

**2006 1960**

\*

\*\*

2006

.1960

(Likelihood Maximum Probability)

(Pixels)

(Pixels)

.ARC GIS 9.3 PCI-10

<sup>2</sup> 15237252

1960

2006

1960

<sup>2</sup> 4966370

2006

1960

<sup>2</sup> 7840600

2006

<sup>2</sup> 92322846

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\*

\*\*

.2013/2/7 :

.2011/8/10 :

.2013

©

**Changes in the Area of Land cover in the Governorate of Jericho  
between 1960 and 2006 by using remote sensing technique.**

**Raed S. T. Halabi**

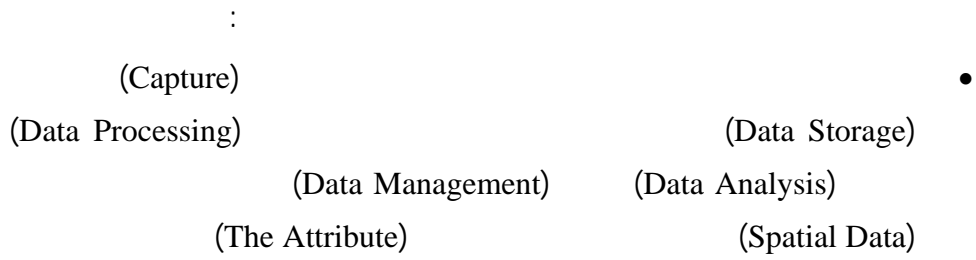
**Issam A. Al-Khatib**

**Abstract**

This research aims to study land cover changes in the governorate of Jericho over the period of study (1960-2006). In this study the field survey was conducted and satellite images were analyzed to identify land cover patterns of 2006. The land cover changes were detected by comparing land cover patterns of 2006 with that shown by land cover map of 1960. The study relied on Maximum Probability Likelihood for the classification of data of the study area, where transactions intensity probability was used to classify unknown cells (Pixels), and it calculates the probability value of cells (Pixels) that belong to each class of patterns of land cover, and treated and classified data using PCI-10 and ARC GIS 9.3. The study showed a remarkable change in built up area that increased from 4966370 m<sup>2</sup> in 1960 to 15,237, 252 m<sup>2</sup> in 2006. The total area of agricultural land (vegetables, field crops, and citrus plantations) increased from 7.8406 million m<sup>2</sup> in 1960 to 92,322,846 m<sup>2</sup> in 2006. There was a decline in the area of herbs and shrubs in 2006 compared to 1960.

**Keywords:** land use, land cover, remote sensing, Jericho, Palestine

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(PCI, 10) (ENVI, 4) :

50                      35 30 35 25  
276                      <sup>2</sup> 592                      .(1)                      31 54 31

2006 1960

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% 16222 16491  
)<sup>2</sup> 59.6 2000  
.(2002  
(%31.9)

.  
(%20.7)  
%9.28  
.(2002 )  
:

: .2006 1960

(GIS)

.(RS)

.(2) (2008 )

:

:

-1

Supervised )

1960 (classification

.(3) (PCI-1) 2006

(SPOT) -2

.(4) -3

:

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Ridd .(Ridd , 1995) -1

(Ridd)

(Land Cover)

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(Vegetation Cover and impervious surfaces) (VIS Model)  
Ridd ( ) surfaces)  
Ridd

(Biophysical Information)

**(Ward et al., 2000)** -2  
(Vegetation Cover and impervious surfaces) (VIS)  
(Brisban)  
(Unsupervised classification)  
)  
(  
(Land sat TM) (VIS Model)

**(Robbinson, 2001)** -3  
(Multi spectral Data) (SPOT)  
1986

.1999

**(Rudel et al., 2002 )** -4  
( ) (Chiguaza)  
((Land sat TM))

. 1997 1987

(Kali, 2005) -5  
(TM)

(Hegarati-Masle et al., 2005) -6

(2005 ) -7

. 2002 1989

(2007 ) -8

(2008 ) -9

2006 1960

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(ENVI 4)  
(Maximum Likelihood  
(Supervised Classification  
(Classifier)  
(Training Area)  
(Methods)  
(2009 ) -10  
:  
:  
:  
1960 -1  
(SPOT) 2006  
(2)



