1963	103.	107.	108.	115.	116.	167.	951.	1657.	1490.	797.	357.	158.	6126.
1964	170.	150.	132.	119.	109.	229.	754.	1232.	913.	285.	141.	124.	4358.
1965	128.	124.	136.	112.	102.	287.	783.	1017.	724.	319.	148.	114.	3994.
1966	176.	157.	142.	162.	154.	272.	683.	1106.	626.	271.	128.	124.	4003.
1967	114.	111.	117.	103.	90.0	156.	531.	1329.	844.	367.	241.	176.	4079.
1968	150.	147.	195.	155.	149.	314.	1767.	1788.	965.	436.	244.	216.	6526.
1969	230.	241.	180.	150.	134.	343.	836.	1358.	556.	240.	160.	148.	4576.
1970	192.	137.	134.	120.	123.	240.	745.	633.	349.	187.	131.	120.	3111.
1971	149.	126.	124.	104.	91.0	244.	4892.	1069.	723.	267.	219.	104.	3713.
1972	123.	117.	145.	106.	102.	193.	777.	832.	782.	333.	156.	163.	3830.
1973	159.	153.	116.	105.	128.	165.	431.	840.	686.	307.	117.	95.2	3302.
1974	127.	142.	118.	90.7	87.0	247.	392.	943.	461.	154.	108.	167.	3037.
1975	99.9	98.4	101.	95.0	83.2	202.	705.	750.	566.	212.	96.1	101.	3110.
1976	129.	107.	87.4	101.	97.9	231.	765.	1259.	852.	408.	168.	134.	4339.
1977	181.	142.	127.	101.	111.	209.	520.	1001.	641.	285.	150.	116.	3584.
1978	142.	126.	108.	104.	140.	276.	709.	1239.	730.	367.	157.	108.	4206.

DevaaiVar
continued

Tablo nk 6'nın devamı

1979	123.	122.	125.	124.	141.	213.	530.	899.	783.	404.	146.	98.7	3711.
1980	155.	256.	184.	144.	130.	302.	1033.	1102.	513.	223.	130.	100.	4274.
1981	133.	129.	129.	112.	96.0	137.	406.	799.	935.	379.	154.	119.	3578.
1982	126.	136.	133.	116.	89.2	136.	745.	1048.	586.	250.	121.	105.	3591.
Ort.	146.	146.	131.	119.	119.	224.	660.	1030.	701.	321.	162.	130.	3891.
Ort. Akış,mm													252.0

NOT : İnanlı Baraj Yeri aylık akım değerleri aşağıdaki formülle hesaplanmıştır.

$$Q_{İnanlı} = (Q_{2305} \cdot Q_{2321} \cdot Q_{2323}) + \left[Q_{2322} - (Q_{2305} + Q_{2321} + Q_{2323}) \right] \times 0.190$$

