

JAPAN INTERNATIONAL COOPERATION AGENCY
THE GOVERNMENT OF THE KINGDOM OF MOROCCO

FEASIBILITY STUDY
ON WATER RESOURCES DEVELOPMENT
IN RURAL AREA
IN THE KINGDOM OF MOROCCO

FINAL REPORT

VOLUME VII
DATA BOOK

AUGUST 2001

JOINT-VENTURE OF
NIPPON KOEI CO., LTD. AND
NIPPON GIKEN INC.

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<i>Supporting Report III:</i>	<i>Socio-economy</i>
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<i>Data Book NE:</i>	<i>Natural Environment</i>
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<i>Data Book EA:</i>	<i>Economic Analysis</i>

The cost estimate is based on the price level and exchange rate of April 2000. The exchange rate is:
US\$ 1.0 = Moroccan Dirham (DH) 10.68 and
Japanese Yen 100.0 = Moroccan Dirham (DH) 9.90

**FEASIBILITY STUDY
ON
WATER RESOURCES DEVELOPMENT
IN
RURAL AREA
IN
THE KINGDOM OF MOROCCO**

**FINAL REPORT
VOLUME VII
DATA BOOK**

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Rural Area in

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***Data Book AR Aero-Photo
and
Ground Survey***

Rural Area in

Feasibility Study on Water Resources Development in

the

Kingdom of Morocco

Final Report






Volume VII Data Book

Data Book AR

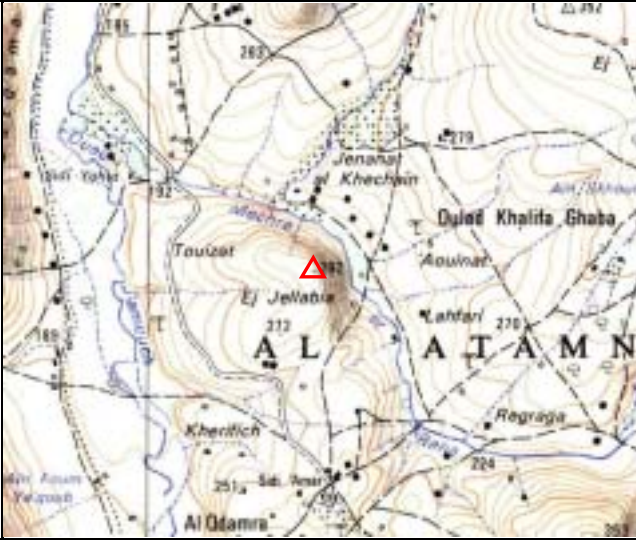




Aero-Photo and Ground Survey

***AR1 Description of Aero-Photo Signal at
N'Fifikh***






DESCRIPTION OF AIR PHOTO SIGNAL

Station No.		Operated by	H. Ragtaoui, M. Hakkaoui (SETA)	
108		Checked by	S. Kono	
		Date	9-Oct-2000	
Projection	Zone	Ellipsoid Name		
Lambert Conical Conform	Northern Morocco	Clarke 1880		
Coordinates and Elevation				
X (m)	Y (m)	H (m)		
342 168,540	317 761,680	327.959 (3rd order leveling)		
Location Map (1:50,000 Al Gara)		Field Photograph of Station		
				
Aerial Photograph				
<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.3-No.2 (N' fifikh)</div>			<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.3-No.3 (N' fifikh)</div>	
				






DESCRIPTION OF AIR PHOTO SIGNAL

Station No.		Operated by	H. Ragtaoui, M. Hakkaoui (SETA)	
109		Checked by	S. Kono	
		Date	9-Oct-2000	
Projection	Zone		Ellipsoid Name	
Lambert Conical Conform	Northern Morocco		Clarke 1880	
Coordinates and Elevation				
X (m)	Y (m)		H (m)	
344 655,296	317 717,662		290,443 (Trigonometric)	
<p>The existing IGN coordinates is X:344 654,65, Y:317 718,83. There is much difference between existing data and GPS observation results. Considering that this station was modified, the GPS observation results were adopted for this project.</p>				
Location Map (1:50,000 Al Gara)		Field Photograph of Station		
				