(Maximum Likelihood)  
(Pixels)  
(Pixels)  
( PCI-10)  
. (3) (ARC GIS 9.3)

50000:1  
(Pixels) 300 (Resolution)  
(Digital Format)  
.\*tiff format)(\*tiff)

.( ARC GIS 9.3) ( Auto CAD2004)

:  
(\*tiff)  
: (PCI -10)

2006 1960

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	(Geometric Correction)	-
(Pixels)	(Y) (X)	(GCPS)
	(Y) (X)	
	(Root Mean Square) (RMS)	-
(GCPS)	1.5	
	(RMS)	(RMS)
	(Enhancement)	-3
	:	
	:	
		-1
	.2006	-1
	.1:50000	-2

.2013

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-3

-4

%77.3

%75.3=(2488) \ (1874)

2006 1960

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%76.2

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2006 1960

**2006**

-

**-1**

<sup>2</sup> 15237252

%3

. . . . .

.(2008 )

-2

(2006 )

%20 <sup>2</sup> 3040548

% 77 2 2345395

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. . . . .

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-1

-2

-3

%36 <sup>2</sup> 5505939

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2006 1960

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-1

-2

**-4**

.(2000 )

35

%38

<sup>2</sup> 5756305

-1

-2

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(1997 ) %30  
%5 <sup>2</sup> 435693  
. (5)

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-1

-2

-3

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. (5) %16 <sup>2</sup> 92322846

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-1

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2006 1960

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<sup>2</sup> 80573732

.(5)

%14

%4

.(2003 )

(Goodman and Freund, 1968)

%63

<sup>2</sup> 371926975

.(5)

: **2006 1960**



1960)

.(2006

2006 1960

1960

(6)

<sup>2</sup> 7840600

<sup>2</sup> 231178

<sup>2</sup> 107627

<sup>2</sup> 17556061

2006

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1960

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2006 1960

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.(6) <sup>2</sup> 4966370 1960

<sup>2</sup> 15237252 2006

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1994

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%3

.2006

%16

%14

%4

%63

.2006 1960

.2013

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.2

2006 1960

.3

%35

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-1

-2

-3

-4

-5

-6

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. 2009

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.2002  
(3).

- -  
(2008)

