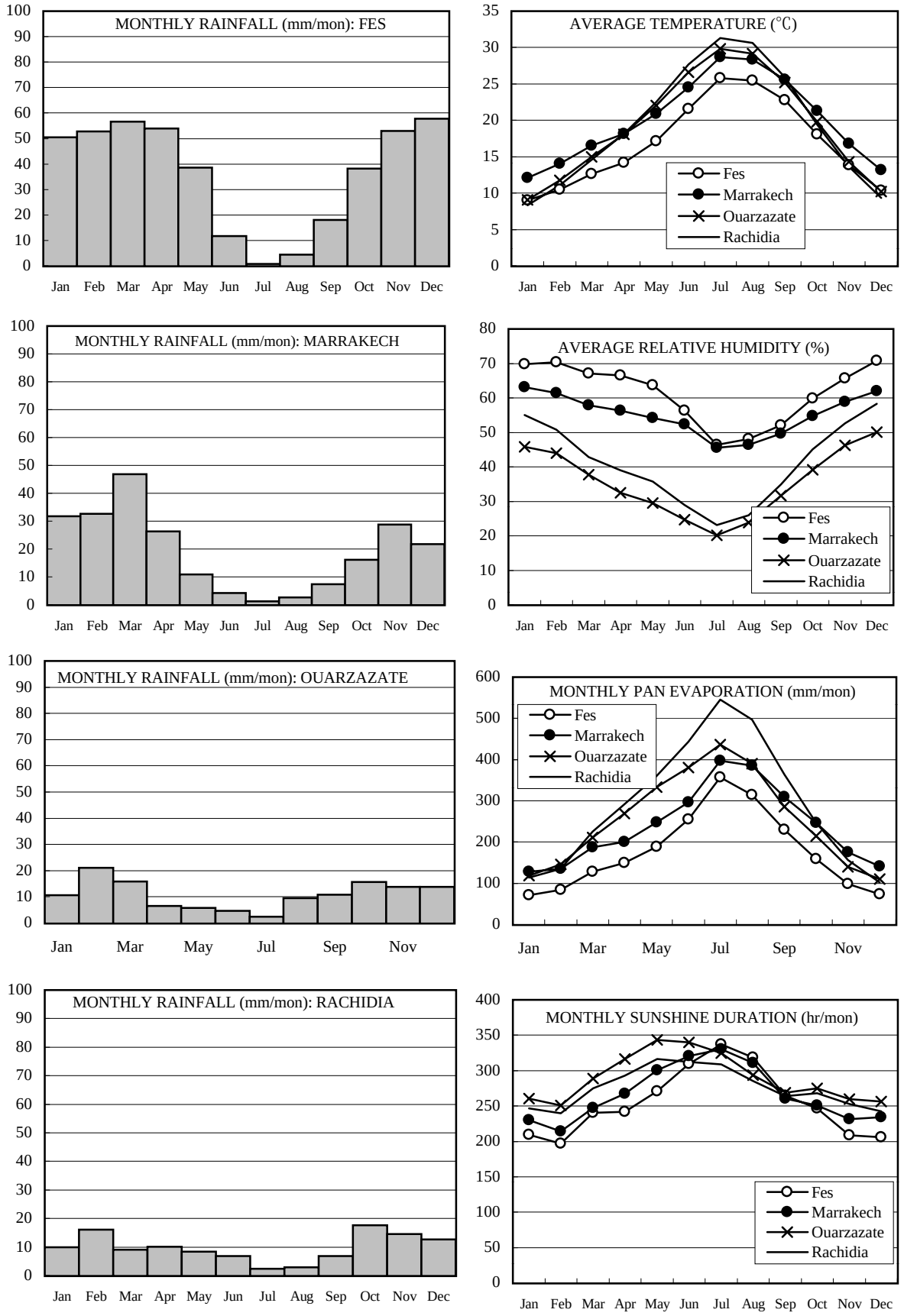
Feasibility Study on Water Resources Development in
Rural Area in
the Kingdom of Morocco
Final Report
Volume III Supporting Report (1)
Basic Study
Supporting Report II
Hydrology and Flood Mitigation

Figures



FEASIBILITY STUDY ON
WATER RESOURCES DEVELOPMENT
IN RURAL AREA

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Figure II2.3.1

Meterological Conditions at Representative Stations

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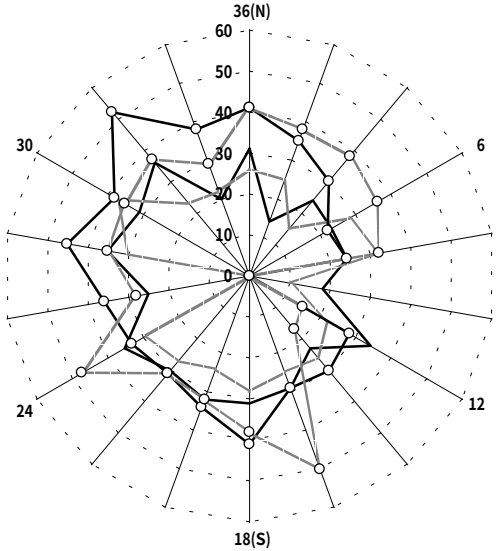
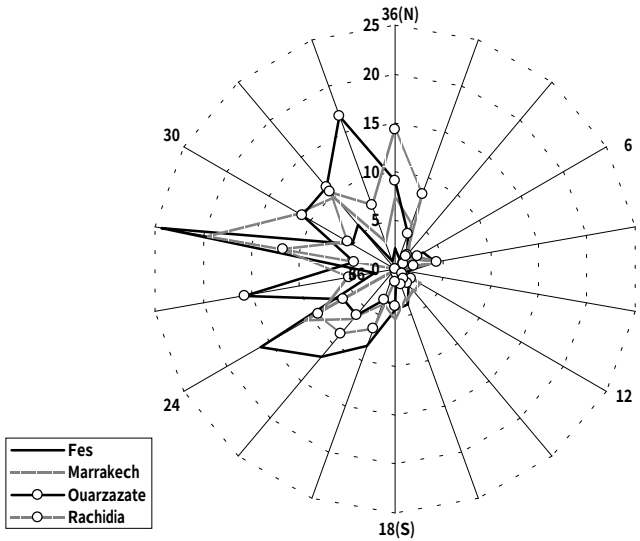
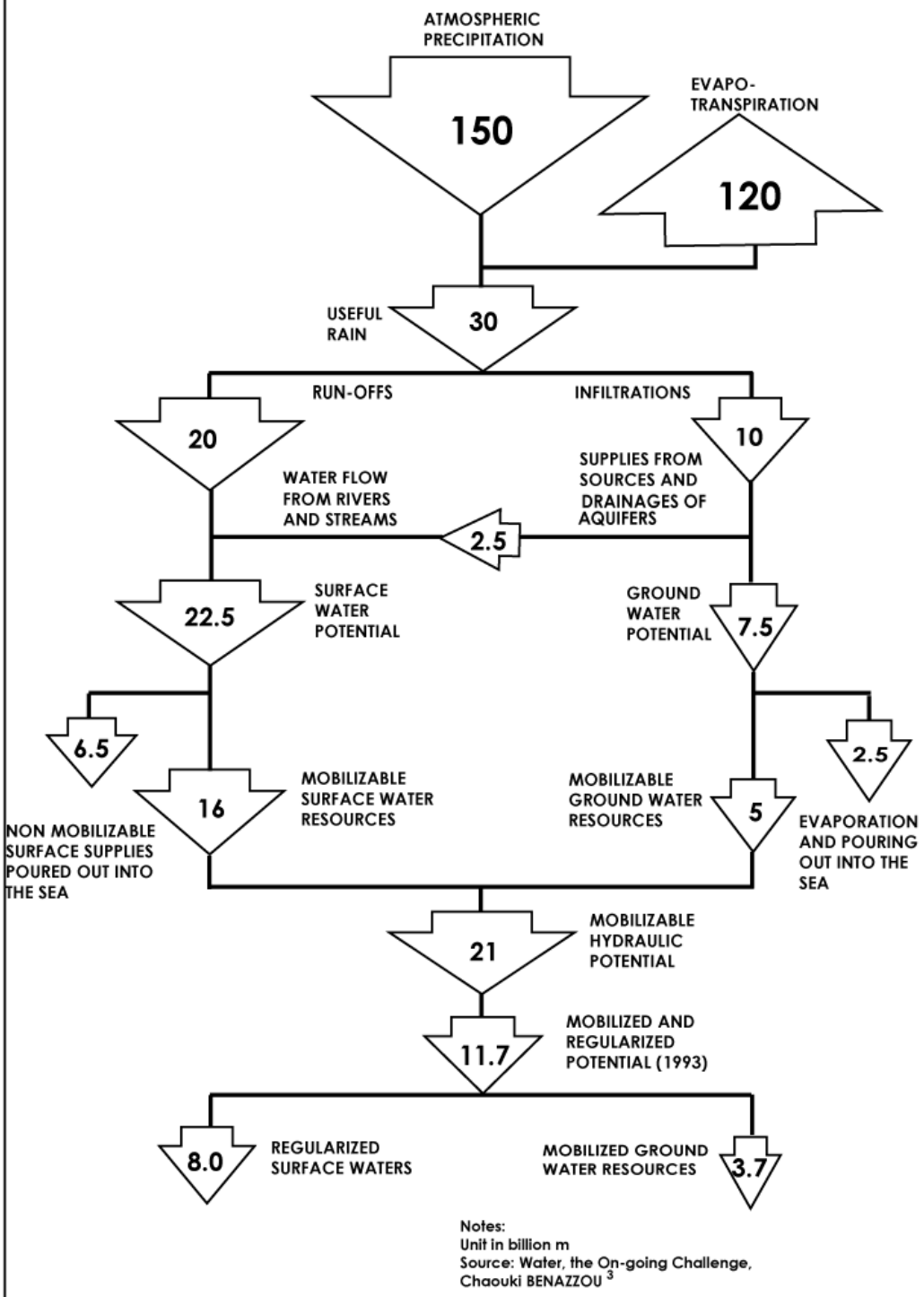
Figure II.2.3.2
Maximum Wind Speed and Direction





