C. RUNOFF CALCULATION DATA BY RATIONAL METHOD

I. MASTER PLAN STAGE

OUED IN GREATER TUNIS AREA

- 1. ENNKHILET AND ARIANA
 - 2. GREB
 - 3. GARIANA
 - 4. MAYZETTE
 - 5. BOU KHAMSA
 - 6. AIN ZERGA

OUED IN GREATER SOUSSE AREA

- 7. HAMMAM
- 8. BLIBENE
- 9. HALLOUF
- 10. HAMDOUN

II. FEASIBILITY STUDY STAGE

OUED IN GREATER TUNIS AREA

1. ENNKHILET

OUED IN GREATER SOUSSE AREA

2. HAMMAM

RUNOFF CALCULATION DATA BY RATIONAL METHOD

I. <u>Master Plan Stage</u>

Runoff Calculation by Rational Method

(Present Land Upe)

Oued Ennkhilet Basin

	Sub-basin	JE 10	TOUT T	C. C	5	;)	S S) i	i S	(5
Point	Combination	Area	Cooff	ភ	0(1.05)	(e) O	(e) o	Q(10)	G(25)	(<u>20</u>)	9
		(aq.km)	-	(uin)	(cn.m/a)	(cu.m/a)	(cu.m/e)	(on:m/e)	(cu.m/a)	(cu.m/e)	(cn.m/p)
-		0.32	0.28	20	0.8	1,0	1.4	1.7	2.3	2,8	3.5
6	8	98'0	0.39	11	1.9	2.2	6.2	3.6	4.8	5.5	7.4
၉	1-2	0.67	0.31	20	2.0	2.4	8.8	4.0	5.3	6.5	1.6
*	1-9	0.89	0.35	28	2.2	2.7	9.6	3,4	6.0	7.4	9.5
શ	8	1.58	0.24	8	2.5	œ	1,4	5,1	6.8	9.4	10.4
છ	4	0.80	0.32	(3	2.6	0.0	4,2	5.2	6.9	8.8	10.7
7	4-5	1.22	0.32	34	2.4	2.9	9.6	₩.	6.4	7.9	9.8
В	1-6	3.67	0.29	æ	6.5	7.9	10.5	13.0	173	21.5	26.7
6	4-1	4.72	0.31	29	5.1	6.2	9.2	10.2	13.6	16.8	50.9
10	6	1.14	0.20	5	88	4.7	6.2	7.7	10.3	12.7	15:8
11	Dam No. 1	1.14	0.20	ç	3.8	4.7	6.2	7.7	10.3	12.7	15.8
75	8-10	1.67	0.25	18	6.4	5.9	7,8	6.3	12.9	16.0	18.6
5	911	2.18	0.28	83	25	5.8	7.7	6. 6.	12.7	157	19.5
*	Ð	0.25	0.20	8	1.0	1.2	1,8	20	2.7	3.4	4.2
15	818	0.29	0.20	++	6.0	-	.5	€.1	2.4	9.0	3.7
9	8-11.18	2,45	0,28	8	5,4	6.6	8.7	10.8	14,4	17.8	22.1
17	8-12,18	2.74	0.28	ŧ	4.0	6.4	6.5	1.8	10.7	13.3	16.4
9	142,18	7.48	0:30	29	7.8	9.5	12.8	15.6	20.8	26.7	3.9
2	1-13,18	7.62	0.30	73	7.4	9.0	12.0	8.41	19.8		8
8	1.4	96.0	0.24	12	33	4.1	5.4	8.7	6.9	11.0	13.7
2	Dam No. 2	96°C	0.24	12	9.9	4.1	6.4		9.9	11.0	13.7
8	14-15	07.1	0.29	12	3.6	4.4	5.9		9.7		6.41
8	14-16	8. 8.	0.36	47	4.0	4.8	6.4		10.5		16.3
2	1-16.18	98.65 6	0.31	R	10.0	12.2		:	26.7	33.1	41.1
ĸ	1-16,17-19	12.13	0:30	83	10.6	12.9		21,3			43.4
8	20	1,41	0.29	25	e9.	3.6					12.8
22	19-20	23	0.28	88	3.7	4.5			9.9		15.3
8	1-20	14.52	8	8	12.7	15.4	20.5				80
2	1-20,23	15.12	0.30	ē	11.2	13.7	18.2	22,5	29.9	37.1	0.85
8	21	0.51	0.28	69	0.5	C.E	0.9		1.3	6.1	2.0
ह	22	0.57	0.24	88	0.5	0.8	0.8	8.0	1.2	1.5	τ- (7)
8	21.22	1,08	0.28	89	1.0	1.2	1.5	1.9	2.5	3.5	9.9
88	21-22,25	1.45	0.28	88	1.1	1.3	10	CA CA	2.9		4.5
8	1-23,25	16.58	0.30	101	12.3	15.0	19.9	24.7	32.6	40.7	50.5
8	1-25	17.12		118	10.9	13.1	17.5	21.7			6,34
8	26	73.58	0,32	118	51.1	\$ 52	62.9	102.8		169.2	6'607
6	27	33.73		118	66	683		147.2		242.5	2.006
8	1.27	124.43		118	135.1	184.8	219.2	271.6	980.9	447.2	28

									,	,	-		,					r		,		·~~								,					····		····	, .	·	r
Specific	Choharga	(oum/s/eq.km)	10.9	21	12.1	103	6.7	17.8	0.0	7.3	4,4	138	13.8	10.6	0.6	18.5	12.6	0.6	6.0	4.3	4.0	14.3	14.3	8.8	6.8	¥	3.6	6	4.0	3.6	3.0	3.9	3.3	3.6	6	3.0	2.6	2.9	6.9	5.4
ရှိ	8 8	(e/m/no)	3.5	7.4	99.1	35	10.4	10.7	8.6	26.7	20.9	15.8	15.8	19.6	195	4.2	3.7	22.1	18.4	9:0	30.4	13.7	13.7	14.9	86.3	41.1	43.4	12.8	153	0.20	46.0	2.0	6	3.9	4.5	9:03	44.3	505.9	300.7	884.8
Calo.	<u>5</u>	(mm/h)	140.03	230.00	140 03 (10591	100.02	200.22	30.15	\$0.15	51.34	249.93	249.93	152.83	124.70	298.58	230.00	124.70	77.17	\$5.34	47.81	213.98	213.98	109.16	66.90	47.91	42.98	16.36	92 20	45.39	38.52	8.10	80.10	50:10	42.59	36.52	32.09	32.09	32.09	32.09
Deagn		Ĭ					8	5	ऊ	F	67	101	10	18	23	0	11	23	4	87	73	12	12	22	47	ĸ	8	25	88	€9	101	89	69	69	63	101	118	118	811	110
Calo.	2	(min)	19.59	11.07	19.58	16:47	90.05	12.96	33.69	83 68	67.03	10.10	10.10	1833	23.11	7.76	10.54	23.11	41 45	87.03	72.86	12.49	12.49	26.65	47.49	72.86	82.96	24.90	38.23	98.38	101.19	69.69	69.43	69.48	82.82	101.19	117,86	117.86	117,88	117.86
દા		(mim)																																	13.33					
ទ	(V=0.5)	(km)					1		1																						_				0,400		-			
2		។	16.67		16.67	25.00			20.83	20.63	54,17									54.17					35.00					0.07									105.00	L
9	(0,1=4)	(F	8		580	1.500			1.250	1.250	3,250								. 8	3.250	3,600			0.850	2,100	3.600	4.28		0.600	200.0	5,300				-	5,300	9 300	6,300	6.300	6,300
H		(III											-				2.79				-																			
រា	(V=1.5)	(km)															0250		7																					
710	ş	(B/tJ)	1.43	1,51	1.43	C# 1	96'	1.94	<u>2</u>		1.94	_:		2.05				1.99									Ţ		1.87	\$	<u>2</u>	o T		0.36		1.94	18.	20	8	- -
	6	(mlm)	6.	11.03	2.94	2.91	30,01	12.06	12,86	12.86	12.96	10.10	10.10	18.33	23,11	2.78	2.78	23.11	23.11	12.88	12,86	12.48	12.48	12.48	12.48	12,98	12.86	24.90	24.50	12.86	12.88	89.83	-68.49	69,49	69.49	12.06	12.86	12.86	12.96	12.96
	او			li			ł	Į.	1		1/3		1	1/10		5/			1/13		li	1/13	1		1/13		1/3	. 1)			1 1	Ø;	
Average	<u>\$</u>	တ	9	0.07000	0.14000	0.14000	0.06429	0.10657	0.10667	0.10657	0,10667	0.5500	0,15000	0.09558	0.07818	0.11250	0,11250	0,07818	0.07818	0.10657	0.10657	000000	00000	0,0800	00000	0.10667	0.10667	0.06679	0.08670	0.10667	0.10667	0.00176	0.00133	0,00133	0.00133	0.10667	0.10667	0 10657	0.10657	C.10667
	£						L	L			180				L		L	L		L								167		5			2	. 2					150	
	2			1000			L	L.			1.500		_	L	L		L			L		1,250	L	L				2.800		1.500							L	L	1.500	L
Runoff	8	-				L	L	L	L	L	0.31	L					L		Ļ	L					L			0.28					_			·			8	
Total	Arge	(sq.km)	0.32	920	29.0	0.89	18	0.60	1.22	3.67	* 3	1.14	1.14	1.67	2.16	0.25	0.29	2.5	2.74	7.46	7.62	96°C	98.0	5	2.36	998	12.13	1,41	2.39	14.52	15.12	0.51	6.57	1.08	1.46	16.58	17.12	23.58	33,73	124 43
Sub-basin	Combination		4	2	1-2	1.3	8	*	84	1-6	1-7	G	Dam No. 1	9+0	9-11	8	8,18	6-11.18	8-12,18	1-12,18	1-13,18	34	Dam No.2	14-15	14-16	1.16.18	1-16,17-18	20	19.20	1.20	1-20.23	21	- 22	21-22	21-22-25	1-23,25	1.25	26	27	1.27
Sign	Polni	:	-	2	8	4	19	8	-	•		0	111	12	5	7.	15	92	- 43	18	- 61	50		22	23	24	52	56	27	2 <u>6</u>	29	8	<u>ب</u>	83	33	ક્ર	8	8	37	8

Oued Ennkhilet Basin

Runoff Calcutation by Rational Method

(mm/h) = 403.7 x T(year) ^ 0.31 / i(mln) ^ 0.83

u.	Runoif Calculation by Rational Mathod	Mathod									
Calc	Sub-basin	Total	Runoff	Dealgn	Oalc	Celc.	Calc	Calc.	Calc	Celc	Calc
Point	Combination	Area	Coeff	9	Q(1.05)	0(2)	ල) ප	Q19	0(25)	ල්(නු	(100)
1		(6q.km)	-	(min)	(cn.m/e)	(cn m/e)	(cn.m/c)	(cn.m/o)	(cu.m/c)	(cn m/s)	(cn.m/o)
_	-	800	8	ଷ	12	4.6	6 -	2.4	3.2	33	4.9
2	2	0,36	0.44	11	2.4	2.9	3.9	4.8	6.4	7.9	9.6
6	2.	0.67	Q.42	30	2,7	3,3	4,3	5.4	7.1	6.6	10.9
4	1-3	680	0.50	58	3.5	3.9	5.5	8.4	9.5	10.8	13.1
ı,	9	1.58	0.26	8	2.7	9.3	4.5	5.5	7.3	9.1	11.3
9	*	090	0.50	13	4.1	5.0	8.8	6.2	10.9	13.5	16.7
_	4-5	1.22	0.53	34	9.9	4.8	6.4	7.8	10.5	13.1	16.2
Б	1.6	3.67	0.41	8	8.5	<u>+</u>	14.9	18.4	246	30.4	37.7
6	2-1	4.72	0.50	29	B.2	10.0	13.3	18.5	8.18	27.1	33.7
₽	6	1.4	0.20	10	3.8	4.4	6.2	7.7	10.3	12.7	15.8
_	Dam No. 1	1.14	0.20	10.	3.9	4,7	6.2	7.7	10.3	12.7	15.0
12	9-10	1.97	0.27	18	5.2	6.4	9.5	10.5	13.9	17.3	21.4
2	9-11	2.⊺6	0.34	83	6.2	9'1	10.1	12.5	18.6	20.5	25.4
7	6	0.25	0.27	8	1.4	1.7	2.2	2.8	3.7	4,5	5.8
5	9,18	0.29	0,34	11	1.5	6,1	2.5	3.1	4.1	5.1	6,3
9	8-11,18	2,45	0.34	83	7.0	9.6	11.4	14.1	18.9	23.3	28.9
<u>-</u>	8-12,18	2.74	0.39	41	5,6	6.9	1,8	11.2	14,9	18.5	52.9
Ð	1-12,18	7.48	0.46	49	11.9	14.5	19.3	24.0	91.8	39.5	48.9
2	1-13,18	7.68	0.48	52	11.3	13.8	18.4	22.8	30.3	37.5	46.8
8	14	860	0.28	12	3.6	4.4	5.9	7.3	9.7	12.0	14.8
57	Dam No. 2	98.0	0.28	12	3.6	4.4	6.9	7.3	2.6	12.0	14.8
8	14-15	5	98. O	27.	4.5	5.5	7.3	9.1	12.1	15.0	18.8
8	14-16	8.3e	0.47	47		6.9	8.4	10.4	13.6	17.1	21.2
8	1-16,19	86,6	0.47	ድ		19.5	24.5	30.5	40.5	50.2	62.3
SI SI	1461748	12.13	0.47	8	16.6	20.2	26.9	33.3	6.43	54:3	88
æ	20	1.41	38.0	35		4.3	5,8	7.1	3.5	11,6	14.8
27	19-20	8.3	0.39	88		6.3	8,4	10.4	13.8	17.2	21.3
8	1-20	14.52	0.48	8	19.4	23.7	31.5	39.0	51.9	9.3	7.8.7
S.	1-20,23	15.12	0,47	Ď	17.6	21.4	28.5	35.3	46.9	88	72.1
8	23	0.51	0.90	69	1.4	1.7	2.2	2.8	3.7	4.8	5.7
5	25	0.57	0.80	59	1.5	1.9	2.5	3.1	1.4	5.1	6.3
8	21-22	1.09	0.80	69		3.6	4.8	6.3	8.2	9.7	12.0
8	21-22,25	1.48	0.80	88		4.1	5.5	6.8	9.1	11.2	13.9
ह	1-23,25	16.58	0.50	101	20.5	25.0	33.2	41.2	54.7	67.8	1.48
8	1-25	17.12	0.51	118	19.0	23.1	90.6	38.1	9.09	62.8	77.8
8	26	73.58	0.50	118	6.87	97.4	129.8	160.6	213.4	264.5	328.0
37	27	38.73	, 8	118	73.9	89.3	118.9	147.2	186.6	242.5	2002
8	1-27	124.43	0.84	118	173.0	210.9	280.5	347.6	461.9	572.4	709.9
								1			

Sub-basin	Total	Runoff			Average s	adops		of.	25	Ξ	9	Ø	2	£5	Š.	Design	é	်န် ပ	. 03
Combination	Area	8 8	2	Ŷ	lor. Ło	9	ρ		V=1.5		(V=1.0)		(s=02)		೭	\$	<u>5</u>	Q	^
	(8q.km)	-	(km)	(m)	s	-	(min)	(m/s)	(кш)	(min)	(km)	(min)	(km)	(ulu)	(min)	(mjm)	(mm/h)	(e/w/no)	no)
1	0.32	0.33	0.250	88	0.14000	171	2.91	1.43			86	16.57			19.58	20	140.03	6	
2	0.35	0.44	000	٤	0.07000	1/14	11.07	1.51							1.07	Ξ	230.00	6.6	
1-2	0.67	0.42	0.250	18	0.14000	17	9.5	1.43			<u>5</u>	16.67			19.58	8	140.03	10.9	
1.3	0.89	0.50	0.250	88	0.14080	171	2.91	£4.			~ 8	25.80			27.81	29	105.91	131	
Ş	1.56	0.26	3.500	225	0.06429	1/16	30.01	25.							8	8	100.02	11,3	
4	0.60	05.0	3	2	0,10567	5,	12.86	<u>.</u>	-						12.96	£3	200:22	16.7	
\$- 4	1.22	0.53	8	8	0.10667	1/9	12.86	22			1,250	20.83			8368	8	8.15	16.2	
1-6	3.67	14.0	 85:	3	0.10667	<u>e</u>	12.88	3,			1,250	20.83			33.69	Š	90.18 75	37.7	
1-7	4.72	0.50	8	160	0.10667	E/-	12.86	8			3.250	7:2			67.03	63	20.00	33.7	
6	1.14	0.20	1.300	83	0.15000	1,1	10.10	2.15							10.10	2	248.93	15.8	
Dem No. 1	1.14	0.20	8	8	0.15000	1/7	10,10	2.15							10.10	5	248.93	15.8	
9.10	1.87	0.27	2,250	215	955600	1/10	18.33	202							18.33	60	152.83	31.4	
9-11	2.16	0.34	2.750	215	0.07818	1/13	23.11	1.36						-	23.11	23	124.70	25.4	
6	0.25	0.27	0.600	8	0.11250	1/9	7.76	1.72							7.78	60	299.50	89:	
6,13	0.29	16.0	0.900	8	0.11250	6/1	7.78	1.72	0.250	2.78					10.54	ï	230.00	5.3	
8-11,18	2.45	0.34	2,750	215	0.07018	1/13	23.11	88							23.11	23	124.70	28.9	
8-12,19	2.74	0.38	2.750	215	0.07818	1/13	23.11	8.			2	18.33			4.45	4	77.77	22.9	
1.12,18	7.46	0.46	200	8	0.10667	1/9	12.96	1,94			3.250	7.7			87.03	67	£. (2)	48.9	
1.13,18	7.62	0.46	8	. 091	0.10667	6/1	12.86	1.94			3.600	8.8			72.86	73	47.91	46.8	
Σ.	98.0	0.26	1.250	<u>8</u>	0.08000	1/13	12,48	1.67							12.48	15	213.99	14.6	
Dam No. 2	80	0.26	1.250	8	0,08000	1/13	12.48	1.67							12,49	12	213.98	14.8	
14-15	- 5	8 0	1,250	š	0.09000	1/13	12.48	1.67			0.000	14:17			26.65	27	109.18	188	
14-16	2.38	0.47	1.250	8	0.08000	1/13	12.48	1.67			8	8.8			97.79	47	88.90	21.2	
1-15,18	8.0	0.47	1.500	150	0.10667	1/3	12,88	¥.			3600	80.00			22.88	73	47.01	623	
1-16,17-19	12 13	0.47	8	8	0.10657	1,0	12,96	<u>2</u>			4.38	8.6			88.28	8	88	88	
. 50	- -	o.32	2.80	187	0.06679	1/15	24.80	1.97							8	52	116.36	14.8	
19-20	88	0.39	88	187	0.06579	1/15	34.90	1.87			880	13.33			39.23	88	82.20	21.3	
1.20	14 52	0.46	8	8	0.10667	6/1	12.96	8.			8,28	20.00			82.96	83	42.30	7.67	
1-20.23	15 12	0.47	8	9	0.10667	1,50	12,349	1,94			5,300	68.33			101 19	101	36.52	72.1	
21	0.51	800	78	3	0,00176	1,567	69.69	0.41							88	23	60.00	5.7	ļ
22	250	0.90	550	2	0.00133	0.00	69.43	& C							69.49	59	8 5	6.3	
21-22	8	080	8	7	0.00133	1/750	69.49	98.0							69-43	8	3	12.0	
21.22,25	.	0.80	900	2	0,00133	0/	69:49	0.36					0.400	13.33	26.29	69	8	13.9	
1.23,25	16.58	80.0	÷.	69	0,10667	1/9	12.96	1.94			2,300	88.33			61 19	ē	36.52	ž	
1.25	17.12	0.51	- 005 - 005	991	0.10667	1/3	12.86	8			989	195.8			117.86	130	32.03	77.8	
36	88	0.50	8	8	0.10667	1/9	12.08	2			8.300	105.80		!	117.86	118	838	328.0	
27	33.73	8.	1.500	160	0,10667	1/9	12,86	Ŧ.			6.300	105.00			17.98	118	32.09	2000	l
1.27	124.43	990	00311	2	0.10667	27	12.06	1.94			6.300	93.89			117.06	118	32.08	\$602	
																			١

Oved Ennkhilet Basin

Runoff Calculation by Rational Mathod

Note: I(mm/h) = 403.7 x T(year) ^ 0.31 / I(min) ^ 0.83

Runoff Calculation by Rational Method

Oued Greb Basin

(Present Land Use)