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.2008

.2007

.1997

.2000

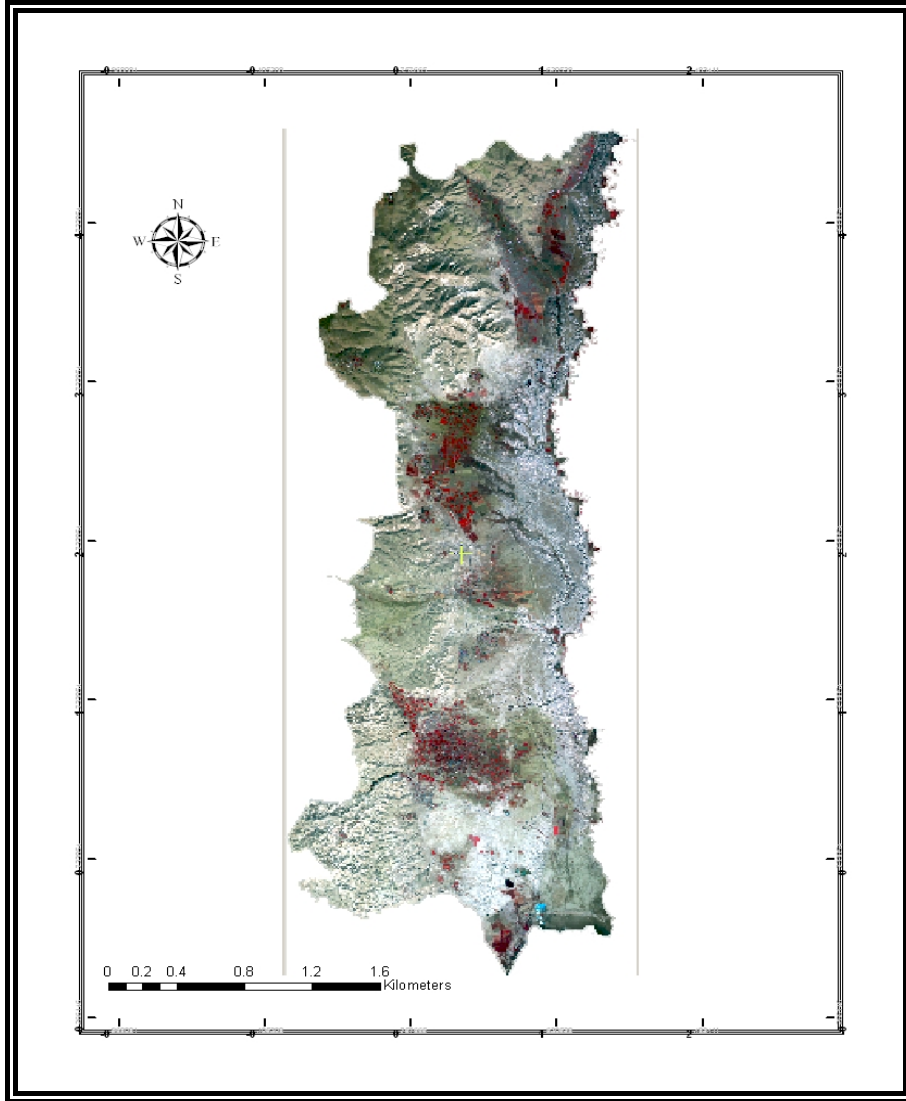
(2006)

2006 1960



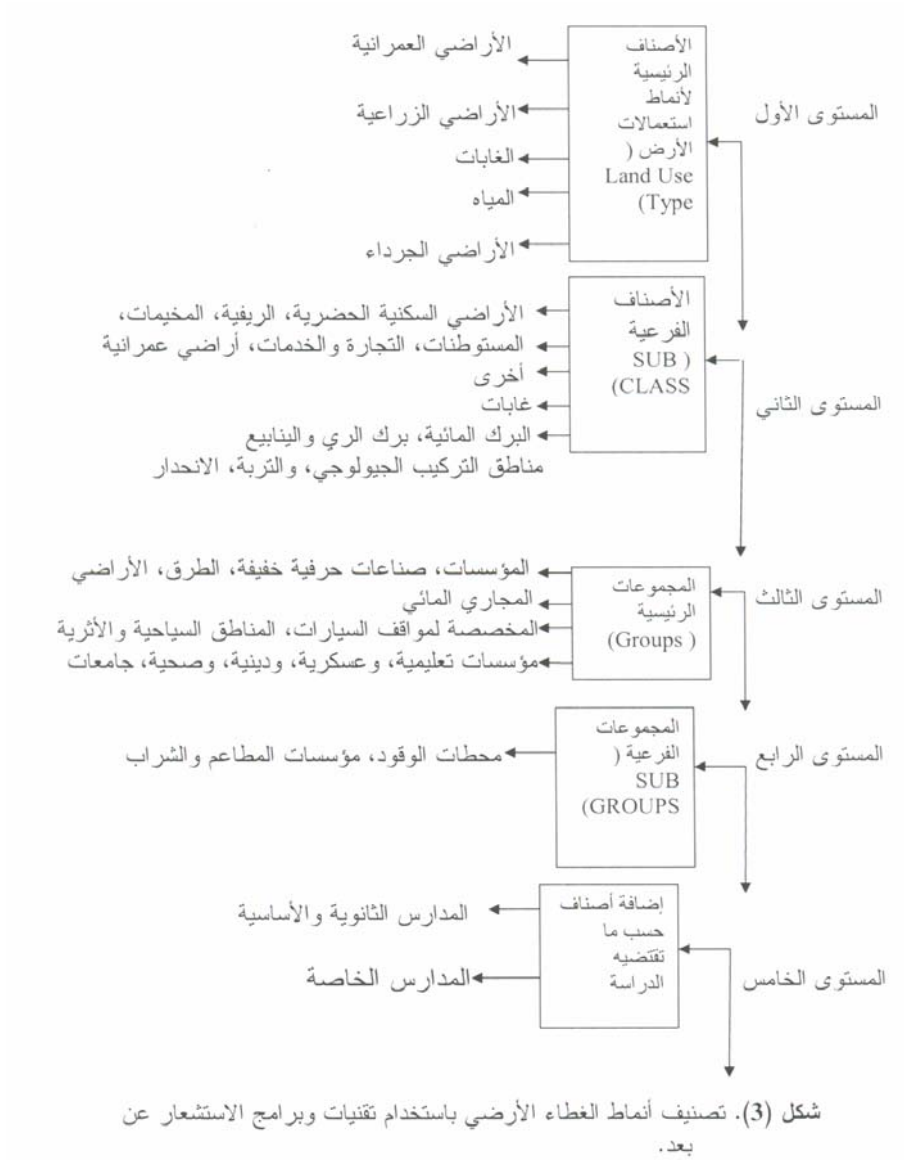
(1)