Wind rose	Maximum wind speed by directions (m/s)			
	Fes	Marrakech	Ouarzazate	Rachidia
36(N)	31	26	41	41
2	14	25	35	38
4	24	15	30	38
6	23	28	22	36
8	24	32	24	32
10	18	10	0	0
12	34	22	28	15
14	23	26	30	17
16	29	25	29	50
18(S)	31	28	41	38
20	32	24	34	32
22	30	27	31	31
24	35	29	33	47
26	25	0	36	28
28	35	30	45	35
30	31	37	38	35
32	36	23	52	37
34	20	22	38	29

Wind rose	Frequency by wind directions of monthly max. speed (%)			
	Fes	Marrakech	Ouarzazate	Rachidia
36(N)	2.1	7.1	9.0	14.3
2	1.3	5.0	3.8	8.2
4	1.3	2.1	1.9	1.7
6	3.4	2.1	1.0	2.6
8	4.2	4.2	1.9	4.3
10	1.3	0.8	0.0	0.0
12	2.1	2.9	1.9	0.9
14	2.1	2.9	1.9	1.3
16	3.8	3.4	0.5	1.7
18(S)	4.2	5.0	3.8	1.3
20	8.4	3.8	3.3	6.5
22	11.8	6.7	6.2	8.7
24	16.0	10.5	6.2	9.1
26	2.1	0.0	15.7	4.8
28	24.4	19.3	4.3	11.7
30	5.0	11.3	11.0	5.6
32	5.9	9.7	11.0	10.4
34	0.8	2.9	16.7	6.9



FEASIBILITY STUDY ON WATER RESOURCES DEVELOPMENT IN RURAL AREA	**Figure II3.1.1 Water Cycle in Morocco**
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Dam No.	Basin	Station name
1	Neckor R.	Takenfoust
2	Sebou R.	Tamchachate
6	Sebou R.	Tabouda
19	Sebou R.	Rhafsai
21	Sebou R.	Galez
20	Sebou R.	Boukerkour/Tissa
14	Sebou R.	Sidi Mokhfi
17	Sebou R.	Dar Hamra
4	Iquem R.	Cheikh Regnig
5	N'fifikh R.	Feddan Taba
15	B.Regreg R.	Sidi Amar
3	O.E.Rbia R.	Ait Segmine
22	O.E.Rbia R.	Tizi N'Isly
7	Tensift R.	Sidi Hssain
8	Tensift R.	Illoudjane
9	Tensift R.	Sidi Bouatmane
23	Souss R.	Amsoul
24	Souss R.	Aguenza
16	Souss R.	Tamdrouste
10	Rheris R.	Ait Bouijane
11	Rheris R.	Tadighoust
12	Guir R.	Tazouguert
13	Guir R.	Beni Yatti

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Figure II.3.3.1
Availability of Flow Records for Study

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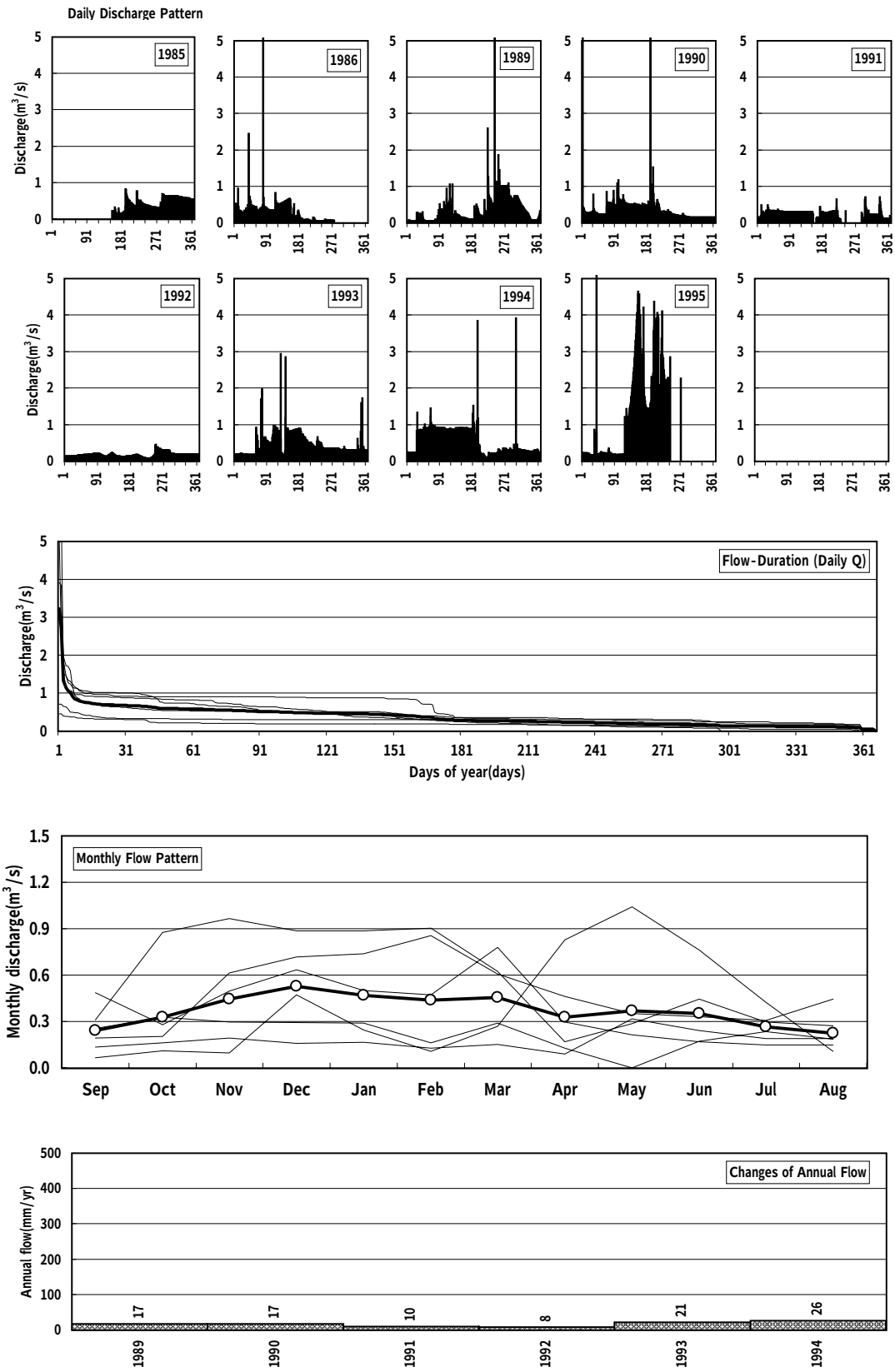
Characteristics of River Flow at Dam Sites

