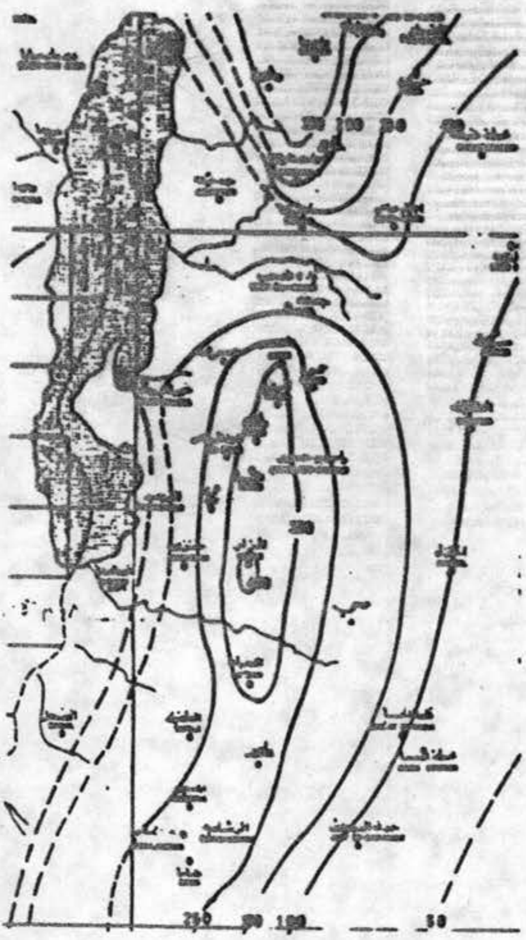
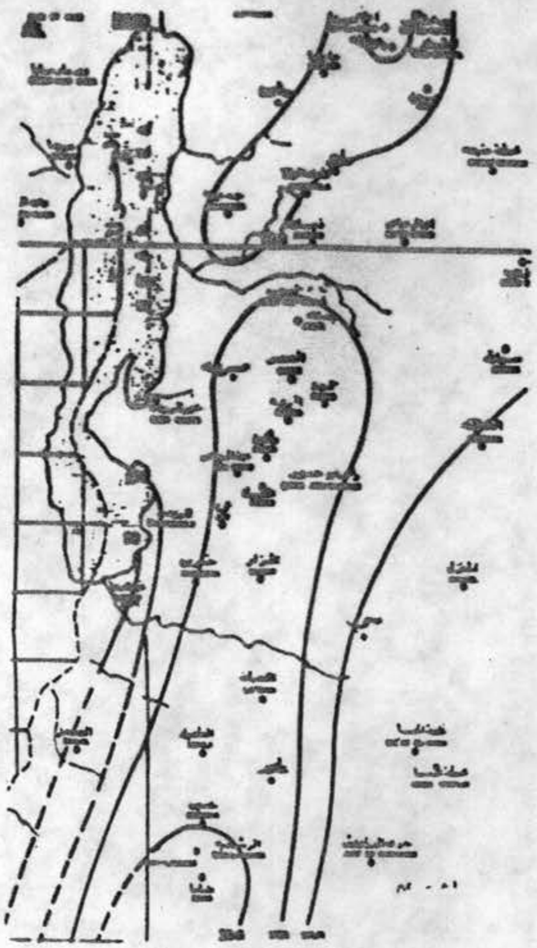
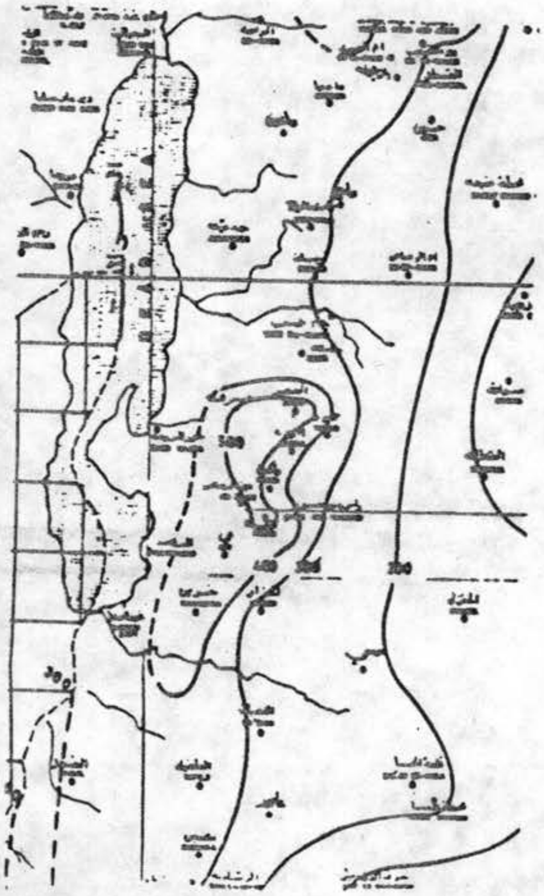
CENTRAL JORDAN