Calc.	Sub-basin	Total	Runoff	Design	Calc.	Calo	Caro	Calc.	Calc.	Calc.	C Blc.
Point	Combination	Area	Costf.	၌	Q(1.05)	Q(2)	Q(5)	Q(10)	Q(25)	Q(50)	001,00
		(sq.km)	4-	(mln)	(cn.m/s)	(cu.m/s)	(on.m/s)	(cn.m/s)	(cu.m/s)	(cn.m/s)	(s/ш'no)
1	•	1.10	0.20	15	2.6	3.2	4.3	5.3	7.1	9.8	10.9
2	Dam 1 (B.greb)	1.10	0.20	15	2.8	3.2	4.3	5.3	7.1	8.8	10.9
3	1,2	1.89	0.25	22	4.4	5.3	7.1	8.8	11.6	14.4	17.9
4	Dam 2 (R.B. A)	86	0.25	ន	4.4	5.3	7.1	8.8	11.6	14.4	17.9
5	1,2,3	2.50	0.28	8	4.7	5.8	7.7	9.5	12.7	15.7	19.4
8	18 18 18 18 18 4 18 18 18 18 18 18 18 18 18 18 18 18 18	0.83	0.36	15	3.6	4.4	5.8	7.2	9.6	11.9	14.8
7	Dam 3 (Ennasr)	0.83	0.38	15	3.6	4.4	5.8	7.2	8.8	11.9	14.8
8	2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	1.03	0.37	20	3.8	4.4	5.9	7.3	9.6	12.0	14.8
cs	1,2,3,4,5	3,53	0.30	8	7.2	B.7.	11.8	4.4	19.1	23.7	29.4
9	Dam 4 (EGU-4)	3.53	0.30	30	7.2	8.7	11.8	14.4	19.1	23.7	29.4
1	1,2,3,4,5,6	5.05	0.38	54	8.8	12.0	15.9	19.7	26.2	32.5	40.3
12	1,2,3,4,5,6,7	8.02	0.41	59	9,5	11.8	: 10:	19.2	25.4	31.5	38.1
13	1,2,3,4,5,6,7,8	7.08	0.43	7.4	8.7	11.8	15.8	18.5	25.9	32.1	38.9
14	Dam 5 (EGU-7)	7.08	0.43	74	9.7	11.8	15.8	19.5	25.9	32.1	39.8
5	1,2,3,4,5,6,7,8,9	8.23	0.43	28	9.0	11.0	14.7	18.2	24.2	29.9	37.1
16	**************************************	1.14	0.20	19	2.3	2.7	3.7	4.5	6.0	7.5	9.3
17	Dam 8 (B.Roriche)	1.14	0.20	19	2.3	2.7	3.7	4.5	6.0	7.5	9.3
18	11,12	3.29	0.28	32	5.8	7.2	9.6	11.9	15.8	19.6	24.3
13	Dam 7 (ERO-3)	3.28	0.28	32	5.9	7.2	9.6	11.9	15.8	19.61	24.3
8	11,12,13	3.80	0.28	34	6.1	7.5	10.0	12.4	18.4	20.4	25.2
23	Dem 8 (ERO-3b)	3.60	0.28	34	6.1	7.5	10.0	12.4	16.4	20.4	25.2
ដ	11,12,13,14	6.20	0.35	88	4.7	9.1	12.1	15.0	19,9	24.6	30.6
23	11,12,13,14,15	7.43	0.38	76	8.8	10.8	14.3	17.8	23.6	29.2	38.3
24	11,12,13,14,15,16	8.44	0.41	101	9.6	11.7	15.5	19.2	25.5	31.7	39.3
દર	Dam 9 (ERO-5)	9.44	0.41	101	9.8	11.7	15.5	19.2	25.5	31.7	38.3
88	11,12,13,14,15,16,17	8.78	0.41	112	9.1	11.1	14.7	18.3	24.3	30.1	37.3
27	1-9,11-17	18.01	0.42	112	17.2	20.9	27.8	34.5	45.8	56.8	70.4
82	1-17	18.97	0.42	130	15.9	19.4	25.8	31.9	42.4	52.6	85.2

ပ်မှု	Sub-beain	Total	Hunoff			Average	808		ับ	ລ	ς.	2	Œ	<u>်</u>	Decign	Oato	8	Spec
noin.	Combination	Ar88	Coeff.	9	Ŷ	ğ	9	2	8	(v=2.0)		(5,1=2)		ខ	\$	5	(30)	Diocher
		(89 km)	•	(E)	Έ	s	-	(min)	(a/w)	(km)	(min)	(km)	(min)	(min)	(min)	(mm/m)	(cu.m/8)	(cn m/8/ac
-	·	1,10	0.20	7.50	8	0,09143	17.1	15.36	8					15,38	15	177.90	10.9	8.8
2	Dam 1 (B.greb)	1,10	0.20	1.750	8	0.09143	1/11	15.36	8:					15.38	15	177.60	10.9	8.6
6	2".	1.89	0.25	1.750	8	0.09143	1/11	15.36	1.90	0.800	6.67			22.03	22	129.38	17.9	9.0
4	Cam 2 (R.B. A)	8.	0.25	084	8	0.09143	1/11	15.36	8.	0.800	6.67			22.03	22	129.38	17.9	0.6
2	1,2,3	2.50	0.28	1.750	36	0.09143	1/11	15.36	1.90	1.800	15.00			30.36	8	100,00	19.4	7.8
9	4	0,83	0.38	1.500	18	0.07000	174	15.12	1.65				-	15.12	15	177.80	14.8	17.8
2	Dam 3 (Enraor)	0.83	86.0	1.500	5	0.07000	1/14	15.12	1.65					15.12	15	177.80	14.8	17.8
8	4,5	1.03	0.37	1.500	হ	0.07000	\$V:	15,12	1.65			0.300	200	20.12	જ	1.003	14.8	14.
6	1,2 3,4,5	3.53	0:30	1.750	5	0.09143	1/11	15,35	8.	1.800	15.00		-	30.36	æ	100.02 50.03	29.4	8.3
10	Dam 4 (EGU-4)	9.53	80	8	3	0.09143	1)11	15.36	8	8	1500			9€.0€	8	2 8.88	29.4	85
11	1,2,3,4,5,8	5.65	98	25	8	0.09143	11/2	15.38	8.	8	15.00	0.700	11.67	42 03	45	75.65	£03	80
12	1,2,3,4,5,6,7	8.02	0.41	1.750	8	0.09143	Ę	15,36	1,80	1.800	15.00	1 700	28.33	29.70	83	52.58	88	9
3	1,2,3,4,5,6,7,8	20.7	64.0	82.	, 8	0.09143	17.1	15,36	8	1.800	15.00	3 800	43.33	73.70	72	47.27	688	99
14	Dam 5 (EGU-7)	2.06	0,43	82	202	0,09143	1/1	15.38	8.	1.800	15.00	2.600	43.33	73.70	24	47.27	688	55
5	1,2,3,4,5,6,7,8,9	8.23	0.43	1.750	8	0.09143	1//1	15,36	8.	1.800	15.00	60.4	66.67	87.03	28	37.78	97.1	4
16	11	1,14	0.20	2.88	5	0.07000	1/14	18.87	1.77					18.87	61	146.12	6.0	89
17	Dam 6 (B.Roriche)	1,14	0.20	200	9	0.07000	1/14	18.87	1.77					18.87	18	146.12	8.6	άΰ
19	11,12	3.29	0.29	5.00 5.00	140	0.07000	1/14	18.87	1,77	1.800	13.33			32.21	æ	96.98	24.3	7
19	Dam 7 (ERO-3)	3.29	0.28	5 8 8 8	140	0.07000	1/14	18.87	1.77	1.800	13.33			38.21	35	98.88	24.3	7.4
20	11,12,19.	3.60	0.28	5.000	140	0.07000	1/14	19.87	1.77	1.850	15.42			34.29	₩.	30.15	25.2	7.0
7	Dam 8 (EAO-3b)	3,60	0.28	2.000	140	0.007000	1/14	18.87	1.77	1.850	15.42			34.29	B	90.15	25.2	7.0
25	11,12,19,14	6.20	98.0	80.2	140	0.02000	1/14	18.87	1.77	1.850	15.42	2.000	33.33	67.62	89	50.71	306	4.3
9	11,12,13,14,15	7.43	96'0	5.000	140	0.07000	1/14	19.87	1.77	086.	15.42	2,500	41.67	96'54	18	46.24	98.3	4.9
44	11,12,13,14,15,18	9.44	0.41	2.000	140	0.07000	1/14	18.87	1.77	1.650	15.42	4,000	66.67	100.96	101	38.52	88.3	4.2
52	Dam 9 (EAO-5)	9.44	0.41	2.000	140	0.07000	1/14	18.87	1.77	1.850	15.42	4.000	28.82	100.98	101	38.52	38.3	4.2
28	11,12,13,14,15,16,17	9.78	0.41	5000	140	0.07000	1/14	18.67	1.77	1.860	15.42	4,650	27.50	111.79	112	38.51	37.3	හ
27	1-9,11-17	18.01	0.42	2.000	140	0.07000	1/14	19.87	1.77	.683	15.42	4.650	77.50	111.78	112	38.51	70.4	ဗ
53	1.17	18.67	0,42	2.000	140	0.07000	1/14	18.81	1.77	98.	15.42	6,750	85.83	130.12	130	29.61	65.2	3.5

Qued Greb Basin

Punoff Calculation by Plational Method

Note: 1(mm/h) = 403.7 x T(year) ^ 0.31 / 1(min) ^ 0.83

Runoff Calculation by Rational Method

Oued Greb Basin

Calo.	Sub-basin	Total	Runotf	Design	Calo.	Carlo.	Calc.	Calc.	Calc.	Calc.	Calc.
Point	Combination	Area	Coeff	Þ	Q(1.05)	(Z) O	(S)	0(10)	Q(25)	Q(30)	Q (18)
		(sq.km)	4	(min)	(cn.m/s)	(cn.m/s)	(cu.m/s)	(cn.m/s)	(cn.m/s)	(cu.m/s)	(cu.m/s)
-	+	1.10	0.20	15	2.6	3.2	4.3	5.3	7.1	8.8	10.9
2	Dam 1 (B.greb)	1.10	0.20	15	2.8	3.2	4.3	5.3	7.1	8.8	10.9
က	1,2	1.89	0.39	22	8.8	6.3	11.0	13.7	18.1	22.5	27.8
*	. Dam 2 (R.B. A)	1.99	0.39	22	8.8	8.3	11.0	13.7	18.1	22.5	27.9
ĸ	1,2,3	2.50	0.44	S	7.4	9.1	12.1	15.0	19.9	24.8	30.6
ဖ	4	0.83	0.62	15	6.2	7.8	10.0	12.4	16.5	20.5	25.4
7	Dam 3 (Ennasr)	0.83	0.62	15	6.2	7.8	10.0	12.4	16.5	20.5	25.4
æ	4.5	1.03	0.65	20	6.3	7.7	10.3	12.8	18.9	21.0	28.0
8	1,2,3,4,5	3.53	0.50	30	11.9	14.6	19.4	24.0	31.9	39.5	49.0
9	Dam 4 (EGU-4)	3.53	0.50	30	11.9	14.8	19.4	24.0	31.9	39.5	49.0
Ξ	1,2,3,4,5,8	5.05	0.59	42	15.3	18.8	24.7	20.7	40.7	50.5	62.8
12	1,2,3,4,5,6,7	6.02	0.62	28	14.4	17.8	23.4	28.0	38.5	47.7	59.2
13	1,2,3,4,5,6,7,8	2.06	0.64	74	14.5	17.8	23.4	29.1	38.6	47.8	59.3
14	Dam 5 (EGU-7)	2.08	0.84	74	16.5	17.8	23.4	1.62	38.6	8.78	59.3
क	1,2,3,4,5,6,7,8,9	8.23	0.65	28	13.7	18.7	22.2	27.5	36.5	45.2	58.1
80	4.00	1.14	0.20	19	2.3	2.7	3.7	4.5	6.0	7.5	9.3
≎	Dam 6 (B. Roriche)	1.14	0.20	18	2.3	2.7	3.7	4.3	6.0	7.5	9.3
8	11,12	3.29	0.47	32	8.8	12.1	16.1	18.9	26.5	32.8	40.7
ŧ.	Dam 7 (ERO-3)	3.29	0.47	32	8.8	12.1	18.1	19.8	28.5	32.8	40.7
ន	11,12,13	3.60	0.50	34	11.0	13.4	17.8	22.1	29.3	38.3	45.1
<u>5</u> 2	Dam 8 (ERO-3b)	3.60	0.50	34	11.0	13.4	17.8	22.1	29.3	38.3	45.1
얺	11,12,13,14	6.20	0.83	88	13.4	18.3	21.7	26.9	35.8	44.4	55.0
R	11,12,13,14,15	2.43	0.68	76	15.3	18.7	24.9	808	41.0	50.8	63.0
2	11,12,13,14,15,16	9.44	0.87	101	15.6	19.1	25.4	31.4	41.7	51.7	84.2
ĸ	Dam 8 (ERO-5)	8.44	0.87	101	15.8	18.1	25.4	4.16	41.7	51.7	84.2
28	11,12,13,14,15,16,17	9.78	0.68	112	15.1	18.4	24.5	30.3	40.3	49.8	81.9
27	1-9,11-17	18.01	0.67	112	27.4	33.4	44.4	55.0	73.1	908	112.3
8	1-17	18.87	0.67	130	25.3	30.9	41.1	50.9	67.7	83.9	104.0

Runoff Calculation by Retional Method

Calc.	Sub-basin	Total	Runolf			Average alope	edoja		o. Jo	5	z.	9	23	S Si	Deoign	Calc	Salc	Specific
Point	Combination	Area	Cooff.	3	운	ō	2	2	ş	(v=2.0)		(0, 1 = 7)		ş	₽	8	85	Diocharge
		(89 km)	÷.	(E	Ē	S	-	(cile)	(m/p)	(km)	(mim)	(km)	(min)	(min)	(min)	(mm/n)	(cn m/e)	(cn m/s/ad km)
•	1	1.10	0.20	1.750	8	0.09143	1/11	15.36	8:					15.36	15	177.80	109	8.8
സ	Dam 1 (B.grab)	1.10	0.20	1.750	8	0.09143	1771	15.36	8.					15.36	15	1.8	505	Ct)
6	.2	1.89	0.39	8	8	0.09143	17.1	15.36	8:	0000	6.67			22.03	83	128.38	27.9	14.0
4	Dam 2 (R.B. A)	1,95	0.39	8	\$	0.09143	1/1	15.38	8.	080	6.67			22.03	83	129.38	27.9	14,0
S	1,2,3	2.50	0.44	252	8	0,09143	17.1	15,36	8:	1.600	15.00			98.98	8	100.02	88	12.2
ဖ	4	0.63	90	28	5	0.07000	1/14	15.12	8.			-		15.12	15	177.80	25.4	8.6
7	Dam 3 (Ennaor)	0.63	0.62	200	5	0.07000	1,74	15.12	1.65					15.12	15	17.80	254	30.6
æ	4.5	8.	990	200	55	0.07000	1,74	15.12	1.65			0.300	5.00	20.12	8	140.03	26.0	25.3
O5	1,2,3,4,5	3.53	0.50	8	8	0.09143	1/11	15.36	8.	1.800	15.00			30.38	8	186.02	0.69	13.9
ō	Dam 4 (EGU-4)	3.53	0.50	82	8	0.09143	1/11	15.36	1.90	1.800	15.00			30.38	8	100,00	49.0	13.8
:	1,2,3,4,5,5	5.05	0.59	1 750	ğ	0.09143	1/11	15.36	1.90	1 800	15.00	0.700	11 67	42.03	42	75.95	82.6	12.4
2	1,2,3,4,5,6,7	8.02	0.62	7.0	160	0.03143	1/11	15.36	2.90	1 800	15.00	1.700	883	58.70	88	57.05	59.5	8.8
6	1,2,3,4,5,6,7,8	2.86	0.64	1,750	8	0.09143	1/11	96 51	1.90	1.800	15.00	2.600	49.33	02.67	7.2	47.27	203	D)
14	Dam 5 (EG∪-7)	7.06	0.64	750	8	0,09143	1/11	15,36	3.80	1.600	15,00	2.600	49.33	73.70	74	47.27	59.3	9.4
15	1,2,3,4,5,6,7,8,9	6.23	0.65	0.7	160	0.09143	1/11	15.35	1.90	1.800	15.00	4.000	66.87	80'26	97	37.78	56.1	8.8
18	11	1,14	0.20	2.000	140	0.07000	1/14	19.87	1.77			Ì		19.61	19	146.12	8.3	9.1
17	Dam 6 (B.Roriche)	1.14	0.20	2.000	140	0.07000	1/14	18.87	1,77					18.87	19	146.12	6.3	8
9	11,12	3.29	0.47	2,000	140	0.07000	1/14	19.97	1.77	1.600	13.33			12.25	85	94.90	40.7	12.4
ტ	Dam 7 (ERO-3)	3.29	0.47	2.000	140	0.07000	1/14	18.87	1.77	1.600	13.33			32.21	35	94,90	40.7	12.4
20	11,12,13	3.60	0.50	2,000	140	0.07000	1714	18.81	1.77	1.860	15.42			58.46	8	30.15	45.1	12.5
23	Dam 8 (ERO-3b)	3.60	0,50	8.00	6 6	0.07000	1/14	18.87	1.77	1.850	15,42			68.96	æ	30,15	1.54	12.5
25	11,12,13,14	6.20	0.63	800	54.	0.07000	1/14	18.87	1.77	1.850	15.42	2.000	33.33	57.62	88	50.71	55.0	6.9
23	11,12,13,14,15	7,43	0.66	5.000	5	0,07000	1/14	18.81	1.77	1.860	15.42	2.500	41.67	96'94	92	46,24	089	9.5
24	11,12,19,14,15,16	9.44	0.67	2000	140	0.07000	1/14	18.87	1.77	1.850	15.42	4.000	29.67	100.38	į,	38,52	642	10 60
52	Dam 9 (ERO-5)	9.44	0.87	3.000 2.000	140	0.07000	1/14	19.61	1.77	1860	15.42	₹000	68.67	100.98	Ď	36.52	64.2	88
98	11,12,13,14,15,16,17	9.78	99.0	2.000	140	0.07000	1/14	19.61	1.77	1 850	15.42	4.650	77.50	111.79	112	33,51	613	5,3
22	1-9,11-17	18.01	0.67	2.000	140	0.07000	1/14	18.87	1.77	1880	15,42	4,650	77.50	111.78	112	33,51	112.3	6.2
88	1-17	19.67	0.67	2.000	140	0.07000	1/14	19.87	1.77	689	15 42	6.750	88.83	130.12	138	29.61	1040	5.5

								(
Ě	Sub-beam	Total	Hunoti	Dead	Calc	5	o de	ğ	u de	S.	Carr
ě	Combination	¥ 189	: 200	ម្	001.09	600	6 5	10 J	6(23)	(0E) 0	100110
ŀ	•	700	5			9	3			i	
	Dec (POEA)	9 6	000	8	2 6		6.8		> u	2 2	2
•	1-2	8 90	0.20	8	90	6.0		19.0	6.63	18.9	20.5
•	61		6.24	9	•	7.4	2	2	6.9	20.2	25.0
80	Dain 2 (EGE-4)	•	0.24	32	9	-	3	12.9	16.3	20.2	23.0
10	9,13	0.00	0.23	43	9.4	7.9	10.5	13.0	17.2	21.5	29.5
٠,	1.5.19	9.70	0.22	64	10 4	12.7	16.9	20.0	27.8	84.5	42.7
0	1.4,39	13.26	0.22	16	12.7	15.5	20 6	25.5	33.9	42,1	92.2
a	Daw & REDR 1.		0.22	51	12.7	15.5	20 0	2.2.3	30.5	12.1	52.2
ā	1.5, 59		0.22	- 54	12.5	15.2	26.2	25.0	36.3	61.2	=
11	**	-	0.24	57	s a	51.0	13.4	19.0	28.3	51.4	88
ij	Dain 4 ROE 2	3	0.24	76	9.9	17.6	15.4	19.0	25.3	31.4	38.9
ņ	6.7	10 26	0.24	90	9.6	11.4	2.51	18.8	25 0	51.0	38 5
Ŧ	1.7, 15	25 60	5.23	8	20.0	25.5	39.0	42.0	35.0	69.2	98.0
19	1-0,15	27.28	0.25	8	22.3	27.2	28.2	**	2.59	75.0	ā
9	8	1 56	0.52	8	8	8.8	•	11.2	ī	18.5	200
17	Danis (D. Hichar)	1.50	0.52	30	9.6	5.0	e .	11.2	14 D	18.5	23.0
18	1-9,15	26 85	0.25	93	83	91.5	41.7	\$1.4	56.6	85.0	103.5
19	1-10.15	33.79	0.26	1.2	28.0	54.2	\$ C\$	38.4	74.0	02.0	12.
\$2	ರಿಕಾಣ ನೀಡಲಿಕ್ಕರು	33 72	0.26	74	28.6	5.43	9	98.4	74.0	92.8	181
21	141,12	4160	0.20	7.8	S	63.0	57.2	70.2	6.13	115.8	-
22	1.12, 15	42.65	0.29	98	2, 36	9,19	388	68.9	919	113.4	140.7
8	Dem 7 (EBA-1)	42.05	0.29	88	34.3	43.8	35.6	0.80	616	113.4	140.7
24	18	3 47	0.20	31	4.5	5.6	7.4	9.2	12.2	1.51	18:8
Ľ	Dani 8 (58A-5)	\$ 67	0.20	9.	\$	9.6	1.4	9.5	12.2	18	19 01
8	17	\$ 23	0.24	e e	3.2	6.4	6.9	10.5	14.0	17.4	21.5
27	16-17	6 70	0.22	36	9 6	ů.	18.9	17.2	22.0	28.4	33.2
92	Dem & (EBA-6)	6.70	0.22	36	9.9	10.0	13.9	17.3	22.0	2B.4	35.2
ຄ	15-18	* 0 ¢	G.25	47	18.5	\$2.0	28 9	57.1	45.3	61.1	75.6
8	Den 10 (EBA-6)	15 84	0.25	47	16.0	22.5	29.8	57.1	C 57	61,1	73.0
5	15-19	2	6.31	36	28.2	29.1	38.7	48.0	63.8	79.1	98
ŝ	20		6.32	45		6.2	68	10.2	16.6	13.6	200
2	79-27	2	90.00	\$	S ES	12.0	9	19.8	26 4	62.7	\$ 0.2
š	Dam 11 (284-3)	9 43	6.30	47	0.0	12.0	160	10.8	26 4	52.7	40.5
3	10.27	7 8	200		10	200	5	20		8	9
3 2	9.0		79.0	0 8	8	37.0		92.	20	102.	
86	Dani 12 (Ettambden)	:	2 8 4	,				,		5	. 5
93	29-24	3,30	0.49	91	10.0	13.5	17.7	52.0	28.2	98.2	0 33
9	23-29	4.20	0.40	ŝ	10.9	12:0	17.1	21.1	28	84.8	45.22
4		4.20	5,46	ä	50.5	12.8	2	ž	28 1	04.8	43.2
ď	10.01	29 10	0.35	1.0	38.2	46.8	62 0	78.9	102 2	128.8	157.0
3	15-26 ··	80 82	0.33	2	33.2	12.0	97.0	70.6	6 63	116.3	14.3
3	1-12, 15-26	72 63	0.31	ě	62.4	76.1	1612		166.6		296 1
Ę.	1-13, 18-26	72 80	0.31	8	614	74.8	20.5	123.3	163.9	203.1	2919
2	27	200	1	15	9		- 6		21.8	╛	33.1
<u>-</u>	1-15, 15-27	9	660	g	888	_	11.0	136.2	163 7	╛	262.3
9	1.27	86		ä	75.0	53	123 0		202 9	23.0	3112
6	28	128 78		20	78.7]	129 2	_l	212 6	_	327 0
ŝ	20	20 04	8	š i	999	1	0 00	99.6	8771	220.4	273 4
	2-6%		1	g	2,53.0	272.9	202	╛	٨	90.0	816.5