NO.1: NECKOR DAM (710 KM^2), REFERENCE STATION: TAKENFOUST (292 KM^2)



FEASIBILITY STUDY ON WATER RESOURCES DEVELOPMENT IN RURAL AREA	**Figure II.3.3.2 (1/25)** **Characteristics of River Flow at Dam Site**
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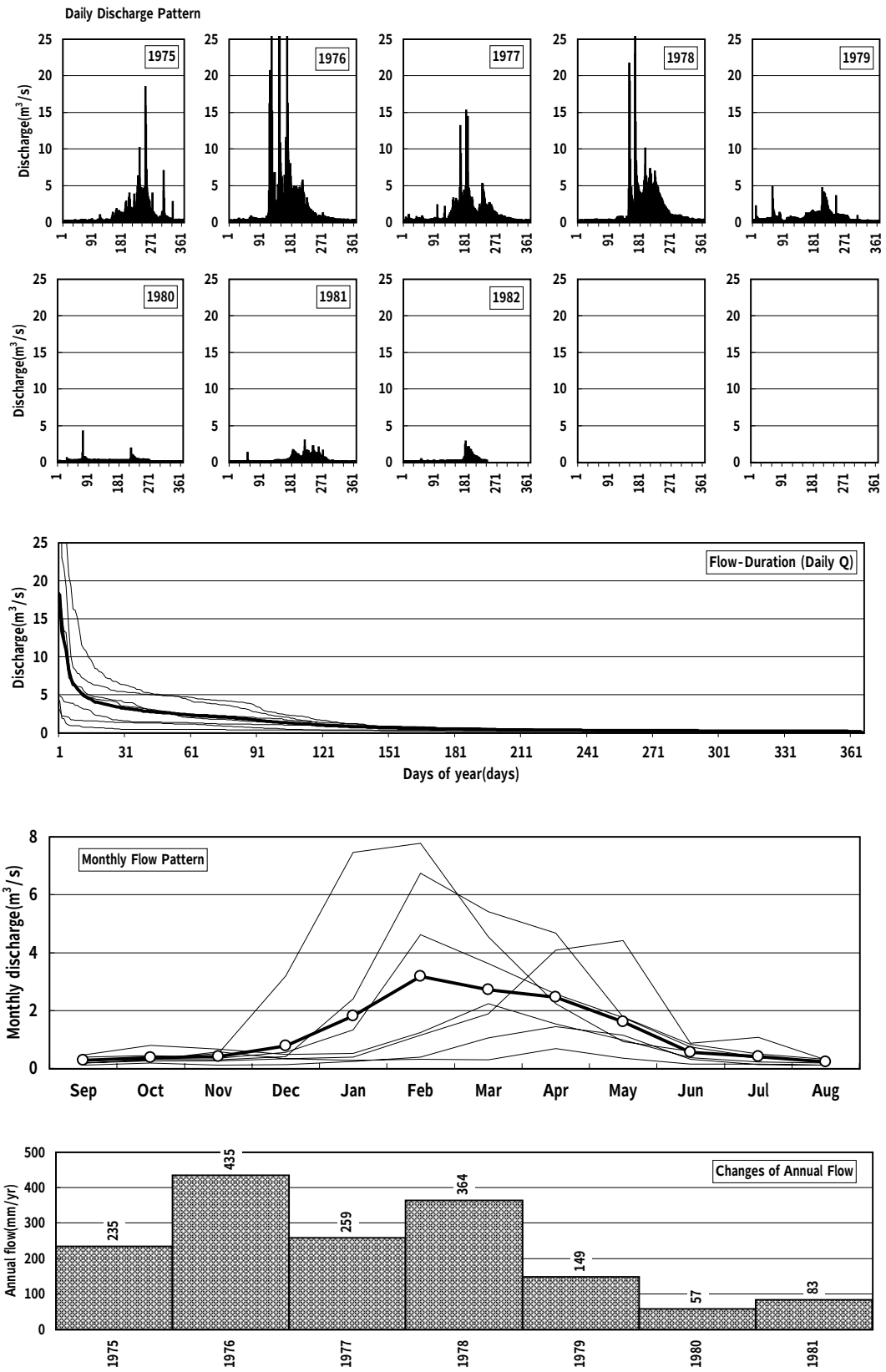
NO.2: TIZIMELLAL DAM (170 KM^2), REFERENCE STATION: TAMCHACHETE (138 KM^2)



FEASIBILITY STUDY ON WATER RESOURCES DEVELOPMENT IN RURAL AREA	**Figure II.3.3.2 (2/25)** **Characteristics of River Flow at Dam Site**
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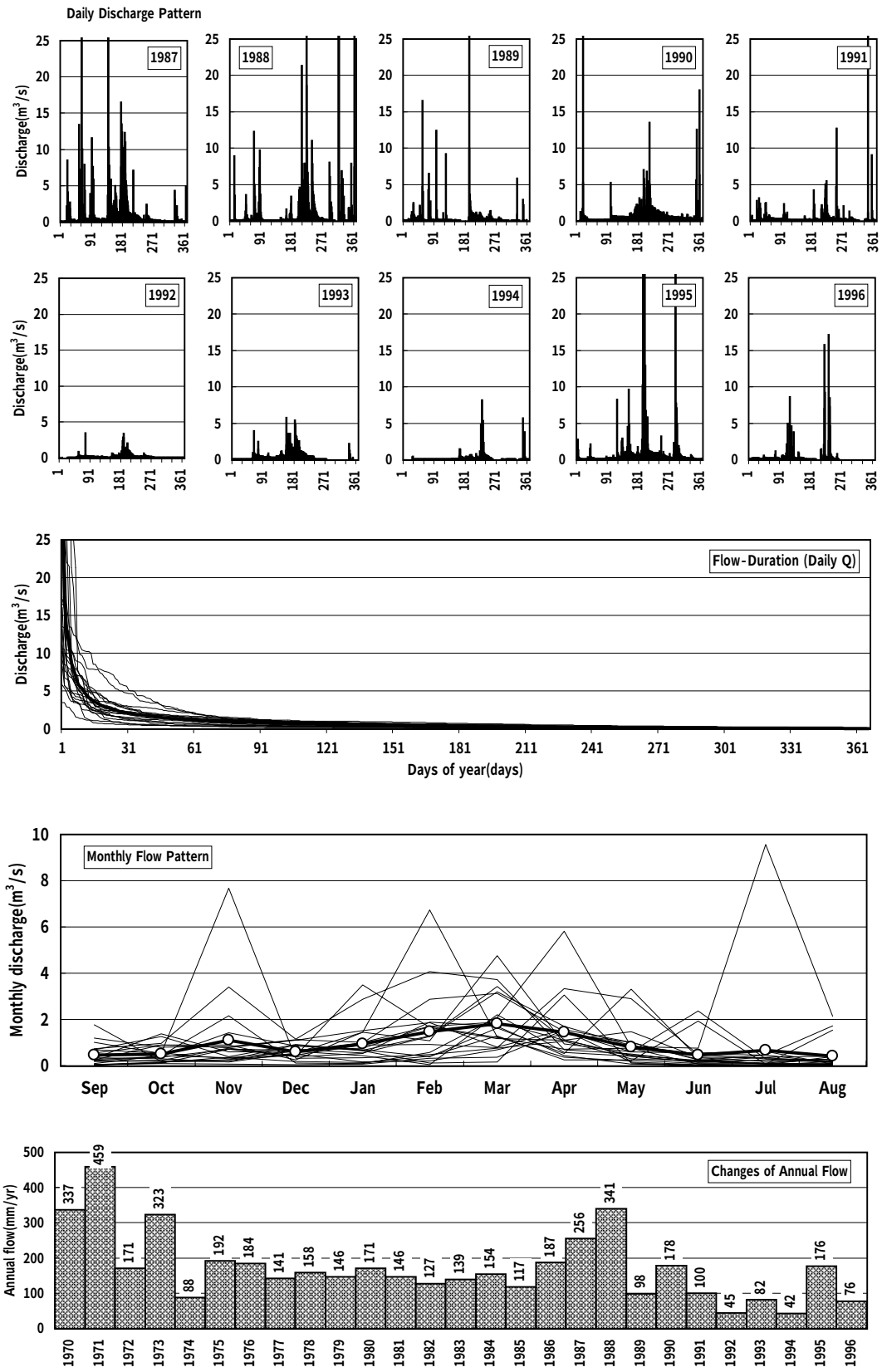
NO.3: AIT BADDOU DAM (194 KM^2), REFERENCE STATION: AIT SEGMINE (461 KM^2)



