

Tableau 10.1.1 Plans Alterantifs Sujets à l'Évaluation Économique

Project	Alternative	Dam (Annual water resources development)	Irrigation type	Net irrigable area with 80% probability (ha)	Net irrigable area with 20% probability (ha)	Annual average irrigable area (ha)	Net irrigation development area (ha)	Gross irrigation development area (ha)	Applied cropping pattern	Remarks
a	b	c	d	e	f	g	h	i	j	k
N'fifikh (upstream)	NU1	Proposed plan (6.4 Mm3)	Gravity: 100 %	780	1,000	853	1,000	1,250	Improved cropping pattern proposed by JICA team	
	NU2	- ditto -	- ditto -	810	1,030	886	1,030	1,290	Existing cropping pattern	
	NU3	- ditto -	- ditto -	590	740	645	1,000	1,250	To enhance vegetable cultivation	
	NU4	- ditto -	Gravity: 50 % Mechanical: 50 %	900	1,170	984	1,170	1,460	Improved cropping pattern proposed by JICA team	
	NU5	- ditto -	Gravity 100% with pump	780	1,000	853	1,000	1,250	Improved cropping pattern proposed by JICA team	To irrigate farmlands on the left bank just downstream of the dam
N'fifikh (downstream)	ND1	Intake weir and pumping station	Mechanical: 100 % with pump	210	260	228	260	330	Improved cropping pattern proposed by JICA team	Mechanical irrigation only.
	ND2	Small dam at proposed weir location	Mechanical: 100 % with pump	470	590	510	590	740	- ditto -	- ditto -
Taskourt	TA1	Proposed plan (36 Mm3)	Gravity: 100 %	3,530	4,500	3,831	4,500	6,000	Improved cropping pattern proposed by JICA team	Perennial: 900 ha Seasonal: remaining area
	TA2	- ditto -	Gravity: 50 % Mechanical: 50 %	4,060	5,100	4,406	5,100	6,000	- ditto -	- ditto -
	TA3	Small dam (24 Mm3)	Gravity: 100 %	2,500	3,150	2,713	4,500	6,000	- ditto -	- ditto -
	TA4	- ditto -	Gravity: 50 % Mechanical: 50 %	2,880	3,620	3,126	4,500	6,000	- ditto -	- ditto -
Timkit	TI1	Proposed plan	Gravity: 100% with pump wells	1,110 + 240 in Ifegh	-	1,450 +240 in Ifegh	3,060	3,825	Improved cropping pattern proposed by JICA team	To irrigate farmlands with sub- surface and surface water except Ifegh irrigated by surface water.
	TI2	- ditto -	- ditto -	1,460 +240 in Ifegh	-	1,330 +240 in Ifegh	3,060	3,825	- ditto -	To irrigate farmlands with sub- surface water except Ifegh irrigated by surface water.
Azghar	AZ1	Proposed plan (28 Mm3)	Gravity: 100 %	2,000	-	2,000	2,000	2,350	Improved cropping pattern proposed by JICA team	Negative benefit will be taken into account.

Tableau 10.1.2 Bénéfices Agricoles Annuelles selon les Plans Alternatifs

Project	Alternative plans	Location within the Project	Annual average irrigable area (ha)	Benefit without Project		Benefit with Project		Incremental net benefit with Project (million DH)
				Unit benefit (DH/ha)	Total benefit (million DH)	Unit benefit (DH/ha)	Total benefit (million DH)	
a	b	c	d	e	f = d x e	g	h = d x g	i = h - f
N'fifikh (upstream)	NU1	Upstream	853	2,267	1.9	18,053	15.4	13.5
	NU2	Upstream	886	2,267	2.0	8,369	7.4	5.4
	NU3	Upstream	645	2,267	1.5	29,758	19.2	17.7
	NU4	Upstream	984	2,267	2.2	18,053	17.8	15.6
	NU5	Upstream	853	2,267	1.9	18,053	15.4	13.5
N'fifikh (downstream)	ND1	Downstream	228	2,181	0.5	16,114	3.7	3.2
	ND2	Downstream	510	2,181	1.1	16,114	8.2	7.1
Taskourt	TA1	Perennial irrigation area	900	12,420	11.2	22,330	20.1	8.9
		Seasonal & flood irri. area	2,931	138	0.4	22,330	65.4	65.0
		Total	3,831	-	11.6	-	85.5	73.9
	TA2	Perennial irrigation area	900	12,420	11.2	22,330	20.1	8.9
		Seasonal & flood irri. area	3,506	138	0.5	22,330	78.3	77.8
		Total	4,406	-	11.7	-	98.4	86.7
	TA3	Perennial irrigation area	900	12,420	11.2	22,330	20.1	8.9
		Seasonal & flood irri. area	1,813	138	0.3	22,330	40.5	40.2
		Total	2,713	-	11.5	-	60.6	49.1
	TA4	Perennial irrigation area	900	12,420	11.2	22,330	20.1	8.9
		Seasonal & flood irri. area	2,226	138	0.3	22,330	49.7	49.4
		Total	3,126	-	11.5	-	69.8	58.3
Timkit	TI1	Ifeg	240	7,710	1.9	27,260	6.5	4.6
		Tinejddad	1,173	8,876	10.4	25,554	30.0	19.6
		Chtam	277	2,752	0.8	16,844	4.7	3.9
		Total	1,690	-	13.1	-	41.2	28.1
	TI2	Ifeg	240	7,710	1.9	27,260	6.5	4.6
		Tinejddad	1,075	8,876	9.5	25,554	27.5	18.0
		Chtam	255	2,752	0.7	16,844	4.3	3.6
		Total	1,570	-	12.1	-	38.3	26.2
Azghar	AZ1	Whole area	2,000	165	0.3	29,278	58.6	58.3

**Tableau 10.1.3 Résultats d'Évaluation Économique d'Irrigation
Dans Plans Alternatifs (Bénéfices Agricole Uniquement)**

Project	Alter-native	EIRR	B/C	NPV (Unit: Million DH)				Remarks
				DR=8%	DR=6%	DR=8%	DR=10%	
N'fifikh (upstream)	NU1	4.5%	0.62	-39.1	-69.8	-86.3	-95.1	
	NU2	-0.7%	0.24	-137.6	-140.1	-138.8	-135.6	
	NU3	6.1%	0.77	2.2	-41.7	-66.4	-80.4	
	NU4	3.6%	0.55	-77.9	-109.0	-124.9	-132.6	
	NU5	3.9%	0.58	-54.5	-81.3	-95.3	-102.3	
N'fifikh (downstream)	ND1	4.5%	0.65	-8.0	-13.9	-17.0	-18.6	
	ND2	2.9%	0.50	-44.4	-55.5	-60.8	-63.0	
Taskourt	TA1	7.2%	0.91	128.2	-59.1	-164.0	-223.6	
	TA2	6.2%	0.79	25.5	-174.7	-283.7	-343.0	
	TA3	7.3%	0.91	85.9	-36.2	-104.5	-143.3	
	TA4	5.9%	0.76	-9.8	-138.5	-207.8	-244.6	
Timkit	TI1	6.2%	0.80	8.9	-55.1	-89.9	-108.9	
	TI2	5.7%	0.74	-13.6	-70.8	-101.4	-117.6	
Azghar	AZ1	10.6%	1.38	175.1	73.7	13.8	-23.1	After adjustment of the negative benefit to downstream reservoirs.

Tableau 10.1.4 Coûts Financiers et Économiques du Projet (1/2)

Cost Item	F.C. (million DH)		L.C. (million DH)		Total financial cost (million DH)	Total economic cost (million DH)
	Financial cost	Economic cost	Financial cost	Economic cost		
N'fikh (Upstream)						
1. Construction cost						
1.1 Dam and appurtenant facilities	93.0	93.0	50.1	43.1	143.1	136.1
1.2 Irrigation facilities	18.3	18.3	18.2	15.7	36.5	34.0
1.3 Water supply system	0.0	0.0	1.4	1.2	1.4	1.2
2. Resettlement cost	0.0	0.0	3.3	2.8	3.3	2.8
3. Engineering services cost	8.2	8.2	4.5	4.5	12.7	12.7
4. Administration cost	0.0	0.0	9.2	8.7	9.2	8.7
5. Physical contingency	12.0	12.0	8.7	7.6	20.7	19.6
Sub-total of (1.- 5.)	131.5	131.5	95.4	83.6	226.9	215.1
6. Price Contingency	25.7	0.0	18.6	0.0	44.3	0.0
Sub-total of (1.- 6.)	157.2	131.5	114.0	83.6	271.2	215.1
7. Value Added Tax	0.0	0.0	38.9	0.0	38.9	0.0
Total of (1.- 7.)	157.2	131.5	152.9	83.6	310.1	215.1
Taskourt						
1. Construction cost						
1.1 Dam and appurtenant facilities	179.0	179.0	96.4	82.9	275.4	261.9
1.2 Irrigation facilities	65.9	65.9	65.8	56.6	131.7	122.5
1.3 Water supply system	0.0	0.0	2.4	2.1	2.4	2.1
2. Resettlement cost	0.0	0.0	28.5	24.6	28.5	24.6
3. Engineering services cost	18.6	18.6	10.1	10.1	28.7	28.7
4. Administration cost	0.0	0.0	21.9	20.6	21.9	20.6
5. Physical contingency	26.4	26.4	22.5	19.7	48.9	46.1
Sub-total of (1.- 5.)	289.9	289.9	247.6	216.6	537.5	506.5
6. Price Contingency	55.8	0.0	45.2	0.0	101.0	0.0
Sub-total of (1.- 6.)	345.7	289.9	292.8	216.6	638.5	506.5
7. Value Added Tax	0.0	0.0	91.6	0.0	91.6	0.0
Total of (1.- 7.)	345.7	289.9	384.4	216.6	730.1	506.5
Timkit						
1. Construction cost						
1.1 Dam and appurtenant facilities	105.5	105.5	56.8	48.8	162.3	154.3
1.2 Irrigation facilities	56.2	56.2	56.1	48.2	112.3	104.4
2. Resettlement cost	0.0	0.0	6.4	5.5	6.4	5.5
3. Engineering services cost	12.5	12.5	6.7	6.7	19.2	19.2
4. Administration cost	0.0	0.0	14.0	13.2	14.0	13.2
5. Physical contingency	17.4	17.4	14.0	12.2	31.4	29.6
Sub-total of (1.- 5.)	191.6	191.6	154.0	134.6	345.6	326.2
6. Price Contingency	43.2	0.0	34.3	0.0	77.5	0.0
Sub-total of (1.- 6.)	234.8	191.6	188.3	134.6	423.1	326.2
7. Value Added Tax	0.0	0.0	60.8	0.0	60.8	0.0
Total of (1.- 7.)	234.8	191.6	249.1	134.6	483.9	326.2
Azghar						
1. Construction cost						
1.1 Dam and appurtenant facilities	73.1	73.1	39.4	33.9	112.5	107.0
1.2 Irrigation facilities	36.7	36.7	36.6	31.5	73.3	68.2
2. Resettlement cost	0.0	0.0	5.1	4.4	5.1	4.4
3. Engineering services cost	8.5	8.5	4.5	4.5	13.0	13.0
4. Administration cost	0.0	0.0	9.5	9.0	9.5	9.0
5. Physical contingency	11.8	11.8	9.5	8.3	21.3	20.1
Sub-total of (1.- 5.)	130.1	130.1	104.6	91.6	234.7	221.7
6. Price Contingency	25.9	0.0	20.4	0.0	46.3	0.0
Sub-total of (1.- 6.)	156.0	130.1	125.0	91.6	281.0	221.7
7. Value Added Tax	0.0	0.0	40.4	0.0	40.4	0.0
Total of (1.- 7.)	156.0	130.1	165.4	91.6	321.4	221.7