/ t(m/m) ~ 0.43
T (year) * 0.51
(1) THE POST OF
Note:

) je	Stibuseons	Tolal	Runott			Average	edob		25	5	E	23	а	Š	Declar	ğ	Cerc	Specific
Politi	Combination	Area	South	S	ŝ	₹	2	٥	\$	6 -2	-	(v=2.0)		ņ	¥	6	001.00	Decharge
†.		(bd tdw)	- 60	(Kin)	Ē	8	- 1	(MIN)	e e	E .	(initial)	(iu)	(alle	(All C)	Q.	CD CD	Co m(s)	(cu.ni/Mod fan)
- N	Day 1 (EGE-5)	300	200	3 200	200	0 06571	25	22	98	\dagger				25 75	g	100 02	1.02	9.5
-		8 60	0.20	3.500	023	0 06571	1/13	20 75	1 90	0.500	2.79			\$2.55	26	92 41	502	5,1
	13	4 47	12.4	4.500	270	000000	1/17	37.39	2.01			ļ		37,39	37	84.04	25 0	9.6
•	Den 2 (EGE4)	1 47	0.24	4.900	270	000000	113	\$7.39	2.01					37.39	31	P4. D4	0 62	5.8
	A 18	000	23	4.500	2	0 06355	1736	36.02	2.33	1.300	200	1		20 77	·	-	\$ 92	4.6
~	1-8,15	9.70	0.22	4.500	582	0 08333	1/18	30 62	2.03	1.900	2			44.98	\$	7	45.7	**
Đ	3.4, 38	19 26	D. 22	4.500	285	0 06333	1,716	38.62	2.05	2.500	13.00			30.01	5	64.69	\$5.5	3.9
9	Dam 3 (FOF4)	19 25	22	4,600	288	0.06933	18	36.52	2.03	2.500	13.89			50.91	7	62.53	25 2	3.9
2	1.9,19	13 63	0.22	4.300	265	D 06333	35	36 62	502	3,200	17.78	1		34.46	3	63.40	=	80 47
=	-	9 S	6.24	9.00	20	00000	2	95 95	1.51		1			96.09	\$	25	20.	\$.5
24	Dan 4 (BGE-2)	*5.0	0.34	9,300	, e9	0 09000	200	56 85	1.81	+		1	1	68 68	•	£ 7	2	3.0
62	6.7	10 26	0.24	300	183	99000	g.	56.58	1,61	0.500	2,78		1	59.77	2	36 26	5 95	3.6
= :	1.7.19	25 60	6.23	9 300	:63	00000	120	36.99	=	0.300	*		1	20.77	8	20 20	2	9
2	1-6.13	27.26	55	300	9	0.03000	ŝ	20 00	5	2	2		Ì	20,02	2	20.20		2,4
	6	35	0 32	2.00	Ş	0 02150		28 73	-	+	1	1	1	2	F 1	B	2	14.4
: ;	Dani 9 (D. Nicher)	6	0.52	2.000	2	022150		20 20	1 12		:		1	20 1	2	20 10 10	2	4.4
2 5	1.6, 13	20 03	20	3.500	165	92000	ē	30 00	101	1.300	2			45.52	8 7	37.00	6 00	3.7
	1410,16	33 72	9 58	\$ 300	163	0 03000	ě	00 00	1.51	3.000	2			27.50	1			•
	Detay & (Ede-4)	32 72	97.5	8	9	0 02000	200	20.00		3.300	1			73.00	1			3.6
-	1-11,19	\$ F	2.28	8	165	0.08000	2	26 38	1.61	90.7	27 22			19.23	2		0.00	3.9
8	1.12, 18	42 86	\$ 20	9,30	59	0 02000	5	38 28	1.01	200	30.36			07.53	2	40 94	160 7	6.9
2	DAIN 7 (EBA-1)	42 69	0.29	9.900	165	0.03000	133	86	1.01	3.300	20.00			67.23	2	40.04	140 7	6.6
. 	10	341	0.50	3.00	210	00000	=	30 03	25					20.01	7	2	2	'n
	Course (Estate)			8.38		00000		6 3	2		1			0.00				
8 2	11	7		2.300	2	0.0400	2	2 2					1		2	3		ě
	16-37	2	2 1	200	210	0.000.0		200	20.	200	2	1	1	20.00	3		2 6	2.2
2 2	Dain 9 (EBA-D)	2	220	3.500	210	0 28000	101	20.01	7. EB	900	8	1	1	35.37	P !	G	66	8.3
2	16-15	100	2 4	3.500	210	00000.0	111	30.00	1,63	3.000	10.07			7.49	1	20 40	2007	9.9
3 ;	1400 (COA-0)					2000		3			3				1	2		
8	98	11	8	2 2		0 02734	122	41 82	8					61.82	7.5	73 63	20.00	7.0
ş	20-21	8 63	0.39	3,500	35	0 02714	1/27	41.62	1.39	1.000	9 90			47.08	47	68.90	40.5	7.5
5	Dem 11 (E84-5)	6 43	0.30	3.530	58	0 02714	1,0,1	41.82	1.39	1.000	5 56			47.98	44	66.00	9 07	7.5
2	16.23	24 54	C.32	3.500	210	0 08000	1/1	30.01	1.69	4.500	8			55.01	2	90 28	130.0	9.3
S	10-22	24 90	6.33	3.500	210	00000	1/1	1900	8	9.300	36			61.87	=	3	126.7	7.
	23	1.13	7	2.000	S	0 02900	1/40	28 03	6.					28.09	8	102.01	8	12.9
P S	Deni 12 (Ettempden)	2 2		2,000	8	005200	140	6 2	2 .	1	,			20.05	9	10.00	9	12.0
;	26.50	2	8 0	30.0	3	00000		2 20	9	3 6				30.00	2			
	Dan 14 (58.8.5)				3 2		2	***		5	,	2			1		1	
25	16.25	20 10	. F	L	2	0 0000	15	90 81	28	8.500	30 %		-	81.37	5	35 50	15, 0	1.5
43	16.20	20 13	0.33	L	210	0 06000	1777	30.81	1.63	7.000	38.60			69 70	70	49.51	144.3	4.8
64	1-12, 15-26	72.63	16.0	L	183	00000	1/38	56.95	1.01	5.500	30.36			87.55	20	40.04	236.1	8.8
5	1-13, 15-26	72 60	10.31		163	000000	1,08	50 96	1.81	6.000	33.33			90.32	8	40.18	8162	3.9
9	27	9 63	0.58	3.500	69	0.0100	1/100	61.42	0.93					61.42	100	89.50	33 £	6.0
ç	1-15, 15-27	76 63	0.33	5.300	165	0 09000	1,00	36 96	181	5.000	33.33			90.62	8	40.16	262.5	3.7
:	127	96 95	20.00	5.300	163	0 00000	1/86	56 BG	- 6	7.000	38 89			93.69	8	60.00	3112	9.0
	200	120 78	2	1	ş	0 63000	e i	20 3	5	7.000	68 80			20 60	2 2	38.09	27.0	2.8
2	88	25 84	8 2	8		0 00000	2	8 2	=	2 000 /	8			20.5	8 2	88	273.4	10.5
	47-1	1 1 1 1 1	26.30		ē	n nonne	242	200	10.1	1.000	00.00		1	N 2.00	2	10.04	D DI N	3.6

	Runoff Calculation by Rational Mothod	athod		Oued Destena Bealn	na Bealn	:		(Future Lend Use)			
Cafe	Suchann	Total	Runoff	Ceedin	Cala	Sale.	Celta	ži Š	Calc	ي ال	Çalı,
ž	Combination	M\$N.	C007	2	(ca 1.)0	6	60	913	(62)0	0(30)	0000
		[K. 23.1]	_	E	(CL IN 13)	(Gr. m/o)	(cm:m/s)	(C4: 11/0)	(Cr m/2)	(cs.m/d)	(cn m/s)
-	-	300	00.0	8	2	13.2	17.8	21.6	200	92.0	44.8
64	Dark 1 (808-6)	2 36	92.0	25	6 2	13.2	17.8	21.6	900	95.0	9
n	7-5	8	0.68	8	20	29.1	27.5	Ţ.,	43.3	38.2	69 6
•	13	•	0.82	ê	2	19.2	23.5	21.7	2	32.2	2
•	Dan S (EGE 4)		20	"	2	-	2	7.12		35.2	2
9	G.13	8 3	0.63		200	22.2	20 0	36.0	2	90.3	4.0
	7-3,13		0.86	2	312	20.3	8	23	÷ 60	103.4	1282
•	1-4,15	8	99.0	6	36.3	47.0	23	79.0	104.9	180.0	161.0
۽ اُ	1.4.1.4		9 9		6		2	9.0	104.9	180.0	101.5
•	•	ė	3		3 5						:
-	Dam 4 (PGE:2)	70.7	2,0	•				7 80	:		
2	D-7	10.26	0.33	8	6 81	19.7	2 2	23.9	34.5	42.7	25.0
٠	1.7.15	28.69	9	g	68.2	88	76.2	96.9	126.7	139.6	197.0
į	1.8,33	27.26	0.55	•	813	62.0	6.55	103.4	13.5	170.1	2113
9	ā	1.50	0.00	30	9	10.5	2	17.0	20.0	5.50	63
17	Deny 5 (D. Hicher)	1.59	0.00	90	8.6	10.9	14.0		23.0	26.5	39.3
•	1.0,15	26 65	96'0	86	58.5	67.7	0 03		146.2	183.7	-227 ₿
0	1-15,15	39.73	0.55	7.4	59.3	72.4	298	110.2	156.9	100.4	243 5
50	Dem 6 IEGE-8)	33 72	0 33	7.	98.9	72.4	398		8	196.4	245.5
21	91,11-1	4160	0.55	104	£ 50	B. 58	112.4	189.3	189.2	229.9	284.6
22	1-12, 15	42.69	0.50	99	562	50.7	107.3		1767	219.0	271.6
S	Den 7 (55.4-1)	42.63	0.50	90	562	60.7	167.3	183.0	1787	219.0	271.6
₹	34	3.47	0.0	31	9	19.6	14.1	17.5	282	25.7	38.7
R	Dan 8 (884-5)	2 4	0.30	10	6.7	10.6	14.1	17.1	232	25.7	18.5
2	17	929	0.30	\$	6 01	13.4	17.7	22.0	28.2	26.2	44.0
23	18-17	6 70	0.44	88	17.2	20.0	27.6	84.5	45.6	98.0	70.4
8	Devis 6 (EBA-5)	2	\$	8	17.2	20.0	27.0	34.3	63.0	98.6	70.4
2	36-19	19 94	8	•	\$2.0	2.2	6.00	199.1	*	141.8	2
2	Dan 10 (CDA-6)	13.94	8	\$	42.0	32.2	8 8	98.1	*	141.8	170.0
Ę.	16.19	.01	0.62	96	47.6	50.00	77.5	98.0	127.8	100.1	106.3
χ	20	<u>.</u>	9.30	45	12.7	18.0	20 7	25.6	38.0	45.2	52.0
1	4 - 44		0.00	•	n		22	P	•	97.0	r i
× ;	D46: 17 (168-9)		9 3	7	2	2	200		2	87.0	2 2
8	15-22	8	2		3 6		2	126.0	4 74.	200	200
37	23	1.15	20.00	50	80	0.6	10,	13.3	17.0	21.8	27.1
98	Dem 12 (Ettaunhden)	1.15	0.90	28	99	8,0	10.7	13.8	17.0	81.0	37.1
2	25-24	9 30	0.90	31	17.9	21.0	29 0	95.8	14.5	39.1	79.3
2	23-29	22	0.74	ů,	88.5	20.G	27.4	0 10	49.2	33.5	E 08
5	Deux 13 (EBA-2)	e T	0.74	ŝ	16.9	30.6	27.4	84.0	45.2	58.0	68.9
	18-29	22		•	79.2	8	118 8	47.2	195 9	242.5	300.6
2	10.20			2	20	2	3	1		222.7	2,83
Ī	1 10 18 26			8				*	*	0.44.0	
;	27017111			g :	2		26	┙			97,0
9 (1,12,14,07	2 2	9 6	5 8	113	0.4	4 6 7	23 1	200	58.1	47.2
	1.07			* *						787	
	500	126 76		8	2 39	1		l.	200		400
9	36	28.64			2			L	1	228.4	7
Ş	1.90	24114	2 47	ð	* 736		27,	L	0.44	1172.6	1444.
					5				-	,	

į	0.0						- 1		Γ			5	2	į		į	1	200
i i	Combination		2		\$				5 9	6.6	٠,	5 6 7	,			600	19617.0	Sorberos
		(net loc)		(iug		-	-	(Mph)		(aca)	(ulu	E S	(ala)	(alpt)	(anim)	(William)	(Gr. m/b)	(cu.m/N/aq idn)
		9.96	0.68	3.500	290	0 06571	1/15	29 75	1.90					29.75	30	100.02	44 6	6.91
a	Dem 1 (EGE.S)	2.06	69.0	3.500	230	0 06571	1/15	29 75	1.06					29.75	30	100.02	446	16.9
	1.2	5.05		3,500	280	0.06571	1/15	20.75	1.96	6.500	2.78			32.63	33	G2.41	88.6	17.5
•	13		0.52	4.500	270	00090 0	1/17	37.39	2.01					37.39	37	84.04	54.7	14.5
	Dain 2 (EDE.4)	44	1	4.500	270	06000	1/17	37.39	2 01					37.39	37	84.04	64.7	14.5
10	3.15	3.90	-[4.300	203	0.06333	1/16	36 62	2.05	1.500	6.30			44.68	\$	71.46	746	12.9
-	1-2, 70	0.70	99 0	4.500	203	0 06333	1/16	36.62	B	1.500	0.33			44.98	45	÷ .	125.2	13.1
	1-(13	13.26	1	4.506	282	C 06333	1/16	36 62	2.03	2.500	13.00			20.5	=	64.59	15.2	12.2
۵	Den & (EGE 3)	13.26	0.0	4.300	265	6 66333	1,18	36 62	2.33	2.500	13.60			95.91	5	64.95	1613	12.2
٥	1.5,15	13 63		4 300	265	66639	1,18	36.62	2 05	5.200	17.78			84.40	35	61.48	158 1	11.6
1.	9	70.0	Į	5.500	165	0 00000	1,753	26 9E	1.81					90.00	77	58.71	916	5.2
2	Dam 4 (EGE-2)	B 94	1	5.500	165	000000	1733	58 05	1.83					58.09	2	17.85	510	5.2
2	6-7	10 26	9.39	\$ 500	192	0 09000	173	56 95	1,51	0.500	2.78			49.77	2	50.26	32.0	2.2
¥	1.7.19	23 86	5.5	1 300	202	0 03000	Ę	36 86	1.61	0.500	2.70			20.77	8	20.30	97.0	6.9
2	1-8-15	27.28	6.53	3.500	163	20000	2 <u>5</u>	96 90	131	1.500	8.33			65,52	22	62 65	2113	6.7
2	٥	90	0.66	2.000	\$3	0 02 150	1/47	25 73	1,12					29.73	g	100.02	35.3	22.2
	Dam 5 (D.Hicher)	1 39	0.80	2.000	ş	0 02 150	1/47	20 73	1,12					29.73	ş	100.02	93.9	22.2
	1-9,15	26 85	0.54	9.500	163	0 00000	5	26 96	1.91	1.500	6.33			65.52	5	200	27.6	7.0
٥	5-10,16	53 72	9.3	9.500	165	0 00000	100	36 96	197	0.000	16.67			75.66	ž	43.53	243 5	7.2
20	Dam 6 (EGE-8)	55 72	0.33	6.500	162	6 03000	123	56 09	1.61	3.000	16.87			73.66	74	47.27	249.5	7.2
2	1.11,18	4160	0.35	5.900	169	0 03000	1/43	54.00	1.51	4.000	22.22			79.21	7.0	44.78	284 6	5.3
22	1-12, 16	42.65	0.36	5.300	165	000000	1/83	56.98	1.01	5.900	30.56			87.55	8	40.04	271.8	5.4
8	Daily 7 (EBA-13)	42 69	0.30	5.500	2	0.05000	1,04	56.98	1.81	5.500	36.36			37.05	62	40.04	2716	8.4
7	18	3 47	980	3.50	5	00000	1/17	30 61	26					20	5	60		20.3
52	Dem & (EBA-4)	1 8 47	0.38	3.500	230	0.05000	1/1	30 81	1.69					10.00	5	97.33	35.7	10.3
2	17	3 23	0.50	2.500	ê	0 03400	1/20	20 39	1.4.7		1			29.59	2	100.02	613	13.0
2	10-17	2	**	3.500	210	0.0000	111	30.91	1.89	1.000	9.30			96.37	20	65.07	ž	10.5
	Delly 9 (ESA-6)	07.0	2	6	210	0 00000	147	30 01	2.85	1.000	9.56			86.37	*	25.07	ž	10.5
2	15-18	*6	98	3,300	200	000500	12	200	1.85	3.000	16.67			-7 48	5	8	17.16	11.1
9	Denyi 10 (28.4-6)	20 02	0.30	9.200	210	0 06000	. I	30 61	92	3.000	16.07			47.48	*	29 63	179.8	11.1
	16-19	10 11	0 62	0.300	210	0 06000	1/1	50.61	1.00	4.900	33 00			65 81	99	59.56	1961	103
2	20	311	0.00	3,500	3	0.02714	1637	4:02	30				Ì	41.62	7	75.65	52.9	16.0
 	12.07 Ver. 11 100 01	2	3			0 027 14	ĺ.	20.0	2	200	9, 20			27.78	1	02.03	2	9
1 2	12.21	2 20	8	9 49		2000	21.5	30 5		200.1	0 2			2 3	3	8 8	6	200
8	15-22	24.90	0.00	3.300	210	0 00000	1713	90	90	0.900	30.36			61.97	2	92.30	253.3	. 0
	25	1 16	0.90	2.000	90	C 02500	1/40	26 03	1.19					28.09	28	105.01	27.1	23.5
9	Drum 12 (Enterphose)	111	0.00	2.000	30	0 02500	1/40	29 03	1.10					26.05	38	105.01	27.1	29.5
8	23-24	36 6	0.90	2,000	20	0.0550	1/40	26 05	1 10	0.500	2.78	-		60.03	31	97.33	79.5	21.6
9	25-25	4 20	9.74	2.000	ŝ	0.02200	1/40	26 05	1 10	0.500	2.78	1 000	9.33	89.17	36	80.45	688	6 9:
=	Dave 13 (EBA-2)	4.20	0.74	2.000	90	0 02500	1/40	26 09	1.19	0.900	2.70	1.005	8.33	39.17	30	60.49	S 63	16.9
ç,	10.25	20 10	0.87	3.500	210	0.06000	1112	30 61	1.89	5.500	30 56			61.07	6.5	55 50	300 6	10.3
-	16-26	38 88	687	98	29	0 96000	12	19.00	- 69	7.000	39.63			69.70	2	49.51	2762	9.2
<u> </u>	1.12,19.26	72.63	89	2.50	9	0 00000	20	8 88	-	5,500	8			37.05	88	10 01	4956	đ.6
9	7.13, 19.26	72 80	0 0 0	3.500	169	6 52000	103	SG 96	1.61	6.000	8			28 00	Z	40.18	487.6	0.7
5	27	9 99	90	9.900	22	0.01000	1/100	61 42	60.0					61.42	5	35.50	47.2	12.5
	1.13, 15.27	76 63	9	3.300	-63	0 02000	138	8	- 8	9.000	33.33			90.92	8	40.18	52 9	6.6
	15.1	66 65		3,00	200	0 08000	ğ	36 50	=	7.000	38.40			93.28	8	60 00	967.0	5.5
<u> </u>	23	128 76	3	200	22	002300	80	80 80	=	7.000	36 85	1	1	05.00	2	80 00	\$ 646	4.7
	1.00	20 02	8 8	9 200		0 06000	2	20 00		7.000	8 3		1	92 68	8	80 88	273.4	10.0
	**	1 1 1 1 1	2	400'0	201	C DOVE	1504	20 00	101	0000	30.05			63.60	2	28.08	1454 3	0.0