FEASIBILITY STUDY ON WATER RESOURCES DEVELOPMENT IN RURAL AREA	**Figure II.3.3.2 (3/25)** **Characteristics of River Flow at Dam Site**
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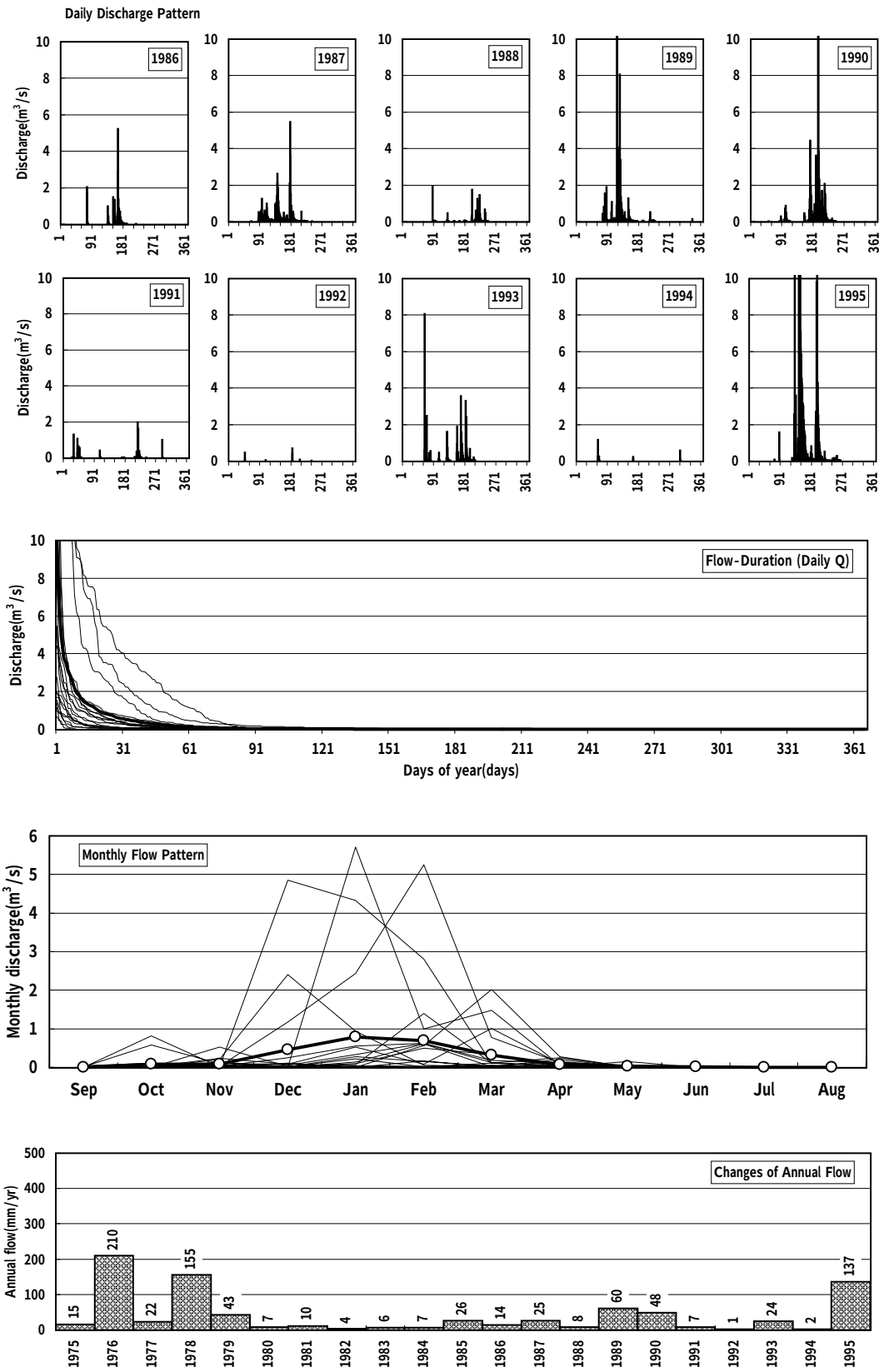
NO.4: AIN KWACHIYA DAM (162 KM^2), REFERENCE STATION: CHEIKH REGUIG (518 KM^2)



FEASIBILITY STUDY ON WATER RESOURCES DEVELOPMENT IN RURAL AREA	**Figure II.3.3.2 (4/25)** **Characteristics of River Flow at Dam Site**
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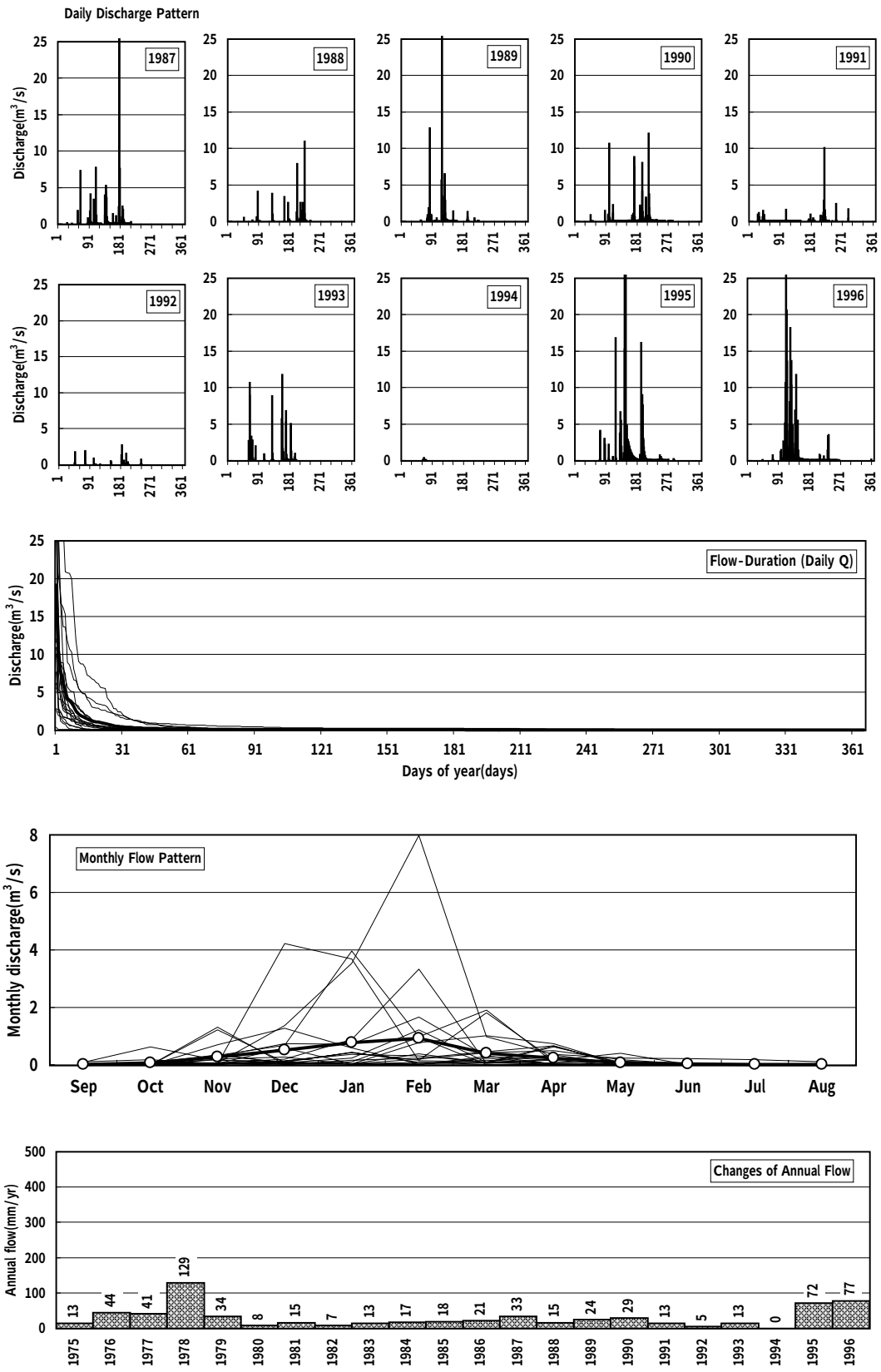
NO.5: N'FIFIKH/AIN KSOB DAM (300 KM^2), REFERENCE STATION: FEDDANE TABA (606 KM^2)