Aerial Photograph				
<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.2-No.3 (N'fifikh)</div>			<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.2-No.2 (N'fifikh)</div>	
				






DESCRIPTION OF AIR PHOTO SIGNAL

Station No.		Operated by	H. Ragtaoui, M. Hakkaoui (SETA)	
166		Checked by	S. Kono	
		Date	9-Oct-2000	
Projection	Zone		Ellipsoid Name	
Lambert Conical Conform	Northern Morocco		Clarke 1880	
Coordinates and Elevation				
X (m)	Y (m)		H (m)	
341 797,100	320 132,900		320.833 (Trigonometric)	
Location Map (1:50,000 Al Gara)		Field Photograph of Station		
				
Aerial Photograph				
<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.3-No.1 (N' fifikh)</div>			<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.3-No.2 (N' fifikh)</div>	
				






DESCRIPTION OF AIR PHOTO SIGNAL

Station No.	Operated by	H. Ragtaoui, M. Hakkaoui (SETA)
138	Checked by	S. Kono
	Date	9-Oct-2000
Projection	Zone	Ellipsoid Name
Lambert Conical Conform	Northern Morocco	Clarke 1880
Coordinates and Elevation		
X (m)	Y (m)	H (m)
342 420,030	315 822,700	344.688 (Trigonometric)
Location Map (1:50,000 Al Gara)	Field Photograph of Station	
		
Aerial Photograph		
<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">C.3-No.4 (N' fifikh)</div> 	<div style="text-align: center;">  N </div> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">C.3-No.5 (N' fifikh)</div> 	

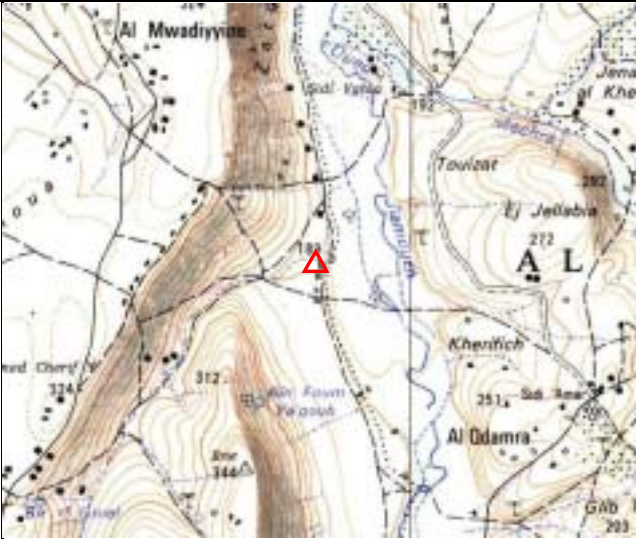


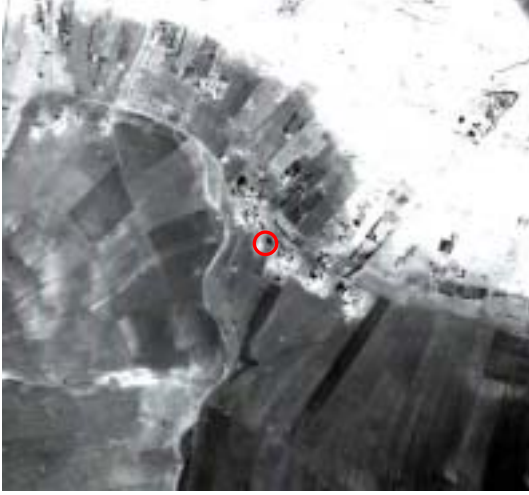

DESCRIPTION OF AIR PHOTO SIGNAL

Station No.	Operated by	H. Ragtaoui, M. Hakkaoui (SETA)
144	Checked by	S. Kono
	Date	9-Oct-2000
Projection	Zone	Ellipsoid Name
Lambert Conical Conform	Northern Morocco	Clarke 1880
Coordinates and Elevation		
X (m)	Y (m)	H (m)
344 123.620	316 241.880	251,279 (3rd order leveling)
Location Map (1:50,000 Al Gara)	Field Photograph of Station	
		