Tableau 10.1.4 Coûts Financiers et Économiques du Projet (2/2)

Cost Item	F.C. (million DH)		L.C. (million DH)		Total financial cost (million DH)	Total economic cost (million DH)
	Financial cost	Economic cost	Financial cost	Economic cost		
TOTAL						
1. Construction cost						
1.1 Dam and appurtenant facilities	450.6	450.6	242.7	208.7	693.3	659.3
1.2 Irrigation facilities	177.1	177.1	176.7	152.0	353.8	329.1
1.3 Water supply system	0.0	0.0	3.8	3.3	3.8	3.3
2. Resettlement cost	0.0	0.0	43.3	37.3	43.3	37.3
3. Engineering services cost	47.8	47.8	25.8	25.8	73.6	73.6
4. Administration cost	0.0	0.0	54.6	51.5	54.6	51.5
5. Physical contingency	67.6	67.6	54.7	47.8	122.3	115.4
Sub-total of (1.- 5.)	743.1	743.1	601.6	526.4	1,344.7	1,269.5
6. Price Contingency	150.6	0.0	118.5	0.0	269.1	0.0
Sub-total of (1.- 6.)	893.7	743.1	720.1	526.4	1,613.8	1,269.5
7. Value Added Tax	0.0	0.0	231.7	0.0	231.7	0.0
Total of (1.- 7.)	893.7	743.1	951.8	526.4	1,845.5	1,269.5
Note: 1. Price level: as of April 2000, US\$1.0 = 10.68 DH, J. Yen100 = 9.90 DH						
2. F.C. means foreign currency portion and L.C. means local currency portion						
3. Engineering service fee is estimated as 7 % of total construction cost						
4. Administration cost is estimated as 5 % of construction cost and resettlement cost.						
5. Physical contingency: 10% of all items						
6. Price contingency: 3% per annum for all items						
7. Value added tax: 20% for engineering services and 14% for all other items						

**Tableau 10.1.5 Décomposition du Coût Annuel
(Prix Economique, million DH)**

Cost Item		Year in Order								Total cost (million DH)
		1st	2nd	3rd	4th	5th	6th	7th	8th	
N'fifikh (Upstream)										
1.	Construction cost									
1.1	Dam and appurtenant facilities	-	32.7	69.4	34.0	-	-	-	-	136.1
1.2	Irrigation facilities	-	6.8	17.0	10.2	-	-	-	-	34.0
1.3	Water supply system	-	-	-	1.2	-	-	-	-	1.2
2.	Resettlement cost	1.4	1.4	-	-	-	-	-	-	2.8
3.	Engineering services cost	-	2.9	6.4	3.4	-	-	-	-	12.7
4.	Administration cost	0.1	2.0	4.3	2.3	-	-	-	-	8.7
5.	Physical contingency	0.2	4.6	9.7	5.1	-	-	-	-	19.6
	Total of (1.- 5.)	1.7	50.4	106.8	56.2	-	-	-	-	215.1
Taskourt										
1.	Construction cost									
1.1	Dam and appurtenant facilities	-	28.8	60.2	86.4	86.5	-	-	-	261.9
1.2	Irrigation facilities	-	-	24.5	61.3	36.7	-	-	-	122.5
1.3	Water supply system	-	-	-	-	2.1	-	-	-	2.1
2.	Resettlement cost	12.3	12.3	-	-	-	-	-	-	24.6
3.	Engineering services cost	-	2.1	6.3	11.0	9.3	-	-	-	28.7
4.	Administration cost	0.6	2.1	4.2	7.4	6.3	-	-	-	20.6
5.	Physical contingency	1.3	4.5	9.5	16.6	14.2	-	-	-	46.1
	Total of (1.- 5.)	14.2	49.8	104.7	182.7	155.1	-	-	-	506.5
Timkit										
1.	Construction cost									
1.1	Dam and appurtenant facilities	-	26.2	33.9	50.9	43.3	-	-	-	154.3
1.2	Irrigation facilities	-	-	20.9	52.2	31.3	-	-	-	104.4
2.	Resettlement cost	2.8	2.7	-	-	-	-	-	-	5.5
3.	Engineering services cost	-	2.0	4.0	7.7	5.5	-	-	-	19.2
4.	Administration cost	0.1	1.4	2.7	5.2	3.8	-	-	-	13.2
5.	Physical contingency	0.3	3.2	6.2	11.6	8.3	-	-	-	29.6
	Total of (1.- 5.)	3.2	35.5	67.7	127.6	92.2	-	-	-	326.2
Azghar										
1.	Construction cost									
1.1	Dam and appurtenant facilities	-	25.7	40.7	40.6	-	-	-	-	107.0
1.2	Irrigation facilities	-	13.6	34.1	20.5	-	-	-	-	68.2
2.	Resettlement cost	2.2	2.2	-	-	-	-	-	-	4.4
3.	Engineering services cost	-	2.9	5.5	4.6	-	-	-	-	13.0
4.	Administration cost	0.1	2.1	3.7	3.1	-	-	-	-	9.0
5.	Physical contingency	0.2	4.7	8.4	6.8	-	-	-	-	20.1
	Total of (1.- 5.)	2.5	51.2	92.4	75.6	-	-	-	-	221.7
Overall Plan										
1.	Construction cost									
1.1	Dam and appurtenant facilities	-	-	-	28.8	144.8	230.4	212.0	43.3	659.3
1.2	Irrigation facilities	-	-	-	-	44.9	133.3	119.6	31.3	329.1
1.3	Water supply system	-	-	-	-	-	-	3.3	-	3.3
2.	Resettlement cost	-	-	12.3	18.7	6.3	-	-	-	37.3
3.	Engineering services cost	-	-	-	2.1	14.1	26.9	25.0	5.5	73.6
4.	Administration cost	-	-	0.6	2.4	9.7	18.1	16.9	3.8	51.5
5.	Physical contingency	-	-	1.3	5.2	22.0	40.9	37.7	8.3	115.4
	Total of (1.- 5.)	-	-	14.2	57.2	241.8	449.6	414.5	92.2	1,269.5

Tableau 10.1.6 Analyse de Coût-Bénéfice des projets prioritaires (5/10)

Timkit		Unit: million DH															
Year in order	Year	Benefit				Cost								O/M	Replacement	Total Cost	Net Cash Flow
		Agriculture	Flood & erosion control	Other direct benefit	Total Benefit	Dam	Irrigation	Resettlement	Engr. services	Administration	Physical contingency	Sub-total					
1	2001	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.1	0.3	3.2	0.0	3.2	-3.2			
2	2002	0.0	0.0	0.0	0.0	26.2	0.0	2.7	2.0	1.4	3.2	35.5	0.0	35.5	-35.5		
3	2003	0.0	0.0	0.0	0.0	33.9	20.9		4.0	2.7	6.2	67.7	0.0	67.7	-67.7		
4	2004	0.0	0.0	0.0	0.0	50.9	52.2		7.7	5.2	11.6	127.6	0.0	127.6	-127.6		
5	2005	0.0	0.0	0.0	0.0	43.3	31.3		5.5	3.8	8.3	92.2	0.0	92.2	-92.2		
6	2006	15.6	0.5	1.6	17.8							0.0	3.5	3.5	14.3		
7	2007	21.7	0.5	2.2	24.4							0.0	3.5	3.5	20.9		
8	2008	25.2	0.5	2.6	28.3							0.0	3.5	3.5	24.8		
9	2009	27.1	0.5	2.8	30.4							0.0	3.5	3.5	26.9		
10	2010	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
11	2011	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
12	2012	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
13	2013	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
14	2014	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
15	2015	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
16	2016	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
17	2017	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
18	2018	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
19	2019	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
20	2020	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
21	2021	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
22	2022	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
23	2023	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
24	2024	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
25	2025	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
26	2026	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
27	2027	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
28	2028	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
29	2029	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
30	2030	28.1	0.5	2.9	31.5							0.0	3.5	20.0	23.5	8.0	
31	2031	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
32	2032	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
33	2033	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
34	2034	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
35	2035	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
36	2036	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
37	2037	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
38	2038	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
39	2039	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
40	2040	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
41	2041	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
42	2042	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
43	2043	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
44	2044	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
45	2045	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
46	2046	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
47	2047	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
48	2048	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
49	2049	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
50	2050	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
51	2051	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
52	2052	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
53	2053	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
54	2054	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
55	2055	28.1	0.5	2.9	31.5							0.0	3.5	3.5	28.0		
EIRR=		7.1%															
B/C =		0.90 (at discount rate: 8%)															
NPV=		-27.6 (at discount rate: 8%)															
NPV=		47.9 (at discount rate: 6%)															
NPV=		-69.6 (at discount rate: 10%)															
NPV=		-93.3 (at discount rate: 12%)															