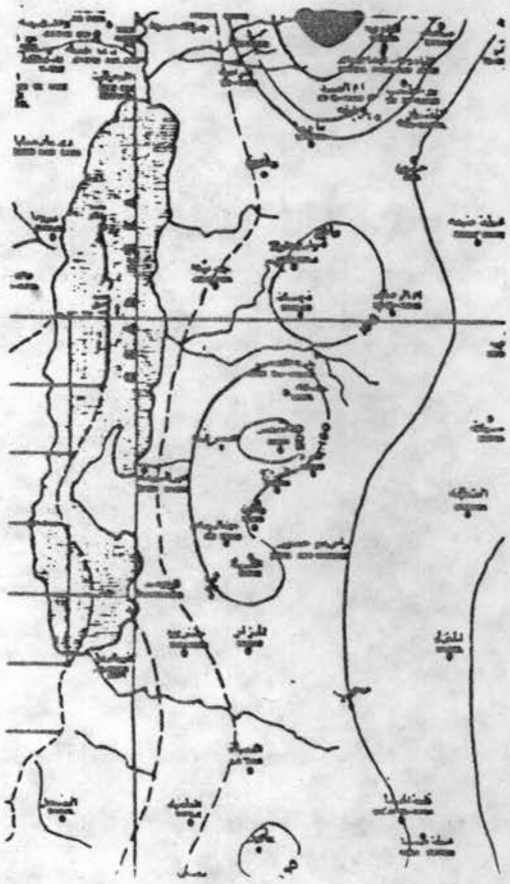
1980-81



1981-82



1982-83



1983-84

POPULATION ENVIRONMENT DYNAMICS PROJECT

Investment Strategies For Development Agencies Supporting Environmental/ Population Initiatives In Developing Countries A Case Study In Southern Jordan.

Oct. 31 / 1990

Researchers: Professor John Nystuen &
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University of MIchigan.
"UTEP".

Analysis of rural development and the preservation of the natural environments in LDCs are the objectives of the study. Investment developmental corporations and agencies play a central role in guiding developmental activities in these areas; they have the money and the authority to act !. Their nature as non-commercial developmental agencies, dictates that they should be concerned with development in its broader scene. That is taking into account the populations needs without neglecting the effects of their potential investments and activities on the natural environments.

Theory behind the study:

Populations' dynamics are driven by population needs.
Out-migration from rural to urban areas in LDCs is one undesirable consequence of the kind and pace of development in both the rural areas and the urban areas. Development activities in rural areas affect the surrounding environmental condition and frequently are restricted by it. The attitudes and behaviors of the population are influenced by the surrounding environment and at the same time affect it . Many effects are damaging to the environment and to the population.

Expectations about population / environment dynamics in the study area (Southern Jordan):

* The problems of the area are complex, but the availability of water is central.

* In struggle for survival, people's practices in the area are leading to environmental damages mainly demonstrated in the escalating process of desertification and soil erosion as a result of misuse of technology, overgrazing, and abandonment of agriculture.

* Water harvesting techniques are ways to change the spatial and temporal availability of water to better fit plant needs. We expect that a specific water harvesting technique will prove appropriate in arid regions such as the study area. This technique mainly involves

slowing down the flow of water in wadis to extend the time water is available thus, in effect, increasing the amount of accessible water.

* Southern Jordan has potential for agricultural development and animal husbandry in particular. This is demonstrated by moisture conditions, the quantity of arable land, and amount of animals in the region compared to the rest of the country. Yet, the region is in worse economic condition than the rest of the country.