Aerial Photograph		
<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">C.3-No.4 (N' fifikh)</div> 	<div style="text-align: center;">  N </div>	<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">C.3-No.5 (N' fifikh)</div> 

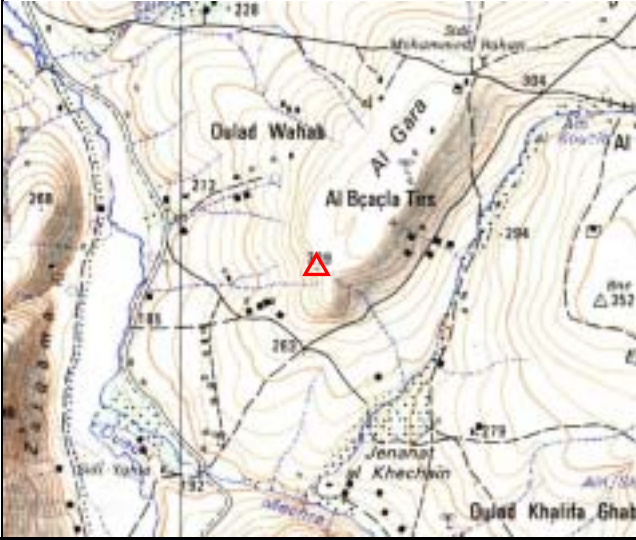




DESCRIPTION OF AIR PHOTO SIGNAL

Station No.		Operated by	H. Ragtaoui, M. Hakkaoui (SETA)	
145		Checked by	S. Kono	
		Date	9-Oct-2000	
Projection	Zone		Ellipsoid Name	
Lambert Conical Conform	Northern Morocco		Clarke 1880	
Coordinates and Elevation				
X (m)	Y (m)		H (m)	
345 476,040	314 107.140		372,130 (Trigonometric)	
Location Map (1:50,000 Al Gara)		Field Photograph of Station		
				
Aerial Photograph				
<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.3-No.6 (N' fifikh)</div>			<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.3-No.7 (N' fifikh)</div>	
				

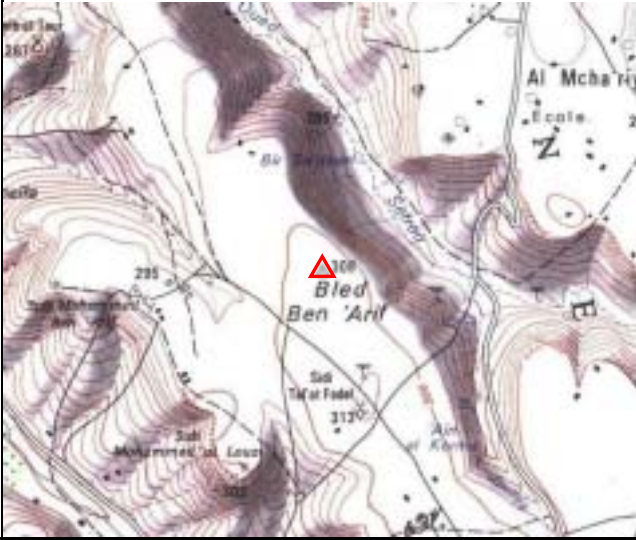




DESCRIPTION OF AIR PHOTO SIGNAL

Station No.		Operated by	H. Ragtaoui, M. Hakkaoui (SETA)	
150		Checked by	S. Kono	
		Date	9-Oct-2000	
Projection	Zone		Ellipsoid Name	
Lambert Conical Conform	Northern Morocco		Clarke 1880	
Coordinates and Elevation				
X (m)	Y (m)		H (m)	
342 891,760	317 161,520		198,323 (Trigonometric)	
Location Map (1:50,000 Al Gara)		Field Photograph of Station		
				
Aerial Photograph				
<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.3-No.3 (N' fifikh)</div>			<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.3-No.4 (N' fifikh)</div>	
				