FEASIBILITY STUDY ON WATER RESOURCES DEVELOPMENT IN RURAL AREA	**Figure II.3.3.2 (5/25)** **Characteristics of River Flow at Dam Site**
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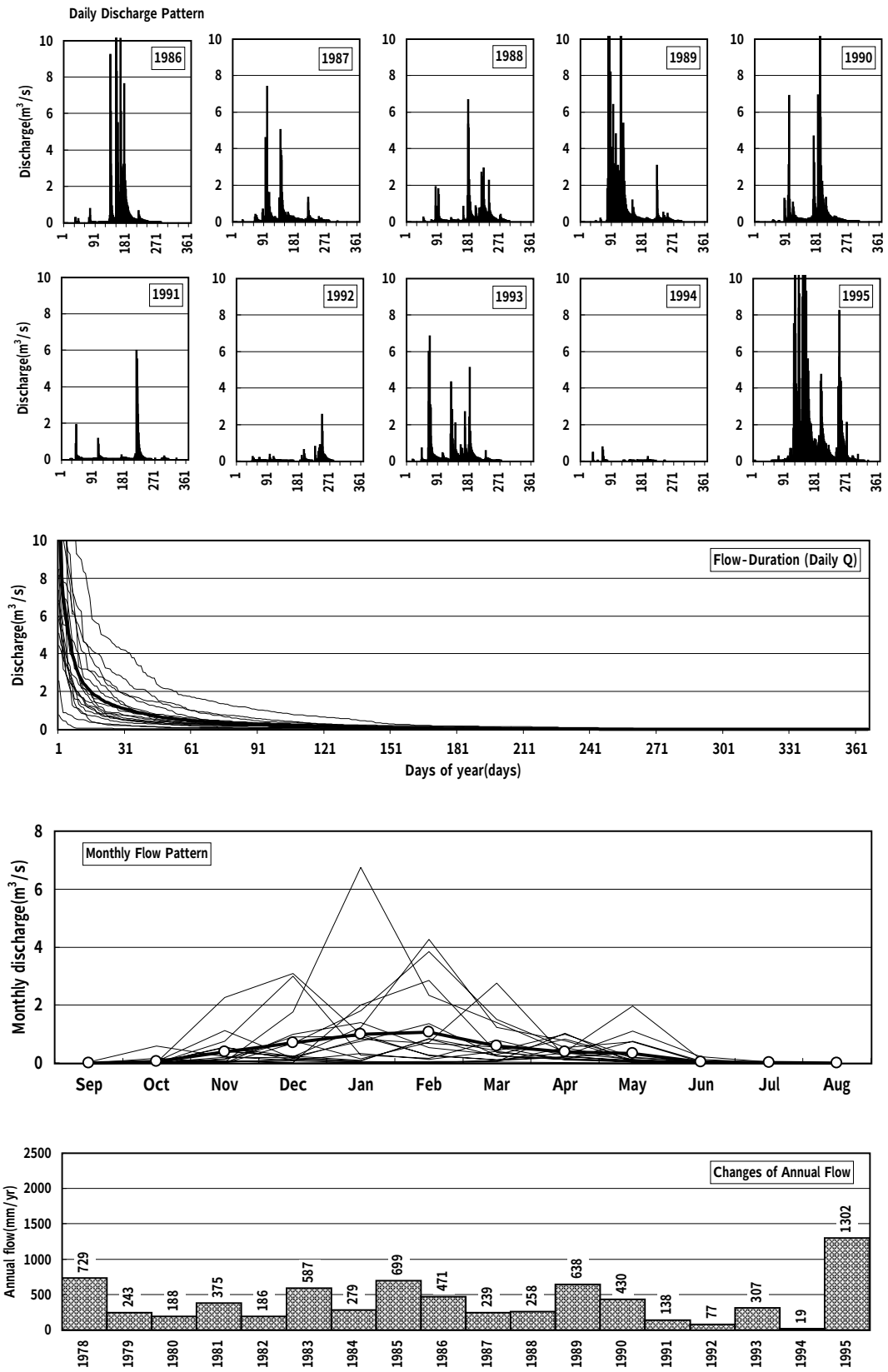
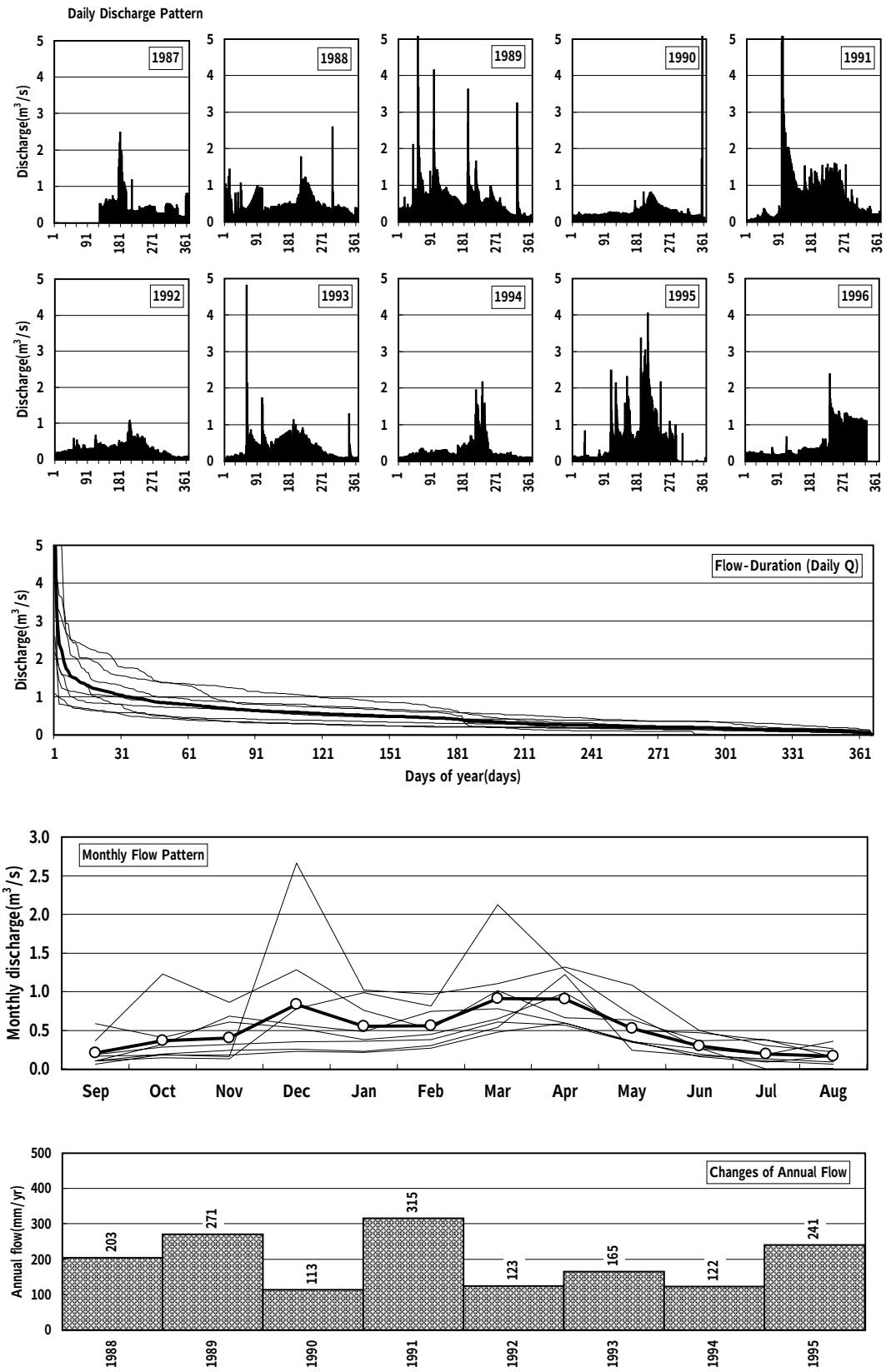
NO.6: TAZARANE DAM (30 KM^2), REFERENCE STATION: TABOUDA (861 KM^2)