This table is taken from EIE Engineering Hydrology Report, No 37, May 1984

TABLO 21 - Artvin Meteoroloji İstasyonu Aylık Ortalama Bağıl Nem, %

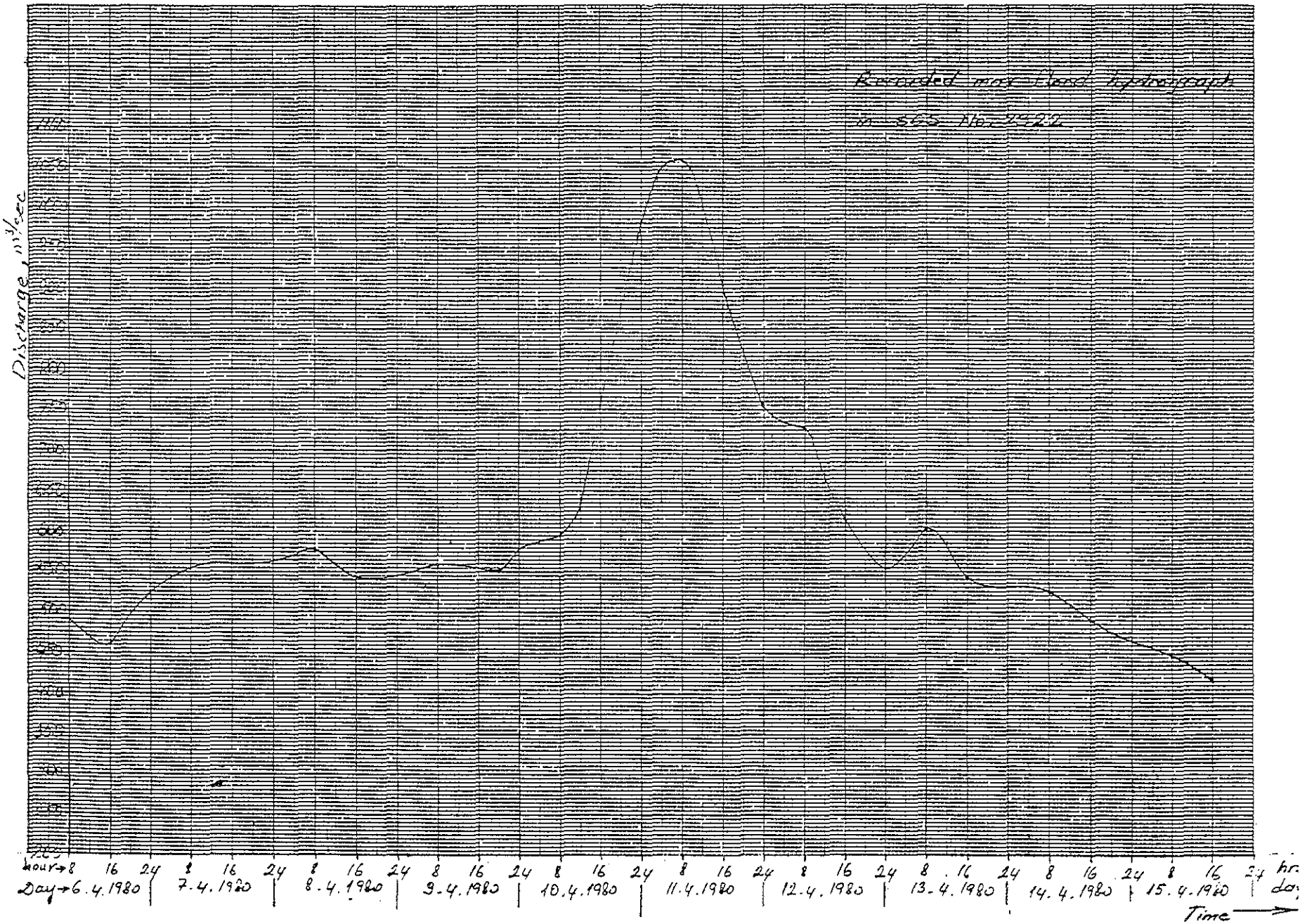
Mean monthly relative humidity for Artvin Meteorological Station, %

Year Yıllar	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Yıllık
1949	62	78	56	64	58	64	74	76	80	74	53	73	68
1950	78	70	69	48	72	68	73	72	67	74	63	53	67
1951	69	63	56	60	65	74	68	66	66	74	64	63	66
1952	58	60	53	63	64	64	69	64	54	54	53	55	59
1953	56	66	62	56	58	65	66	69	64	66	72	64	64
1954	67	60	54	61	56	66	66	64	67	59	53	58	61
1955	58	60	64	65	65	64	67	68	70	58	72	74	65
1956	62	65	67	53	68	69	68	69	73	67	72	62	66
1957	67	66	70	60	65	68	65	66	70	70	76	69	68
1958	62	63	66	66	57	63	72	69	76	70	61	60	65
1959	56	70	69	55	71	69	70	72	72	73	66	54	66
1960	61	63	55	63	58	67	70	70	72	61	59	60	63
1961	61	64	69	55	62	73	71	72	72	63	70	67	67
1962	58	59	54	68	62	72	74	71	61	61	66	65	64
1963	73	59	63	69	72	68	76	72	66	69	68	69	69
1964	66	61	59	62	68	72	71	66	71	54	71	64	65
1965	61	59	59	61	56	65	76	71	68	72	63	63	65
1966	63	61	58	60	64	66	70	71	71	52	46	63	62
1967	66	68	62	58	66	72	78	79	74	64	71	74	69
1968	67	63	62	60	70	68	69	71	65	77	64	69	67
1969	61	59	66	63	58	58	71	68	68	76	60	65	64
1970	67	60	64	53	68	70	73	73	75	69	68	70	68
1971	54	68	59	67	67	68	75	77	74	69	67	76	68
1972	63	52	63	57	69	72	76	69	73	67	67	70	66
1973	71	63	64	64	67	74	70	76	70	67	69	67	63
1974	67	55	64	66	63	66	69	74	69	56	66	67	65
1975	61	72	59	55	71	71	71	69	71	65	68	61	65
1976	68	65	62	57	68	68	64	76	68	67	48	61	66
1977	62	60	65	62	68	71	72	68	74	72	65	69	68
1978	65	63	60	69	64	66	72	74	65	66	68	71	67
Ort:	63.6	63.2	61.8	60.4	64.7	68.1	70.8	70.6	70.0	66.2	64.2	65.0	65.5