Tableau 10.1.6 Analyse de Coût-Bénéfice des projets prioritaires (6/10)

Timkit (including Indirect Benefit)		Unit: million DH															
Year in order	Year	Benefit				Cost								O/M	Replacement	Total Cost	Net Cash Flow
		Agriculture	Flood & erosion control	Other direct benefit	Indirect Benefit	Total Benefit	Dam	Irrigation	Resettlement	Engr. services	Administration	Physical contingency	Sub-total				
1	2001	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.1	0.3	3.2	0.0	3.2	-3.2			
2	2002	0.0	0.0	0.0	10.7	10.7	26.2	0.0	2.7	2.0	1.4	3.2	35.5	0.0	35.5	-24.8	
3	2003	0.0	0.0	0.0	22.3	22.3	33.9	20.9		4.0	2.7	6.2	67.7	0.0	67.7	-45.4	
4	2004	0.0	0.0	0.0	42.0	42.0	50.9	52.2		7.7	5.2	11.6	127.6	0.0	127.6	-85.6	
5	2005	0.0	0.0	0.0	30.4	30.4	43.3	31.3		5.5	3.8	8.3	92.2	0.0	92.2	-61.8	
6	2006	15.6	0.5	1.6	0.7	18.5						0.0	3.5	3.5	15.0		
7	2007	21.7	0.5	2.2	0.7	25.1						0.0	3.5	3.5	21.6		
8	2008	25.2	0.5	2.6	0.7	29.0						0.0	3.5	3.5	25.5		
9	2009	27.1	0.5	2.8	0.7	31.1						0.0	3.5	3.5	27.6		
10	2010	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
11	2011	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
12	2012	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
13	2013	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
14	2014	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
15	2015	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
16	2016	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
17	2017	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
18	2018	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
19	2019	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
20	2020	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
21	2021	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
22	2022	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
23	2023	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
24	2024	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
25	2025	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
26	2026	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
27	2027	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
28	2028	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
29	2029	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
30	2030	28.1	0.5	2.9	0.7	32.2						0.0	3.5	20.0	23.5	8.7	
31	2031	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
32	2032	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
33	2033	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
34	2034	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
35	2035	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
36	2036	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
37	2037	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
38	2038	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
39	2039	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
40	2040	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
41	2041	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
42	2042	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
43	2043	28.1	0.5	2.9	0.7	32.2						0.0	3.5	3.5	28.7		
44	2044	28.1	0.5	2.9	0.7	32.2						0.0					

Tableau 10.1.6 Analyse de Coût-Bénéfice des projets prioritaires (7/10)

Azghar		Unit: million DH																
Year in order	Year	Benefit					Cost								O/M	Replace-ment	Total Cost	Net Cash Flow
		Agri-culture	Flood & erosion control	Other direct benefit	Neg. benefit to downstream reservoir	Total Benefit	Dam	Irrigation	Resettle-ment	Engr. services	Adminis-tration	Physical contingency	Sub-total					
1	2001	0.0	0.00	0.0	0.0	0.0	0.0	0.0	2.2	0.1	0.2	2.5	0.0	2.5	-2.5			
2	2002	0.0	0.00	0.0	0.0	0.0	25.7	13.6	2.2	2.9	2.1	4.7	51.2	0.0	51.2	-51.2		
3	2003	0.0	0.00	0.0	0.0	0.0	40.7	34.1		5.5	3.7	8.4	92.4	0.0	92.4	-92.4		
4	2004	0.0	0.00	0.0	0.0	0.0	40.6	20.5		4.6	3.1	6.8	75.6	0.0	75.6	-75.6		
5	2005	19.8	0.03	2.0	-22.1	-0.3						0.0	2.09	2.1	-2.4			
6	2006	32.1	0.03	3.2	-22.1	13.2						0.0	2.09	2.1	11.1			
7	2007	41.4	0.03	4.1	-22.1	23.5						0.0	2.09	2.1	21.4			
8	2008	51.3	0.03	5.1	-22.1	34.4						0.0	2.09	2.1	32.3			
9	2009	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
10	2010	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
11	2011	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
12	2012	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
13	2013	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
14	2014	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
15	2015	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
16	2016	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
17	2017	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
18	2018	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
19	2019	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
20	2020	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
21	2021	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
22	2022	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
23	2023	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
24	2024	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
25	2025	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
26	2026	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
27	2027	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
28	2028	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
29	2029	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	13.4	15.5	26.6		
30	2030	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
31	2031	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
32	2032	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
33	2033	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
34	2034	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
35	2035	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
36	2036	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
37	2037	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
38	2038	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
39	2039	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
40	2040	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
41	2041	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
42	2042	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
43	2043	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
44	2044	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
45	2045	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
46	2046	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
47	2047	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
48	2048	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
49	2049	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
50	2050	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
51	2051	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
52	2052	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
53	2053	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
54	2054	58.3	0.03	5.8	-22.1	42.1						0.0	2.09	2.1	40.0			
EIRR=		12.2%																
B/C =		1.62		(at discount rate: 8%)														
NPV=		120.9		(at discount rate: 8%)														
NPV=		242.0		(at discount rate: 6%)														
NPV=		48.5		(at discount rate: 10%)														
NPV=		3.4		(at discount rate: 12%)														

T-78

Tableau 10.1.6 Analyse de Coût-Bénéfice des projets prioritaires (8/10)

Azghar (including Indirect Benefit)		Unit: million DH																	
Year in order	Year	Benefit					Cost								O/M	Replace-ment	Total Cost	Net Cash Flow	
		Agri-culture	Flood & erosion control	Other direct benefit	Indirect Benefit	Neg. benefit to downstream reservoir	Total Benefit	Dam	Irrigation	Resettle-ment	Engr. services	Adminis-tration	Physical contingency	Sub-total					
1	2001	0.0	0.00	0.0	0.0	0.0	0.0	0.0	2.2	0.1	0.2	2.5	0.0	2.5	-2.5				
2	2002	0.0	0.00	0.0	16.0	0.0	16.0	0.0	16.0	25.7	13.6	2.2	2.9	2.1	4.7	51.2	0.0	51.2	-35.2
3	2003	0.0	0.00	0.0	30.4	0.0	30.4	0.0	30.4	40.7	34.1		5.5	3.7	8.4	92.4	0.0	92.4	-62.0
4	2004	0.0	0.00	0.0	24.9	0.0	24.9	0.0	24.9	40.6	20.5		4.6	3.1	6.8	75.6	0.0	75.6	-50.7
5	2005	19.8	0.03	2.0	1.3	-22.1	1.0					0.0	2.09	2.1	-1.1				
6	2006	32.1	0.03	3.2	1.3	-22.1	14.5					0.0	2.09	2.1	12.4				
7	2007	41.4	0.03	4.1	1.3	-22.1	24.8					0.0	2.09	2.1	22.7				
8	2008	51.3	0.03	5.1	1.3	-22.1	35.7					0.0	2.09	2.1	33.6				
9	2009	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
10	2010	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
11	2011	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
12	2012	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
13	2013	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
14	2014	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
15	2015	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
16	2016	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
17	2017	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
18	2018	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
19	2019	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
20	2020	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
21	2021	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
22	2022	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
23	2023	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
24	2024	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
25	2025	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
26	2026	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
27	2027	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
28	2028	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
29	2029	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	13.4	15.5	27.9			
30	2030	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
31	2031	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
32	2032	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
33	2033	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
34	2034	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
35	2035	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09	2.1	41.3				
36	2036	58.3	0.03	5.8	1.3	-22.1	43.4					0.0	2.09						

Tableau 10.1.6 Analyse de Coût-Bénéfice des projets prioritaires (9/10)

Overall Plan		Unit: million DH														
Year in order	Year	Benefit				Cost					O/M	Replac-ment	Total Cost	Net Cash Flow		
		N'Fifikh	Taskout	Timkit	Azghar	Total Benefit	N'Fifikh	Taskout	Investment	Timkit					Azghar	Sub-total
1	2001															
2	2002															
3	2003															
4	2004							14.2						14.2		-14.2
5	2005							49.8	3.2	2.5	241.8			241.8		-241.8
6	2006						106.8	182.7	67.7	92.4	449.6			449.6		-449.6
7	2007						56.2	155.1	127.6	75.6	414.5			414.5		-414.5
8	2008	9.6	29.1		-0.3	38.5			92.2		7.9			100.1		-61.6
9	2009	12.9	38.8	17.8	13.2	82.8					11.4			11.4		71.4
10	2010	16.1	45.4	24.4	23.5	109.4					11.4			11.4		98.0
11	2011	16.1	51.0	28.3	34.4	129.7					11.4			11.4		118.3
12	2012	17.2	54.7	30.4	42.1	144.4					11.4			11.4		133.0
13	2013	17.4	54.7	31.5	42.1	145.7					11.4			11.4		134.3
14	2014	18.6	54.7	31.5	42.1	146.9					11.4			11.4		135.5
15	2015	19.8	54.7	31.5	42.1	148.1					11.4			11.4		136.7
16	2016	19.8	54.7	31.5	42.1	148.1					11.4			11.4		136.7
17	2017	19.8	54.7	31.5	42.1	148.1					11.4			11.4		136.7
18	2018	19.8	54.7	31.5	42.1	148.1					11.4			11.4		136.7
19	2019	19.8	54.7	31.5	42.1	148.1					11.4			11.4		136.7
20	2020	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
21	2021	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
22	2022	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
23	2023	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
24	2024	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
25	2025	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
26	2026	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
27	2027	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
28	2028	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
29	2029	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
30	2030	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
31	2031	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
32	2032	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
33	2033	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
34	2034	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
35	2035	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
36	2036	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
37	2037	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
38	2038	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
39	2039	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
40	2040	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
41	2041	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
42	2042	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
43	2043	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
44	2044	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
45	2045	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
46	2046	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
47	2047	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
48	2048	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
49	2049	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
50	2050	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
51	2051	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
52	2052	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
53	2053	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
54	2054	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
55	2055	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
56	2056	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
57	2055	19.8	54.8	31.5	42.1	148.1					11.4			11.4		136.7
58	2056	-	-	31.5	-	31.5					3.5			3.5		28.0
EIRR=		8.5%														
B/C =		1.07	(at discount rate: 8%)													
NPV=		58.8	(at discount rate: 8%)													
NPV=		394.6	(at discount rate: 6%)													
NPV=		-117.7	(at discount rate: 10%)													
NPV=		-210.3	(at discount rate: 12%)													