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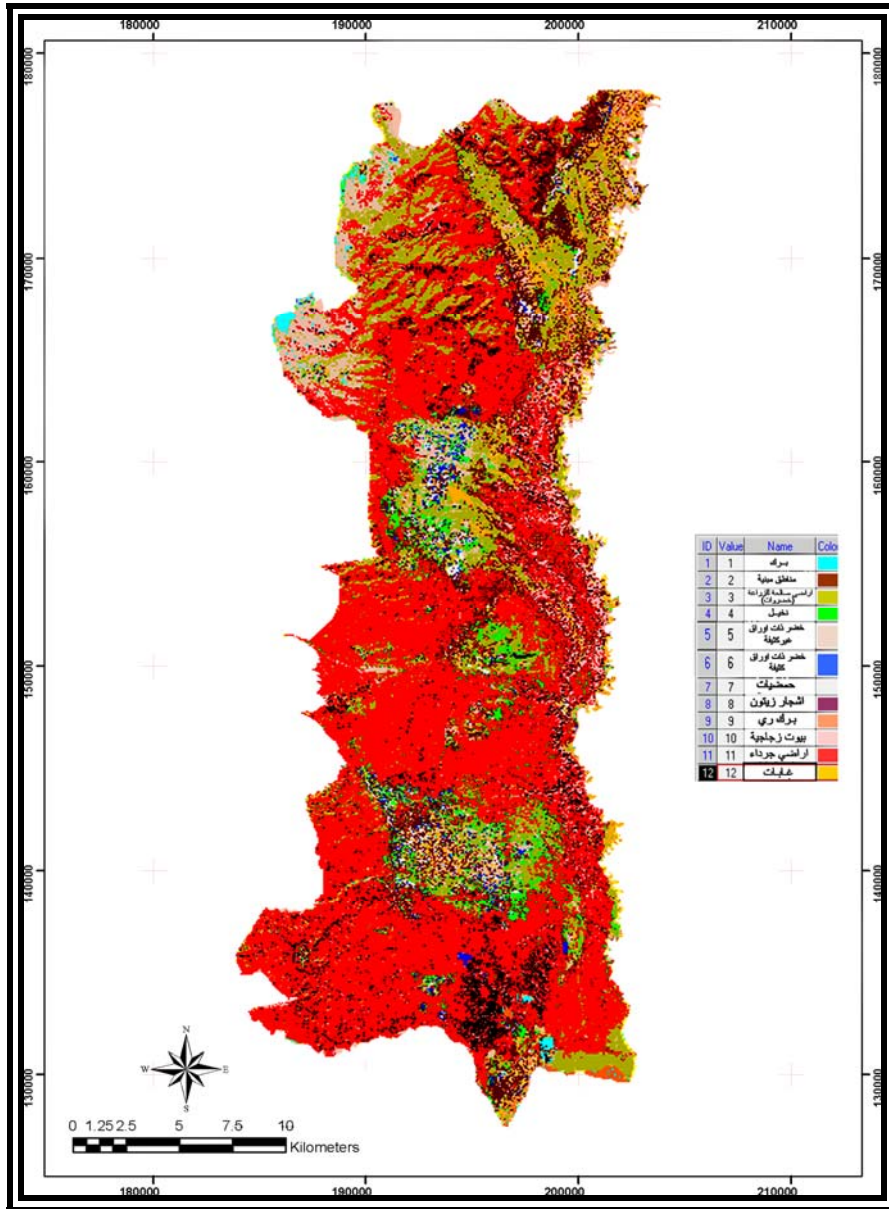