Runoff Calculation by Pational Method

Oued Mayzette Basin

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Calc.	Q(100)	(cu.m/8)	4.4	5.8	2.8	8.7	8.7	4.6	11.3	13.2	14.1	8.5	20.0	21.8	
	(00)		3.5		2.4	7.0	7.0	3.7	9.1	10.7	11.4	8.8	16.1	17.8	
S S	0(23)	(cn.m/s)	2.8	3.8		3.7	5.7	3.0	7.4	8.8	9.5	5.5	13.0	14.2	
<u>5</u>	Q(10)	(ca.m/s)	2.1	2.9	4.1	4.3	43	2.3	3.3	6.5	6.9	4.1	8.6	10.7	
 80 80	<u>(i)</u>	(cu.m/s)	1.7	2.3	1,2	3.4	9.6	1.8	4. 10.	5.2	3.6	3.3	7.8	88	
	Q(2)	G.				2.6			3.4			2.3		6.5	
Caic.	Q(1,05)	(cn m/s)	-	94.	2.0	2,1	2.1		2.8	3.2	3.4	2.1	6.4	60	
Design	돠	(nin)	9	97	48	84	5	8	2	97	5	74	104	+1.4	
Hunoff	Coeff	4-	0.40	0.37	0.32	0.33			0.31	0.29	0.28	0.32	0.32	0.34	
Total	Area	(aq.km)	0.30	0.81	25.0	1.28	1.86	0.79	2.65	3.97	3.08	1.24	6.32	858	
Sub-basin	Combination			1,2	Э	1,2,3	1,2,3,4	5	1,2,3,4,5	1,2,3,4,5,8	1,2,3,4,5,6,7	6	1,2,3,4,5,6,7,9	1,2,3,4,5,6,7,8,9	
S.C.	ohrt		1	2	၉	•	ĸ,	ဖ	۲.	æ	D	to	11	12	

(Future Land Use Condition)

Calc.		Total	Hunoff	Design	Calc.	Calc.	Calc.	Carle	Calc.	Calc.	Calc.
Point	Combination	Area	Coeff.	ş	Ø(1.08)	(2) O(2)	G(3)	(01)0	0(22)	(OC)	Q(100)
		(sq.km)	*	(min)	(c/m.mo)	(cn.m/s)	(cu.m/s)	(cu.m/e)	(cn.m/a)	(cn.m/a)	(cn.m/s)
-	•	0.30	0.80	8	2.3	2.8	3.8	4.7	6.2	7.7	9.6
ઢ	1,2	0.81	0.80	8	3.1	3.8	3.0	6.2	8.2	10.2	12.6
က	E	75.0	0.80	8	1,8	2.2	2.8	3.6	.¢. Θ.	5.8	7.3
*	1,2,3	1.28	08.0	84	60	5.9	7.8	9.8	13.0	18.1	20.0
כש	1,2,3,4	1.96	0.71	ន	4.8	3.8	7.8	9.7	12.8	16.0	18.8
9	ı,	62:0	0.28	33	1.2	1.5	2.0	2.5	3.3	6.0	5.0
7	1,2,3,4,5	2.65	0.57	æ	EC. EC	6.7	9.0	1:1	14.7	18.3	22.7
8	1,2,3,4,5,8	3,87	0.47	79	5.7	8.9	9.2	41.4	13.1	19.7	23.2
6	1,2,3,4,5,6,7	30.08	0.42	8	5.5	8.7	88	11.1	14.7	18.2	22.8
0.	8	1.24	0.60	74	3.2	3.8	5.1	8.8	8.5	10.5	13.0
11	1,2,3,4,5,8,7,9	6.32	800	86	9.1	9.9	13.2	16.4	21.8	27.0	33.4
12	1,2,3,4,5,8,7,8,9	88.98	8.0	107	8.2	10.0	13.3	18.5	22.0	27.2	33.7

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Çak	Sub-basin	Total	Aunoff			Average alcoe	olope		Ü	5	E	9	œ	Cario	Deeign	Caric	Calc	Speci
Point	Combination	Area	Coolf.	<u>ع</u>	£	for Lo	익	8	. 8	(v=1.5)		() Fa/		ք	ខ	<u>5</u>	00190	Dischar
		(eq.km)	-	(E)	Ê	S		(mln)	(m/p)	(km)	(min)	(km)	(mm)	(min)	(min)	(mm/h)	(cv. m/e)	(cu.m/e/pd
F **	-	0.50	0.40	280	មា	0.00400	1/250	39.56	0.53					38.58	40	18.77	4.4	8.8
8	1,2	0.81	26.0	2.150	12	0,00791	1/126	48,20	0.78					48.20	4	41.6	53	7.2
6	Ø	0.47	0.32	88	9	0,00400	1/250	45,52	0.55					45.52	\$	70.14	2.9	6.2
4	1,2,3	1.28	98.0	2.150	12	0.00791	1/126	48.20	0.78					48.20	94	70.14	87	6.9
ທ	1,2,3,4	÷.86	8,0	9150	5	0.00571	1/175	70.25	0.75					70.26	2	49,51	6.7	2.7
မွ	ŧρ	0.79	0.24	1.250	-	0,00560	1/179	34,75	0.60				:	34.75	ક્ષ	98:04	46	53
2	1,2,3,4,5	2.65	6.9	3150	18	0.00571	1/175	70.26	0.75					70.26	0.2	49.51	1.3	£.4
в	1,2,3,4,5,8	3.97	0.29	3.150	18	0.00571	1/175	70.26	0.75			8	16.67	98.92	87	41.33	13.2	3.3
O)	1,2,3,4,5,6,7	5,08	0.28	3150	Ð	0.00571	1/175	70.28	0.75			2 000 [33.33	103.53	\$	29.88	1.4.1	2.6
10	6	1.24	0.52	5.000	4	0.00200	1/500	74.18	0.45					74.18	74	47.27	9.6	8
11	1,2,3,4,5,6,7,9	5.32	0.32	3150	18	17500.0	1/175	70.26	0.75			2.000	33 33	103.59	5	35.64	20.0	3.2
12	1 2,3,4,5,6,7,8,9	98.60	9	3150	18	0.00571	1/175	70.26	0.75			2.650	44.17	114,42	1154	33,03	21.8	93

(Future Land Use Condition)

Calc.	Sub-begin	Total	Runoff			Average o	ectopa		of.	ב	15	2	ひ	Calc.	Decign	Calc	Calc	Specific
Point	Combinetion	Area	Coeff	9	£	for L	3	2	۶	(v=1.5)		(v=1.0)		ន	೭	(<u>8</u>	6,18	Dischange
		(oq.km)	-	(Su	ε	ဖ	_	(min)	(m/e)	(km)	(min)	(km)	(min)	(min)	(min)	(mm/h)	(cu.m/e)	(cu.m/s/sq.km)
r	.	0.50	080	1.000	₹	0,00400	1/250	33.31	0.50	0.250	2.78			36.09	98	66.97	9.6	19.1
CI.	1,2	0.81	0.90	280	4	0.00400	1/250	33.31	0.50	1.150	12.78			46.09	94	70.14	12.6	15.8
 စ	9	0.47	00.0	1.500	တ	0,00400	1/250	45.62	0.55		.			45.62	48	70,14	7.3	15.6
4	1,2,3	1.28	090	1.000	4	0.00400	1/250	33.31	0.50	1,150	12.78		-	46.09	46	70.14	20.0	15.8
ı,	1,2,9.4	1,96	17.0	88.	4	0.00400	1/250	33.31	0.50	1.150	12,78	1,000	16.67	62.76	88	84.89	198	10.7
ω	5	67.0	0.28	1.250	7	03500.0	1/179	34.75	0.60					34.75	98	10:89	5.0	5.4
^	1,2,3,4,6	2.65	0.57	1.000	44	0,00400	1/250	33.31	0.50	1.150	12,78	1.000	16.67	62.76	83	54.03	22.7	9.6
Б	1,2,3,4,5,8	3.57	0.47	1.000	*	0.00400	1/250	33.31	0.50	1.150	12.78	2,000	3333	79.42	79	44.78	23.2	5.8
60	1,2,9,4,5,6,7	5.08	0.42	1.000	4	0.00400	1/250	33.31	0.50	1.150	12.78	3,000	50.00	88.88	3 6	38.08	22.6	4.4
10	Ø	1.24	0.90	2.000	4	0,00200	92/2	74.18	0.45					74.18	24	47.27	13.0	10.5
Ξ	1,2,3,4,5,6,7,9	6.32	0.50	1.000	4	0.00400	1/250	33.31	0.50	1.150	12.78	3.000	2000	88.08 88.08	8 8	38.03	33.4	5.3
12	1,2,3,4,5,6,7,8,9	8,98	S 0	1,000	4	0.00400	1/250	33,31	0.50	1.150	12.78	3,650	88.88	106.92	107	34,84	38.7	4.8

Note: I(mm/h) = 403.7 x T(year) ^ 0.31 / I(min) ^ 0.83

Runoff Calculation by Rational Method

Oued Bou Khamsa Basin

(Present Land Use)

Calc.	Sub-basin	Total	Runoff	Design	Calc	Calc.	Calc	Calc	Calc.	Calc.	Calc.
Point	Combination	Area	Coeff.	2	Q(1.05)	ର ପ	Q(S)	Q(10)	Q(25)	Q(50)	0(100)
		(sq.km)	+	(min)	(s/m.no)	(cn.m/s)	(cn.m/s)	(cu.m/s)	(s/m:no)	(cn.m/s)	(cn.m/s)
····	-	0.82	0.24	91	2.2	2.7	3.6	4.5	6.0	7.4	9.2
2	1,2	1.36	0.24	83	2.3	2.8	3.7	4.6	6.1	7.5	ව.ප
3	8	0.29	0.24	10	1.2	1.4	1.9	2.4	3.1	3.9	4.8
4	1,2,3	1.65	0.24	62	2.8	3,4	4.5	5.5	7.4	9.1	11.3
5	1,2,3,4	2.17	0.24	37	3.0	3.6	8,4	6.0	7.9	9.8	12.2
9	5	0.79	0.28	44	-	1,3	1.8	2.2	2.9	3.6	4.5
7	1,2,3,4,5	2.96	0.25	44	3.6	4.4	5.9	7.3	9.7	12.1	15.0
8	1,2,3,4,5,6	3.05	0.26	47	3.7	4.5	9.9	7.4	6.6	12.2	15.2
Ó		0.50	0.52	83	9.0	6.0	1.2	1.5	2.0	2.5	3.1
40	1,2,3,4,5,6,7	3.55	0.23	93	3.0	3.7	4.9	6.0	8.0	6.6	12.3
-	1,2,3,4,5,6,7,8	3.67	08.0	9.	3.0	3.6	4.8	0.9	7.9	9.8	12.2
12	14	0.61	0.20	O	2.2	2.7	3.8	4.5	6.0	7.4	9.5
13	Dam No.1	0.61	0.20	O	2.2	2.7	3.6	4.5	0.8	7.4	8.2
14	13,14	1.22	0.24	14	3.7	4.5	6.1	7.5	10.0	12.3	15.3
15	12,13,14	1.42	0.27	5	4.8	5,6	7.5	6.9	12.3	15.3	18.9
16	11,12,13,14	1.52	0.28	প্ত	3.0	3.6	4.8	6.0	7.9	9.8	12.2
17	6	0.78	09'0	58	6.1	2.3	3.1	3.8	5.0	6.2	7.7
18	1-9,11-14	5.97	0.33	91	5.3	6.5	8.6	10.7	14.2	17.8	21.8
6	1-14	6.20	0.34	8	5.3	8.4	8.5	10.6	14.0	17.4	21.6

														_	حنح			_		-	,		ı
:	Spacific	Diocharga	(cn: m/a/aq km)	11.2	6.9	16.6	6.9	5.6	5.7	5.1	5.0	6.2	3.5	3.3	15.1	16.	12.6	13.3	6.0	5.6	3.6	9 6	
	Cafe	0,100	(cn m/e)	3.5	8.3	4.8	11.3	12.2	4.5	15.0	15.2	9.1	12.3	12.2	9.5	8.3	15.3	189	12.2	7.7	21.8	21.6	
	Calc	<u>(18</u>	(mm/h)	168.52	102.87	248.92	102.87	84.03	72,78	72.78	68,30	42.99	42.98	88.88	271,67	271.67	196.27	177.79	102.87	59.57	88	36.82	
	Degian	೭	(citr)	16	58	10	53	37	44	44	14	88	88	158	8	O .	71	16	62	\$ 8	8	5	
	Calc	2	(min)	16.20	28.70	8.79	28:70	37:04	843.FB	43.78	11.72	83.03	නෙස	96'16	8.64	864	14.20	15.31	28.64	58.20	91.36	88.68	
	ū		(min)		12.50		12.50	20.63	20.83	20.83	24.17			82 B				6.67	88	888	88 8	16.67	
•	2	(c: ا= ک	(кт)		0.750		0.750	1.250	1,250	1,250	1 450			0.500				0.400	1,200	205	005'0	1.000	
(8 0) DE	Σ	-	(min)		-												5.56						
(Present Land USS)	5	(v=1.5)	(F														0.500						
	o.	۶	(a/E)	2,06	2.06	2.13	2.06	2,06	0.82	0.82	0.82	0.35	0.35	O.35	2.41	2.41	2.41	2,41	2.41	0,40	0.38	0.35	
		٥	(Fig.	16.20	16.20	9.79	18.20	16.20	22.95	22.95	22.96	83.03	88	83.03	9.64	9.64	25.0	8.54	9.64	31.20	88	83.03	
c c	edolo	ગ	-	1/10	1/10	1/1	1/10	1/10	1/75	1/75	1/75	1/875	1/875	1/875	1,5	1/5	1/5	1/5	15	1/375	1/875	1/875	
u Khamba Badin	Average alope	for Lo	S	0.10400	0.10400	0.15040	0.10400	0.1048	0.01333	0.01333	0.04333	0.00114	0.00114	0.00114	0.20800	0,20800	0.20800	0.20800	0.20800	0.00267	0,0014	0.00114	
Dued Bou		운	Œ	8	20g	2 8	8	88	15	15	£	2	2	~	98	980	98	98	88	~	~	2	
		2	(Km)	2.000	2.000	1.250	2.000	2.000	1.125	1.125	1.125	750	1.750	1.750	1.250	1.250	1.250	1.250	.250	0.750	<u>2</u>	35	
	Runoff	Cooff	-	0.24	0.24	0.24	0.24	0.24	0.28	0.25	0.28	0.52	0.29	0.30	0.20	0.20	0.24	0.27	0.29	0.83	0.33	0.34	
Method	Total	Area	(BQ km)	0.82	. 8	0.29	1.65	2.17	0.79	2.96	3.05	05:0	3.55	3.87	0.61	0.61	1,22	1,42	3.52	0,78	2:32	6.20	
HUNOTI CAIGUIATION BY HATIONAL Method	Sub-benin	Combination			1,2	9	1.2,3	1,2,3,4	9	1,2,3,4,5	1,2,3,4,5,6		1,2,3,4,5,6,7	1,2,3,4,5,6,7,8	14	Oam No.1	13,14	12,13,14	11,12,13,14	G	1-9,11-14	1-14	
•	Calc	Point		-	~	e G	4	2	9	7	8	O)	ç	11	13	13	14	15	16	12	18	19:	

ote: |{mm/h} = 403.7 x T(year) 0.31 / t(min) 0.83

Runoff Calculation by Rational Method

Oued Bou Khamsa Basin

							<u> </u>		r			,		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		·		,	··········	r	1
Oalo O	Q(100)	(cu.m/s)	16.9	21.0	11.0	25.5	27.4	12.8	36.5	36.2	4.4	26.7	26.0	2.6	9.2	18.5	23.6	15,2	10.3	39.0	37.4
Calc	Q(50)	(cn.m/s)	13.6	16.9	8.9	20.5	22.1	10.3	29.4	29.5	3.6	21.5	50.9	7.4	7.4	14.9	19.2	12.3	8.3	31.4	30.2
Calc.	0(29)	(cn.m/s)	11.0	13.7	7.2	16.6	17.8	8.3	83.8	83.55	2.9	17.4	16.9	6.0	0.9	12.0	15.5	8.0	6.7	25.3	24.3
Oalo O	Q(10)	(ca.m/s)	8.3	10.3	5.4	12.5	13.4	6.3	17.9	17.7	2,2	13.1	12.7	4.5	4.5	o.	11.7	7.4	က်	19.1	18.3
<u>ပ်</u> (၂)	O(5)	(cn.m/s)	6.7	8.3	4.4	10.1	10.8	5.0	14.4	14.3	1.7	10.6	10.3	3.6	3.6	7.3	9.4	6.0	4.1	15.4	14.8
Calc.	(S) O(S)	(cn.m/s)	5.0	6.2	3.3	7.6	8.1	3.8	10.8	10.8	6.1	7.9	7.7	2.7	2.7	5.5	7.1	4.5	3.1	11.6	1.1
Calc.	Q(1.05)	(s/m.no)	4.1	55.4	2.7	6.2	6.7	ب. 1.6	6.8	80.80	-	6.5	6.3	2.2	2.2	4.5	5.8	3.7	2.5	9.5	9.1
Design	Q	(min)	8	83	Ct.	දි	37	44	44	47	83	83	50	O	O	14	5	କ୍ଷ	58	တ	100
Runoff	Coeff.	•	0.44	0.54	0.55	0.54	0.54	0.80	0.61	0.62	0.74	0.63	0.64	0.20	0.20	0.23	0.34	0.35	0.80	0.59	0.59
Total	Area	(sq.km)	0.82	1.36	0.29	1.65	2.17	0.79	2.96	3.05	0.50	3.55	3.67	0.61	0,61	1.22	1 42	1.52	0.78	5.97	6.20
Sub-basin	Combination		,	1,2	8	1,2,3	1,2,3,4	ß	1,2,3,4,5	1,2,3,4,5,6	1	1,2,3,4,5,6,7	1,2,3,4,5,6,7,8	14	Dam No.1	13,14	12,13,14	11,12,13,14	Ō	1-9,11-14	1-14
0 8 0 0	Point		-	2	9	4	သ	9	7	æ	ô	10	11	12	13	14	15	18	17.	18	19

Calc	Sub-basin	Total	Hunoff			Average plope	adole		ъ	5	E	2	22	Č,	Degign	Cafe	Cafe	Specific
Point	Cambination	Area	Cooff.	2	£	ľor	၀၂	2	Ş	(¢:1=√)		(V=1,0)		బ	<u></u>	(38)	0,183	Discharge
		(80 km)	-	(km)	Ê	s		(min)	(m/a)	(km)	(min)	(km)	(min)	(mln)	(min)	(mm/h)	(au m/e)	(cu.m/s/sq:km)
	-	28.0	0.44	2.000	නි	0.10400	1/10	16.20	5.06					16.20	16	169.52	16.9	20.5
CI.	8,1	1.36	0.54	2.000	82	0.1048	1/10	16.20	2.08			0.750	12.50	28.70	88	102.97	21.0	15.4
ო	6	0.29	0.55	1.250	88	0.15040	1/1	9.79	2.13					82.69	10	248.92	11.0	38.0
4	1,2,3	1.65	S. C.	80.3	508	0.10400	1/10	16.20	90.2			0.750	12.50	28.70	83	102.87	25.5	15.4
ω	1,2,3,4	2,17	0.54	883	8	0.10400	1/10	16.20	5.08			1.250	20.63	37.04	2.6	83	27.4	12.6
g	υ	0.79	8.0	1.125	15	0.01339	175	22.95	0.62			1.250	80.83	43.78	44	22.78	12.8	16.2
۲.	1,2,3,4,5	2.96	0.61	1.125	15	0.01333	1/75	22.9€	0.82			1.250	20 63	43.78	44	27.73	38.5	12.3
æ	1,2,3,4,5,8	3,05	0,62	1.125	15	0,01363	1/75	22.95	0.82			1.450	24 17	47.11	47	88 88	38.2	11.9
ເກ	2	0,50	0.74	1.750	Q	41 (000	1/875	සෙය	0.35					සෙය	83	88.53	4.4	9.6
0	1,2,3,4,5,6,7	3.55	0.63	35.	æ	0.00114	1/875	නෙක	0.35			 -	 	88	83	85,54 42,58	26.7	7.5
-	1,2,3,4,5,6,7,8	3.67	0.54	1.750	æ	9,00114	1/875	83.03	0.35			0.500	6.33	St 36	84	39.62	28.0	1.7
15	14	0.61	0.20	1.250	380	0.20800	1/5	9.64	2.41					96	8	271.67	8.2	15.1
13	Dam No.1	0.61	0.20	1,250	560	0.20800	1/5	20.02	2.41					8.64	8	271.67	85	15.1
4	13,14	1.22	0,29	1.250	560	0.20800	- 2	8.64	2.41	0.500	5.56			14.20	14.	188.27	18.5	15.2
15	121314	1.42	0.34	1.250	260	0.20800	1/5	8.64	2.41			0.400	6.67	1531	15	177 79	23 6	16.9
ě	11,12,13,14	1.52	S6.0	1.250	260	0.20800	1/5	9.64	2.41			1.200	20.00	29.64	58	102.97	15.2	10.0
17:	6	0.78	080	0.75	63	0.00267	1/375	34.20	0.40			1,500	25.00	56.20	99	59.57	10.9	19.2
18	1-911-14	5.97	0.59	8	6	0.00114	1/875	83.03	0.35			0.500	633	81.36	8	38.62	38.0	8.5
- 61	1-14	6.20	0.59	5	ci	0.00114	1/875	සිය	0.35			1,000	16.67	89.69	8	38,88	37.4	6.0

