(Bahargava)

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Water Quality Index For A Group of Wells in Northwest of Mosul City

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ABSTRACT

In this study The Water Quality Index (WQI) has been used to evaluate the ground water for a group of dug wells in northwest of Mosul city by using Multiplicative weighted mean method which known Geometric mean method; the study revealed the

badness of ground water in the area for both drinking and irrigation uses; where it fall in the group five for drinking water and group four and five for irrigation uses, In relating of stockyard uses the well water is more suitable for this use and it fall in the groups one, two, three and four for this use. From comparing the WQI of the wells in the area with the WQI of Tigris River it found that is no big interaction between the river and the wells.

Dug well   .(Al-Rawi et al., 1990) .
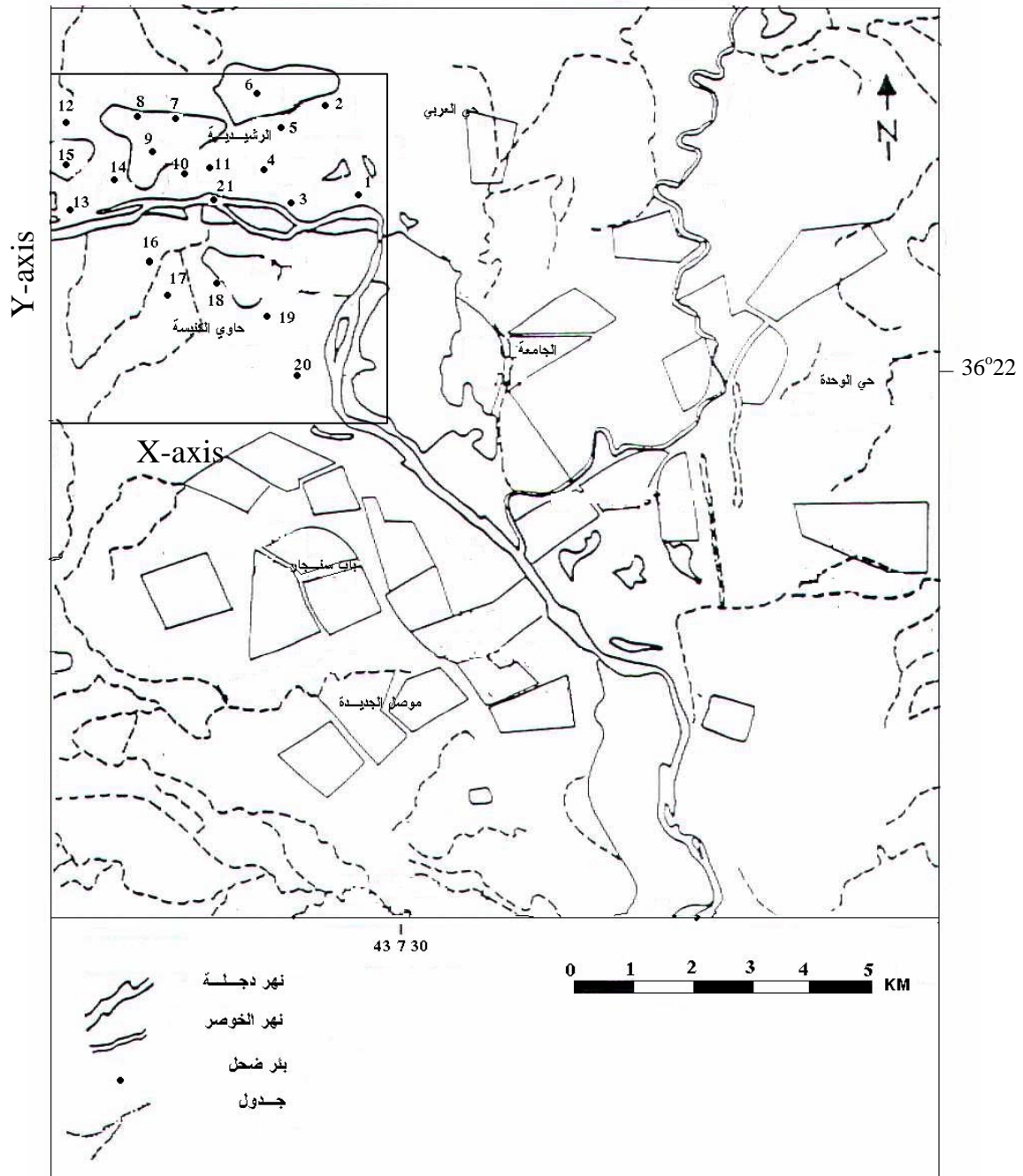
.