.(2)

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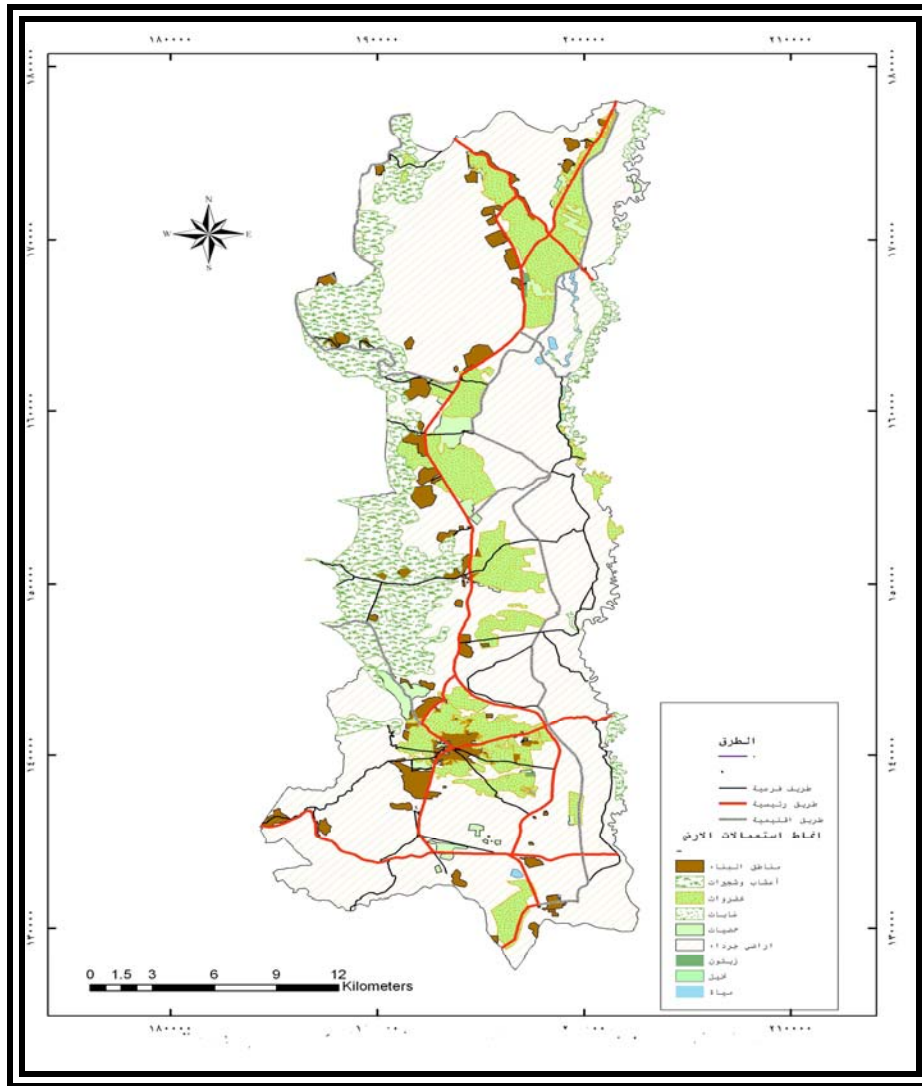


(SPOT )

(4)