Tablo 21 Devamı- Artvin Meteoroloji İstasyonu Aylık Ortalama Bağıl Nem, %

Mean monthly relative humidity for Artvin Meteorological Station, %.

Yıllar	A Y L A R												
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Yıllık
1979	62	71	57	57	65	73	77	72	70	72	65	68	67
1980	66	61	59	65	59	62	72	70	72	56	70	61	64
1981	52	64	67	59	70	72	71	76	72	61	70	55	66
1982	63	58	61	67	74	70	84	80	76	70	66	64	69
34 Yıllık Ort.	63.3	63.2	61.7	60.6	65.0	68.2	71.4	71.1	70.3	66.0	64.6	64.6	65.6


Recorded max flood hydrograph
at SGS No. 2522
Discharge, m³/sec
hour→8 16 24 8 16 24 8 16 24 8 16 24 8 16 24 8 16 24 8 16 24 8 16 24 8 16 24 8 16 24 hr.
Day→6.4.1980 7.4.1980 8.4.1980 9.4.1980 10.4.1980 11.4.1980 12.4.1980 13.4.1980 14.4.1980 15.4.1980 da
Time

Time
hour
day
16.4.1968
17.4.1968
18.4.1968
19.4.1968
20.4.1968
21.3.1968

Discharge m3/sec
Recorded rate Hourly discharge
22.5.1973
23.5.1973
24.5.1973
25.5.1973
26.5.1973
hour
day
Time

(B) Topographic Data

Item	Description	Notes
1. Aerial photograph	Index map of existing photograph	Generally aerial photographs exist for Çoruh river basin, Yusufeli and İnanlı dam sites and power tunnel route of Inanlı HPP in scale of 1/20.000 and 1/35000.
2. Topographic map	a) Yusufeli Dam and HPP	
	- Site	For dam site
	- Area	20 hectare (1/1000)
	- Scale	1/1000 and 1/5000
	- Contour interval	For 1/1000:1 m. For 1/5000:5 m.
	b) Inanlı dam and HPP	
	- Site	Dam site
	- Area	(30 hectare) (1/1000)
	- Scale	1/1000 and 1/5000
	- Contour interval	For 1/1000:1 m. , For 1/5000 : 5 m.
3. List and data	- Triangulation net for project area	Triangulation net for project area exists
	- Level net for project area	Thalweg levels for dams are between 400m-500 m.
	- Bench-mark near the proposed project site	Yusufeli dam site is at downstream of Yusufeli township.

(C) Geological Data

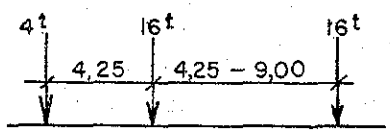
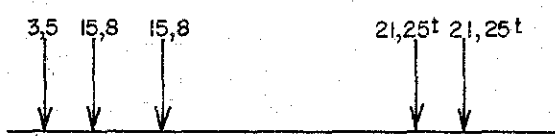
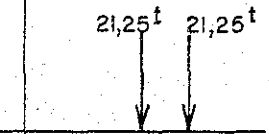
Description

Item	Description	Notes
1. Geological maps	Extensive geological maps, geological structure and their explanation related whole river basin	• Geological Maps of Çoruh Basin(1/25.000) • Geological Map of Yusufeli Damsite (1/1000) • Geological Map of İnanlı Damsite and Power Tunnel Alignment (1/5000)
2. Existing data	- Geological investigation reports • Drilling log • Permeability test • Rock test (deformation and shearing) • Reservoir investigation if any	• Engineering Geological Investigation of Probable Damsites, Reservoir Areas and Tunnel Alignments in Çoruh Basin • The Damsite Possibilities of Çoruh River • Geophysical Preliminary Study of Görgülü Landslides • Borehole logs • Adit profiles • Water pressure test results(in Lugeon units) • No rock test
3. Recorded data of earthquake		• Geological study of reservoir area • Geophysical study of Görgülü landslides
4. Company name of geological survey		• Earthquake map of Turkey • EİE

NOTE : Reports mentioned below have been given before.