Oued Boy Khampa Basin

Runoff Calculation by Rational Method

Note: I(mm/h) = 409.7 x T(year) ^ 0.31 / I(min) ^ 0.83

Runoff Calculation by Rational Method

(Present Land Use)

Oued Ain Zerge Basin

<u>u</u>	Sub-besin	Total	Flunoff	Design	Calc.	<u>S</u>	Caic.	Cafe.	Calc.		Calc.	
ž	Combination	Area	Coeff	护	0(1.03)	Q(2)	(<u>6</u>)	Q(10)	Q(23)		9,0	
-		(sq.km)	4-	(min)	(cu.m/s)	(cn.m/s)	(cu.m/s)	(cn.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	
		2.52	0.20	5	6.1	5.7	8.8	12.2	16.2	20.1	24.9	
	Dem No.1	2.52	0.20	£.	6.1	7.4	9.8	12.2	16.2	20.1	24.9	
_	1,2	2.64	0.20	80	5.5	6.7	88	11.0	14.6	18.1	22.4	
_	8	0.27	0.20	41	0.7	0.8		1.4	1.8		2.8	
	1,2,3	2.91	0.20	18	6.0	7.3	9.6	12.1	16.1	18.9	24.7	
	Dam No.2	2.91	0.20	18	9.0	7.3	9.6	12.1	18.1	19.9	24.7	
	1,2,3,4	3.05	0.21	23	4.0	9.6	8.8	10.9	14.4	17.9	22.2	
	1,2,3,4,5	3.17	0.21	19	4.0	4.8	6.4	8.0	10.6	13.1	18.3	·
	8	0.73	0.20	15	1.8	2.1	2.8	3.5	1.4	5.8	7.2	
	8.7	1.00	0.21	21	1.9	2.3	3.1	3.8	5.1	6,3	7.8	
	1.2,3,4,5,7,8	4.17	0.21	100	5.2	6.4	8.5	10.5	13.9	17.3	21.4	
C)	1,2,3,4,5,6,7,8	4.20	0.21	8	8,4	5.9	7.8	9.6	12.8	15.9	19.7	

(Future Land Use Condition)

Calc.	Sub-beain	Total	Runoff	Dezign	Calc.	Calc.	Calc.	Cale	Calc.	Calc	Calc.
Point	Combination	Area	Caeff.	ខ	Q(1.03)	Q(2)	Ö	Q(10)	Q(25)	(S)	Q(100)
		(aq.km)		(min)	(cn.m/s)	(e/m·mo)	(cu.m/s)	(cu.m/s)	(cn.m/s)	(cu.m/s)	(cn.m/a)
-	***	2.32	0.20	\$	6.1	7.4	8.8	12.2	18.2	20.1	24.9
Q	Dam No.1	2.52	0.20	15	6.1	7.4	8.8	12.2	16.2	20.1	24.8
3	1,2	2.64	0.21	18	5.7	7.0	8.3	1.3	15.3	19.0	23.5
4	O	0.27	0.31	4	=	6.	1.7	2.1	2.8	30.5	4.4
ŧΩ	1,2,3	2.91	0.22	180	8.8	8.1	10.7	13.3	17.7	21.9	27.2
89	Dem No.2	2.91	0.22	æ	8.8	1.8	10.7	13,3	17.7	21.8	27.2
7	1,2,3,4	3.05	0.25	23	6.4	7,8	10.4	12.8	17.2	213	26.4
8	1,2,3,4,5	3.17	0.27	33	5,1	6.2	6.3	10.2	13.8	16.9	20.9
8	Ð	67.0	0.30	13	4.4	5.4	7.1	8	11.7	14.5	18.0
10	8,7	8.	0.58	21	6.8	6.4	9.6	10.8	14.1	17.5	21.7
11	1.2,3,4,5,7,8	4,17	46.0	8	8.4	10,3	13.7	17.0	22.8	27.9	34.7
12	1,2,3,4,5,6,7,8	4.20	0.35	8	8.0	9.6	13.0	181	21.4	26.5	32.8
											,

Çaço	Sub-basin	Total	Runoff			Average old	BCOlo		ъ.	5	E	2	23	Calc	Deaign	Oatc.	Calc	Specific
Point	Combination	Arce	Coaff	9	운	for to		2	ş	(v=3.0)	:	(v=1,0)		ស្	2	(38)	(85)	Discharge
		(84.Kg)	-	(km)	Ē	S		(min)	(a/m)	(km)	(min)	(km)	(பங)	(min)	(min)	(mm/h).	(ca.m/a)	(cu.m/e/aq.km)
-		2.52	0.20	8	338	0.23500	1/4	5.95	2.40	1:500	6.33			15.29	15	177,90	24.9	9.8
CN	Dam No.1	2:52	0.20	8.	98 398	0.23500	1/4	6.94	2.40	1.500	6.33			15.28	15	177.80	24.9	9.9
6	1,2	2.64	0.20	8	88	0.23500	1/4	6.94	2,40	2,000	11,11			18.05	61	152.83	22.4	8.5
4	Ø	0.27	0.20	0.400	2	0.17500	1/8	3.84	1.74			0.600	10.00	13.84	1.6	198.29	2.8	10.5
w	1,2,3	2.91	0.20	8.	583	0.23500	1/4	5.94	2.40	2.000	11.11			19.05	19	152.89	24.7	8.5
9	Dam No.2	2,91	0.20	8	88	0.23500	1/4	6.94	2.40	2,000	11.11			18.05	18	152.83	24.7	9.5
7	1,2,3,4	3.05	0.21	8	533	0.23500	1/4	6.94	2:40	2,000	11.11	0.300	6.00	53.05	SS	124.70	22.2	7.3
Ю	1,2,3,4,5	3.17	0.21	8.	88	0.23500	1/4	8.94	2.40	2.000	11,11	1.000	16.67	34.72	88	88 .01	16.3	ب
6	Ð	0.73	0.20	8	314	0.31400	1/3	5.21	2.68			0.500	633	14.54	18	177.90	7.2	5.6
10	9,7	8,1	0.21	8	9.4	0.31400	1/3	6.21	2.68			0.300	15.00	21.21	21	134.48	7.8	7.8
Ξ	1,2,3,4,5,7,8	4.17	0.21	00:	235	0.23500	1/4	6.94	2.40	888	11.11	8	16.67	34.72	æ	PB.01	21.4	5.1
5	19945678	4.20	160	٤	y S	0.0000	77	¥0.4	2 40	300	11.11	1250	8	00 00	æ	5P (26	404	6.7

Oued Ain Zerga Basin

Runoff Calculation by Rational Method

(Future Lend Use Condition)

Calc.	Sub-beain	Total	Punoff			Average c	edole		र्छ	5	E	2	23	ဒ္	Decign	38	Sign	Specific
Point	Combination	Area	Coeff.	2	£	ō	3	Ω	ş	(06=2)		(0,1,0)		ន	<u>.</u>	<u>5</u>	6,18	Discharge
		(8q.km)	-	(km)	Ê	Ø		(min)	(m/e)	(km)	(min)	(K.A.)	(min)	(min)	(min)	(mm/h)	(cn.m/a)	(cu.m/e/pg.km)
-	1	29.2	0.20	8	88	0.23500	1/4	8 .94	2.40	1.500	8,33			15.28	15	177.80	24.9	9.6
5	Dam No.1	2.52	050	000	88	0.23500	1/4	6.94	2.40	1.500	8.33			15.28	15	177.83	249	6.0
ေ	1,2	2,84	0.21	8	532	0.23500	1/4	6.84	2.40	2.000	11.11			18.06	18	152.83	23.5	8.9
**	3	0.27	ਰਤ	0.400	٤	0.17500	1/6	3.84	1.74			0.800	10.00	13.64	14	199.28	4.4	16.2
9	1,2,3	2.91	0.22	1.80	535	0.23500	1/4	გ გ	2.40	2,000-				18.05	18	152.83	27.2	6.9
Q	Dam No.2	2.91	0.25	8	385	0.23500	1/4	€ 94	2.40	2.000	11,11			18:05	18	152.83	27.2	8.3
7	1,2,3,4	3,05	0.25	1.000	532	0.23500	1/4	6.94	2.40	2.000	11,11	0.300	2:00	23.05	53	124.70	26.4	9.7
Ð	1,2,3,4,5	3.17	0.27	1.000	532	0.23500	1/4	6.94	2.40	2.000	11.11	1.000	16.67	34 72	35	98.01	503	6.6
6	9	0.73	0.50	8	314	0,31400	1/3	6.21	2.69			0.500	833	14,54	15	177.80	18.0	24.7
10	8,7	1.00	0.58	38.	34	0.31400	1/3	8.21	2.68			0.900	15.00	21.21	21	134.48	21.7	21.7
11	1,2,3,4,5,7,8	4.17	0.34	1,000	235	0.23500	1/4	6.94	2.40	2.000	11.11	1.000	16.67	34.72	ક્ક	10.69	34.7	6.9
12	1,2,3,4,5,6,7,8	4.20	- 0.35	8	235	0.23500	1/4	8.94	2.40	2.000	11.11	1.250	20.83	38.86	88	BC 45	32.8	7.8

Note: \(\{\text{mm/h}\) = 403.7 x T{year} ^ 0.31 / \text{min} ^ 0.83

Runoff Calculation by Rational Method

Oued Hammam Basin

(Present Land Use)

400	1. S. C.	Laket	25.00.0		3.0	Cale	4	5	100	1	مامن
4	Constitution		*		2.5	600	2	; (ç)	(Sec.)	9	2(10)
5		1		3 ((3.1)	4)	(2)		(23)	3	(2)
-		40.00	0	(11111)	(2/11/2)	(ca.111/0)	100.11783	Cu.sn.a)	(20.11/6)	(6/11/10)	(CU.III.0)
-	-	3.0	0.20	78	12.2	2.01	20.7	7.97	20.00	# C	4.75
~	N	93.8	0.20	5	7.0	8.7	6	13.0	20.3	26.0	33.0
m	80 -	39.00	0.20	282	15.6	19.5	28.6	33.7	46.0	58.5	73.6
*	1-3	89.00	0.20	344	21.3	26.8	36.3	45.9	62.7	79.3	4.00.4
вo	4	14.60	0.20	B4	8.9	11.1	15.2	19.2	26.2	33.2	42.0
ø	1-4	113.80	0.20	344	24.5	30.5	41.8	52.7	72.0	91.1	115.3
7	Dem 3 (Late)	113.60	0.20	344	24.5	30.5	41.6	52.7	72.0	81.1	115.3
60	₽.	135.40	0,20	438	24.5	30.5	41.6	52.7	72.0	91.1	115.3
8	9	12.60	0.20	385	5.4	6.7	8.2	11.8	15.9	20.1	25.4
5	€.	148.00	0.20	9£# ·	28.7	33.3	45.5	57.8	78.7	\$9.5	128.0
=	Dem 4 (R.B. A)	148.00	0.20	436	28.7	33.3	45.5	57.8	78.7	99.3	126.0
22	1.7	163.00	0.20	308	26.4	32.9	44.9	36.8	9.77	98.2	124.3
2	Dam 5 (R.B. B)	163.00	0.20	906	28.4	32.9	44.9	36.8	77.8	98.2	124.3
*	1.8	163.40	0.20	518	26.1	25.5	44.4	1.90	7.8.7	0'28	122.8
50	12	8.30	0.20	78	5.5	8.9	8.3	11.8	16.1	20.4	25.9
Ģ	Dem 2 (M'darrej)	8.50	0.20	82	5.5	8.8	9.3	11.8	18.1	20.4	25.9
2	12-13	9.70	0.22	52	5.6	7.0	9.6	12.2	16.8	21.0	28.6
<u></u>	10	12.80	0.20	76	8.3	10.3	14.1	17.9	24.4	30.9	88.1
8	Dam ! (Guemgame)	12.60	0.20	78	8.3	10.3	14.1	17.9	24.4	30.9	39.1
ន្ត	10-11	13.10	0.20	88	8.0	10.0	13.6	17.2	23.9	29.8	37.7
7	10-13	22.80	0.21	102	12.7	15.8	21.8	27.3	37.3	47.2	59.7
8	10.14	23.80	0,22	128	11.8	14.7	20.0	25.3	34.8	43.8	55.4
S	ES)	4.10	0.28	SS.	5.0	6.2	8.5	10.8	14.7	18.6	23.6
24	10.15	28.00	0.22	128	13.8	17.2	23.5	28.7	40.5	51.3	64.9
23	10-16	28.30	0.22	<u>\$</u>	13.2	16.4	22.4	28.4	38.8	49.0	62.1
92	17	10.90	0.20	8	6.3	7.8	10.7	13.5	18.5	23.3	29.8
22	10-17	39.10	0.22	8	18.2	22.7	31.0	38.2	53.8	67.8	83.8
28	10-18	44.90	0.22	82	18.1	22.5	30,8	38.9	53.2	67.3	85.2
28	1-8,10-18	208.30	0.21	516	34.9	43.5	38.4	75.1	102.6	129.9	164.4
8	1-19	222.30	0.21	578	34.3	42.8	38.4	73.9	101.0	127.8	161.7

Runoff Calculation by Rational Method		Method		:	Oued Herman Basin	пат Вавіп				(Present Land Use)	nd Use)							
Sub-beasin Total Runoff	-	Runoff		r		Average atope	80.00		10	5	E	3	a	Calc.	Design	Calc	Oafo	Specific
Combination Area Coeff. Lo	Coeff.		9		. 운	lor	Le	2	8	(v=1.5)		(v=1.0)		В	ਨ	<u>(</u> 8	0(100)	Diocharge
(km) (km)	1 0-	(Fig.)	Ē	_	Ē	တ	_	(min)	(m/o)	(km)	(min)	(Km)	(min)	(mim)	(min)	(merryln)	(cn m/e)	(cu.m/e/pd.km)
0.20	0.20	_	080	! —	8	0,00550	1/162	260,29	0.64					260 29	260	22.47	57.4	1.2
13.00 0.20 7.500	0.20	L	7.500	⊢	88	0.01267	22/1	100.85	1.24					100 86	\$	45.58	83	2.5
0.20	02.0	L	10000	⊢	ß	0,00550	1/162	260.29	0.64					Sec 28	280	22.47	73.6	1.2
1.3 99.00 0.20 10.000	0.20		10 000	} →	78	0.00550	1/162	260.29	0.84			5.000	83.33	34363	344	18.26	100.4	1.0
4.60 0.20 6.500	0.20	_	6.500		90	0.01538	1/65	89.62	1.29					83.62	85	51.84	45.0	2.9
113.60 0.20 10.000	0.20	L	10.000	ь	8	0.00550	1/162	260.29	0.64			5.000	89.33	343.63	344	18.26	115.3	0.1
L	0.20	L	0000	_	88	0.00550	17192	260.29	0.84			5.000	B3.33	343 63	344	18.28	115.9	1.0
1-5 135,40 0,20 10,000	0.20	L	10.000		18	0,00550	1/102	580.29	0.64			10,500	175.00	435.29	436	15.32		6.0
L	0.20	L	10.500		120	0.01143	98/1	135.96	1,29					135.56	136	36.29	25.4	2.0
1-6 148.00 0.20 10.000	0.20	L	10.00 00.01		18	0,00550	1/182	260.29	0.64			10.500	175.00	435.29	436	15.32	126.0	6.0
Ĺ	0.20	Ĺ	10.00		ક્ષ	0.00550	1/182	260.29	0.64			10.500	175.00	435.29	435	15.32	1260	6.0
Ŀ	0.20	Ŀ	10.00		æ	0.00550	1/162	250.29	0.64			14.700	245.00	505.29	909	13.73		0.0
0.30	0.30	L	10.000		જ	0.00550	1/162	260.29	0.64			14,700	245.00	505.29	909	13.73	124.3	8.0
153.40 0.20	0.20	L	10.000		88	0.00550	1/162	260.29	0.64			15,400	256.67	518,96	518	13.53	Ĺ	9.0
12 8.50 0.20 6.000	0.20		6 000		8	0.01 583	1/63	77.84	1.28					77.94	78	64.78		0.0
0.20	0.20	L	00.9 Q		88	0.01583	1/63	77.84	1,29					77.94	28	54.78	52.9	3.0
9,70 (0.22	0.22		6.000		36	0.01583	1/63	77.94	1.28			1.500	25.00	102.94	102			2.3
10 12.60 0.20 5.500	0.20		2,500		8	0.01455	1/65	75.31	1.22					75.31	76			3.1
0.20	0.20		6.500		88	0.01455	1/69	75,31	1.22					15.31	94			3.1
13.10 0.20	0,20		6.500		88	0.01455	1/69	75.91	1.22			0.500	833	93.64	8			2.8
10-13 22.80 0.21 6.000	0.21		6.000	-	88	0.01583	82	₹ 1.	1.28			1.500	88 88	100.94	ষ্ট			
10-14 23.90 0.22 6.000	0.22		6.000		88	0.01583	1/63	77.94	1.29			3.000	50.00	127.54	128			2.3
15 4.000	0.28		4.000		88	0.02000	09/	52.13	1.28					52.13	25	23.55	23.6	5.7
28.00 0.22	0.22	L	6.00	┢	88	0.01583	1/83	77.84	1.28	,		3.000	20:03	127.94	82	37.98		2.3
10-15 28.30 0.22 6.000	0.22	L.	88	5	88	0.01583	53/	7.8	1.28			3,630	80.08	137.94	88	86.88	82.1	2.2
L	0.80	L	6.500	-	83	0.01262	1/79	90.47	1.20					90.47	8	48.26		2.7
10-17 39.10 0.22 6.000	0,22	L	8		88	0.01583	1/63	77.94	1.28			3,600	80.08	187.94	<u>5</u>	88		2.2
0.22	0.22		6.00	_	88	0.01583	1/83	77.94	1.28			5.400	80.00	167.94	88	80.6		1.9
1-6,10-16 208.30 0,21 10,000	0.21	Ц	10,000	-	8	0.00550	1/182	260.29	0,54			15,400	256.67	516.98	516	13.63	164.4	0.8
0.21	0.21	Ļ,	10.00		rs.	0.00550	28	280.29	0.54			16.900	315.00			12.47	L	20

Note: I(min/h) = 287.4 x T(year) = 0.34 / t(min) = 0.74

Runoff Calculation by Retional Method

(Future Land Use Condition)

Oued Hemman Basin

Calc.	Sub-beain	Total	Bunoff	Design	Cale.	Calc.	Ç	Calc	Calc	Calc.	Care.
Point	Combination	Area	Cosff.	8,	8(1.8)	Q(2)	60	Q(16)	0(23)	O(30)	Q(100)
		(aq.km)	•	(min)	(cn.m/a)	(cn.m/s)	(cu.m/s)	(cn.m/s)	(cu.m/s)	(cu.m/s)	(cn.m/a)
-		46.00	0.20	260	12.2	15.2	20.7	28.2	8,58	45.4	57.4
2	2	13.00	0.20	100	7.0	6.7	11.9	15.0	20.3	28.0	32.9
0	1-2	59.00	0.20	260	15.6	19.3	26.8	33.7	48.0	58.2	73.8
*	1-3	99.00	0.20	344	21.3	28.8	36.3	45.9	62.7	79.3	100.4
ĸ	4	14.80	0.20	84	8.8	11.1	15.2	19.2	26.2	33.2	45.0
8	1.4	113.60	0.20	344	24.5	30.5	41.8	52.7	72.0	91.1	113.3
۲-	Dem 3 (Leia)	113.60	0.20	344	24.5	30.3	41.8	52.7	72.0	91.1	115.3
80	2-1	135.40	0,21	436	25.7	32.0	43.7	55.3	75.6	82.8	121.0
100	8	12.60	0.23	136	8.2	7.7	10.6	13.4	18.2	23.1	28.2
10	1-8	148.00	0.21	436	28.1	35.0	47.8	80.5	82.6	104.5	132.3
11	Dam 4 (R.B. A)	148.00	0.21	438	28.1	35.0	47.8	80.5	87.6	104.8	132.3
12	2-1	163.00	0.22	308	28.0	38.2	48.4	82.5	85.4	108.0	138.7
13	Dem 5 (R.BB)	163.00	0,22	508	29.0	38.2	49.4	62.3	85.4	108.0	138.7
14	1.8	163.40	0.22	516	28.7	35.7	48.8	81.8	84.3	106.7	135.1
25	12	9.50	0.20	78	5.5	6.8	8.3	11.8	16.1	20.4	25.9
18	Dam 2 (M'darrej)	9.30	0.20	78	5.5	8.3	9.3	11.8	16.1	20.4	23.8
4	12.13	8.70	0.27	102	6.9	8.8	11.8	14.8	20.4	23.8	32.7
18	10	12.80	62.0	78	9.5	11.9	18.2	20.5	28.1	35.5	44.9
18	Dam 1 (Guemgame)	12.60	0.23	92	8.3	11.8	16.2	20.5	28.1	35.5	44.8
ន	10-11	13.10	0.25	84	10.0	12.5	17.0	21.8	29.4	37.3	47.2
21	10-13	22.80	0.28	102	13.7	19.8	28.7	33.8	48.2	58.4	73.8
23	10-14	23.90	0.29	128	15.5	19.3	28.4	33.4	45.8	57.7	73.1
23	15	4.10	0.44	55	5.9	9.6	13.4	16.9	23.1	29.3	37.0
24	10-15	28.00	0.31	128	19.4	24.2	33.1	41.8	57.1	72.3	91.5
2	10-18	28.30	0.31	138	18.6	23.1	31.6	40.0	34.6	69.1	87.5
28	17	10.80	0.23	88	7.2	9.0	12.3	15.5	21.2	28.8	34.0
27	10-17	38.10	0.29	138	24.0	29.8	40.8	51.7	70.8	89.3	113.1
28	10-18	44.90	0.33	168	26.3	32.8	44.7	38.8	77.3	97.8	123.9
29	1-8,10-18	208.30	0.24	516	38.8	49.7	67.8	83.8	117.3	149.4	187.8
8	1-18	222.30	0.26	378	42.5	53.0	72.3	91.5	125.0	158.2	200.2