FEASIBILITY STUDY ON WATER RESOURCES DEVELOPMENT IN RURAL AREA	**Figure II.3.3.2 (6/25)** **Characteristics of River Flow at Dam Site**
JAPAN INTERNATIONAL COOPERATION AGENCY	

NO.7: AMEZMIZ DAM (80 KM^2), REFERENCE STATION: SIDI HSSAIN (115 KM^2)



FEASIBILITY STUDY ON WATER RESOURCES DEVELOPMENT IN RURAL AREA	**Figure II.3.3.2 (7/25)** **Characteristics of River Flow at Dam Site**
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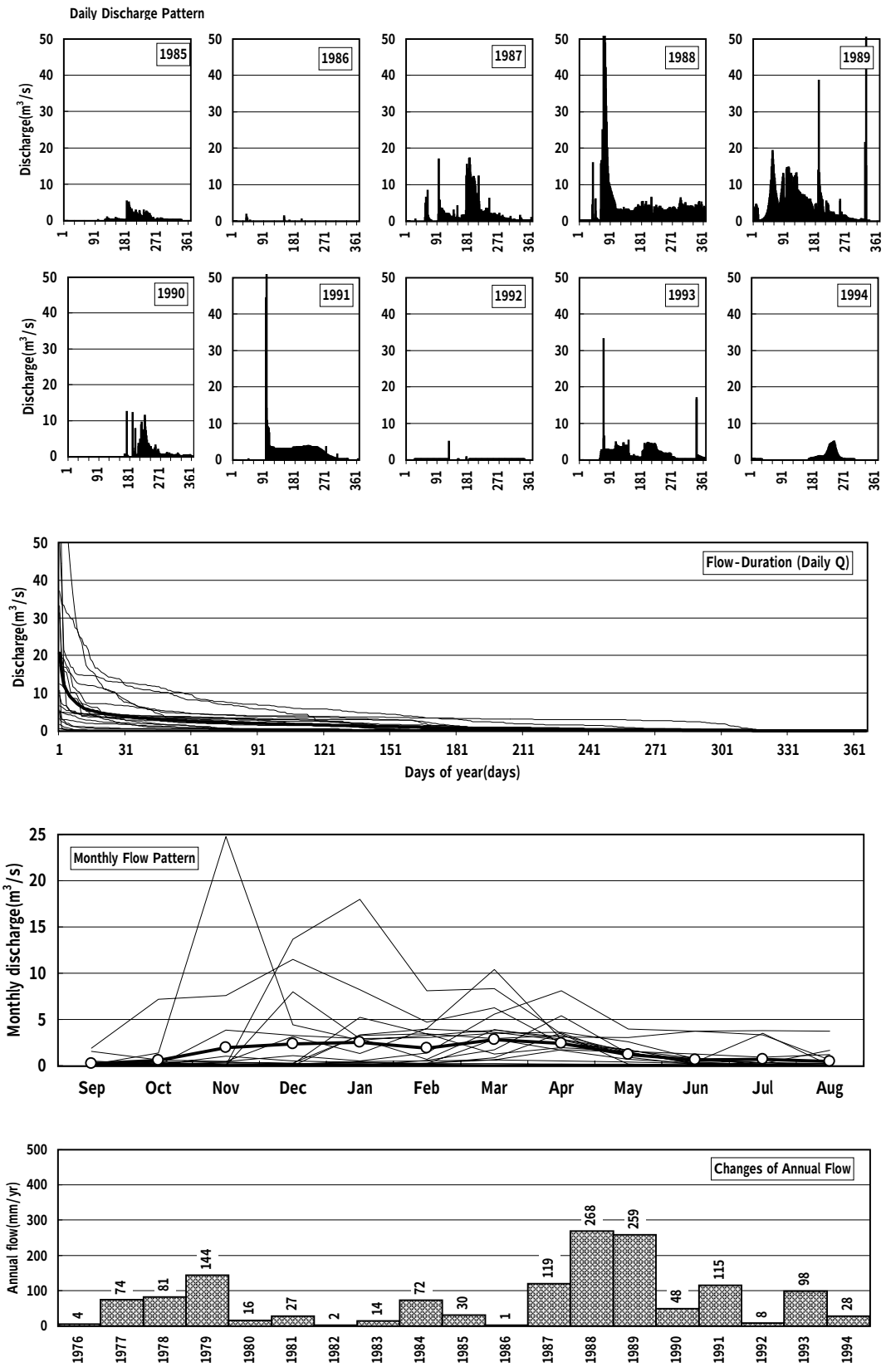
NO.8: BOULAOUANE DAM (565 KM^2), REFERENCE STATION: ILLOUDJANE (436 KM^2)