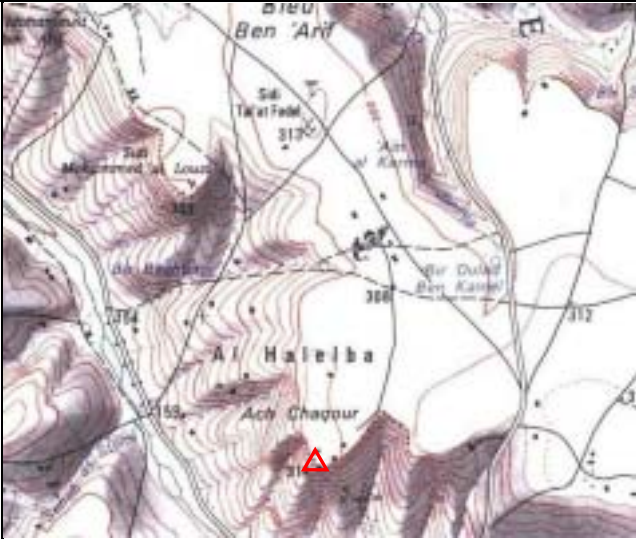




DESCRIPTION OF AIR PHOTO SIGNAL

Station No.		Operated by	H. Ragtaoui, M. Hakkaoui (SETA)	
159		Checked by	S. Kono	
		Date	9-Oct-2000	
Projection	Zone		Ellipsoid Name	
Lambert Conical Conform	Northern Morocco		Clarke 1880	
Coordinates and Elevation				
X (m)	Y (m)		H (m)	
344 482,300	319 703,100		338,731 (Trigonometric)	
Location Map (1:50,000 Al Gara)		Field Photograph of Station		
				
Aerial Photograph				
<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.2-No.4 (N' fifikh)</div>			<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.2-No.3 (N' fifikh)</div>	
				






DESCRIPTION OF AIR PHOTO SIGNAL

Station No.		Operated by	H. Ragtaoui, M. Hakkaoui (SETA)	
195		Checked by	S. Kono	
		Date	9-Oct-2000	
Projection	Zone		Ellipsoid Name	
Lambert Conical Conform	Northern Morocco		Clarke 1880	
Coordinates and Elevation				
X (m)	Y (m)		H (m)	
340 486,510	327 177,850		308,504 (Trigonometric)	
Location Map (1:50,000 Benslimane)		Field Photograph of Station		
				
Aerial Photograph				
<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.1-No.20 (N' fikh)</div>			<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.1-No.21 (N' fikh)</div>	
				


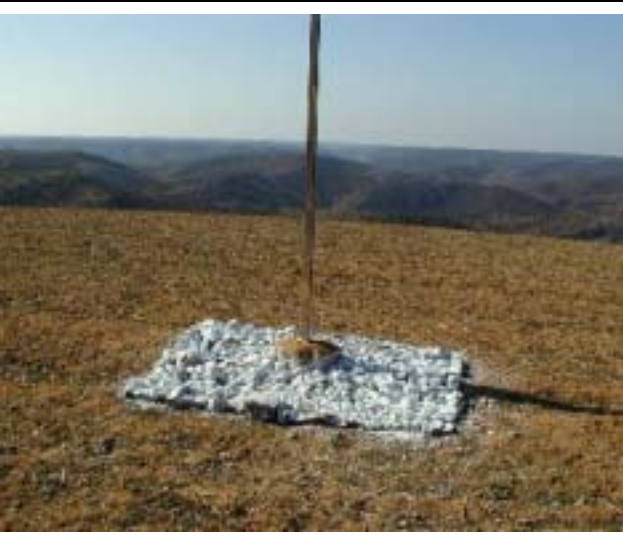



DESCRIPTION OF AIR PHOTO SIGNAL

Station No.	Operated by	H. Ragtaoui, M. Hakkaoui (SETA)
200	Checked by	S. Kono
	Date	9-Oct-2000
Projection	Zone	Ellipsoid Name
Lambert Conical Conform	Northern Morocco	Clarke 1880
Coordinates and Elevation		
X (m)	Y (m)	H (m)
340 760,200	324 026,200	314,259 (GPS)
Location Map (1:50,000 Benslimane)	Field Photograph of Station	
		
Aerial Photograph		
<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">C.2-No.8 (N' fifikh)</div> 		<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">C.2-No.7 (N' fifikh)</div> 