:						٠	-										-	
Celc.	Sub-basin	Tobe	Bunoff			Average t	Sola		ť	5	<u>r</u>	2	\$1	Ö Si	Design	S S	8	Specifi
Point	Combination	Area	Coeff.	9	<u>유</u>	for Lo	0	2	۶	(v=15)		(v=1.0)		ខ	2	<u>(8</u>	(00)	Dischar
		(8d km)	1 -	(km)	Ê	S	-	(min)	(m/e)	(F)	(Film)	(Eus)	(min)	(min)	(min)	(mm/h)	(cu.m/s)	(cu.m/s/so
-	-	46.00	0.20	10.000	88	0,00550	7,102	260.29	0.64					260.29	560	22.47	57.4	1,2
2	2	13.00	0.20	2500	88	0.01267	1/79	180 BS	1.24					100.85	180	45.58	32.9	2.5
6	1-2	29.00	0.20	10.08	88	0.00550	1/162	260.29	0.64					260.29	560	22.47	73.6	1.2
*	6-+	00.66	0.20	10.000	18	0,00550	1,182	260.29	0.64			2000	88	343.63	344	18.28	100.4	0,1
9	4	14.60	8	6.500	8	0.01538	1/65	88	1.29					88	64	51.84	42.0	5.9
g	4-1	113.60	0.20	10.000	18	0.00550	1/162	580.29	0.64			5.000	88.33	343.63	344	18.26	115.3	1,0
2	Dam G (Laia)	113.60	0.00	10.000	83	0.00550	1/182	260.29	0.64			2000	88.33	343.633	344	18.28	1153	1.0
60	1-5	135.40	0.21	10.000	18	0.00550	1/186	260.29	0.84			10.500	175.00	436.29	436	15.32	121.0	0.9
ග	9	12.60	0.23	10.500	120	0.01143	1/88	135.96	1.29				-	135.96	136	36.29	29.5	2.3
10.	1-6	148.00	0.21	10.000	8	0,00550	1/182	260,29	0.64			10,500	175.00	435.29	436	15.32	132.3	0.8
;	Dam 4 (R. BA)	148.00	0.21	10 000	ধ্য	0.00550	1/192	260.29	0.84			10.500	175.00	435.29	438	15.32	1323	0.9
12	1.7	169.00	0.25	10.00	છ	0.00550	1/162	280,28	0.64			14.700	245.00	605.29	909	13.73	136.7	9.0
13	Dam 5 (A.BB)	153.00	0 25	10.000	R	0.00550	1/192	260.29	0.64			14 700	245.00	608.29	508	13.73	1367	9.0
14.	1.0	163.40	0.22	10.000	18	0.00550	1/192	260.29	0.64			15.400	256.67	616.96	516	13,53	136.1	0.9
15	Ok T	9.50	0.20	6.000	8	0.01583	1/83	77.94	1.28				-	77.94	78	54.76	259	3.0
9	Dam 2 (M'darrel)	9.50	0.20	6.000	88	0.01583	1/83	77.94	1,28					77.94	78	54.76	55.9	3.0
17	12-13	9.70	0.27	989	88	0,01589	÷ 89/	77.94	1.28			1.500	25.00	102.94	102	44.30	32.7	3.6
19	10	12.80	0.23	9.600	8	0.01455	1/69	75.31	1.22					75.31	92	88.88	6.13	3.6
19	Dam 1 (Guemgame)	12,60	0.29	5.500	8	0.01455	1/69	75.31	1,22				-	75.31	76	55.62	44.9	3.8
50	10-11	13.10	0.25	6.500	8	0.01455	1/69	75.31	1.22			0.500	9.33	83.64	9 8	61.94	47.2	3.8
21	10-13	22,80	0.26	6.000	98	0.01583	1/83	77.94	1.28			1.500	25.00	100.94	28	44.80	73.9	3.2
25	10-14	53.90	0.29	6.000	8	0.01 583	1/63	77.94	1.29			3.00	20.00	127.94	128	37.96	73.1	€ (9)
23	15	4.10	0,44	4.000	88	0.02000	1/50	52.13	1,28					62.13	25	73.92	37.0	9.0
34	10-15	28.00	0.31	6.000	88	0.01583	1/63	77.94	1.29			3.000	20.00	127.94	128	37.98	91.5	3.3
52	10-1,6	28.30	0.31	9.000	જ	0.01583	1/83	77.94	1.28			3.600	60.00	137.94	138	98.90	97.6	3.1
56	17	10.80	0.23	6.500	28	0.01262	1/73	90.47	1.20		:			90.47	8	49.28	340	3.5
27	10-17	39.10	0.29	6.000	8	0.01589	1/63	77.94	1.28			3.800	88	137.94	138	3€.90	113.1	2.9
28	10-18	44.90	0.32	6.000	88	0.01583	† (8)	77.94	1.28			5.400	88	167.94	83	31.04	123.9	2.8
59	1-8,10-18	209.30	0.24	10.000	88	0,00550	1/162	260.29	0.64			15.400	256.67	516.96	618	13.53	187.9	0.9
8	1-16	222.30	0.28	10.000	98	0.00550	1/182	560.29	\$ 5			18,900	315,00	576.29	676	12.47	2003	6.0

Oued Hammam Basin

Runoff Calculation by Rational Method

Note: 1(mm/h) = 287.4 x T(year) 10.34 / t(min) 10.74

Runoff Calculation by Rational Method

(Present Land Use)

Oued Blibene Basin

Calc.	Sub-basin	Total	Runoff	Design	Calc,	Calc.	Calc.	Calc.	Calc.	Calc.	Calc.
Point	Combination	Area	Coeff.	Ð	Q(1.05)	(S)	Q(5)	Q(10)	0(22)	Q(50)	Q(100)
		(sq.km)	4.	(min)	(cn.m/s)	(cn.m/s)	(cn.m/s)	(cn.m/s)	(ca.m/s)	(cn.m/s)	(cn.m/s)
-	*	3.98	0.24	51	4	5.3	7.2	9.1	12.4	15.7	19.9
N	1-2	4.48	0.24	90	4.2	5,3	7.2	9.1	12.4	15.7	19,9
n	8	2.18	0.24	33	3.2	4.0	5.4	6.0	9,4	11,9	15.0
4	1-3	99'9	0.24	90	6.3	7.8	10.7	13.5	18.4	23.3	28.5
ĽΩ	1-4	7.03	0.24	68	6.0	7.5	10.3	13.0	1.77	22.4	28.4
ထ	5	0.85	0.24	25	1.6	2.0	2.7	3.4	8.8	5.9	7.4
7	1-5	7.88	0.24	99	8	4.8	3.1.	14.8	661	25.2	31.8
හ	1-8	9.14	0.24	88	6.5	4.8	11.0	14.0	19.1	24.1	30.5
Ø)	***	0.37	0,40	16	1.5	<u>د</u> ئ	2.5	3,3	4.5	5.7	7.3
유	10-11	0.94	0.47	ß	3.3	4,1	5.6	7.1	2'6	12.3	15,6
F	8,10-11	1.29	0.49	35	3.7	8.4	6.3	8.0	10.9	13.7	17.4
12	6	0.16	0.36	1	0.8	0.1	1.3	1.7	23	2.9	3.7
<u></u>	8-11	1.45	74.0	35	4.0	5.0	8.8	8,8	11.7	14.8	18.8
4	7-11	1.50	0.47	37	4.0	4.9	6.7	8.5	11.8	14.7	18.8
<u>ჯ</u>	12	0.34	09'0	24	1.8	2.0	2.7	3.4	4.8	6'9	7.4
18	1-12	10.98	0.28	88	9.1	11,3	15,4	19,8	28.7	33.8	42.8
17	1-13	11.51	0.29	101	8.9	11.1	15.1	19.2	28.2	33.1	41.9
ဆ	18	2.36	0.24	36	3.2	4.0	5.5	7.0	ව. ව	12.1	15.3
1	17-18	2,91	0.27	25	3.2	4,0	5,4	6,9	9,4	11.9	15.1
ଷ	1-13,17-18	14.42	0.29	101	11.1	13.9	19.0	24.0	32.8	41,5	52.5
72	1-14,17-18	14.50	0,29	106	10.8	13.5	18,4	23,3	31.8	40.3	51.0
22	16	0.45	0.56	17	2,5	3,1	4,3	5.4	7.4	8'3	11.8
ន	1-14,16-18	14.95	0.30	106	1.5	14.4	19.6	24.9	33.9	42.9	54,4
24	1-18	15.13	0.30	116	10.9	13.6	18.6	23,5	32.1	40.7	51.5

								:	•									
Calc.	Sub-basin	Total	Huno!!			Average alope	edoje		ō	5	22	2	tzi	O and o	Deoign	Calc	S	Specific
Point	Combination	Aree	Coeff	2	운	for Lo	Q	٥	Ŷ	(v=1.5)	•	(v=1.9)		B	2	(S)	001,00	Discharge
	-	(og.km)	-	Ê	Ê	S	_	(min)	(a/w)	(km)	(min)	(km)	(nim	(LLL)	<u>(Si</u> E)	(תיייייי)	(cu.m/a)	(cu.m/a/aq.km)
_	T	8.6	0.24	988	88	0,01167	1/96	51.41	0.97			-		51,41	20	74.39	19.9	5.0
a	2.5	4.48	0.24	9.300	42	0,01273	1/79	53.50	1.83			0.400	6.67	6017	8	68.49	19.9	4.4
ტ	ø	2.18	0.24	2.300	6	0.02130	1/47	33.29	1.15				:	39.23	8	103:49	15.0	6.9
4	φ.	99'9	0.24	3.300	3	0.01273	1/79	69.50	1.83			0.400	6.67	50.17	8	68.49	29.5	4.4
ស	4-1	8.7	0.24	3.300	\$	0.01273	61/1	53,50	:O3			0.950	14.17	57.67	8	62.51	28.4	0,4
ω	Ş	0.85	0.24	- 800	ş	0.02500	1/40	53.63	1.13				-	23.63	54	131.00	7.4	8.7
_	3.5	88.7	0.24	9.300	4	0.01273	1/73	59.50	1.03			0.850	14.17	29.29	£8	50.61	9	0.4
စ	φ	9.14	0.24	L	3	0.01279	1/3	53.50	1.03			5.050	34.17	19.78	88	80.08	30.5	3.3
on	11	0.37	0.40	L	32	0.02500	04/1	18.45	ė.					16.46	5	175.64	7.3	19.6
P	10-11	8,0	0.47	1.450	32	0.01724	1/58	25.27	0.98					25.27	52	127.10	15.8	16.6
;=	9,10-11	1.29	0.49	1.450	52	0.01724	1/38	25.27	98.0	0.080	9.44			8	æ	88	17.4	13.5
ç.	o	0.16	98.0	0.78	25	0.03571	1/28	10.80	1.07					10.90	:-	288.9	3.7	23.3
6	8-11	1,45	0.47	1.450	52	0.01724	1/58	25.27	0.95	0.880	9.44			8	83	88	13 53	12.9
4	7-11	8,1	0.47	1.450		0.01 724	1/38	25.27	0.86	1.100	12,22			67.49	37	95.09	18.6	12.4
ا ئ	12	0.34	0.83	1.400		0.01857	42/	23.80	0.98					23.80	24	131.00	7.4	21,13
18	1-12	10.98	0.28	0386	3	0.01273	1,779	8	1.03			2.050	34.17	19.167	88	80.03	42.B	3.9
12	1-13	11.51	0.29	9.300	45	0.01273	1/79	53.50	1.03			2.950	47.50	101.00	101	45.23	61.9	3.8
18	81	2.36	0.24	2.000	27	0.01350	1,74	95,57	0.94					36.57	8	97.04	15.9	6,5
13	17-18	2.91	0.27	2.000	27	0.01350	1/74	35.57	0.34			1.30	21 67	57.23	57	68.07	15.1	5.2
ଝ	1-1317-19	14.42	0.29	3:300	54	0.01273	1/79	53 50	1.03			2.850	47.50	101.00		45.23	52.5	3.6
6	1-14,17-18	14.60	0.29	3.300	42	0.01273	173	53,50	1.03			3,150	52.50	106.00	106	43.64	61.0	3.5
35	18	0.45	950	0.800	12	0.01 500	1/67	18.87	0.79					16.97	17	163.06	118	26.3
53	1-14,16-18	14,95	0:30	3.300	45	0.01273	1/79	23.50	1.03			3.150	52.50	108:00	106	43.64	54.4	3,6
4.	1-18	15.13	0.30	3300	42	0.01273	1/79	53.50	1.03			3.750	62.50	116.00	116	60.00	515	90

Note: 1(mm/h) = 287.4 x T(year) ^ 0.34 / I(min) ^ 0.74

Runoff Calculation by Rational Method

Oued Blibene Basin

23.8 41.8 15.55 26.5 39.1 48.4 45.8 14. 3. 8 10 23.4 9. 0. 87.2 20.4 22.9 79.7 77.3 48 9 83.4 (cn:m/s) 85.7 8 31.7 රා රා Calc. Q(100) 85.1 21.0 85 8. 85 33,0 30.9 122 36.7 ¥? <u>ار</u> ن 23. 9 ις: ενί 83 0. 51.4 18.1 63.0 13.4 65.9 62.3 53. 8 61.1 (ca.m/s) Calc. Q(50) 5 5 6 6 16,6 16.0 14.9 85 4. 4. 28.5 0.6 16.6 8.0 8.2 42.0 40.6 14.3 49.8 48,3 10.6 52.0 49.3 60 () 17.7 12.7 (cn.m/s) Calc. Q(25) 10.9 17.9 21.2 8 8.8 13.0 හ හ 14.6 4.5 45 6 5.5 36.4 7 12.1 30.7 35,4 38.1 7 28.7 <u>0</u> <u>57</u> 77 (cn.m/s) 0(10) Calc 8.3 S) 16.8 16.5 5.3 හ. හ 10.3 3.0 4 3.6 23.5 7.4 27.9 30.1 9.3 6 15.4 (cn.m/s) Calc. O(5) 2.2 17.2 ð, B 12.3 ය ක් 7.0 8 6 8 8 17.8 5,4 20.5 22 8 1 8 6.3 10,3 4 12.1 2 6. (cu.m/s) Calc. (2) (2) ις Θ <u>τ</u> 13.8 £.3 4 Q 16.9 16.4 3.6 e G 3, 4 80 80 60 60 (c) 6.6 6.0 ð. 14.3 6.43 17.7 16.7 9.7 6.7 Q(1.05) (ca.m/s) 3 €. 2 Cafc. 101 108 33 œ 8 8 35 101 108 5 8 60 88 82 ည္တ బ్ట F 37 24 88 38 Design (mim) ల్ల 0.38 0,80 0.80 0.46 0.32 0.33 0,50 0.35 0.36 0.80 0.80 0.80 0.80 0.44 O,43 0.32 0,44 0,44 0,80 0,46 0,31 0.34 Runoff Coeff. 2, 18 3 98 4.48 6.66 7.03 0.85 7,88 9.14 0.37 0.94 8 0.16 45 05. 0.34 10.98 11.51 238 2.91 14.42 0.45 14.95 15, 13 (sq.km) Area Total Combination 1-13,17-18 1-14,17-18 1-14,16-18 Sub-basin 8,10-11 17-18 10-11 1-12 1-13 7-11 1-18 ម្នា 1-6 <u>-</u> (¹) ŭ 4-- 8 ති Ø m ល Point Calc. $\overline{\alpha}$ it) 9 2 <u>0</u> क्षक ଷ ଷ 연 0 # # Ŋ Ξ Ø

Oved Blibene Basin

Runoff Calculation by Retional Method

Note: I(mm/h) = 287.4 x T(year) ^ 0.34 / I(min) ^ 0.74

Runoff Calculation by Rational Method

Oued Hallouf Basin

(Present Land Use)

•																									
Calc.	Q(100)	(cu.m/s)	22.1	14.1	33.2	89.88	27.0	10.7	16.3	43.0	39.4	18,4	80	83.9	18.8	8,4	7.8	58.8	53.8	0.7	58.4	58.2	13.9	68.4	629
Cafc.	Q(50)	(cn.m/s)	17.5	11.1	26.3	23.6	21.3	8,4	12.8	34.0	31.1	14.5	15.8	16.5	14.7	8.8	6.2	46.5	42.5	7.7	46.1	44.4	11.0	54.0	52.0
Calc.	0(22)	(cn.m/s)	13.8	8.8	20.8	18.9	16.8	6.7	10.2	28.3	24.6	<u>+</u>	12.5	13.0	11.5	5.2	4	36.7	33.6	6.1	36.4	35.1	8.7	42.7	41.1
Calc.	Q(10)	(cn.m/s)	10.1	6.4	15.2	13.6	12.3	9.4	7.4	19.7	18.0	3.4	2.9	9.5	ဆ	3.8	3.6	88.9	24.6	4.4	28.7	25.7	6.4	31.2	30.1
Cafc.	Q(5)	(cu.m/s)	8.0	5.1	12.0	10.8	6.7	3.8	5.9	15.5	14.2	6.8	7.2	7.5	6.7	3.0	2.8	21.2	19,4	3.5	21.1	20.3	5.0	24.7	23.8
Calc	Q(S)	(ca.m/s)	5.9	3.7	8.8	7.9	7.1	2,8	4.3	11.4	10.4	4.9	5.3	5.5	4.9	2.2	2.1	15.6	14.2	2.6	15.4	14.9	3.7	18.1	17.4
Calc.	Q(1.05)	(cu.m/s)	4.7	3.0	7.1	6.3	5.7	2,3	3.5	9.1	8.4	3.9	4.2	4.4	3.8	1.8	1.7	12.5	11.4	2.1	12.4	11.9	3.0	14.5	14.0
Design	ည္	(mim)	33	ន	33	47	22	32	53	25	67	4	27	37	49	83	42	29	08	27	80	82	63	85	90
Runoff	Coeff.	•	0.52	0.28	0.41	0,40	0.38	0,24	0.26	0.33	0.33	0.56	0,55	0.51	0.50	0,56	0.54	0.37	0.36	0.52	0.37	0.37	0.48	0.39	0.39
Fotal	Area	(sq.km)	1.48	1.34	2.82	3.37	3.70	1.51	3.09	6.79	7.01	0.70	1.09	1.55	1.73	0.46	09.0	9.34	10.01	0.56	10.57	10.65	1.63	12.28	12.34
Sub-basin	Combination		•	N	1-2	1-3	1-4	B	6-7	1-4, 6-7	1-7	18	17-18	16-18	15-18	14	13-14	1-7, 13-18	1-8, 13-18	12	1-8, 12-18	1-9, 12-18	Q	1-10, 12-18	1-18
Calc.	Point		سو	82	Ю	4	ro.	ဖ	7	ω.	6	ᅌ	11	12	13	14	55	18	17	18	19	8	21	22	ន