1-ERTUNÇ A. (1980) Engineering Geological Investigation of Probable Damsites,Reservoirs and Tunnel alignments in Çoruh Basin.
2-ERTUNÇ A. (1980) The Damsite Possibilities of the Çoruh River.
3-İÇTEN İ. (1979) Engineering Geology Report about Çoruh-Yusufeli Damsite.
4-TEMELSU (1982) Master Plan Report for Çoruh Basin.
5-Borehole logs for İnanlı Dam Site and Havuzlu landslide.

(D) Inland Transportation Data (Between closest Harbour and Project site)

Item	Description	Notes
1. Road condition	- Road map of transportation route - Limited loading weight (t) - Limit loading dimension height × width × length	The map of highway is given in attach Normal loading.Truck of 36 ton Excess loading.Trailer of 122 ton Height: 4,5 m., Width 7,0 m.
2. Harbour facilities	- Max. harbour crane capacity (t) - Max. floating crane capacity (t) - Area of stook yard and Warehouse	Trabzon harbour : 25 ton Hopa harbour : 10 ton Trabzon harbour : 3.000.000 ton/year Hopa harbour : 700.000 ton/year
3. Cost of inland transportation	- Landing and warehouse charge - Cost of transportation - Hire charge truck car barge other	-- Approximately 90-100 TL/km. (For truck) -- -- -- --
a)For truck of 36 ton  H_{20}-S_{16} truck axle loading.	b)For trailer of 122 ton  Axle loading for Trailer of 122 ton	 ton

(This list has been prepared on the verbal request)

PERMANENT EQUIPMENT

to be manufactured

in Turkey

5-3 - For Diversion Tunnel

5-3-7 - Closure gates

5-3-9 - Hoisting equipment

5-4 - For Bottom outlet

5-4-4 - Inlet trashracks and steel lining

5-4-7 - Bottom outlet gates
(except servomotor)

5-4-8 - Bottom outlet downstream gates - conduits

5-4-9 - Gate Chamber Crane

7-2 - For Spillway

7-2-1 - Gates

7-2-4 - Hinges and Anchorages

7-2-5 - Gates Hoisting equipment
(except servomotor)

7-2-6 - Stop - logs

7-2-7 - Gantry crane

8 - Intakes and Penstocks

8-2-1 - Intake stop logs

8-2-3 - Trash racks

8-1-7 - Penstocks

9 - Power plant and Control Building

9-1-16- Sanitary system of power plant and Control Building

9-3-3 - Valve chamber crane

9-3-6 - Service water piping

9-3-10- Drainage system and pumps (depends on pump capacity)

9-3-14- Draft Tube stoplogs, Monorail crane

9-3-16- Air conditioning and Ventilation system

9-3-19- Oil storage and related equipment

Electrical Equipment

9-4-20 - Power plant Grounding system

9-4-23)- Power plant lighting system and outdoor lighting system
9-4-28)-

9-4-34 - Telephone system

11-2-25 - Cable trays

11-2-30 - Switchyard steel structure

- All kinds of transformers
  (up to 50 MVA, 154 kv)

-Elevators

(3) 面会者リスト

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日本大使館	杉崎真一	特命全権大使
〃	池田拓司	参事官
〃	松谷浩尚	一等書記官（経済協力担当）
〃	安沢隆男	二等書記官
〃	勝亦孝彦	語学研修員
ＥＩＥ（電力調査庁）	Süheyl ELBİR	総裁（general director）
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〃	Engin ERBERİK	〃
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〃	Mehmet TARAKÇI	Head of Geology & Drilling dept.
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〃	Aziz ERTUNÇ	〃
〃	Salih GÜNAY	〃
〃	Sükrü BAY	〃
〃	İhsan İÇTEN	〃
〃	Necip İBA	〃
〃	Metin ER	〃
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〃	百瀬勲	〃