DESCRIPTION OF AIR PHOTO SIGNAL

Station No.		Operated by	H. Ragtaoui, M. Hakkaoui (SETA)	
220		Checked by	S. Kono	
		Date	9-Oct-2000	
Projection	Zone		Ellipsoid Name	
Lambert Conical Conform	Northern Morocco		Clarke 1880	
Coordinates and Elevation				
X (m)	Y (m)		H (m)	
338 474,600	330 017,700		213,335 (GPS)	
Location Map (1:50,000 Benslimane)		Field Photograph of Station		
				
Aerial Photograph				
<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.1-No.17 (N'fifikh)</div>			<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.1-No.18 (N'fifikh)</div>	
				

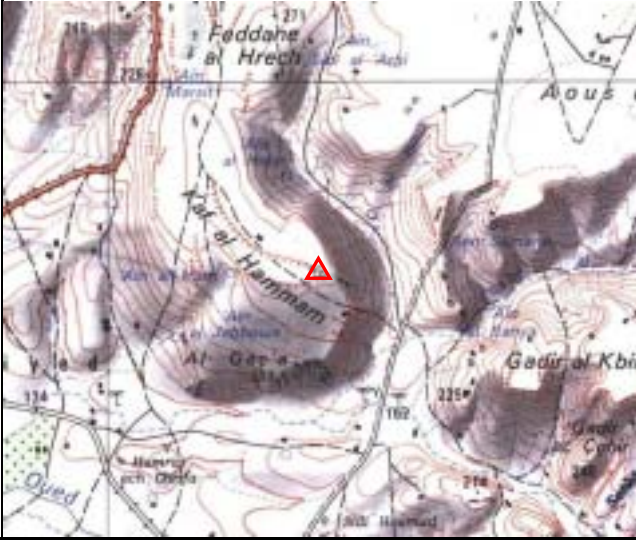




DESCRIPTION OF AIR PHOTO SIGNAL

Station No.	Operated by	H. Ragtaoui, M. Hakkaoui (SETA)
230	Checked by	S. Kono
	Date	9-Oct-2000
Projection	Zone	Ellipsoid Name
Lambert Conical Conform	Northern Morocco	Clarke 1880
Coordinates and Elevation		
X (m)	Y (m)	H (m)
329 781,100	333 014,000	222,508 (3rd order leveling)
Location Map (1:50,000 Benslimane)	Field Photograph of Station	
		
Aerial Photograph		
<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">C.2-No.18 (N'fifikh)</div> 		<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">C.2-No.17 (N'fifikh)</div> 

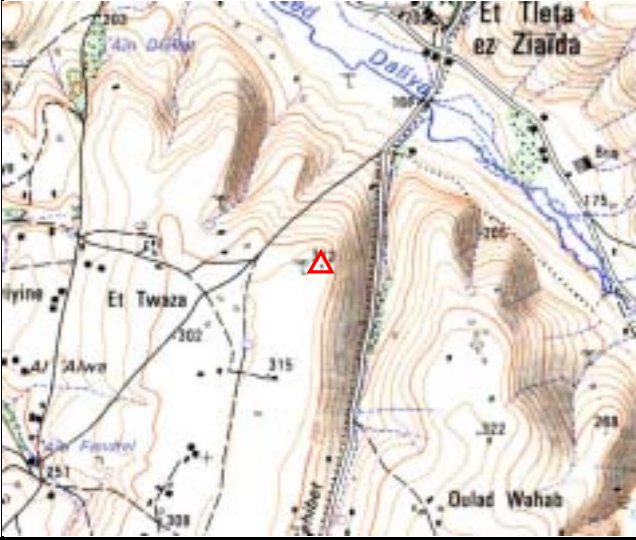




DESCRIPTION OF AIR PHOTO SIGNAL

Station No.		Operated by	H. Ragtaoui, M. Hakkaoui (SETA)	
4152		Checked by	S. Kono	
		Date	9-Oct-2000	
Projection	Zone		Ellipsoid Name	
Lambert Conical Conform	Northern Morocco		Clarke 1880	
Coordinates and Elevation				
X (m)	Y (m)		H (m)	
336 597,150	332 494,250		276,170 (Trigonometric)	
Location Map (1:50,000 Benslimane)		Field Photograph of Station		
				