FEASIBILITY STUDY ON WATER RESOURCES DEVELOPMENT IN RURAL AREA	**Figure II.3.3.2 (8/25)** **Characteristics of River Flow at Dam Site**
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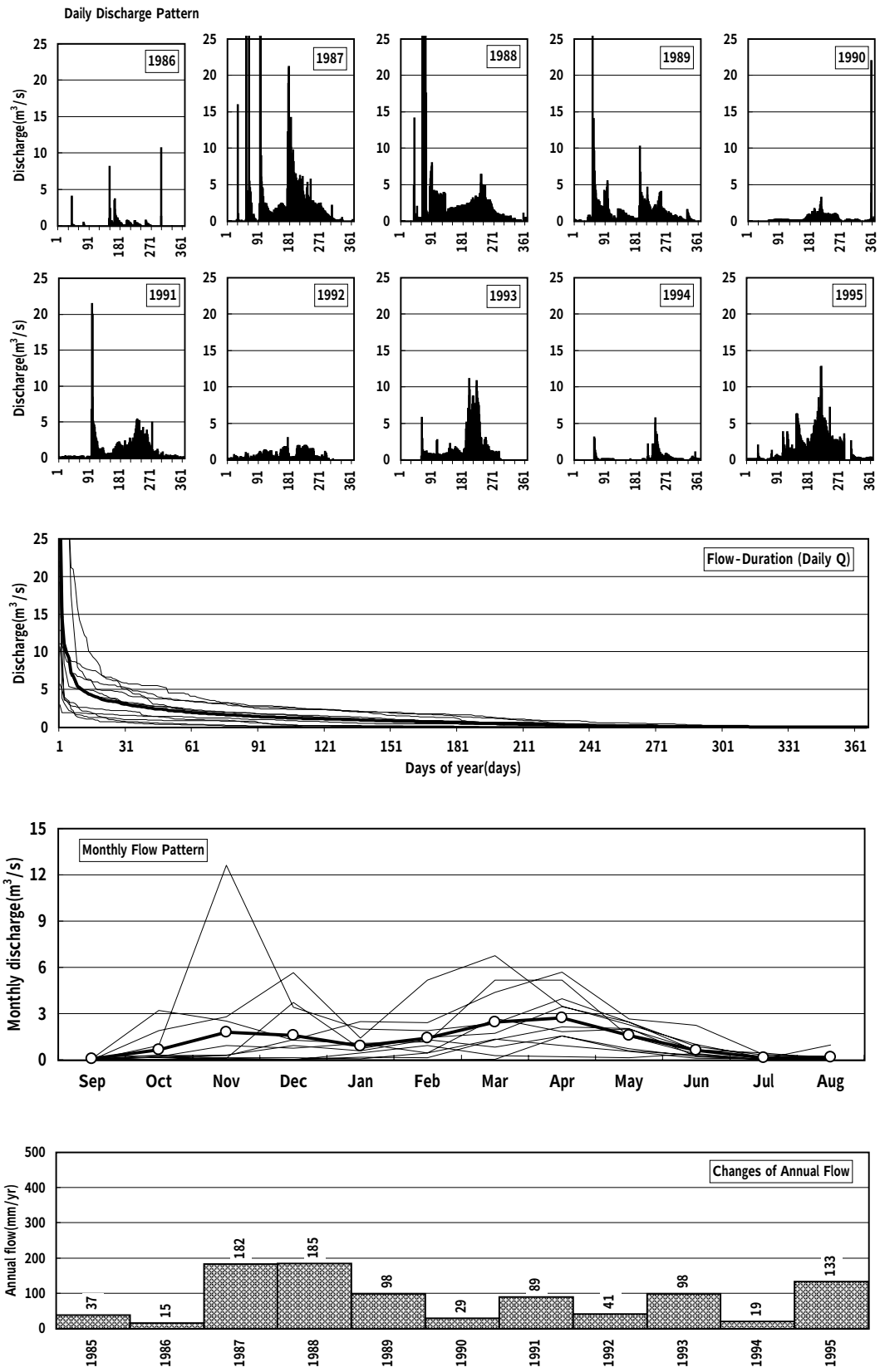
NO.9: TASCOURT DAM (439 KM^2), REFERENCE STATION: SIDI BOUATHMANE (510 KM^2)



FEASIBILITY STUDY ON WATER RESOURCES DEVELOPMENT IN RURAL AREA	**Figure II.3.3.2 (9/25)** **Characteristics of River Flow at Dam Site**
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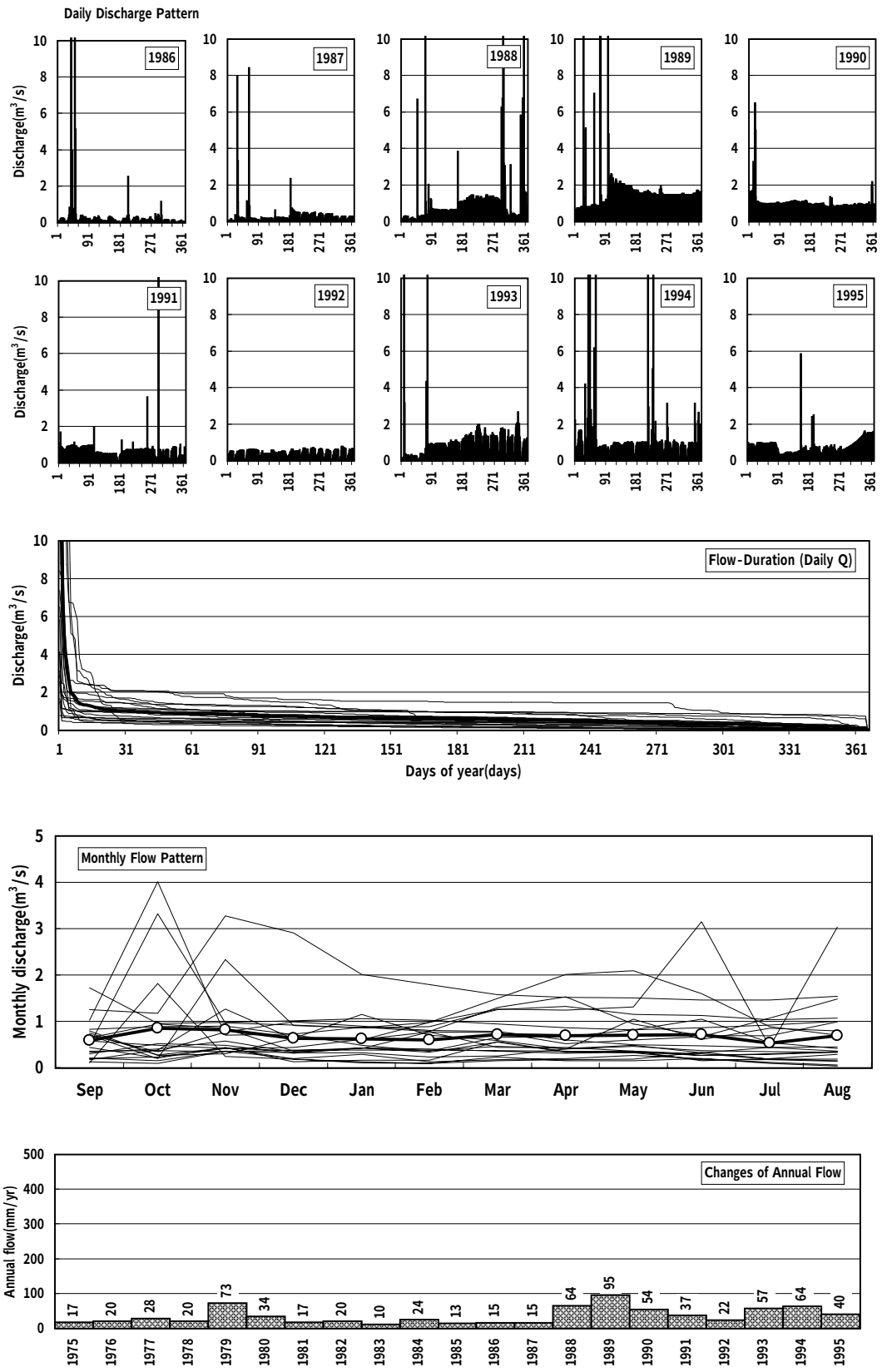
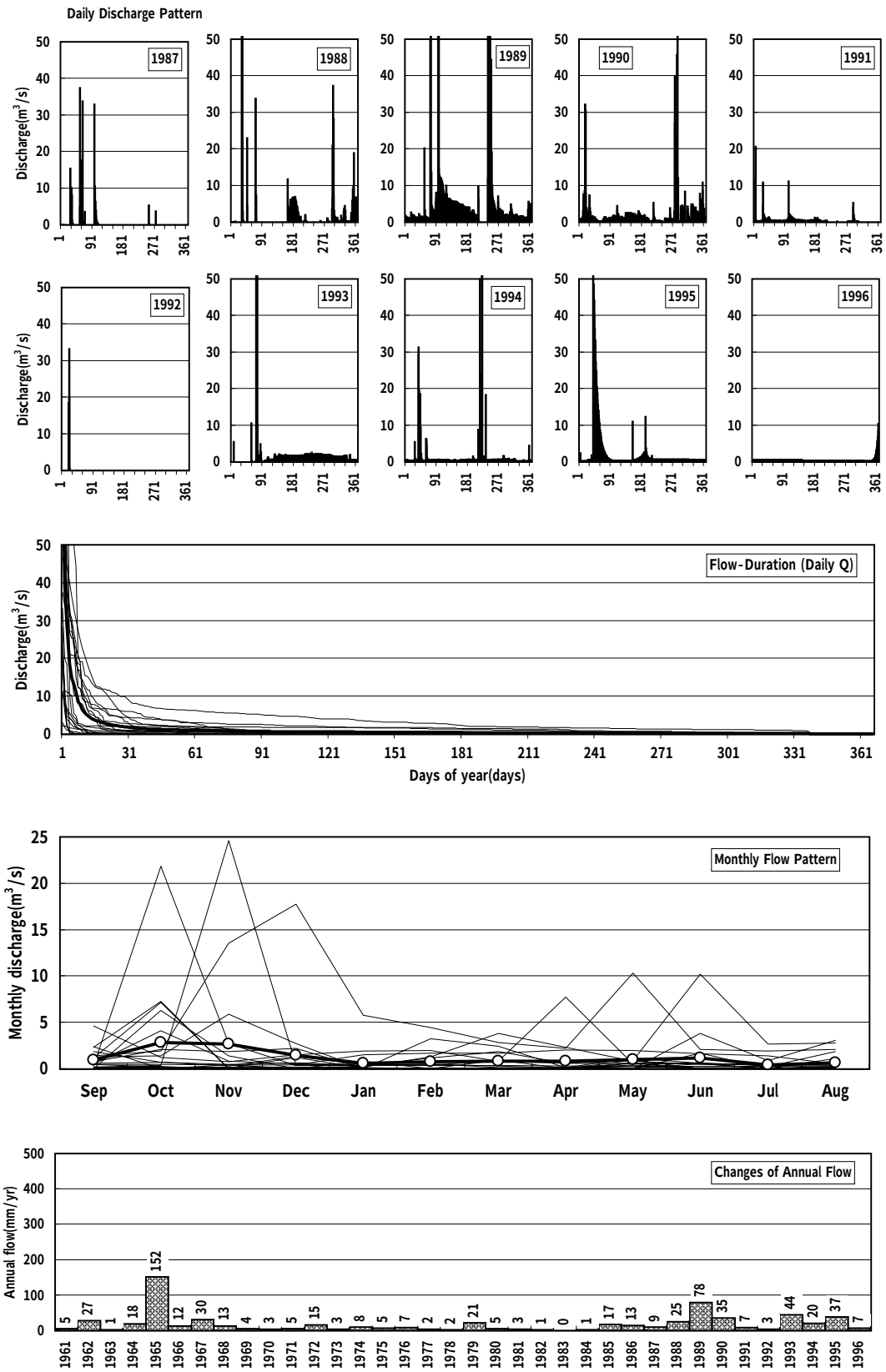
NO.10: TIMKIT DAM (592 KM^2), REFERNCE STATION: AIT BOUIJANE (702 KM^2)