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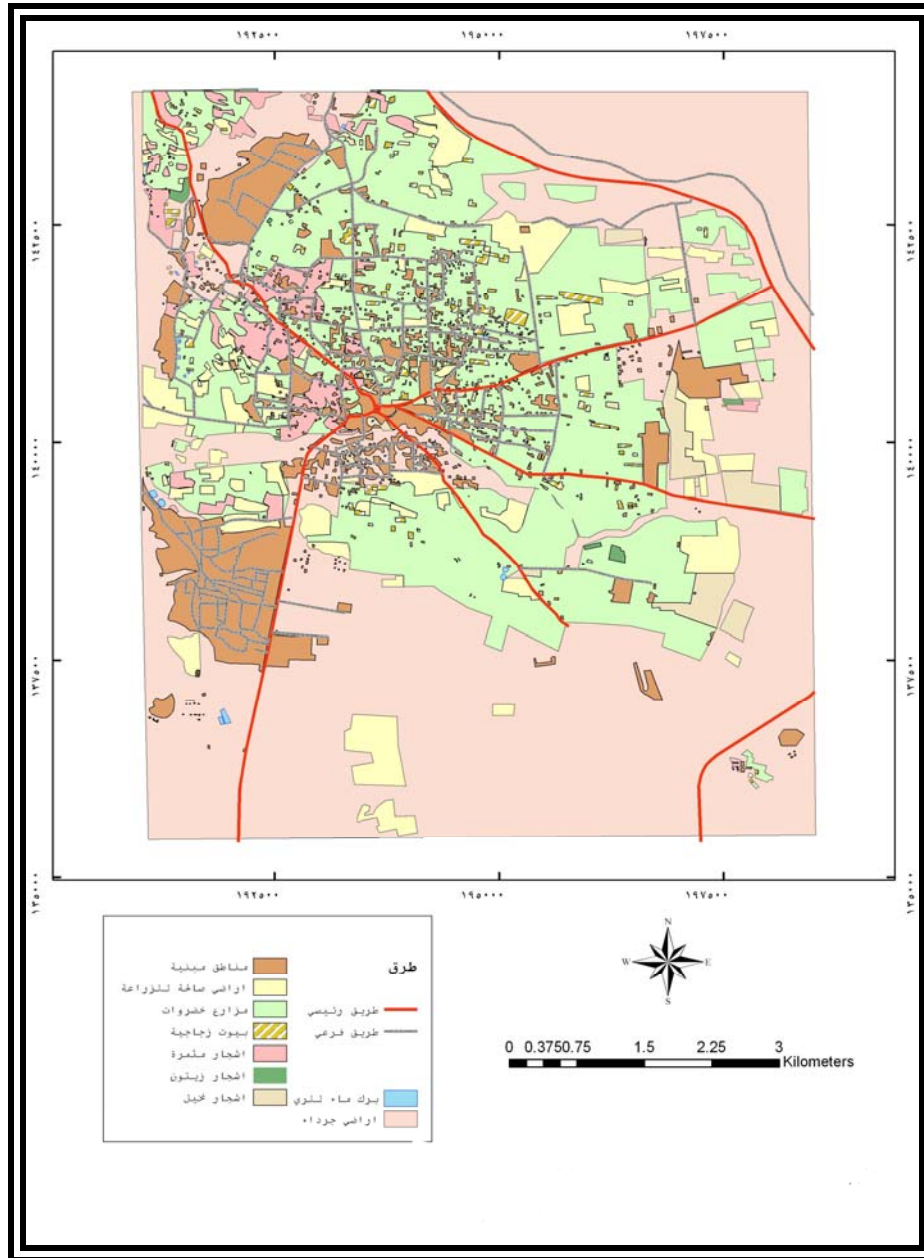
2006 1960



.2006

(5)

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1960

.(6)

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(1)

ARC GIS 9.3	
Capture	
Data Management	
Data Processing	
Data Storage	
Digital Formal	
Enhancement	
ENVI, 4	
Geometric Correction	
Maximum Probability Likelihood	
PCI, 10	
Pixels	
Resolution	
Spatial Data	
SPOT	-
Supervised classification	
The Attribute	
Training Area	
Unsupervised classification	
Vegetation Cover and impervious surfaces	
ARC GIS 9.3	