T-79

Tableau 10.1.6 Analyse de Coût-Bénéfice des projets prioritaires (10/10)

Overall Plan (including Indirect Benefit)		Unit: million DH														
Year in order	Year	Benefit				Cost					O/M	Replac-ment	Total Cost	Net Cash Flow		
		N'Fifikh	Taskout	Timkit	Azghar	Total Benefit	N'Fifikh	Taskout	Investment	Timkit					Azghar	Sub-total
1	2001															
2	2002															
3	2003															
4	2004							14.2						14.2		-14.2
5	2005	16.1	34.5	10.7	16.0	77.2								77.2		-164.6
6	2006	35.2	60.1	22.3	30.4	148.0								148.0		-301.6
7	2007	18.5	51.0	42.0	24.9	136.3								136.3		-278.2
8	2008	10.0	30.0	30.4	1.0	71.5								71.5		-28.6
9	2009	13.3	39.7	18.5	14.5	86.1								86.1		74.7
10	2010	16.5	46.3	25.1	24.8	112.7								112.7		101.3
11	2011	16.5	51.9	29.0	35.7	133.0								133.0		121.6
12	2012	17.6	55.6	31.1	43.4	147.7								147.7		136.3
13	2013	17.8	55.6	32.2	43.4	149.0								149.0		137.6
14	2014	19.0	55.6	32.2	43.4	150.2								150.2		138.8
15	2015	20.2	55.6	32.2	43.4	151.4								151.4		140.0
16	2016	20.2	55.6	32.2	43.4	151.4								151.4		140.0
17	2017	20.2	55.6	32.2	43.4	151.4								151.4		140.0
18	2018	20.2	55.6	32.2	43.4	151.4								151.4		140.0
19	2019	20.2	55.6	32.2	43.4	151.4								151.4		140.0
20	2020	20.2	55.7	32.2	43.4	151.4								151.4		140.0
21	2021	20.2	55.7	32.2	43.4	151.4								151.4		140.0
22	2022	20.2	55.7	32.2	43.4	151.4								151.4		140.0
23	2023	20.2	55.7	32.2	43.4	151.4								151.4		140.0
24	2024	20.2	55.7	32.2	43.4	151.4								151.4		140.0
25	2025	20.2	55.7	32.2	43.4	151.4								151.4		140.0
26	2026	20.2	55.7	32.2	43.4	151.4								151.4		140.0
27	2027	20.2	55.7	32.2	43.4	151.4								151.4		140.0
28	2028	20.2	55.7	32.2	43.4	151.4								151.4		140.0
29	2029	20.2	55.7	32.2	43.4	151.4								151.4		140.0
30	2030	20.2	55.7	32.2	43.4	151.4								151.4		140.0
31	2031	20.2	55.7	32.2	43.4	151.4								151.4		140.0
32	2032	20.2	55.7	32.2	43.4	151.4								151.4		140.0
33	2033	20.2	55.7	32.2	43.4	151.4								151.4		140.0
34	2034	20.2	55.7	32.2	43.4	151.4								151.4		140.0
35	2035	20.2	55.7	32.2	43.4	151.4								151.4		140.0
36	2036	20.2	55.7	32.2	43.4	151.4										

Tableau 10.2.1 Calendrier de Décaissement Annuel (1/3)
(Financial Price, million DH)

N°Fifikh Cost Item		Total			2001			2002			2003			2004			2005			2006			2007			2008			
		F.C.	L.C.	Total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	
1.	Construction cost																												
	Dam and	93.0	50.1	143.1	-	-	-	-	-	-	-	-	-	-	-	22.3	12.0	34.3	47.4	25.6	73.0	23.3	12.5	35.8	-	-	-		
	Irrigator	18.3	18.2	36.5	-	-	-	-	-	-	-	-	-	-	-	3.7	3.6	7.3	9.2	9.1	18.3	5.4	5.5	10.9	-	-	-		
	Water su	-	1.4	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	1.4	-	-	-		
	Sub-total	111.3	69.7	181.0	-	-	-	-	-	-	-	-	-	-	-	26.0	15.6	41.6	56.6	34.7	91.3	28.7	19.4	48.1	-	-	-		
2.	Resettlen	-	3.3	3.3	-	-	-	-	-	-	-	-	-	1.7	1.7	-	1.6	1.6	-	-	-	-	-	-	-	-	-		
3.	Engineer	8.2	4.5	12.7	-	-	-	-	-	-	-	-	-	-	-	1.9	1.0	2.9	4.1	2.3	6.4	2.2	1.2	3.4	-	-	-		
4.	Administ	-	9.2	9.2	-	-	-	-	-	-	-	-	-	0.1	0.1	-	2.2	2.2	-	4.6	4.6	-	2.3	2.3	-	-	-		
5.	Physical	12.0	8.7	20.7	-	-	-	-	-	-	-	-	-	0.2	0.2	2.8	2.0	4.8	6.1	4.2	10.3	3.1	2.3	5.4	-	-	-		
	Sub-total	131.5	95.4	226.9	-	-	-	-	-	-	-	-	2.0	2.0	30.7	22.4	53.1	66.8	45.8	112.6	34.0	25.2	59.2	-	-	-			
6.	Price con	25.7	18.6	44.3	-	-	-	-	-	-	-	-	0.3	0.3	4.9	3.6	8.5	13.0	8.9	21.9	7.8	5.8	13.6	-	-	-			
	Sub-total	157.2	114.0	271.2	-	-	-	-	-	-	-	-	2.3	2.3	35.6	26.0	61.6	79.8	54.7	134.5	41.8	31.0	72.8	-	-	-			
7.	Value Ac	-	38.9	38.9	-	-	-	-	-	-	-	-	0.3	0.3	-	8.8	8.8	-	19.3	19.3	-	10.5	10.5	-	-	-			
	Total of r	157.2	152.9	310.1	-	-	-	-	-	-	-	-	2.6	2.6	35.6	34.8	70.4	79.8	74.0	153.8	41.8	41.5	83.3	-	-	-			

Note: 1) F.C. means foreign currency portion and L.C. means local currency portion.

2) Physical contingency of 10% and price contingency of 3% per annum are assumed for both foreign and local currency portions.

Taskourt Cost Item		Total			2001			2002			2003			2004			2005			2006			2007			2008		
		F.C.	L.C.	Total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total
1.	Construction cost																											
	Dam and	179.0	96.4	275.4	-	-	-	-	-	-	-	-	19.7	10.6	30.3	41.2	22.2	63.4	59.1	31.8	90.9	59.0	31.8	90.8	-	-	-	
	Irrigator	65.9	65.8	131.7	-	-	-	-	-	-	-	-	-	-	-	13.2	13.2	26.4	33.0	32.9	65.9	19.7	19.7	39.4	-	-	-	
	Water su	-	2.4	2.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.4	2.4	-	-	-	
	Sub-total	244.9	164.6	409.5	-	-	-	-	-	-	-	-	19.7	10.6	30.3	54.4	35.4	89.8	92.1	64.7	156.8	78.7	53.9	132.6	-	-	-	
2.	Resettlen	-	28.5	28.5	-	-	-	-	-	-	14.3	14.3	-	14.2	14.2	-	-	-	-	-	-	-	-	-	-	-	-	
3.	Engineer	18.6	10.1	28.7	-	-	-	-	-	-	-	-	1.4	0.7	2.1	4.1	2.2	6.3	7.1	3.9	11.0	6.0	3.3	9.3	-	-	-	
4.	Administ	-	21.9	21.9	-	-	-	-	-	-	0.7	0.7	-	2.2	2.2	-	4.5	4.5	-	7.8	7.8	-	6.7	6.7	-	-	-	
5.	Physical	26.4	22.5	48.9	-	-	-	-	-	-	1.5	1.5	2.1	2.8	4.9	5.9	4.2	10.1	9.9	7.6	17.5	8.5	6.4	14.9	-	-	-	
	Sub-total	289.9	247.6	537.5	-	-	-	-	-	-	16.5	16.5	23.2	30.5	53.7	64.4	46.3	110.7	109.1	84.0	193.1	93.2	70.3	163.5	-	-	-	
6.	Price con	55.8	45.2	101.0	-	-	-	-	-	-	1.5	1.5	2.9	3.8	6.7	10.3	7.4	17.7	21.2	16.3	37.5	21.4	16.2	37.6	-	-	-	
	Sub-total	345.7	292.8	638.5	-	-	-	-	-	-	18.0	18.0	26.1	34.3	60.4	74.7	53.7	128.4	130.3	100.3	230.6	114.6	86.5	201.1	-	-	-	
7.	Value Ac	-	91.6	91.6	-	-	-	-	-	-	2.5	2.5	-	8.6	8.6	-	18.4	18.4	-	33.2	33.2	-	28.9	28.9	-	-	-	
	Total of r	345.7	384.4	730.1	-	-	-	-	-	-	20.5	20.5	26.1	42.9	69.0	74.7	72.1	146.8	130.3	133.5	263.8	114.6	115.4	230.0	-	-	-	

Note: 1) F.C. means foreign currency portion and L.C. means local currency portion.