35.49 35 105.49 22.1 22.22 23 105.19 14.1 33.49 33 100.49 38.2 47.21 47 73.68 29.8 57.39 57 68.07 27.0 32.19 32 105.89 10.7 22.60 53 72.69 10.7 22.60 53 72.69 10.7 22.60 53 72.69 10.7 22.60 53 72.69 10.7 22.60 57 60.06 10.7 22.60 57 60.06 10.7 22.60 27 120.06 20.9 40.00 49 77.25 18.4 42.00 42 66.58 7.8 24.00 42 66.58 7.8 26.50 57 67.2 68.4 26.50 57 120.06 97 26.50 57 67.2 68.4	Runoff	Cuad Hallout Bean (Present Lanc Use) Runoff Average alope cf. L1 tf. L2 Coeff Lo Ho for Lo to vo (v≈1.5) (v=1.0) f (km) (m) (min) (km) (km) (km)	Cued Hallouf Basin (Present Land Use) Lo Ho Ho for Lo to vo (v=1.0) (km) (m) (min) (km) (km)	Outdot Hallout Basen Christians Uses Average blope cf. L1 tf L2 Ho Lo Lo to vo (v≈1.5) (v=1.0) (m) (km)	a picpe to vo (v≈1.5) (min) (km) (km)	a slope to vo (v≈1.5) (m/s) (km) (m/s) (km)	to vo (v=1.5) (min) (km)	of (v=1.5) (v=1.0) (v=1.0) (v=1.0)	(v≈1.5) (v=1.0) (km) (km)	t1 L2 (v=1.0) (km)	(km)		2 (min		Całc. to (min)	Deergn to (min)	Cate. 1(100) (mm/h)	Catc Q(100) (cu.m/s)	Spacific Discharge (cu.m/a/sq.km)
22.92 23 135.13 141 33.49 33 103.49 33.2 4.17 51.29 57 69.07 27.0 22.19 32.19 77.69 10.7 27.0 4.17 57.39 57 69.07 45.0 10.33 56.56 67 61.29 30.4 10.00 37.34 37 10.09 20.0 20.69 37.34 37 10.00 20.0 20.69 37.34 37 66.09 20.0 20.69 37.34 37 66.09 20.0 20.69 37.34 37 66.09 20.0 20.69 37.34 37 66.09 20.0 20.69 43 45.00 42 66.09 20.0 20.69 45 45.00 42 66.09 20.0 20.60 45 45.00 20.0 20.0 20.60 45.00 45.00 20.0	1,752 33.49	0.52 2.200 42 0.01909 1/62 33.49	2.200 42 0.01909 1/62 33.49	42 0.01909 1/62 33.49	0.01909 1/52 33.49	1,62 33.49	33.49		8.1						33.49	83	103.49	1.52	14,9
33.49 33 103.49 33.2 4.17 47.21 47 73.68 25.98 4.17 32.13 57.39 57 27.00 27.0 4.17 57.39 57 105.89 10.7 27.0 4.17 57.39 57 83.07 43.0 43.0 10.33 66.56 67 61.28 30.4 40.0 20.69 37.34 43 18.69 20.0 20.0 20.69 37.34 43 45.03 20.0 20.0 20.69 37.34 43 45.03 20.0 20.0 20.60 37.44 43 45.03 20.0 20.0 20.60 42 46.03 77.25 18.6 20.0 20.61 42.00 42 46.03 77.8 20.0 20.62 26.62 27 120.05 37.4 20.0 20.62 27 120.05 37.4 20.0		0.28 1.400 29 0.02071 1/48 22.92	1,400 29 0,02071 1/48 22.92	29 0.02071 1/48 22.92	0.02071 1/48 22.92	1/48 22.92	22.92		1.02						22 52	83	135,19	1.4.1	10.5
417.21 47 73.68 25.8 4.17 26.39 57 68.07 27.0 22.19 52 106.89 10.7 27.0 4.17 57.39 57 68.07 45.0 13.33 66.56 67 61.29 33.4 10.00 26.50 27 120.09 20.0 20.69 37.34 37 86.09 20.0 20.60 37.34 37 86.09 20.0 20.60 37.34 37 86.09 20.0 20.60 37.34 37 86.09 7.8 42.00 42 66.59 7.8 8.0 26.67 77 66.59 7.8 8.0 26.67 78 80.59 7.8 8.0 26.67 78 80.59 8.0 8.0 26.67 78 80.74 80.8 8.0 26.67 78 60.73 80.8 8.0	1.2 2.82 0.41 2.200 42 0.01909 1/52 33.49 1.09	0.41 2.200 42 0.01909 1/52 33.49	2.200 42 0.01909 1/52 33.49	42 0.01909 1/52 33.49	0.01909 1/52 33.49	1/52 33.49	33.49		1.00			- 1	_		33,49	83	103.49	33.2	11.9
4.17 57.38 57 68.07 27.0 32.19 32 105.89 10.7 4.17 57.39 57 68.07 43.0 10.38 56.56 67 61.28 33.4 10.00 26.50 17 165.09 184 20.69 37.34 37 86.09 20.0 20.69 37.34 37 86.09 20.0 32.69 37.34 37 86.09 20.0 42.00 42 67 61.28 78 21.67 42.00 42 66.29 78 21.67 26.60 57 61.28 59.0 21.67 26.50 27 120.05 37 21.67 26.50 27 120.05 37 21.67 26.50 27 120.05 37 21.67 26.50 27 120.05 37 21.67 26.50 27 120.05 37	59 0.01656 1/60 47.21	0.40 3.200 53 0.01656 1/60 47.21	3.200 69 0.01656 1/60 47.21	53 0.01656 1/60 47.21	0.01656 1/60 47.21	1/60 47.21	47.21		1,13			- 1	1		47.21	47	79.68	28.8	6.9
32.19 32 105.89 10.7 22.65 53 72.69 16.3 10.33 56.56 67 61.28 39.4 10.00 26.50 27 120.06 20.0 20.69 37.34 37 45.09 20.0 20.69 37.34 37 45.09 20.0 20.60 37.34 37 45.09 20.0 20.60 37.34 37 45.09 20.0 20.60 37.34 38 44.00 42.00 42.00 20.60 73.60 73 70.06 9.7 20.60 73.60 73 70.06 9.7 20.60 73.60 73 70.06 9.7 20.60 73.60 73 70.06 9.7 20.60 73.60 73 70.06 9.7 20.60 73.60 73 70.06 9.7 20.60 73.60 73.60 73.60 20.60 73.60 73.60	1.4 3.70 0.38 8.700 60 0.01622 1/62 53.22 1.15	0.38 8.700 60 0.01622 1/62 53.22	8.700 60 0.01522 1/62 53.22	60 0.01622 1/62 53.22	0.01622 1/62 53.22	1/62 53.22	53.22		1,16			- 1	0,250	4.17	57.33	25	68.07	27.0	7.3
25 60	6 1,51 0.24 1.500 30 0.01579 1/63 32.19 0.38	0.24 1.900 30 0.01.579 1/63 32.19	1,900 30 0,01,679 1/63 32,19	30 0.01579 1/63 32,19	0.01.679 1/63 32.19	1/63 32.19	32,19		0.98			- 1			32.19	છ	105.88	10.7	7.1
417 57.39 57 69.07 43.0 10.33 56.56 67 61.28 33.4 10.00 26.50 21 1.00.06 20.9 20.09 37.34 37 66.09 20.9 20.09 37.34 37 66.09 20.9 20.09 27.06 29 20.9 20.9 42.00 42 29 116.07 84 42.00 42 26.53 7.8 26.9 26.67 79 53.74 53.9 26.2 26.67 79 53.74 53.9 26.2 26.67 79 53.74 53.9 26.2 35.07 83.49 85 64.14 13.9 35.00 63.49 85 64.14 13.9 35.07 83.04 85 64.14 13.9 35.07 83.49 85 64.14 13.9 35.07 83.0 83.4 86.5	B-7 3.09 0.28 3.400 48 0.01412 1/71 52.50 1.09	0.28 8.400 48 0.01412 1/71 52.60	8.400 48 0.01412 1/71 52.60	48 0.01412 1/71 52.60	0.01412 1/71 52.60	1/71 52.60	52.60		98,1			- 1			88	ន	72.69	18.3	5.3
13.33	14,6-7 8.79 0.39 8.700 60 0.0162 1/62 53.22 1.16	0.33 8.700 60 0.01622 1/62 53.22	3.700 60 0.01622 1/62 53.22	60 0.01622 1/62 53.22	0,01622 1/62 59.22	1/62 53.22	53.22		9+,1				0.250	4.17	57.39	25	69.07	43.0	6.3
16.50 17 169.08 18.4 18.4 10.00 2.65.0 27 120.08 20.0 20.0 20.0 20.0 20.0 20.0 20.0	0.33 8.700	0.33 8.700 60 0.01522 1/62 53.22	3.700 60 0.01622 1/62 53.22	60 0.01622 1/62 53.22	0.01622 1/62 59.22	1/62 53.22	53.22		1.18				0.800	13.33	96.96	19	61.28	39.4	5.6
10 00 28 50 27 120 06 20 0 20 69 37.34 37 85.09 20 9 32 60 419 00 41 17.25 18.6 21 13.39 68.56 67 61.28 58.9 21.67 73.69 80 53.74 53.8 21.67 73.69 80 53.74 53.8 21.67 73.69 80 53.74 53.8 25.67 73.69 80 53.74 53.8 25.67 73.69 80 53.74 53.8 25.67 73.69 80 53.74 53.8 25.67 73.69 80 53.74 53.8 25.67 73.69 80 53.74 53.8 25.67 73.69 80 53.74 53.8 25.67 73.69 80 53.74 53.8 25.67 73.69 80 53.74 53.8 25.67 73.69 80 53.74 53.8 25.67 73.69 80 53.74 53.8 25.67 73.67 73.67 53.8 25.67 73.67 73.67 53.8	18 0.70 0.56 1.100 39 0.03000 1/38 16.50 1.11	0.58 1.100 39 0.03000 1/38 16.50	1.100 39 0.03000 1/38 16.50	36 0.03000 1/38 16.50	0.03000 1/38 16.50	1/38 16.50	16.50		1,11						16.50	1.	189,08	18.4	28.3
20 68 37.34 37 96.09 20.9 32 65 49.00 49 77.25 18.6 13.88 68.56 67 61.29 59.9 26.67 73.69 67 61.29 59.0 21.67 73.69 67 61.29 59.0 21.67 73.69 27 120.05 9.7 21.67 26.89 27 120.05 9.7 31.67 64.69 65.74 53.0 62.2 35.00 63.49 65 65.13 56.2 31.67 94.69 65 65.13 56.2 31.67 94.69 65 65.13 56.2 31.67 94.69 65 65.34 56.2 31.67 94.69 95 44.14 13.9 31.67 94.69 95 45.29 56.2	17.18 1.09 0.55 1.100 38 0.09000 1/39 16.50 1.11	0.55 1.100 39 0.03000 1/39 16.50	1.100 33 0.03000 1/33 16.50	339 0.030000 1/339 16.50	0.03000 1/33 16.50	1/39 16.50	16.50		1,11				0.83	208	28.50	23	120.08	0 0 0 0	6.9
32 60 49 00 46 77.25 18 6 27.66 28 116.87 8.4 13.38 68.58 67 61.28 7.8 26.67 73.69 87 62.74 63.6 26.67 73.69 87 63.4 87 31.67 84.69 85 61.39 56.2 35.00 63.49 85 61.39 56.2 31.67 84.69 85 61.39 56.2 31.67 84.69 85 61.39 56.2 31.67 84.69 85 61.39 56.2 31.67 84.69 85 61.39 56.2 31.67 84.69 85 61.39 56.2 35.67 85.69 90 49.26 65.9	16.18 1.55 0.51 1.100 39 0.03000 1/33 1.6.50 1.11	0.51 1.100 39 0,03000 1/33 15.50	1.100 39 0,03000 1/33 16.50	39 0,03000 1/39 16.50	0,03000 1/39 16.50	1/33 16.50	16.50		1,11				1.250	20.63	37.34	37	88.03	50.8	13.5
27,06 29 116,87 84 42,03 42 66,58 78 13,33 68,58 67 61,28 58 26,67 73,68 97 63,74 59,8 21,67 78,69 97 63,74 59,4 31,67 84,69 95 61,38 56,2 35,00 63,49 95 61,39 56,2 31,67 94,69 95 61,39 56,2 31,67 94,69 95 61,39 56,2 31,67 94,69 95 61,39 56,2 31,67 94,69 95 61,39 56,2 31,67 94,69 95 61,39 56,2 31,67 94,69 95 65,39 56,4 31,67 94,69 95 65,39 56,4 31,67 94,69 95 65,39 56,4 31,67 94,69 96 65,39 66,4	15-18 (1.73) 0.50 1.100 33 0.03000 1/33 18-50 1.11	0.50 1.100 33 0.03000 1/33 15.50	1.100 33 0.03000 1/33 16.50	33 0.03000 1/39 16.50	0.03000 1/39 16.50	1/33 15.50	16.50		1.1.1				1.950	83.63	88	\$	77.25	18.6	10.7
42.03 42 65.56 78 13.33 68.56 67 61.28 58.6 28.67 73.69 97 63.74 63.8 28.67 73.67 83.74 63.8 87 31.67 73.69 80 63.74 63.4 35.00 63.49 85 61.39 56.2 35.07 63.49 85 64.14 13.9 35.07 63.49 85 64.14 13.9 35.67 85.89 90 49.26 65.9	14 0.46 0.56 1.200 11 0.00917 1/109 27.96 0.72	0.56 1.200 11 0.00917 1/1.09 27.96	1.200 11 0.00917 1/109 27.96	11 0.00917 1/109 27.96	0,00917 1/109 27,96	1/109 27.96	27.96		0.72			-1			27.86	28	116.67	6.4	18.2
13.33 68.65 67 61.28 58.98 28.67 79.69 90 53.74 53.8 21.67 26.89 27 120.05 9.7 31.67 81.89 60 53.74 58.4 35.00 63.49 65 51.39 56.2 31.67 91.69 95 61.39 68.4 36.67 65.99 90 49.26 65.9	15 0.00769 1/127	0.54 1.900 15 0.00769 1/127 42.09	1.500 15 0.00789 1/127 42.09	15 0.00769 1/127 42.09	0.00769 1/127 42.03	1/127 42.03	45.09		0.75			1			42.00	2	86.58 86.58	7.8	13.0
26.67 73.689 80 637.4 63.9 21.67 26.89 27 120.08 9.7 21.67 26.89 27 120.08 9.7 31.67 64.69 65 51.39 56.2 35.00 63.48 66.14 13.9 68.14 31.67 94.69 95 65.39 68.4 36.67 66.89 90 49.26 65.9	1-7, 19-18 9.34 0.37 3.700 60 0.01622 1/62 53.22 1.16	0.37 3.700 60 0.01622 1/62 53.22	3,700 60 0,01622 1/62 53,22	60 0.01622 1/62 53.22	0.01522 1/62 53.22	1/62 53.22	53.22		1,16				0.800	13.33	98 98	29	61.29	58.9	6.3
21.67 26.89 27 120.05 9.7 26.67 73.89 80 63.74 58.4 35.00 63.48 65 67.38 56.2 35.00 63.48 65 64.14 13.9 31.67 54.69 95 45.28 68.4 36.67 66.89 90 49.28 66.9	1-8, 13-18 10.01 0.38 3.700 80 0.01622 1/82 53.22 1.16	0.38 3.700 60 0.01622 1/62 53.22	3.700 60 0.01622 1/62 53.22	SO 0.01622 1/62 53,22	0.01622 1/62 59.22	1/62 59.22	59.22		1.16				1,600	26.67	28 88	8	53,74	53.8	5.4
26.67 73.69 80 83.74 58.4 31.67 64.69 65 61.89 56.2 35.00 63.48 63 64.14 13.9 31.67 34.69 95 49.26 68.4	. 12 0.56 0.52 0.300 13 0.04339 1,739 5.27 0.95	0.52 0.300 13 0.04333 1/23 5.27	0.300 13 0.04333 1/23 5.27	13 0.04333 1/23 5.27	0.04333 1/23 5.27	1/23 5.27	5.27		0.95				1.300	- 21.67	26.93	27	120.06	9.7	17.3
31.67 64.69 65 61.89 56.2 35.00 63.48 63 64.14 13.9 31.67 34.69 85 61.39 68.4 36.67 86.89 30 49.26 65.9	3.700 60 0.01622 1/62	0.37 3.700 60 0.01622 1/62 53.22	3.700 60 0.01622 1/62 53.22	60 0.01622 1/62 53.22	0.01622 1/62 53.22	1/82 53.22	53.22		1,16				1.600	25.67	79.69	8	53.74	58.4	5.5
35.00 63.48 63 64.14 13.9 13.9 3.1 13.9 13.9 13.9 13.9 13.9	1-8, 12-18 10.65 0.37 3.700 60 0.01622 1/62 53.22 1.16	0.37 3.700 60 0.01622 1/62 53.22	3.700 60 0.01622 1/62 53.22	60 0.01622 1/62 53.22	0.01622 1/62 53.22	1/62 53.22	53.22		1.16				1.900	31.67	84.89	3 6	61.33	56.2	5.3
31.67 84.69 B5 61.39 68.4 36.67 86.89 90 49.26 66.9	10 1.63 0.48 1.100 8 0.00727 1/130 28.48 0.54	0.48 1.100 8 0.00727 1/136 28.48	1.100 8 0.00727 1/138 28.48	8 0.00727 1/138 28.48	0.00727 1/138 28.48	1/136 28.48	29.48		0.64				2.130	35.00	63.48	8	64,14	13.9	9.6
36.67 89.89 90 49.28 66.9		0.39 3.700 60 0.01622 1/62 53.22	3.700 60 0.01622 1/62 53.22	60 0.01622 1/62 53.22	0.01622 1/62 53.22	1/62 53.22	53,22		1.16				1.90	31.67	94 66	88	51.39	884	5.6
	1-18 12.34 0.39 3.700 60 0.01522 1/62 53.22 1.18	0.39 3.700 60 0.01622 1/62 53.22	3.700 60 0.01622 1/62 53.22	60 0.01622 1/62 53.22	0.01622 1/62 53.22	1/62 53.22	53.22		1.16				2.200	36.67	68:69	8	49.28	6.39	5.3

Note: I(mm/h) = 267.4 x T(year) ^ 0.34 / I(min) ^ 0.74

Runoff Calculation by Rational Method

Oued Hallouf Basin

128.0 121.2 4.9 113.6 34.0 40.3 64.9 84.9 83 2 ± r; 107.8 109.3 59.1 22.2 33.2 92.2 32.8 8 118.1 19.7 8 Q(100) (cu.m/s) 15.6 88.83 8.60 8.50 9 <u>1</u> 88.3 99.5 7.5 28.2 72.8 8.05 93.3 85,0 89.8 £ 80, 51.2 <u>—</u> 26.9 48.7 46.7 87.1 (cn.m/s) Calc. Q(50) 67.2 68.2 57.6 53.0 16.4 18.2 ري ري 7.5 ر لاز 73.8 ල ල 50.7 12.3 40.5 38.5 36.9 13.9 8.02 78.7 75.7 21.2 8.7 83 (cn.m/s) (<u>8</u>) Calc 27.0 15.2 28.2 12.0 33 13.6 ත හ ග 49.2 8 8 51.9 50.0 57.8 55.4 5.8 18.4 8 42.1 38.8 15.0 54.0 (cn.m/s) Calc. Q(10) 33.3 (C) 10.5 4 43.8 14.5 833 21.3 8.0 12.0 1.8 6. 38,9 5.4 41.0 39.5 45.5 12.3 23,4 30,7 10.7 42.7 (cu.m/s) Salci Q (5) 22.5 3 2 **4** 0 0 17.2 16.3 5.9 5.9 8.8 24.4 7.7 8 7 31.3 83 30.1 33.3 10.6 ე. (cn.m/s) (S) (D) Calc. 22.8 3.2 8 7.0 19.6 5.6 8.2 S 7.0 6.3 2.5 4 **8** 13.8 12.5 18.0 24.1 83.7 13.1 4.7 0(1.05) (cn.m/s) 3 2 2 8 8 8 8 7 27 77 3 8 8 8 8 45 282 27 8 88 Design (<u>m</u> ō 0.80 0.80 0.80 0.50 0.53 0.68 0.68 0.80 0.80 0.80 0,80 0.80 0.80 0.70 0.80 0.70 0.70 0.70 0.80 0.80 0.71 Runoff Coeff. 1,48 2,82 900 6.79 0.70 90. 1,55 1.73 0.46 0.56 3.37 1.5. 7.01 0.60 9.34 10,65 1.63 12.28 12.34 10.01 10.57 (sq.km) Area Total Combination 1-10, 12-18 Sub-basin 1-7, 13-18 1-8, 13-18 1-8, 12-18 1-9, 12-18 16-18 13-14 1-4, 6-7 17-18 15-18 بر 65 ب 4 8-7 -7 건 Ö Φ N Calc. Point 악 ᅇ 0 ี่ ង ន 5 Ü 4 50 9 ... درا Ф 4... Ö Ø 3 ß φ Ø

(Foture Land Use Condition)
Oned Hallout Baran

Calc.	Sub-beain	Total	Punoff			Average slope	6 P8		ō	5	£	3	22	Sign	Daoign	98 0	8	Specific
Point	Combination	Area	Coeff.	<u>۔</u> ع	운	for Lo	0	2	9	(v=1.5)	•	(v=1.0)		ខ្ព	బ	(18) (18)	6,00	Discharge
		(B km)	_	(F.H.)	Ê	Ø		(min)	(m/o)	(km)	(min)	(km)	(mm)	(min)	(min)	(mm/h)	(cn.m/a)	(cu.m/s/eq km)
-		1,48	80	2 200	â	909100	1/88	33.49	1.00.1					33.49	33	103.49	940	23.0
5	2	1.34	080	1 400	8	0.02071	1/48	25.55	5. 8.					22.52	53	136.19	40.3	30.0
Ø	1.2	2.82	0.80	2.200	4	0.01909	1/52	33.49	1.08		-			83.49	8	103.49	64.9	23.0
*	1-3	3.37	0.80	2.200	42	0.01909	1/52	33.49	€0,	1.88	11.11			44.60	45	82.27	61.6	18.3
w	1.4	3,70	0.00	2.200	54	0.01909	1/52	33.49	1.08	1.500	16.67	0.250	4.17	8	54	£	59.1	16.0
8	9	1.51	0.50	1 900	8	0.01579	1/63	32.19	0.98					32,19	88	105.88	22.2	14.7
7	6-7	3.09	0.53	3,400	6	0.01412	1/71	52.60	1.08			-		82.60	23	72.89	38.2	10.7
6	14.67	6.79	69'0	2.200	75	0.01909	1/52	33.49	1.09	1.500	18.67	0,250	4.17	54.33	22	71.89	32.2	13.6
G ₁	1.7	7.01	0.69	2.200	24	60610.0	1/52	33.48	1.09	1.500	18.67	0.800	13.33	63.49	8	64.14	64.9	12.1
10	19	0.70	0.80	1.100	88	0.03000	1/39	16.60	1.11					16.50	17	169.08	26.3	37.6
11	17-18	1.09	0.80	1.100	83	0.03000	1/33	18.50	1,11			0.600	10.00	26.50	27	120.08	29.1	26.7
12	16-18	1,55	0.00	1.100	88	0.03000	1/33	16.50	1,11			1.250	83.83	37.34	37	96:09	89	21.1
10	15-18	1.73	0.00	1.100	88	0.03000	1/33	18.50	1.11			1.950	88.50	49.00	48	77.25	282	17.2
14	14	0.45	0.90	1 200	11	0.00917	1/109	37.06	0.72					27.88	59	116.87	11.9	26.0
15	13-14	0.60	08:0	1 900	15	0.00789	1/127	42.03	0.75					42.03	42	98.58	11.5	CN:
16	1-7, 13-18	9.34	0.71	2.200	74	0.01909	1/62	33.49	80,1	1.500	18.67	0.800	13.33	63.49	83	64.14	118.1	12.6
17	1-8, 13-18	10.01	0.70	2.200	42	0.01909	1,52	33.49	8,	1.500	18.67	÷	26.67	76.83	77	62.23	107.8	10.6
18	12	0,56	0.80	0.300	13	0.04333	1/23	5.27	0.95 29.			1,300	21.67	S6.99	22	120.08	14.9	26.7
19	1-6, 12-18	10.57	0.70	2.200	42	0.01909	1,752	33.49	8	1.500	18.67	83.	26.67	76.83	77	62.39	113.6	10.6
50	1-8, 12-16	10.65	0.70	2.200	42	0.01909	325/	33,48	-8	1,500	16.67	1,900	31.67	84.89	85	62.77	1093	10.3
21	10	1.83	0.68	1.180	9	0.00727	1/138	28.49	0.84			2,100	35.00	63.46	88	64,14	18.7	12.1
22	1-10, 12-18	12.29	0.70	2.200	42	0.01909	1/62	33.49	÷.09	1.500	16.67	1.900	31.87	9183	83	52.77	1280	10.3
83	1-18	12.34	0.70	2.200	42	0.01909	7,53	33.49	85	88	16.67	2.300	36.67	88	87	50.51	121.2	9.6