Aerial Photograph				
<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.1-No.15 (N'fifikh)</div>			<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.1-No.16 (N'fifikh)</div>	
				






DESCRIPTION OF AIR PHOTO SIGNAL

Station No.		Operated by	H. Ragtaoui, M. Hakkaoui (SETA)	
779B		Checked by	S. Kono	
		Date	9-Oct-2000	
Projection	Zone		Ellipsoid Name	
Lambert Conical Conform	Northern Morocco		Clarke 1880	
Coordinates and Elevation				
X (m)	Y (m)		H (m)	
337 437,570	331 508,000		272,651 (Trigonometric)	
Location Map (1:50,000 Benslimane)		Field Photograph of Station		
				
Aerial Photograph				
<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.1-No.16 (N' fikh)</div>			<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.1-No.17 (N' fikh)</div>	
				






DESCRIPTION OF AIR PHOTO SIGNAL

Station No.		Operated by	H. Ragtaoui, M. Hakkaoui (SETA)	
904		Checked by	S. Kono	
		Date	9-Oct-2000	
Projection	Zone		Ellipsoid Name	
Lambert Conical Conform	Northern Morocco		Clarke 1880	
Coordinates and Elevation				
X (m)	Y (m)		H (m)	
340 758,980	321 262,360		311,297 (Trigonometric)	
Location Map (1:50,000 Al Gara)		Field Photograph of Station		
				
Aerial Photograph				
<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.2-No.7 (N' fifikh)</div>			<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.2-No.6 (N' fifikh)</div>	
				




DESCRIPTION OF AIR PHOTO SIGNAL

Station No.		Operated by	H. Ragtaoui, M. Hakkaoui (SETA)
80		Checked by	S. Kono
		Date	9-Oct-2000
Projection	Zone	Ellipsoid Name	
Lambert Conical Conform	Northern Morocco	Clarke 1880	
Coordinates and Elevation			
X (m)	Y (m)	H (m)	
324 816,530	343 677,770	123,253 (3 rd order leveling)	
Location Map (1:50,000 Mohammedia)		Field Photograph of Station	
			
Aerial Photograph			
<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.1-No.6 (N' fifikh)</div>		<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.1-No.7 (N' fifikh)</div>	
			

DESCRIPTION OF AIR PHOTO SIGNAL

Station No.	Operated by	H. Ragtaoui, M. Hakkaoui (SETA)
170	Checked by	S. Kono
	Date	9-Oct-2000
Projection	Zone	Ellipsoid Name
Lambert Conical Conform	Northern Morocco	Clarke 1880
Coordinates and Elevation		
X (m)	Y (m)	H (m)
319 951,770	346 486,070	48,072 (Terrass, 3 rd order leveling)
Location Map (1:50,000 Mohammedia)	Field Photograph of Station	
		
Aerial Photograph		
<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">C.5-No.8 (N' fifikh)</div> 	<div style="text-align: center;">  N </div>	<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;">C.5-No.7 (N' fifikh)</div> 

DESCRIPTION OF AIR PHOTO SIGNAL

Station No.		Operated by	H. Ragtaoui, M. Hakkaoui (SETA)	
168		Checked by	S. Kono	
		Date	9-Oct-2000	
Projection	Zone		Ellipsoid Name	
Lambert Conical Conform	Northern Morocco		Clarke 1880	
Coordinates and Elevation				
X (m)	Y (m)	H (m)		
322 503,335	343 363,045	120,283 (3 rd order leveling)		
<p>The existing IGN coordinates is X:322 464,89, Y:343 354,53. There is much difference between existing data and GPS observation result. Considering that this station was modified, the GPS observation results were adopted for this project</p>				
Location Map (1:50,000 Mohammedia)		Field Photograph of Station		
				
Aerial Photograph				
<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.1-No.5 (N'fifikh)</div>			<div style="border: 1px solid black; padding: 2px; display: inline-block;">C.1-No.6 (N'fifikh)</div>	