* To carry out developmental projects in the area, including the introduction of the new technology, there are a variety of social, economical, cultural and administrational obstacles that need to be dealt with. An obvious case is the lack of cooperation and synchronization of efforts among the different governmental and nongovernmental agencies involved in rural development in the area in general and in water affairs in particular. Lack of populations participation in rural development issues and practices is another obstacle. Out migration and abandonment of agricultural that is leading to desertification could be viewed as a consequence of these processes .

<u>Background Statistics:</u>

Jordan:

* Area: 89,206 Km sq.
* Capital City: Amman.
* Population: 3.11 Million in 1989.
* Population: density: 35 p/km. sq.
* Growth Rates Of Population: 3.9% Per annum a rate at which population will be doubled in 18 years.
* Percent of agricultural workers dropped from 33.5% in 1961 to 7.8%in 1985.
* The per capita GRDP in the country was JD 509 in 1985 ($1,497in 1985 exchange rates)
* Number of known springs: 855.
* Number of springs discovered in last two decades = 30.
* Infant mortality: 54.
* Total Fertility Rate: 5.9
* % of population under age 15/65+: 46/2
* Life expectancy at birth: 69.

The study area (Southern Jordan):

* Location: The highlands to the south of Grater Amman, and mainly covers Kerak and Tafileh Governorates.
* Area: 8100 Km. sq. that is 9.1% of the total area of the country.
* Population: 143,000 in 1985, 5.7% of the total population of the country. In 1961 and in 1979 the areas population was 7.5% and 6% respectively, of the total population of the country.
* Population density: 18 p/Km. sq.
* Population growth rates. 2.8% per annum during the period of 1979 - 1985.
* Urban population ratio 24% .

* Per capita GRDP in the area was JD 381 in 1985 ($1120 in 1985 exchange rates) excluding the contribution of the mining sector. This is only 75% of the national average.

* Agricultural investments: JD 9.3 million which is 8.3% of the total agricultural investment in the country .

* Mean rain fall 1240 MCM per year. That is 20.7% of the total national figure (6000 MCM/year).

* Irrigation water supply: 11 MCM/yr. that is 2.7% of the national figure of 409 MCM/yr./

* Arable land 124,700 ha. that is 34.3% of the national figure of 364,000 ha.

* Irrigated land: 3,200 ha. that is 5.7% of the national figure of 56,000 ha.

* Wheat production: 10,700 ton/yr. that is 8.9% of the national figure of 120,000 ton/yr.

* Number of sheep : 185,000 that is 18.5% of the national figure of 1,000,000.

* Number of goats: 158,000 that is 31.6% of the national figure of 500,000.

* Number of known springs : 328.