2) Physical contingency of 10% and price contingency of 3% per annum are assumed for both foreign and local currency portions.

**Tableau 10.2.1 Calendrier de Décaissement Annuel
(Financial Price, million DH)**

Overall Plan Cost Item			2001			2002			2003			2004			2005			2006			2007			2008					
			F.C.	L.C.	Total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total	F.C.	L.C.	Sub-total			
1.	Construction cost																												
	Dam and Irrigation	450.6	242.7	693.3	-	-	-	-	-	-	-	-	19.7	10.6	30.3	98.9	53.4	152.3	157.5	84.9	242.4	144.9	77.9	222.8	29.6	15.9	45.5		
	Irrigation	177.1	176.7	353.8	-	-	-	-	-	-	-	-	-	-	-	24.2	24.1	48.3	71.8	71.5	143.3	64.2	64.3	128.5	16.9	16.8	33.7		
	Water sup	-	3.8	3.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.8	3.8	-	-	-		
	Sub-total	627.7	423.2	1,050.9	-	-	-	-	-	-	-	-	19.7	10.6	30.3	123.1	77.5	200.6	229.3	156.4	385.7	209.1	146.0	355.1	46.5	32.7	79.2		
2.	Resettlem	-	43.3	43.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3.	Engineerin	47.8	25.8	73.6	-	-	-	-	-	-	-	-	1.4	0.7	2.1	9.2	4.9	14.1	17.4	9.5	26.9	16.2	8.8	25.0	3.6	1.9	5.5		
4.	Administr	-	54.6	54.6	-	-	-	-	-	-	-	-	-	0.7	0.7	-	2.6	2.6	-	10.4	10.4	-	19.3	19.3	-	17.7	17.7		
5.	Physical c	67.6	54.7	122.3	-	-	-	-	-	-	-	-	2.1	3.6	5.7	13.3	10.0	23.3	24.7	18.5	43.2	22.5	17.2	39.7	5.0	3.9	8.9		
	Sub-total	743.1	601.6	1,344.7	-	-	-	-	-	-	-	-	23.2	39.2	62.4	145.6	110.1	255.7	271.4	203.7	475.1	247.8	189.7	437.5	55.1	42.4	97.5		
6.	Price cont	150.6	118.5	269.1	-	-	-	-	-	-	-	-	2.9	5.0	7.9	23.3	17.5	40.8	52.7	39.6	92.3	57.0	43.6	100.6	14.7	11.3	26.0		
	Sub-total	893.7	720.1	1,613.8	-	-	-	-	-	-	-	-	26.1	44.2	70.3	168.9	127.6	296.5	324.1	243.3	567.4	304.8	233.3	538.1	69.8	53.7	123.5		
7.	Value Adj	-	231.7	231.7	-	-	-	-	-	-	-	-	-	2.5	2.5	-	10.0	10.0	-	42.5	42.5	-	81.6	81.6	-	77.4	77.4		
	Total of c	893.7	951.8	1,845.5	-	-	-	-	-	-	-	-	20.5	20.5	26.1	54.2	80.3	168.9	170.1	339.0	324.1	324.9	649.0	304.8	310.7	615.5	69.8	71.4	141.2

Note: 1) F.C. means foreign currency portion and L.C. means local currency portion.
2) Physical contingency of 10 % and price contingency of 3% per annum are assumed for both foreign and local currency portions.

**Tableau 10.2.2 Revenu Estimé des Fermes dans la Présente Condition (Sans Projet)
(Financial Price, DH/ha)**

N'fifikh

Crops		Benefit					Expenditure		Net Benefit (DH) g=d-f
		Occupancy (%) a	Yield		Unit price (DH/kg) c	Benefit (DH) d=a*b*c	Unit cost (DH/ha) e	Net cost (DH) f=e*a	
			Qty. b	Unit					
Cereals 1	Soft wheat	45.5	1.43	(ton/ha)	2.54	1,653	2,029	923	730
Cereals 2	Hard wheat	30.0	1.14	(ton/ha)	2.54	870	2,223	668	202
Fodder	Barley	4.6	1,297	UF	3.00	177	1,476	67	110
Legume	Broad bean	4.6	0.66	(ton/ha)	3.93	118	2,405	109	9
Vegetable	Potato	1.8	27.3	(ton/ha)	2.06	1,024	13,310	242	782
Tree Crop	Grape	4.6	0.84	(ton/ha)	2.92	112	3,060	139	-27
Fodder from cereal 1	-	45.5	725	UF	3.00	990	-	-	990
Fodder from cereal 2	-	30.0	593	UF	3.00	534	-	-	534
Fallow	-	9.0	500	UF	3.00	135	-	-	135
Total		175.5				5,613		2,148	3,465

Taskourt

Crops		Benefit					Expenditure		Net Benefit (DH) g=d-f
		Occupancy (%) a	Yield		Unit price (DH/kg) c	Benefit (DH) d=a*b*c	Unit cost (DH/ha) e	Net cost (DH) f=e*a	
			Qty. b	Unit					
Cereals 1	Soft wheat	41	0.27	(ton/ha)	2.89	320	1,614	662	-342
Cereals 2	Barley	45	0.28	(ton/ha)	2.52	318	1,463	658	-340
Tree Crop 1	Olive	5	0.72	(ton/ha)	2.61	94	2,745	137	-43
Tree Crop 2	Almond	5	0.34	(ton/ha)	48.24	820	1,460	73	747
Fodder from cereal 1	-	41	137	UF	3.00	169	-	-	169
Fodder from cereal 2	-	45	142	UF	3.00	192	-	-	192
Fallow	-	4	500	UF	3.00	60	-	-	60
Total		186				1,973		1,530	443

Timkit

Crops		Benefit					Expenditure		Net Benefit (DH) g=d-f
		Occupancy (%) a	Yield		Unit price (DH/kg) c	Benefit (DH) d=a*b*c	Unit cost (DH/ha) e	Net cost (DH) f=e*a	
			Qty. b	Unit					
Cereals	Hard wheat	50.4	2.8	(ton/ha)	3.33	4,699	2,588	1,304	3,395
Fodder	Alfalfa	12.6	5,846	UF	5.20	3,830	4,474	564	3,266
Vegetable	Potato	4.2	27.6	(ton/ha)	2.34	2,713	5,504	231	2,482
Tree Crop 1	Dates	15.12	1.33	(ton/ha)	8.00	1,609	2,304	348	1,261
Tree Crop 2	Olive	1.68	2.1	(ton/ha)	2.69	95	4,474	75	20
Fodder from cereal	-	50.4	1,000	UF	3.00	1,512	-	-	1,512
Total		134.4				14,458		2,522	11,936

Azghar

Crops		Benefit					Expenditure		Net Benefit (DH) g=d-f
		Occupancy (%) a	Yield		Unit price (DH/kg) c	Benefit (DH) d=a*b*c	Unit cost (DH/ha) e	Net cost (DH) f=e*a	
			Qty. b	Unit					
Cereals 1	Hard wheat	28.7	0.47	(ton/ha)	3.23	436	2,195	630	-194
Cereals 2	Barley	32.8	0.68	(ton/ha)	2.00	446	1,963	644	-198
Fodder	Barley	4.1	473	UF	3.00	58	1,983	81	-23
Legume	Broad bean	4.1	0.21	(ton/ha)	3.73	32	2,050	84	-52
Tree Crop	Olive	12.3	0.84	(ton/ha)	3.04	314	1,605	197	117
Fodder from cereal 1	-	28.7	238	UF	3.00	205	-	-	205
Fodder from cereal 2	-	32.8	402	UF	3.00	396	-	-	396
Fallow	-	18.0	500	UF	3.00	270	-	-	270
Total		161.5				2,157		1,636	521

**Tableau 10.2.3 Revenu Attendu des Fermes Avec Projet
(Financial Price, DH/ha)**

N'fikh

Crops		Benefit					Expenditure		Net	
		Occupancy (%)	Yield		Unit price		Benefit (DH)	Unit cost (DH/ha)	Net cost (DH)	Benefit (DH)
			Qty.	Unit	(DH)	Unit				
a	b	c		d=a*b*c	e	f=e*a	g=d-f			
Cerelas	Soft wheat	30	4.0 (ton/ha)	2.54 (DH/kg)		3,048	3,938	1,181	1,867	
Fodder 1	Barley	12.5	2,300 UF	3.00 UF		863	3,938	492	371	
Fodder 2	Alfalfa	12.5	10,500 UF	5.20 UF		6,825	7,775	972	5,853	
Vegetable 1	Potato	15	31 (ton/ha)	2.06 (DH/kg)		9,579	16,994	2,549	7,030	
Vegetable 2	Totato	15	50 (ton/ha)	1.44 (DH/kg)		10,800	15,201	2,280	8,520	
Tree crop 1	Grape	7.5	10 (ton/ha)	2.92 (DH/kg)		2,190	4,428	332	1,858	
Tree crop 2	Olive	7.5	10 (ton/ha)	2.07 (DH/kg)		1,553	4,858	364	1,189	
Fodder from cereals	-	30	1,000 UF	3.00 UF		900	-	-	900	
Total		130				35,758		8,170	27,588	

Taskourt

Crops		Benefit					Expenditure		Net	
		Occupancy (%)	Yield		Unit price		Benefit (DH)	Unit cost (DH/ha)	Net cost (DH)	Benefit (DH)
			Qty.	Unit	(DH)	Unit				
a	b	c		d=a*b*c	e	f=e*a	g=d-f			
Cerelas 1	Soft wheat	60	4.0 (ton/ha)	2.89 (DH/kg)		6,936	3,938	2,363	4,573	
Cerelas 2	Barley	10	4.0 (ton/ha)	2.52 (DH/kg)		1,008	3,938	394	614	
Fodder	Alfalfa	10	10,500 UF	5.20 UF		5,460	7,775	778	4,682	
Vegetable 1	Watermelon	5	31 (ton/ha)	4.00 (DH/kg)		6,200	13,505	675	5,525	
Vegetable 2	Tomato	5	50 (ton/ha)	2.04 (DH/kg)		5,100	15,201	760	4,340	
Tree crop 1	Olive	8	10 (ton/ha)	2.61 (DH/kg)		2,088	4,858	389	1,699	
Tree crop 2	Almond	2	3.5 (ton/ha)	48.24 (DH/kg)		3,377	2,285	46	3,331	
Fodder from cereals 1	-	60	1,000 UF	3.00 UF		1,800	-	-	1,800	
Fodder from cereals 2	-	10	1,000 UF	3.00 UF		300	-	-	300	
Total		170				32,269		5,405	26,864	