Note: 1(mm/t) = 287.4 x T(year) 0.34 / t(min) 0.74

ar.	Runoff Calculation by Pational Mathod	Mathod		Oued Hamdoun Basin	loun Basin			(Present Land Use)	nd Use)		:
Cale.	Sub-basin	Total	Hount	Pesign	Calc.	Calc.	Calc.	Calc	Celc.	Calc.	Oglo.
Point	Combination	Area	Coeff.	ខ្ព	0(1.03)	(2) (2)	(S)	Q(10)	Q(25)	() () ()	Q(100)
-		(sq.km)	-	(min)	(cn.m/s)	(cn.m/s)	(cu.m/s)	(cu.m/s)	(c/m.m2)	(cu.m/a)	(cu.m/s)
-		120,30	0.22	402	25.4	31.8	43.2	7.45	7.47	20.45	119.6
Ć1	1-2	144.40	0.22	458	27.7	8	47.1	59.8	4.18	103.0	130.4
с	9	13.00	0.22	136	6.1	7.6	10.4	13.2	18.0	22.8	28.8
4	6.5	157.40	0.22	458	30.2	37.8	51.3	65.0	88.7	112.3	142.1
80	1-4	170.80	0.22	300	30.6	38.2	52.1	68.0	5.08	114.0	4.4
\$	9	7.80	0.20	114	3.8	4.7	6.3	89	11.2	14.2	17.9
^	*	178.40	0.22	200	8.0	39.9	5. A.	0.68	\$ 2	118.3	151.0
œ	1.6	179.00	0.22	908	31.8	38.6	₹ 	68.4	80.5	118.3	49.7
0		11.30	0.20	118	5.4	8.7	9.1	11,6	13.8	20.0	25.3
2	2-2	190.30	0.22	900	33.8	42.1	57.5	72.8	99.4	125.7	139.2
13	\$	193.10	0.22	348	32.4	40.4	53.2	68.8	E'68	120.8	132.7
쯗	18	21.70	0.22	142	6.6	12.3	16.8	21.3	28.1	36.8	46.8
£	Dam 1 (R.B. A)	21.70	0.22	142	9.8	12.3	16.8	21.3	29.1	36.8	46.6
#	18-19	23.10	0.22	180	9.6	12.0	18.4	20.8	28.4	33.9	43.4
5	20	4.50	0.20	88	3.2	4.0	5.5	8.9	9.5	12.0	15.2
9	18-20	27.60	0.22	160	11.5	14.4	19.6	24.8	828	42.9	1
=	18-21	33.50	0.21	228	10.3	12.9	17.8	22.3	30.4	38.5	49.7
82	1-8,18-21	226.80	0.22	348	38.0	47.4	64.7	81.9	111.9	141.6	178.2
189	1.9.18.21	228.70	0.22	352	37.8	47.2	64.4	81.5	111.3	140.8	178.3
20	10	6.90	0.20	120	3.2	4.0	3.5	7.0	9.5	12.1	15.3
23	1-10,18-21	233.80	0.22	552	39.0	48.6	88.4	0.49	114.7	145.1	183.7
22	1-11,18-21	234.80	0.22	368	38.4	47.9	65.4	82.8	113.1	143.1	181.1
83	22	20.40	0.20	168	7.5	9.4	12.8	18.2	22.2	28.0	35.5
24	1-11,18-22	255.00	0.22	288	41.8	52.1	71.1	90.0	122.9	155.5	196.9
22	1-12,18-22	256.50	0.22	576	41.5	51.7	70.6	89.4	122.0	154.4	195.5
28	Dam 2 (R.BB)	256,50	0.22	376	41.5	51.7	70.6	89.4	122.0	124.4	195.5
27	1-13,18-22	265.40	0.22	8	41.4	51.7	70.5	89.3	121.9	154.3	195.3
26	44	7.30	0.20	98	4.5	3.8	7.7	9.7	13.3	16.8	212
82	1-14,18-22	272.90	0.22	8	42.8	53.1	72.5	91.8	125.4	158.8	200.8
8	1-15,18-22	284.90	0.22	672	41.1	51.2	70.0	68.8	120.9	153.0	183.7
3	16	26.20	0.22	174	10.3	12.8	17.5	22.1	30.2	38.3	48.4
8	1-16,18-22	311.10	0.22	872	44.9	26.0	78.4	98.7	132.1	167.1	211.5
8	1.22	312.80	0.22	692	44.2	53.1	75.2	93.1	129.9	164.4	208.1

Calc.	Sub-basin	Tobal	Honoff			Average c	alopa		ັນ	5	<u>r</u>	2	23	<u>ရှိ</u>	Design	Oak	<u>ğ</u>	Specific
Point	Combination	Area	Cooff	2	£	io	9	2	Ş	(v=15)		(v=1.0)		٤	5	<u>5</u>	6(100)	Discharge
		(my km)	-	(Eux)	Ê	တ	_	(min)	(m/a)	(km)	(min)	(km)	(uiE)	(mln)	(min)	(mm/h)	(cu.m/s)	(cu m/s/aq km)
-		120.30	0.22	15.80	8	0.00400	1/250	402.07	0,62				_	402.07	48	16.27	119.6	1.0
CV.	1-2	144.40	0.22	15.000	8	0.00400	7,250	402.07	0.62			3.300	55.00	457.07	458	14.78	130.4	0.9
ტ	8	9.61	0.22	0008	ኤ	0.00833	1/120	- - - - - - - - - - - - - - - - - - -	1,10					136.35	136	36.29	28.6	2.2
7	0-F	157.40	0.22	16.000	8	0.00400	1/250	402.07	0.62			3,300	65 CO	457.07	459	14.78	142.1	0.9
9	4-1	170.60	0.22	15.000	8	0.00400	1/250	405.07	0.62			5.900	98.33	500.40	800	13.95	144.4	9.0
9	S	7.80	0.20	9.000	88	0.01063	1/94	113,41	1:18					113.41	114	41.35	621	8:3
7	1-5	178.40	0.22	15.000	8	0.00400	1/250	402.07	0.62			5.500	88.33	500.40	2005	13.85	151.0	3.0
8	φ	179.00	0.22	15.000	8	0.00400	1/250	402.07	0.62			6.400	106.67	608.73	809	13,63	149.7	0.8
9	7	11.30	0.20	B.200	83	0.07 000	81/1	118.32	1.16					118.32	119	40.31	25.3	2.2
0	1-7	190.30	0.22	15.000	8	0.00400	1/250	402.07	0.62			6.400	106.67	508.73	8	13.59	159.2	0.8
11	1-8	193.10	0.22	15.000	8	0.00400	1/250	405.07	0.52			9.700	145.00	547.07	548	12.94	152 7	0.8
22	61	21.70	0.22	6.500	જ	0.00385	1/260	142.93	0.76					142.99	145	35.15	46.6	2.1
5	Dam 1 (R.BA)	21.70	0.22	008.9	S	0.00365	1/260	142.93	0.76					142.59	142	36,15	46.5	2.1
4	18-19	23.10	0.22	6.500	35	0.00365	1/260	142,93	0.75	-		1,300	16.67	159.59	8	32.18	45.4	2.0
15.	20	4.50	0.20	4 500	RS.	0.01222	287	00.69	1.09			-		88	88	60,51	15.2	3.4
16	19-20	27.60	0,22	6.500	88	0.00366	1/260	142.99	0,76			1.000	16.87	159.59	160	88.19	54.3	2.0
17	18-21	33.50	.0.21	9 500	52	0.00385	1/260	142.93	0.78			5.000	88	228.28	228	24.92	48.7	1.5
18	1-8,18-21	226.60	0.22	16.000	8	0.00400	028/	402.07	0.62			8.700	145.00	547.07	548	12.94	179.2	0.8
19	1-9,18-21	226.70	0.22	15.80	8	0.00400	125	405.07	0.62			9.000	150.00	552.C7	925	12.87	1783	0.8
20	10	6.80	0.20	9.000	ß	90600'0	1/107	119.01	1.12					119.01	120	98 9	15.9	2.2
21	1-10/18-21	233.60	0.22	15.00	8	0.00400	1/250	406.07	0.62			9.000	150.00	652.07	925	12.87	189.7	0.8
22	1-11.18-21	234.60	0.22	15.000	8	0.00400	1/250	402.07	0.62			9.800	163 33	566.40	586	12.63	181	0.0
23	22	20.40	0.20	9.500	8	0.00558	1/179	165.90	0,95			-		165.90	156	સ.સ	355	1.7
24	1-11,16-22	255.00	0.28	15.000	8	0.00400	1/250	402.07	0.62			9.800	153 33	565.40	556	12.83	1989	9.0
52	1-12 18-22	258.50	0.22	15.000	8	0.00400	1/250	402.C7	0.62			10.400	173.33	675.40	676	12.47	195.5	0.8
55	Dam 2 (R.BB)	256.50	0.22	15.000	8	0.00400	1/250	402.07	0.62		-	10.400	173.33	675.40	929	12.47	195.5	0.8
27	1-19.18-22	265.40	0.22	15.000	8	0.00400	1/250	402.07	0.52			12.100	201.67	609.73	8	12.04	185.3	0.7
.62	14	7.50	0.20	6.000	75	0.01250	1/80	95.36	1.17					95.36	98	50,94	21.2	2.8
59	1-14,18-22	272.90	0.25	16.000	8	0.00400	1/250	402.07	0.62	•		12.100	201 67	603.73	8	12.04	20C.9	0.7
8	1-15.18-22	284.90	0.22	15.000	8	0.00400	1/250	402.07	0.62			16.200	270 00	672.07	872	11.13	193.7	0.7
<u>.</u>	16	26.20	0.22	12.000	88	0.00775	1/129	174.88	1.14	:				174.98	174	30.24	4.8.4	1.8
SX	1-16.19-22	311.10	0.22	15.000	8	0.00400	1/250	402.07	0.62		-	16 200	270.00	672.07	872	11,13	211.5	0.7
8	1-22	312.80	0.25	15,000	8	0.00400	1/250	402.07	9.0	-		17,400	280.00	692.07	692	10.99	209.1	2.0

(Present Land Use)

Oued Hamdoun Basin

Runoff Calculation by Rational Method

Nota: 1(min/h) = 287.4 x T(year) ^ 0.34 / 1(min) ^ 0.74

Runoff Calculation by Rational Method

Oued Hamdown Basin

(Future Land Use Candition)

Calc		Total	Runott	Design	Calc.	Calc.	Calc.	Sign	Cale.	Calc.	Cafe.	
Point	Combination	Araa	Coeff.	ន	<u>(8</u>	Q (3)	(i)	O(10)	0(23)	(S)	a(100)	
		(Eq.km)	•	inim)	(cn.m/s)	(cn.m/s)	(cn.m/s)	(cu.m/s)	(cn.m/s)	(cn.m/s)	(cu.m/s)	
7	•	120.30	6.23	402	26.5	33.1	45.2	57.2	78.1	9.86	125.1	
2	1.2	144.40	0.22	459	27.7	34.5	47.1	59.8	81.4	103.0	130.4	
6	Ĉ.	13.00	0.23	138	6.4	8.0	10.9	13.8	18.8	23.8	30.1	
4	1.3	157.40	0.23	458	31.5	38.3	53.7	67.9	82.8	117.4	148.8	
en	1-4	170.60	0.25	200	34.8	43.4	28.3	75.0	102.4	129.6	164.1	
æ	*	7.80	0.26	114	6.4	6.2	6.4	10.8	14.3	18.4	23.3	٠.
7	1.5	178.40	0.25	200	38.4	42.4	62.0	78.4	107.1	133.5	171.6	
8	1-6	179.00	0.25	508	38.1	45.0	61,4	8.77.	106.2	134.4	170.1	
8	2	±.8	0.20	118	5.4	8.7	9.1	11.8	15.8	20.02	25.3	
5	1-7	190.30	0.25	308	38.4	47.8	633	82.7	112.9	142.9		
=	80	183.10	0.25	548	38.8	45.9	82.7	79.3	108.3	137.1	_	
5	-18	21.70	0.23	142	10.3	12.8	17.8	22.3	30.4	38.5		
13	Dem 1 (R.BA)	21.70	0.23	142	10.3	12.8	17.8	22.3	30.4	38.5	48.7	
#	6:18	23.10	0.23	160	10.1	12.8	17.2	21.7	29.6	37.5		
ŭ	20	4.30	0.20	68	3.2	4.0	5.5	6.8	6.9	12.0		
16	18-20	27.60	0.23	180	12.0	15.0	20.5	25.9	35.4	44.8	58.7	
17	18-21	88	0.26	228	12.8	18.0	21.8	8.72	37.8	9.7.4	60.3	
18	1.8,18.21	228.80	0.25	548	43.2	53.9	73.5	93.1	127.1	160.8	203.8	,
Đ.	1-9,18-21	226.70	0.25	352	43.0	53.6	73.2	92.8	128.5	189	202.6	
ន្ត	10	8	0.20	120	3.2	4.0	5.5	7.0	8.5	12.‡	15.3	
53	1-10,18-21	233.80	0.25	502	44.3	55.2	75.4	95.4	130.3	164.9	208.8	
22	1-11,18-21	234.80	0.25	568	43.7	4.48	74.3	94.1	128.5	162.6	205.8	
23	22	20:40	0.28	186	9.8	12.2	18.7	21.1	28.8	36.4	48.1	
24	1-11,18-22	255.00	0.25	566	47.5	59.5	80.8	102.3	139.7	176.7	223.7	<u>.</u>
S	1-12,18-22	256.50	0.25	576	47.1	58.8	80.2	101.5	138.7	175.5	222.1	
88	Dam 2 (R.B8)	258.50	0.25	576	47.1	28.8	80.2	101.5	138.7	173.5	222.1	
22	1-13,18-22	265.40	0.25	604	47.1	58.7	80.2	101.4	138.5	175.3	221.8	
82	14	7.50	0.20	86	4.5	5.8	7.7	9.7	13.3	16.8	21.2	
88	1-14,18-22	272.80	0.25	8	48.4	60.4	62.4	104.3	142.5	180.3	228.2	
8	1-15,18-22	284.90	0.25	672	46.7	58.2	79.5	100.6	137.4	173.8	220.1	
33	16	26.20	0.23	174	10.7	13.4	18.3	23.1	31.8	40.0	50.8	,
용	1-18,18-22	311.10	0.25	672	31.0	63.6	88.8	109.9	130.1	189.9	240.4	
8	1.22	312.80	0.25	289	50.2	82.8	85.4	108.1	147.8	198.8	238.5	

Calc.	Sub-basin	Total	Runoff			Average alope	edoje		ช	5	E	21	ç	Calc.	Dealgn	Calc	- 0 0 0	Specific
	Combination	Arces	Coaff.		운	į.	و.	2	ş	(v=1.5)		(v=1.0)		2	5	(38)	60,00	Discharge
		(ag km)	_	Ē	Ē	Ø	_	(min)	(m/e)	(km)	(min)	(E	(min)	(min)	(min.)	(H/mm)	(cn.m/a)	(cu.m/s/aq.km)
	-	120.30	0.23	15.000	8	0.00400	1/250	402.07	0.62					402.07	\$	16.27	125.1	0.0
Ш	1.2	144.40	0.22	16.000	8	0.00400	1/250	402.07	0.62			3.300	888	457.07	458	14.79	130.4	0.9
Ш	8	13.00	0.23	9:000	Æ	0,00833	1/120	136.35	1.10					136.36	136	36.29	89.	2,3
Ц	1-3	157.40	0.23	15.000	8	0.00400	1/250	402.07	0.62			3.300	25.00	457.07	458	14.73	148.6	6.0
\Box	1.4	170.60	0.25	15.000	8	0.00400	1/250	402.07	0.62			5.900	98.33	500.40	2009	13.85	1.991	1.0
L	so	7.80	0,26	9.00	3 8	0.01063	\$	113.41	1.18	-				113.41	114	41.35	23.3	3.0
	ά	178.40	0.25	15 000	8	0.00400	1/250	402.07	0.52			5.900	88.88	500.40	8	13.85	1716	0.1
_	φ-	179.00	0.25	15.000	8	0,00400	1/250	402.07	0,62			6,400	108.67	508.73	803	13.69	170.1	1.0
L	1	11.30	0.20	6.200	83	0.01000	1/180	118.32	1.16					11832	118	40.31	25.3	2.2
<u> </u>	1.7	190.30	0.25	15.000	8	0,00400	1/250	405.07	0.62			6.400	106.67	508.73	803	13.69	190.9	1.0
<u> </u>	e-L	193.10	0.25	15.000	8	0.00400	1/250	402.07	0.62			8,780	145.00	547.07	548	12.94	173.5	6.0
_	19	21.70	0.23	6.500	82	0,00385	1/260	42.93	0.76			1		142.89	142	38,15	48.7	2.2
L	Dam1 (R.EA)	21.70	0.23	6.500	58	0.00395	1/250	142.93	0.75					142.93	142	35.15	487	2.2
_	19-19	23.10	0.23	6.500	82	0.00385	1/260	142.93	0.76	-		1.000	16.67	159.59	8	82.18	47.5	2.1
	20	4.50	0.20	4.500	જ	0.01222	1/88	88	Ę.					89.00	88	50.61	152	3.4
	19-20	27.60	0.23	6.500	55	0.00395	1/260	142.83	0.75			1.000	16.67	159.59	8	8,18	8	2.1
	18-21	33.50	0.26	6.500	36	0.00385	1/260	142.83	0.76			6.000	83.33	226.28	526	24.92	တ္သေ	1.8
L	1-8,18-21	228.60	0.25	15.000	88	0,00400	1/250	402.07	85			8.700	145.00	547.07	548	12.94	203.6	0.9
	1-9,18-21	226.70	0.25	15.000	88	0.00400	1/250	402.07	0.62	-		000.6	150.00	552.07	252	12.67	502.6	6.0
أسا	10	6.90	0.20	9.000	٤	0.00938	10:/:	119.01	1.12					118.01	120	88.69	15.3	2.2
	1-10,18-21	233.60	0.25	15.000	88	0,00400	1/250	402.07	0,62			9.000	150.00	552.07	225	12.97	208.8	0.9
L!	1-11-18-21	234.60	0.25	15.000	8	0.00400	1/250	402.07	0.52		-	9.900	163.33	565.40	988	12.83	205.8	6.0
	22	20.40	0.28	9.500	ଞ	0.00558	1/179	165,90	0.95					165.90	166	3.3	1.8	2.3
Ĺ	1-11.18-22	255.00	0.25	15.000	8	0,00400	1/250	70.02	8		-	9.900	88.83	565.40	288	12.83	223.7	6.0
L	1-12,18-22	256.50	0.25	15.000	8	0.00400	1/250	402.07	0.62			10,400	173.30	676.40	976	12.47	222.1	60
	Dam 2 (R.BB)	256.50	0.25	15.000	8	0.00400	1/250	405.07	0.62			10.400	173.33	675.40	576	12.47	222.1	60
	1-19,18-22	265.40	0.25	15.000	8	0.00400	1/250	402.07	0.62			12.100	201.67	503.73 503.73	8	12.04	221.9	0.0
	14	7.50	0.20	9	82	0.01250	1/80	96.36	1.17					88 38	98	50.94	21.2	2.8
	1-14.18-22	272.90	0.25	15.000	8	0.00400	1/250	402.07	0.62			12.100	201.67	603.73	804	12.04	228.2	9.0
- 1	1-15.18-22	284.90	0.25	15.000	89	0,00400	1/250	402.07	0.62			16.200	270:00	672.07	672	11.13	22C.1	0.8
- 1	16	26.20	-0.23	12.000	8	0.00775	1/129	174.99	1.14					174.98	174	30.24	909	1.9
	1-16.19-22	311.10	0.25	15.000	8	0.00400	1/250	402 07	900			16.200	270.00	672.07	672	11.13	240.4	0.8
	1-22	312,80	0.25	15,000	89	0.00400	1/250 ·	402.07	0.62			17.400	290.00	20.289	692	10.89	238.5	0.8

Oued Hamdoun Basin

Punoff Calculation by Rational Method

Note: I(mm/h) = 267.4 x T(year) 10.34 / I(min) 10.74