Water Quality Index(WQI)

(Dug well)

(1   )

20

.(1)

(1988,   1995) .

(Al-Rawi et al., 1990)

(Al-Salim et al., 2001)

.

Y-axis

X-axis

36°22

43 7 30

0	1	2	3	4	5	KM

نهر دجـلـة

نهر الخوصر

بئر ضحل

جــدول

حي العربي

الرشيـديـة

الجامعة

حي الوحدة

حاوي الكنيسة

باب سنجار

موصل الجديـدة

. :1

Water Quality Index (WQI)   )Lohni and

Dimensionless   (Todino, 1984   )Horton,

(1965

(Brown et al., 1970)

(Horton)

142

Delphi   .

.(Linstone and Turoff, 1975)

(Ganga)   (Bhargava, 1983)

(Sensitivity Function)   (Saigon)

(1-0)

.

(1999   )   (1996   )   (Al-Ani, 1988)

.

(1998   )

.

(Saleh, 1990)

Linear

.   function

(Shaheen,   1998)

(2000   )

K^+, Na^+, Mg^{++},

Cl^-, HCO^-_3,SO_4^{-2} Ca^{++}

.

(Multiplicative weighted mean)

Nguyen and) (Bhargava, 1983) (Geometric mean)

:(Bahargava, 1989

$$WQI=\left[\prod_{i=1}^{n}f_i(p_i)\right]^{1/n}*100$$

:

.(100-0)   : WQI

(Sensitivity function)   : Fi(pi)

.(1-0)

.   : N

Shaheen,) ,(Bahargava, 1983).

.(1998   ) (Nguyen and Bahargava, 1989) (1998

(WHO)

(US Regional Salinity Classification)   (2   )

(McGauhey, 1968) McKee   (3   )

Max.)   (4   )

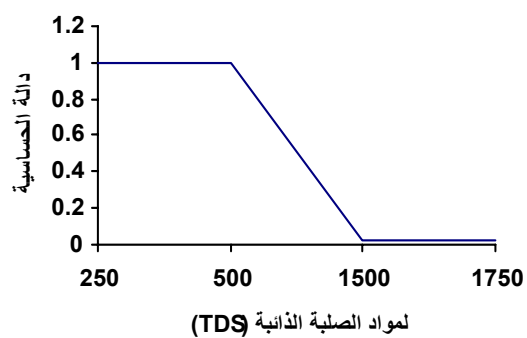(Max. Permissible concentration)   (Desirable concentration
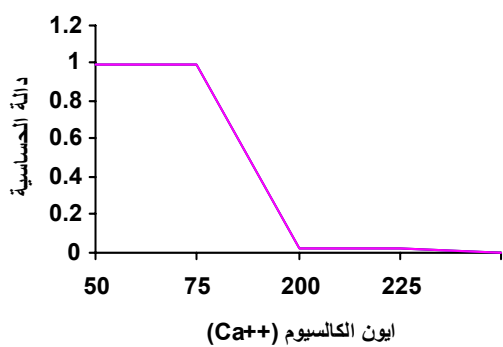
(1998   ) ,(Shaheen, 1998)

(pH)

(Ca^{+2})   (Cl$^-$)   (SO$^{-2}_4$)   (TDS)

(EC.)

(SAR)

.

.(APHA, 1985)

2: .

الكبريتات (SO4)

التوصيلية الكهربائية (E.C)

الكلوريدات (-CI)

المواد الصلبة الكلية (TDS)

نسبة امتصاص الصودم(SAR)

3:   .