Timkit

Crops		Benefit					Expenditure		Net	
		Occupancy (%)	Yield		Unit price		Benefit (DH)	Unit cost (DH/ha)	Net cost (DH)	Benefit (DH)
			Qty.	Unit	(DH)	Unit				
a	b	c		d=a*b*c	e	f=e*a	g=d-f			
Cerelas	Hard wheat	55	4.0 (ton/ha)	3.33 (DH/kg)		7,326	3,938	2,166	5,160	
Fodder	Alfalfa	15	10,500 UF	5.20 UF		8,190	7,775	1,166	7,024	
Vegetable 1	Potato	10	31 (ton/ha)	2.34 (DH/kg)		7,254	16,994	1,699	5,555	
Vegetable 2	Watermelon	5	31 (ton/ha)	3.75 (DH/kg)		5,813	13,505	675	5,138	
Tree crop 1	Datas	15	3.5 (ton/ha)	8.00 (DH/kg)		4,200	3,008	451	3,749	
Tree crop 2	Olive	5	10 (ton/ha)	2.69 (DH/kg)		1,345	4,858	243	1,102	
Fodder from cereals	-	55	1,000 UF	3.00 UF		1,650	-	-	1,650	
Total		160				35,778		6,400	29,378	

Azghar

Crops		Benefit					Expenditure		Net	
		Occupancy (%)	Yield		Unit price		Benefit (DH)	Unit cost (DH/ha)	Net cost (DH)	Benefit (DH)
			Qty.	Unit	(DH)	Unit				
a	b	c		d=a*b*c	e	f=e*a	g=d-f			
Cerelas 1	Hard wheat	50	4.0 (ton/ha)	3.23 (DH/kg)		6,460	3,938	1,969	4,491	
Cerelas 2	Barley	10	4.0 (ton/ha)	2.00 (DH/kg)		800	3,938	394	406	
Fodder 1	Barley	2.5	2,300 UF	3.00 UF		173	3,938	98	75	
Fodder 2	Alfalfa	7.5	10,500 UF	5.20 UF		4,095	7,775	583	3,512	
Legetable	Broad bean	5	15 (ton/ha)	3.73 (DH/kg)		2,798	12,149	607	2,191	
Vegetable 1	Potato	10	31 (ton/ha)	2.99 (DH/kg)		9,269	16,994	1,699	7,570	
Vegetable 2	Tomato	10	50 (ton/ha)	2.07 (DH/kg)		10,350	15,201	1,520	8,830	
Tree crop	Olive	15	10 (ton/ha)	3.04 (DH/kg)		4,560	4,858	729	3,831	
Fodder from cereals 1	-	50	1,000 UF	3.00 UF		1,500	-	-	1,500	
Fodder from cereals 2	-	10	1,000 UF	3.00 UF		300	-	-	300	
Total		170				40,305		7,599	32,706	

Tableau 10.2.4 Estimation de Capacité de Paiement

Item	Unit	Scale of Farmers		
		Small 1 ha or less	Medium from 1 ha to 4 ha	Large more than 4 ha
N'Fifikh				
1) Number of sample farmers	nos	11	21	31
2) Average size of farmland	ha	0.9	2.4	14.6
3) Net income "without project"	DH	3,119	8,316	50,589
4) Expected net income "with project"	DH	24,829	66,211	402,785
5) Estimated non-agricultural expenditure	DH	7,000	7,250	8,500
6) Capacity to pay	DH	17,829	58,961	394,285
Taskourt				
1) Number of sample farmers	nos	4	27	44
2) Average size of farmland	ha	0.8	2.6	11.3
3) Net income "without project"	DH	354	1,152	5,006
4) Expected net income "with project"	DH	21,491	69,846	303,563
5) Estimated non-agricultural expenditure	DH	5,250	6,100	10,100
6) Capacity to pay	DH	16,241	63,746	293,463
Timkit				
1) Number of sample farmers	nos	43	18	16
2) Average size of farmland	ha	0.4	2.2	8.9
3) Net income "without project"	DH	4,774	26,259	106,230
4) Expected net income "with project"	DH	11,751	64,632	261,464
5) Estimated non-agricultural expenditure	DH	5,527	5,627	9,850
6) Capacity to pay	DH	6,225	59,005	251,614
Azghar				
1) Number of sample farmers	nos	3	26	15
2) Average size of farmland	ha	0.8	2.5	10
3) Net income "without project"	DH	417	1,303	5,210
4) Expected net income "with project"	DH	26,165	81,765	327,060
5) Estimated non-agricultural expenditure	DH	5,900	7,750	9,250
6) Capacity to pay	DH	20,265	74,015	317,810

Note: Non-agricultural expenditure is estimated from farms' expenditure obtained by the household interview survey on the assumption that half of the total expenditure is non-agricultural expenditure.

Tableau 10.2.5 Bilan de Cash-Flow pour la Réalisation des Projets (1/5)

N°/Fifikh		Unit: Million DH																	
Year in order	Year	Capital Cost			Foreign Loan Accumulated 75% of (a)	A part of capital cost allocated by the Government	Cash Outflow					Cash Inflow				Balance (c) - (b)			
		F.C.	L.C.	Total (a)			O & M cost			Replace-ment cost	Repayment of Loan Interest	Total (b)	Irrigation water	Water supply	Government subsidy		Total (c)		
							Dam	Irrigation	Water sup.										
1	2001																		
2	2002																		
3	2003																		
4	2004		2.6	2.6	-	2.6													
5	2005	35.6	34.8	70.4	54.7	15.7													
6	2006	79.8	74.0	153.8	170.1	38.4				1.2							1.2	1.2	
7	2007	41.8	41.5	83.3	232.5	20.9				3.7							3.7	3.7	
8	2008				232.5		1.0	0.5	0.1	5.1			0.9	0.1			5.7	6.7	
9	2009				232.5		1.0	0.7	0.1	5.1			1.3	0.1			5.5	6.9	
10	2010				232.5		1.1	0.9	0.1	5.1			1.6	0.1			5.5	7.2	
11	2011				232.5		1.1	0.9	0.1	5.1			1.6	0.1			5.5	7.2	
12	2012				232.5		1.1	1.0	0.1	5.1			1.7	0.1			5.5	7.3	
13	2013				232.5		1.2	1.0	0.1	5.1			1.7	0.2			5.6	7.4	
14	2014				232.5		1.2	1.1	0.1	5.1			1.8	0.2			5.6	7.5	
15	2015				220.8		1.2	1.3	0.1	5.1	11.7	19.4	2.0	0.2			17.3	19.4	
16	2016				209.1		1.3	1.3	0.1	4.9	11.7	19.3	2.0	0.2			17.1	19.3	
17	2017				197.4		1.3	1.3	0.1	4.6	11.7	19.0	2.0	0.2			16.8	19.0	
18	2018				185.7		1.3	1.4	0.2	4.3	11.7	18.9	2.0	0.2			16.8	18.9	
19	2019				174.0		1.4	1.4	0.2	4.1	11.7	18.8	2.0	0.2			16.6	18.8	
20	2020				162.3		1.4	1.5	0.2	3.8	11.7	18.6	2.0	0.2			16.5	18.6	
21	2021				150.6		1.5	1.5	0.2	3.6	11.7	18.5	2.0	0.2			16.3	18.5	
22	2022				138.9		1.5	1.5	0.2	3.3	11.7	18.2	2.0	0.2			16.1	18.2	
23	2023				127.2		1.6	1.6	0.2	3.1	11.7	18.2	2.0	0.2			16.0	18.2	
24	2024				115.5		1.6	1.6	0.2	2.8	11.7	17.9	2.0	0.2			15.7	17.9	
25	2025				103.8		1.6	1.7	0.2	2.5	11.7	17.7	2.0	0.2			15.6	17.7	
26	2026				92.1		1.7	1.7	0.2	2.3	11.7	17.6	2.0	0.2			15.4	17.6	
27	2027				80.4		1.7	1.8	0.2	2.0	11.7	17.4	2.0	0.2			15.3	17.4	
28	2028				68.7		1.8	1.8	0.2	1.8	11.7	17.3	2.0	0.2			15.1	17.3	
29	2029				57.0		1.9	1.9	0.2	1.5	11.7	17.2	2.0	0.2			15.1	17.2	
30	2030				45.3		1.9	1.9	0.2	1.3	11.7	17.0	2.0	0.2			14.8	17.0	
31	2031				33.6		2.0	2.0	0.2	1.0	11.7	16.9	2.0	0.2			14.7	16.9	
32	2032				21.9		2.0	2.1	0.2	0.7	11.7	16.7	2.0	0.2			14.6	16.7	
33	2033				10.2		2.1	2.1	0.2	31.5	0.5	11.7	48.1	2.0	0.2		45.9	48.1	
34	2034				-		2.2	2.2	0.2	0.2	10.2	15.0	2.0	0.2			12.9	15.0	
35	2035				-		2.2	2.3	0.3			4.8	2.0	0.2			2.6	4.8	
36	2036				-		2.3	2.3	0.3			4.9	2.0	0.2			2.7	4.9	
37	2037				-		2.4	2.4	0.3			5.1	2.0	0.2			2.9	5.1	

Note: 1) F.C. means foreign currency components and L.C. means local currency components.

2) 75% of the capital costs are assumed to be financed by bilateral or international organization as far as the costs are not non-eligible items.