FEASIBILITY STUDY ON WATER RESOURCES DEVELOPMENT IN RURAL AREA	**Figure II.3.3.2 (10/25)** **Characteristics of River Flow at Dam Site**
JAPAN INTERNATIONAL COOPERATION AGENCY	

NO.11: TADIGHOUST DAM (2239 KM^2), REFERENCE STATION: TADIGHOUST (2345 KM^2)



FEASIBILITY STUDY ON WATER RESOURCES DEVELOPMENT IN RURAL AREA	**Figure II.3.3.2 (11/25)** **Characteristics of River Flow at Dam Site**
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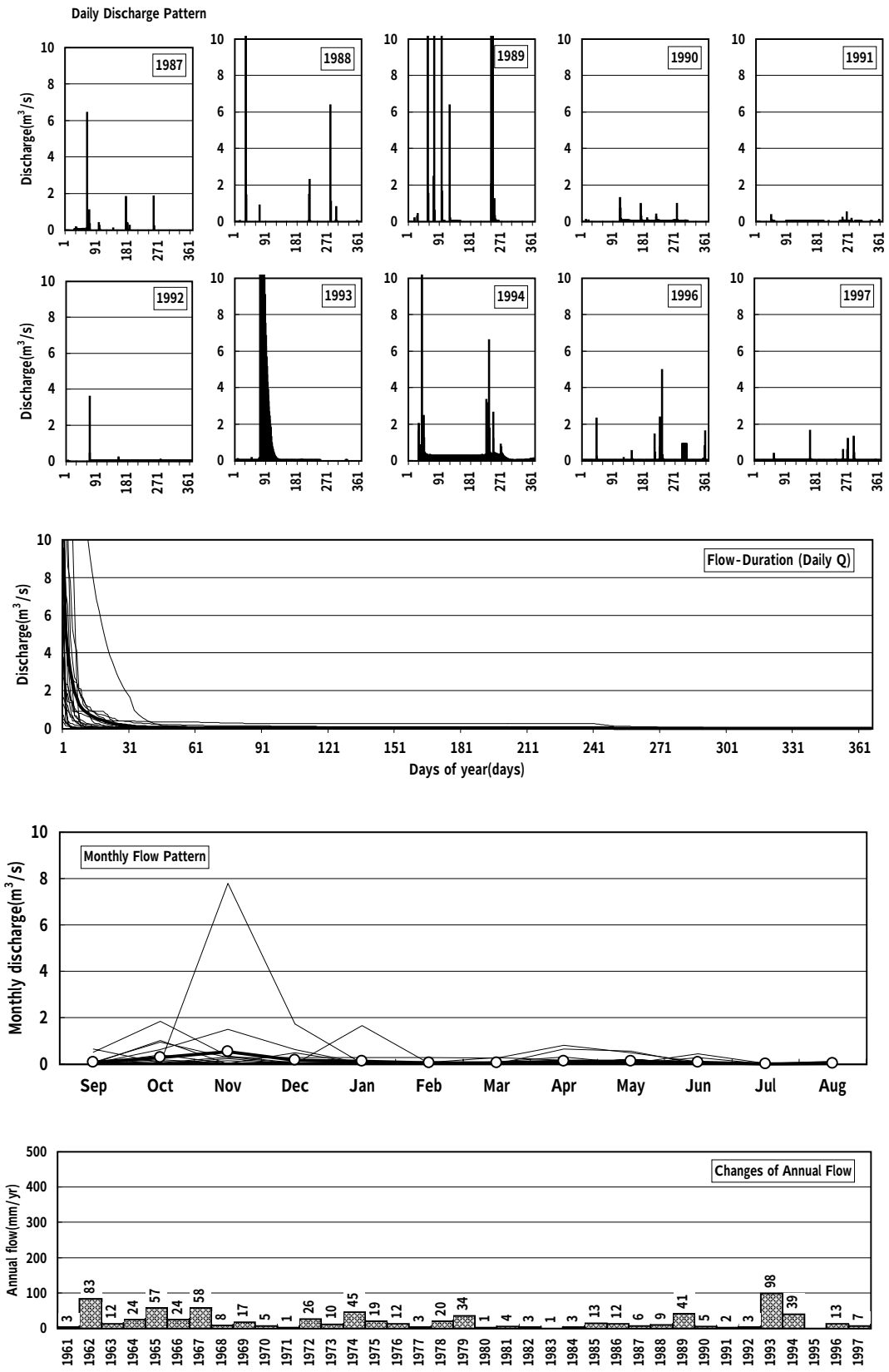
NO.12: TIOUZAGUINE DAM (258 KM^2), REFERENCE STATION: TAZOUGUERT (2392 KM^2)



FEASIBILITY STUDY ON WATER RESOURCES DEVELOPMENT IN RURAL AREA	**Figure II.3.3.2 (12/25)** **Characteristics of River Flow at Dam Site**
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