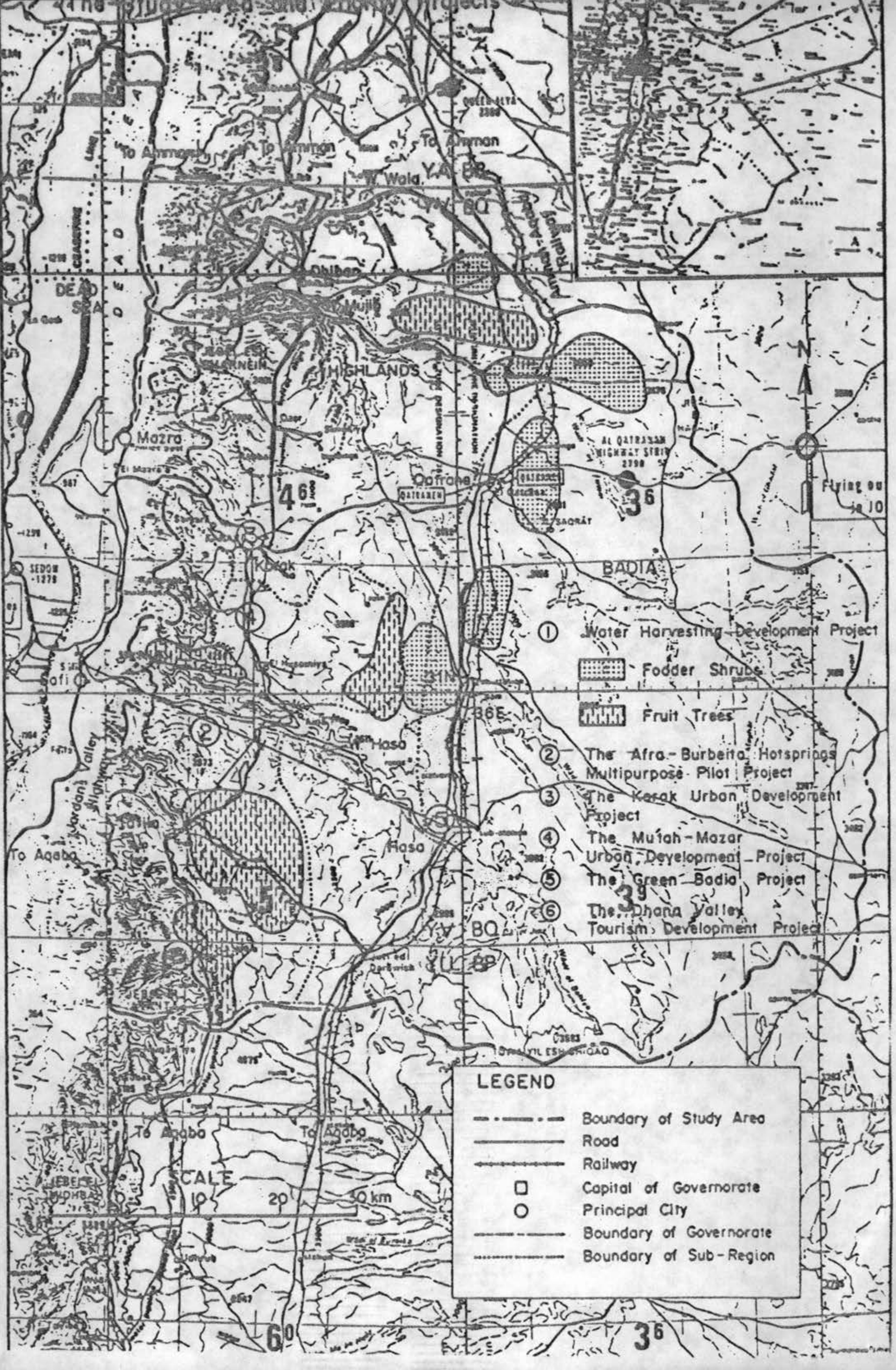
* Range of springflow: 1722 to 0.5 cubic meters per hour

Discoveries made during the reconnaissance trip:

* Concerning water availability, we discovered that we had underestimated the importance of sprigs as a potential source of water. We expected that better use could be made of ephemeral surface runoff but we found that shallow springs were a good source as well.

* The environmental factor in general is *completely* neglected by the planning bodies in the country as well as by the local population.

* The University of Jordan is successfully experimenting with some water harvesting techniques that differ from the one we suggested, yet are based on the same principle.


The Study Area and Priority Projects
To Amman
To Amman
To Amman
W. Wala
Dhiban
Mujib
DEAD SEA
HIGHLANDS
Mazra
Qatrana
AL QATRANAH HIGHWAY STRIP
Karak
BADIA
Safi
Hasa
Hasa
Tafila
To Aqaba
To Aqaba
To Aqaba
Jordan Valley Highway
SCALE
10
20
30 km
N
① Water Harvesting Development Project
Fodder Shrubs
Fruit Trees
② The Afra-Burbeita Hotsprings Multipurpose Pilot Project
③ The Karak Urban Development Project
④ The Mu'tah-Mazar Urban Development Project
⑤ The Green Badia Project
⑥ The Dhana Valley Tourism Development Project
LEGEND
Boundary of Study Area
Road
Railway
Capital of Governorate
Principal City
Boundary of Governorate
Boundary of Sub-Region

Number of Inhabitants (1985)