3) The non-eligible items are costs for land acquisition, house compensation, administration, and any type of taxes and duties.

4) The assumed condition of finance is with an interest rate of 2.2% per annum for repayment period of 30 years including a grace period of 10 years.

5) The price escalation of 3% per annum is assumed for the capital cost, O & M cost, and replacement cost of facilities.

6) Annual irrigation water charges are set to cover O & M and replacement cost of irrigation facilities for 25 years.

Tableau 10.2.5 Bilan de Cash-Flow pour la Réalisation des Projets (2/5)

Taskourt		Unit: Million DH																	
Year in order	Year	Capital Cost			Foreign Loan Accumulated 75% of (a)	A part of capital cost allocated by the Government	Cash Outflow						Cash Inflow				Balance (c) - (b)		
		F.C.	L.C.	Total (a)			O & M cost			Replac- ment cost	Repayment of Loan		Total (b)	Irrigation water	Water supply	Government subsidy		Total (c)	
							Dam	Irrigation	Water sup.		Interest	Capital							
1	2001																		
2	2002																		
3	2003		20.5	20.5	-	20.5													
4	2004	26.1	42.9	69.0	40.1	28.9													
5	2005	74.7	72.1	146.8	162.6	24.3				0.9		0.9				0.9	0.9		
6	2006	130.3	133.5	263.8	375.0	51.4				3.6		3.6				3.6	3.6		
7	2007	114.6	115.4	230.0	547.5	57.5				8.3		8.3				8.3	8.3		
8	2008				547.5	-	1.9	1.9	0.2	12.0		16.0	3.8	0.3		12.0	16.0		
9	2009				547.5		2.0	2.7	0.2	12.0		16.9	5.0	0.3		11.7	16.9		
10	2010				547.5		2.0	3.2	0.2	12.0		17.4	5.9	0.3		11.3	17.4		
11	2011				547.5		2.1	3.7	0.2	12.0		18.0	6.6	0.3		11.2	18.0		
12	2012				547.5		2.2	4.1	0.2	12.0		18.5	7.1	0.3		11.2	18.5		
13	2013				547.5		2.2	4.3	0.2	12.0		18.7	7.1	0.3		11.4	18.7		
14	2014				520.1		2.3	4.4	0.2	12.0	27.4	46.3	7.1	0.3		39.0	46.3		
15	2015				492.7		2.4	4.5	0.2	11.4	27.4	45.9	7.1	0.3		38.6	45.9		
16	2016				465.3		2.4	4.6	0.2	10.8	27.4	45.4	7.1	0.3		38.1	45.4		
17	2017				437.9		2.5	4.8	0.2	10.2	27.4	45.1	7.1	0.3		37.8	45.1		
18	2018				410.5		2.6	4.9	0.3	9.6	27.4	44.8	7.1	0.3		37.5	44.8		
19	2019				383.1		2.7	5.1	0.3	9.0	27.4	44.5	7.1	0.3		37.2	44.5		
20	2020				355.7		2.7	5.2	0.3	8.4	27.4	44.0	7.1	0.3		36.7	44.0		
21	2021				328.3		2.8	5.4	0.3	7.8	27.4	43.7	7.1	0.3		36.3	43.7		
22	2022				300.9		2.9	5.6	0.3	7.2	27.4	43.4	7.1	0.3		36.0	43.4		
23	2023				273.5		3.0	5.7	0.3	6.6	27.4	43.0	7.1	0.3		35.6	43.0		
24	2024				246.1		3.1	5.9	0.3	6.0	27.4	42.7	7.1	0.3		35.3	42.7		
25	2025				218.7		3.2	6.1	0.3	5.4	27.4	42.4	7.1	0.3		35.0	42.4		
26	2026				191.3		3.3	6.2	0.3	4.8	27.4	42.0	7.1	0.3		34.6	42.0		
27	2027				163.9		3.4	6.4	0.3	4.2	27.4	41.7	7.1	0.3		34.3	41.7		
28	2028				136.5		3.5	6.6	0.3	3.6	27.4	41.4	7.1	0.3		34.0	41.4		
29	2029				109.1		3.6	6.8	0.4	3.0	27.4	41.2	7.1	0.3		33.8	41.2		
30	2030				81.7		3.7	7.0	0.4	2.4	27.4	40.9	7.1	0.3		33.5	40.9		
31	2031				54.3		3.8	7.2	0.4	1.8	27.4	40.6	7.1	0.3		33.2	40.6		
32	2032				26.9		3.9	7.5	0.4	1.2	27.4	40.4	7.1	0.3		33.0	40.4		
33	2033				-		4.0	7.7	0.4	78.6	0.6	26.9	118.2	7.1	0.3	110.8	118.2		
34	2034				-		4.1	7.9	0.4			12.4	7.1	0.3		5.0	12.4		
35	2035				-		4.3	8.2	0.4			12.9	7.1	0.3		5.5	12.9		
36	2036				-		4.4	8.4	0.4			13.2	7.1	0.3		5.8	13.2		
37	2037				-		4.5	8.6	0.4			13.5	7.1	0.3		6.1	13.5		

Note: 1) F.C. means foreign currency components and L.C. means local currency components.

- 2) 75% of the capital costs are assumed to be financed by bilateral or international organization as far as the costs are not non-eligible items.
- 3) The non-eligible items are costs for land acquisition, house compensation, administration, and any type of taxes and duties.
- 4) The assumed condition of finance is with an interest rate of 2.2% per annum for repayment period of 30 years including a grace period of 10 years.
- 5) The price escalation of 3% per annum is assumed for the capital cost, O & M cost, and replacement cost of facilities.
- 6) Annual irrigation water charges are set to cover O & M and replacement cost of irrigation facilities for 25 years.

Tableau 10.2.5 Bilan de Cash-Flow pour la Réalisation des Projets (3/5)

Timkit		Unit: Million DH																	
Year in order	Year	Capital Cost			Foreign Loan Accumulated 75% of (a)	A part of capital cost allocated by the Government	Cash Outflow					Cash Inflow					Balance (c) - (b)		
		F.C.	L.C.	Total (a)			O & M cost			Replacement cost	Repayment of Loan		Total (b)	Irrigation water	Water supply	Government subsidy		Total (c)	
							Dam	Irrigation	Water sup.		Interest	Capital							
1	2001																		
2	2002																		
3	2003																		
4	2004		4.8	4.8	-	4.8													
5	2005	24.5	25.5	50.0	37.7	12.3													
6	2006	48.6	49.1	97.7	114.3	21.1				0.8		0.8				0.8	0.8		
7	2007	91.9	98.3	190.2	257.0	47.5				2.5		2.5				2.5	2.5		
8	2008	69.8	71.4	141.2	362.9	35.3				5.7		5.7				5.7	5.7		
9	2009				362.9		1.2	1.8		8.0		11.0	3.5			7.5	11.0		
10	2010				362.9		1.2	2.6		8.0		11.8	4.8			7.0	11.8		
11	2011				362.9		1.2	3.1		8.0		12.3	5.6			6.7	12.3		
12	2012				362.9		1.3	3.4		8.0		12.7	6.0			6.7	12.7		
13	2013				362.9		1.3	3.6		8.0		12.9	6.2			6.7	12.9		
14	2014				362.9		1.4	3.7		8.0		13.1	6.2			6.9	13.1		
15	2015				344.7		1.4	3.8		8.0	18.2	31.4	6.2			25.2	31.4		
16	2016				326.5		1.4	4.0		7.6	18.2	31.2	6.2			25.0	31.2		
17	2017				308.3		1.5	4.1		7.2	18.2	31.0	6.2			24.8	31.0		
18	2018				290.1		1.5	4.2		6.8	18.2	30.7	6.2			24.5	30.7		
19	2019				271.9		1.6	4.3		6.4	18.2	30.5	6.2			24.3	30.5		
20	2020				253.7		1.6	4.5		6.0	18.2	30.3	6.2			24.1	30.3		
21	2021				235.5		1.7	4.6		5.6	18.2	30.1	6.2			23.9	30.1		
22	2022				217.3		1.7	4.7		5.2	18.2	29.8	6.2			23.6	29.8		
23	2023				199.1		1.8	4.9		4.8	18.2	29.7	6.2			23.5	29.7		
24	2024				180.9		1.8	5.0		4.4	18.2	29.4	6.2			23.2	29.4		
25	2025				162.7		1.9	5.2		4.0	18.2	29.3	6.2			23.1	29.3		
26	2026				144.5		1.9	5.3		3.6	18.2	29.0	6.2			22.8	29.0		
27	2027				126.3		2.0	5.5		3.2	18.2	28.9	6.2			22.7	28.9		
28	2028				108.1		2.0	5.7		2.8	18.2	28.7	6.2			22.5	28.7		
29	2029				89.9		2.1	5.8		2.4	18.2	28.5	6.2			22.3	28.5		
30	2030				71.7		2.2	6.0		2.0	18.2	28.4	6.2			22.2	28.4		
31	2031				53.5		2.2	6.2		1.6	18.2	28.2	6.2			22.0	28.2		
32	2032				35.3		2.3	6.4		1.2	18.2	28.1	6.2			21.9	28.1		
33	2033				17.1		2.4	6.6		0.8	18.2	28.0	6.2			21.8	28.0		
34	2034				-		2.4	6.8		0.4	17.1	84.8	6.2			78.6	84.8		
35	2035				-		2.5	7.0				9.5	6.2			3.3	9.5		
36	2036				-		2.6	7.2				9.8	6.2			3.6	9.8		
37	2037				-		2.7	7.4				10.1	6.2			3.9	10.1		

Note: 1) F.C. means foreign currency components and L.C. means local currency components.

- 2) 75% of the capital costs are assumed to be financed by bilateral or international organization as far as the costs are not non-eligible items.
- 3) The non-eligible items are costs for land acquisition, house compensation, administration, and any type of taxes and duties.
- 4) The assumed condition of finance is with an interest rate of 2.2% per annum for repayment period of 30 years including a grace period of 10 years.
- 5) The price escalation of 3% per annum is assumed for the capital cost, O & M cost, and replacement cost of facilities.
- 6) Annual irrigation water charges are set to cover O & M and replacement cost of irrigation facilities for 25 years.