الكلوريدات (-Cl)

الكبريتات (SO4)

المغنيسيوم (++MG)

الصوديوم (+Na)

المواد الصلبة الكلية (TDS)

الكالسيوم (++Ca)
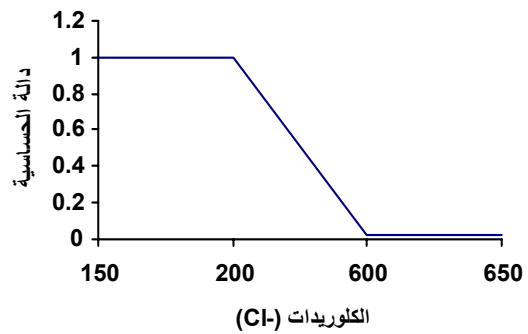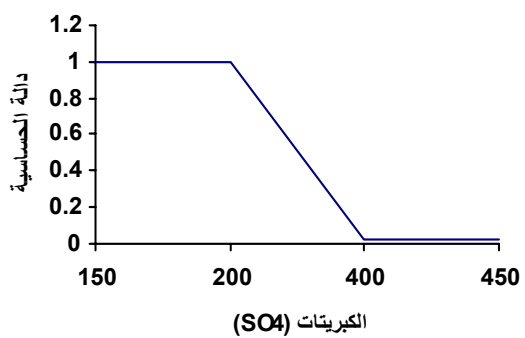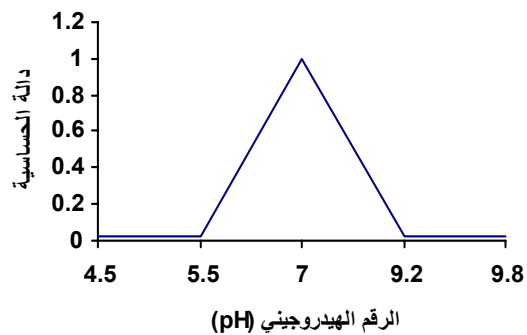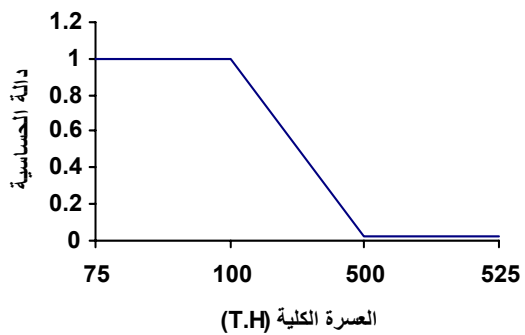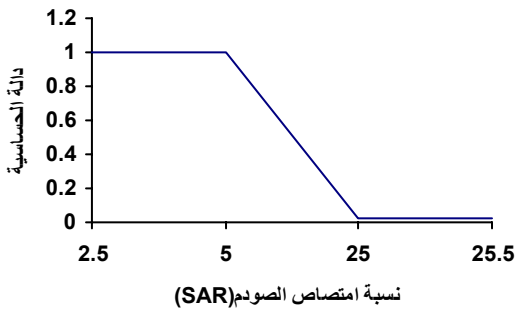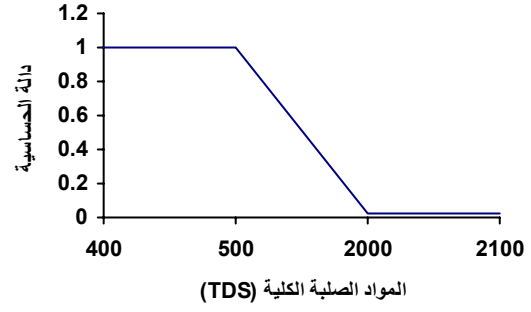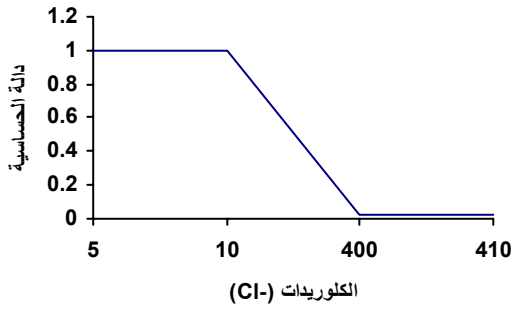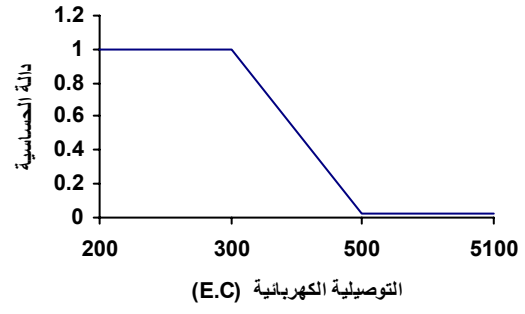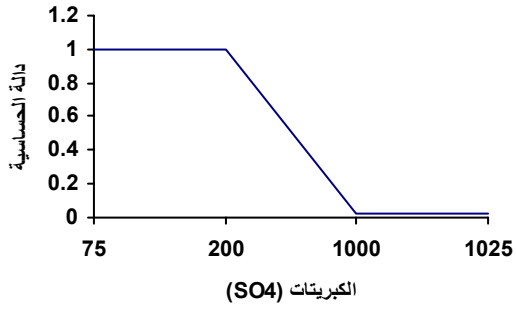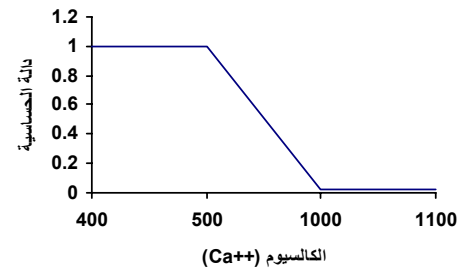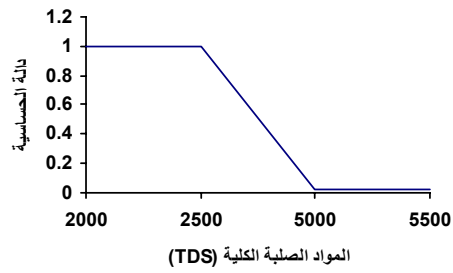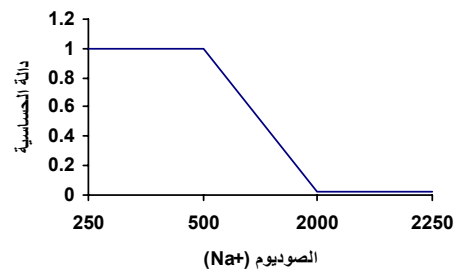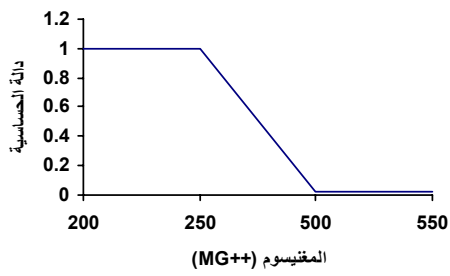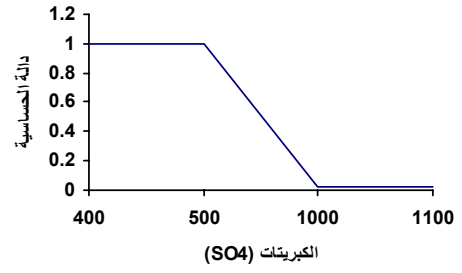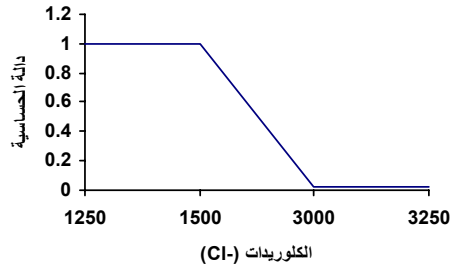
4:

(1)

(21)

(   )

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	.	.	.
97	29	4.4	1
28	5.7	4.1	2
31	9.1	4.47	3
36	10	4.54	4
76	23	4.364	5
100	32	6.104	6
80	22.5	4.642	7
99	26.8	4.514	8
65	20	4.509	9
44	12	4.642	10
98	28.3	4.544	11
32	10.3	4.642	12
34	10	4.544	13
31	7.4	4.424	14
44	19.8	4.455	15
100	73	10	16
100	74	11	17
44	10	4.2	18
46	13	4.5	19
46	13	4.6	20
100	98	80.9	( ) 21

)

(

.