Tableau 10.2.5 Bilan de Cash-Flow pour la Réalisation des Projets (4/5)

Unit: Million DH

Year in order	Year	Capital Cost			Foreign Loan Accumulated 75% of (a)	A part of capital cost allocated by the Government	Cash Outflow						Cash Inflow				Balance (c) - (b)	
		F.C.	L.C.	Total (a)			O & M cost			Replacement cost	Repayment of Loan		Total (b)	Irrigation water	Water supply	Government subsidy		Total (c)
							Dam	Irrigation	Water sup.		Interest	Capital						
1	2001																	
2	2002																	
3	2003																	
4	2004		3.9	3.9	-	3.9												
5	2005	34.1	37.7	71.8	56.7	15.1												
6	2006	65.4	68.3	133.7	157.0	33.4				1.2						1.2	1.2	
7	2007	56.5	55.5	112.0	241.0	28.0				3.5						3.5	3.5	
8	2008				241.0		0.8	0.7		5.3			1.4		5.4	6.8		
9	2009				241.0		0.8	1.2		5.3			2.2		5.1	7.3		
10	2010				241.0		0.8	1.5		5.3			2.8		4.8	7.6		
11	2011				241.0		0.9	2.0		5.3			3.5		4.7	8.2		
12	2012				241.0		0.9	2.3		5.3			4.0		4.5	8.5		
13	2013				241.0		0.9	2.4		5.3			4.0		4.6	8.6		
14	2014				241.0		0.9	2.4		5.3			4.0		4.6	8.6		
15	2015				228.9		1.0	2.5		5.3	12.1	20.9	4.0		16.9	20.9		
16	2016				216.8		1.0	2.6		5.0	12.1	20.7	4.0		16.7	20.7		
17	2017				204.7		1.0	2.7		4.8	12.1	20.6	4.0		16.6	20.6		
18	2018				192.6		1.1	2.7		4.5	12.1	20.4	4.0		16.4	20.4		
19	2019				180.5		1.1	2.8		4.2	12.1	20.2	4.0		16.2	20.2		
20	2020				168.4		1.1	2.9		4.0	12.1	20.1	4.0		16.1	20.1		
21	2021				156.3		1.2	3.0		3.7	12.1	20.0	4.0		16.0	20.0		
22	2022				144.2		1.2	3.1		3.4	12.1	19.8	4.0		15.8	19.8		
23	2023				132.1		1.2	3.2		3.2	12.1	19.7	4.0		15.7	19.7		
24	2024				120.0		1.3	3.3		2.9	12.1	19.6	4.0		15.6	19.6		
25	2025				107.9		1.3	3.4		2.6	12.1	19.4	4.0		15.4	19.4		
26	2026				95.8		1.3	3.5		2.4	12.1	19.3	4.0		15.3	19.3		
27	2027				83.7		1.4	3.6		2.1	12.1	19.2	4.0		15.2	19.2		
28	2028				71.6		1.4	3.7		1.8	12.1	19.0	4.0		15.0	19.0		
29	2029				59.5		1.5	3.8		1.6	12.1	19.0	4.0		15.0	19.0		
30	2030				47.4		1.5	3.9		1.3	12.1	18.8	4.0		14.8	18.8		
31	2031				35.3		1.5	4.0		1.0	12.1	18.6	4.0		14.6	18.6		
32	2032				23.2		1.6	4.2		0.8	12.1	18.7	4.0		14.7	18.7		
33	2033				11.1		1.6	4.3		37.8	0.5	12.1	56.3	4.0	52.3	56.3		
34	2034				-		1.7	4.4		0.2	11.1	17.4	4.0		13.4	17.4		
35	2035				-		1.7	4.5				6.2	4.0		2.2	6.2		
36	2036				-		1.8	4.7				6.5	4.0		2.5	6.5		
37	2037				-		1.8	4.8				6.6	4.0		2.6	6.6		

Note: 1) F.C. means foreign currency components and L.C. means local currency components.

- 2) 75% of the capital costs are assumed to be financed by bilateral or international organization as far as the costs are not non-eligible items.
- 3) The non-eligible items are costs for land acquisition, house compensation, administration, and any type of taxes and duties.
- 4) The assumed condition of finance is with an interest rate of 2.2% per annum for repayment period of 30 years including a grace period of 10 years.
- 5) The price escalation of 3% per annum is assumed for the capital cost, O & M cost, and replacement cost of facilities.
- 6) Annual irrigation water charges are set to cover O & M and replacement cost of irrigation facilities for 25 years.

Tableau 10.2.5 Bilan de Cash-Flow pour la Réalisation des Projets (5/5)

Overall Plan															Unit: Million DH				
Year in order	Year	Capital Cost			Foreign Loan Accumulated 75% of (a)	A part of capital cost allocated by the Government	Cash Outflow						Cash Inflow				Balance (c) - (b)		
		F.C.	L.C.	Total (a)			O & M cost			Replacement cost	Repayment of Loan		Total (b)	Irrigation water	Water supply	Government subsidy		Total (c)	
							Dam	Irrigation	Water sup.		Interest	Capital							
1	2001																		
2	2002																		
3	2003		20.5	20.5		20.5													
4	2004	26.1	54.2	80.3	40.1	40.2													
5	2005	168.9	170.1	339.0	311.7	67.4				0.9		0.9				0.9	0.9		
6	2006	324.1	324.9	649.0	816.4	144.3				6.9		6.9				6.9	6.9		
7	2007	304.8	310.7	615.5	1,278.0	153.9				18.0		18.0				18.0	18.0		
8	2008	69.8	71.4	141.2	1,383.9	35.3	3.7	3.1	0.3	28.1		35.2	6.1	0.4		28.7	35.2		
9	2009				1,383.9		5.0	6.4	0.3	30.4		42.1	12.0	0.4		29.7	42.1		
10	2010				1,383.9		5.1	8.2	0.3	30.4		44.0	15.1	0.4		28.5	44.0		
11	2011				1,383.9		5.3	9.7	0.3	30.4		45.7	17.3	0.4		28.0	45.7		
12	2012				1,383.9		5.5	10.8	0.3	30.4		47.0	18.8	0.4		27.8	47.0		
13	2013				1,383.9		5.6	11.3	0.3	30.4		47.6	19.0	0.4		28.2	47.6		
14	2014				1,356.5		5.8	11.6	0.3	30.4	27.4	75.5	19.1	0.4		56.0	75.5		
15	2015				1,287.1		6.0	12.1	0.3	29.8	69.4	117.6	19.3	0.4		97.9	117.6		
16	2016				1,217.7		6.1	12.5	0.3	28.3	69.4	116.6	19.3	0.4		96.9	116.6		
17	2017				1,148.3		6.3	12.9	0.3	26.8	69.4	115.7	19.3	0.4		96.0	115.7		
18	2018				1,078.9		6.5	13.2	0.5	25.3	69.4	114.9	19.3	0.4		95.1	114.9		
19	2019				1,009.5		6.8	13.6	0.5	23.7	69.4	114.0	19.3	0.4		94.3	114.0		
20	2020				940.1		6.8	14.1	0.5	22.2	69.4	113.0	19.3	0.4		93.3	113.0		
21	2021				870.7		7.2	14.5	0.5	20.7	69.4	112.3	19.3	0.4		92.5	112.3		
22	2022				801.3		7.3	14.9	0.5	19.2	69.4	111.3	19.3	0.4		91.5	111.3		
23	2023				731.9		7.6	15.4	0.5	17.6	69.4	110.5	19.3	0.4		90.8	110.5		
24	2024				662.5		7.8	15.8	0.5	16.1	69.4	109.6	19.3	0.4		89.9	109.6		
25	2025				593.1		8.0	16.4	0.5	14.6	69.4	108.9	19.3	0.4		89.1	108.9		
26	2026				523.7		8.2	16.7	0.5	13.0	69.4	107.8	19.3	0.4		88.1	107.8		
27	2027				454.3		8.5	17.3	0.5	11.5	69.4	107.2	19.3	0.4		87.5	107.2		
28	2028				384.9		8.7	17.8	0.5	10.0	69.4	106.4	19.3	0.4		86.7	106.4		
29	2029				315.5		9.1	18.3	0.6	8.5	69.4	105.9	19.3	0.4		86.1	105.9		
30	2030				246.1		9.3	18.8	0.6	6.9	69.4	105.0	19.3	0.4		85.3	105.0		
31	2031				176.7		9.5	19.4	0.6	5.4	69.4	104.3	19.3	0.4		84.6	104.3		
32	2032				107.3		9.8	20.2	0.6	3.9	69.4	103.9	19.3	0.4		84.1	103.9		
33	2033				38.4		10.1	20.7	0.6	147.9	2.4	68.9	250.6	19.3	0.4	230.8	250.6		
34	2034				-		10.4	21.3	0.6	58.1	0.8	38.4	129.6	19.3	0.4	109.9	129.6		
35	2035				-		10.7	22.0	0.7			33.4	22.0	0.4		13.7	33.4		
36	2036				-		11.1	22.6	0.7			34.4	19.3	0.4		14.7	34.4		
37	2037				-		11.4	23.2	0.7			35.3	19.3	0.4		15.6	35.3		

Note: 1) F.C. means foreign currency components and L.C. means local currency components.

- 2) 75% of the capital costs are assumed to be financed by bilateral or international organization as far as the costs are not non-eligible items.
- 3) The non-eligible items are costs for land acquisition, house compensation, administration, and any type of taxes and duties.
- 4) The assumed condition of finance is with an interest rate of 2.2% per annum for repayment period of 30 years including a grace period of 10 years.
- 5) The price escalation of 3% per annum is assumed for the capital cost, O & M cost, and replacement cost of facilities.
- 6) Annual irrigation water charges are set to cover O & M and replacement cost of irrigation facilities for 25 years.