(7 6 5)

(1988   )   (1995   )   (2000   ).

(1)

(   )

.

(2)

(Bahargava) (Al-Ani, 1988) (Shaheen, 1998)

(   )

17   %40   %50

%10   %30
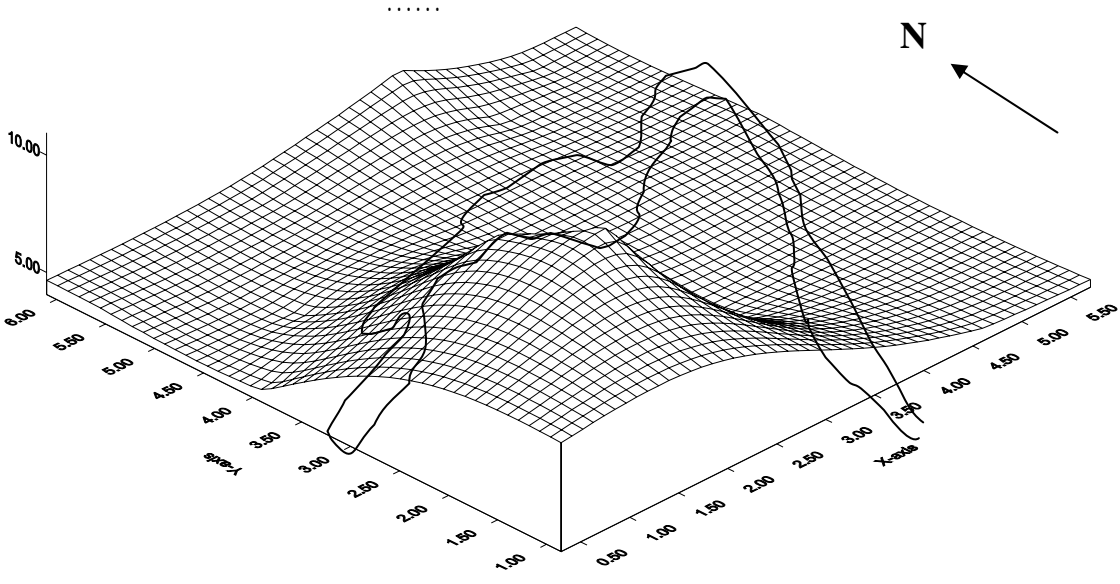
%15   %30   %25

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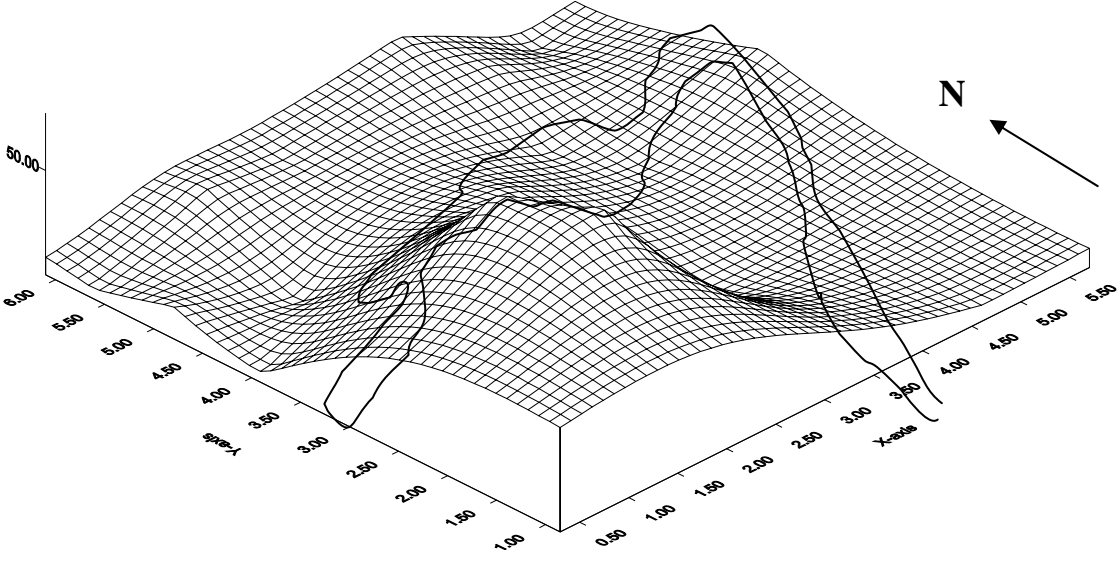
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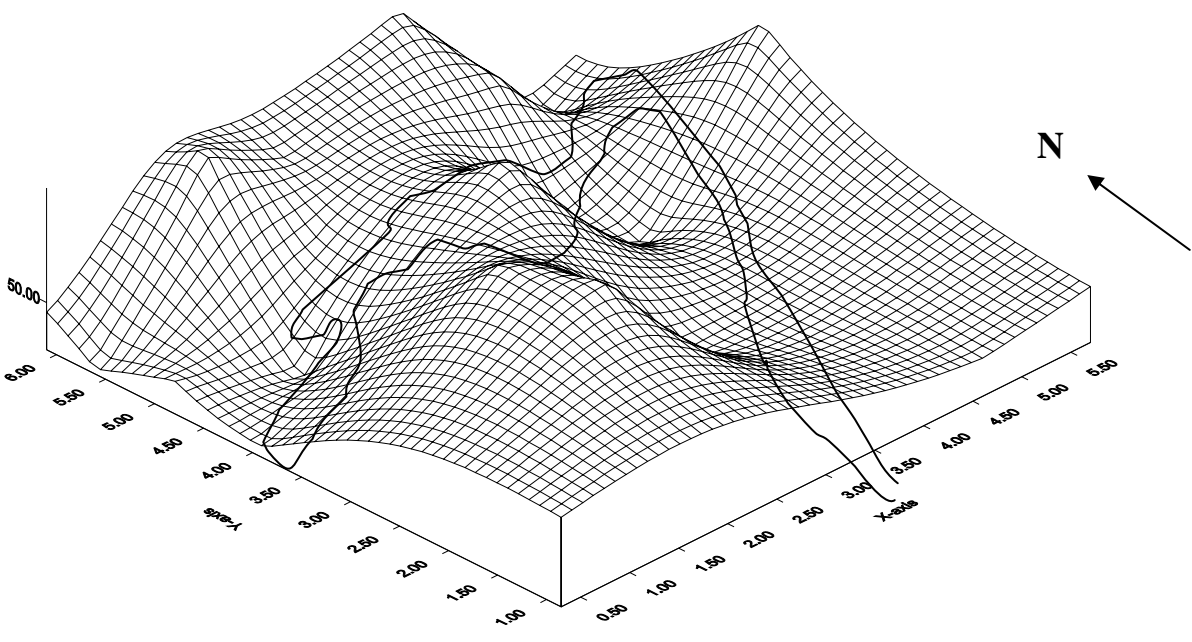
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(Shaheen, 1998)   (Bahargavag)   :2

(Al-Ani, 1988)

	(WQI)
I	>90
II	65-89
III	35-64
IV	11-34
V	<10

:

.1

.

%10   %50   %40   .2

.

(%25 %30 %15 %30)   .3

.

.4

.

.   .5

.6

.

.7

.

.1988   –   .

.1995   –   .

(1)   (14)

.1998   .

.

.1996

(4)   (3)

.2000.

.   .

.1999

(2)   (1)   . 86-96.

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