No.	Name	Inhabitants	No.	Name	Inhabitants
1.	Karak	14935	80.	Ablad	203
2.	Lajjun	200	81.	Um El Ghazlan	169
3.	Samra	931	82.	Juwar	52
4.	Izra	60	83.	Naaymeh	170
5.	Shehabiyyeh	2231	84.	Hadabeh	41
6.	Adir	2716	85.	Rajem Ennawayseh	234
7.	Ainun	543	86.	El Manshiye	515
8.	Eththanniye	1174	87.	El Jauza	121
9.	Mikkein	664	88.	Edabbaka + Bowiye	103
10.	Adnaniyyeh	1237	89A.	Wadi Ennuwayseh	105
11.	Mirwid	846	89B.	Rashadiyyeh	
12.	Qatrana	2315	90.	Telda	15620
13.	Mumya	385	91.	Aima	1230
14.	Abdaliyyeh	134	92.	Sinifha	995
15.	Kamnah	33	93.	Alyeh	87
16.	Ghuweir	1331	94.	Essle	891
17.	El Baqer	436	95.	Ainfan	72
18.	Zahum	564	96.	Abur	100
19.	El Musheirfe	276	97.	Ela	424
20.	Menshiyat Abu Hammur	2142	98.	Abil	285
21.	Badhdhan	906	99.	Shoadham	63
22.	Sakka	454	100.	An-Namata	211
23.	Raudhah	262	101.	Dhiba'a	109
24.	Mraghah	54	102.	Rhab	408
25.	El Ma'muniye	234	103.	Afra	104
26.	Batir	823	104.	El Burbeita	159
27.	Wadi Ben Hammad	567	105.	Jurf Ed Darawish	646
28.	Um Rummanah	72	106.	El Hasa	4077
29.	Demeitha (Swaqa)	120	107.	El La'ban	288
30.	Qureifille	41	108.	Arafeh	336
31.	Zugheiriye	48	109.	Abu Banna	260
32.	Saahoor	39	110.	Ain Al Beida	2080
33.	Bawwab	19	111.	Buwaira	805
34.	El Hawiye	140	112.	El Harir	399
35.	Sed Essoltan	480	113.	Swamie	24
36.	Rakin	1994	114.	Majadil	1
37.	Judeiyide	1950	115.	Zhaqah	115
38.	Al	4545	116.	Bsaira	3610
39.	Kathrabba	2191	117.	Rashadiyyeh	5
40.	Jauza	1486	118.	Dhana	304
41.	El Iraq	2020	119.	Gharandal	1511
42.	El Qasr	1929	120.	Kadisiyyeh	2810
43.	El Rabba	3026	121.	Lahdhah	40
44.	Simakiya	1335	122.	Um Essarab	81
45.	Humud	406	123.	Sail Rio	80
46.	Wasiyyeh	36	124.	Qer Qaar	22
47.	Faqu	3024	125.	Janien	30
48.	Imra	890	126.	Dhiban	3020
49.	Sirfa	2263	127.	Faiha	253
50.	El Yarut	1005	128.	Alyeh	889
51.	Artha and Abu Turaba	810	129.	Dharbah	291
52.	Mesar	296	130.	Barza	350
53.	Shihan	340	131.	Shaqaiq	889
54.	Jada	1338	132.	Mathlootheh	199
55.	Mughaiyir	383	133.	Qbaibeh	48
56.	Zahra	419	134.	Um Shjairah Gharbiyyeh	105
57.	Mujib	861	135.	Um Shajarah	54
58.	Eddimna	471	136.	Qasymeh	104
59.	Majdalein	117	137.	Mesharfeh	193
60.	El Mazar	9099	138.	Ara'er	16
61.	Mauta	3432	139.	Um Shjairah Sharqiyyeh	82
62.	Tayybeh	3325	140.	Um Zebarah	43
63.	Sarara	204	141.	Alaqi	27
64.	Um El Khanasir	30	142.	Hana Allabbarah	8493
65.	El Baqa	40	143.	Wadi Rmail	126
66.	Amashiyyeh	87	144.	Jmayyel	
67.	Dabbeh	227	145.	Mzayyer Alla	
68.	Khauka	6	146.	Sleyyan	
69.	Juhra	349	147.	Msaitbeh	
70.	El Amaqa	133	148.	Salyeh	
71.	Sul	1502	149.	Um Raas	
72.	Moab	3974	150.	Rameh	
73.	That Ras	2790	151.	Abu Hlalleeleh	
74.	Mhyy	1354	152.	Mshairfet Sloit	
75.	El Hashimiya El Janubiya	757	153.	Toor Hashesh	
76.	El Shariffeh	21	154.	Thrayya	
77.	Majra	284	155.	Yahoon	
78.	Hamdiyyeh	138	156.	Rajom Fhaid	
79.	Um Al Yanabee	56	157.	Rajom Igob	

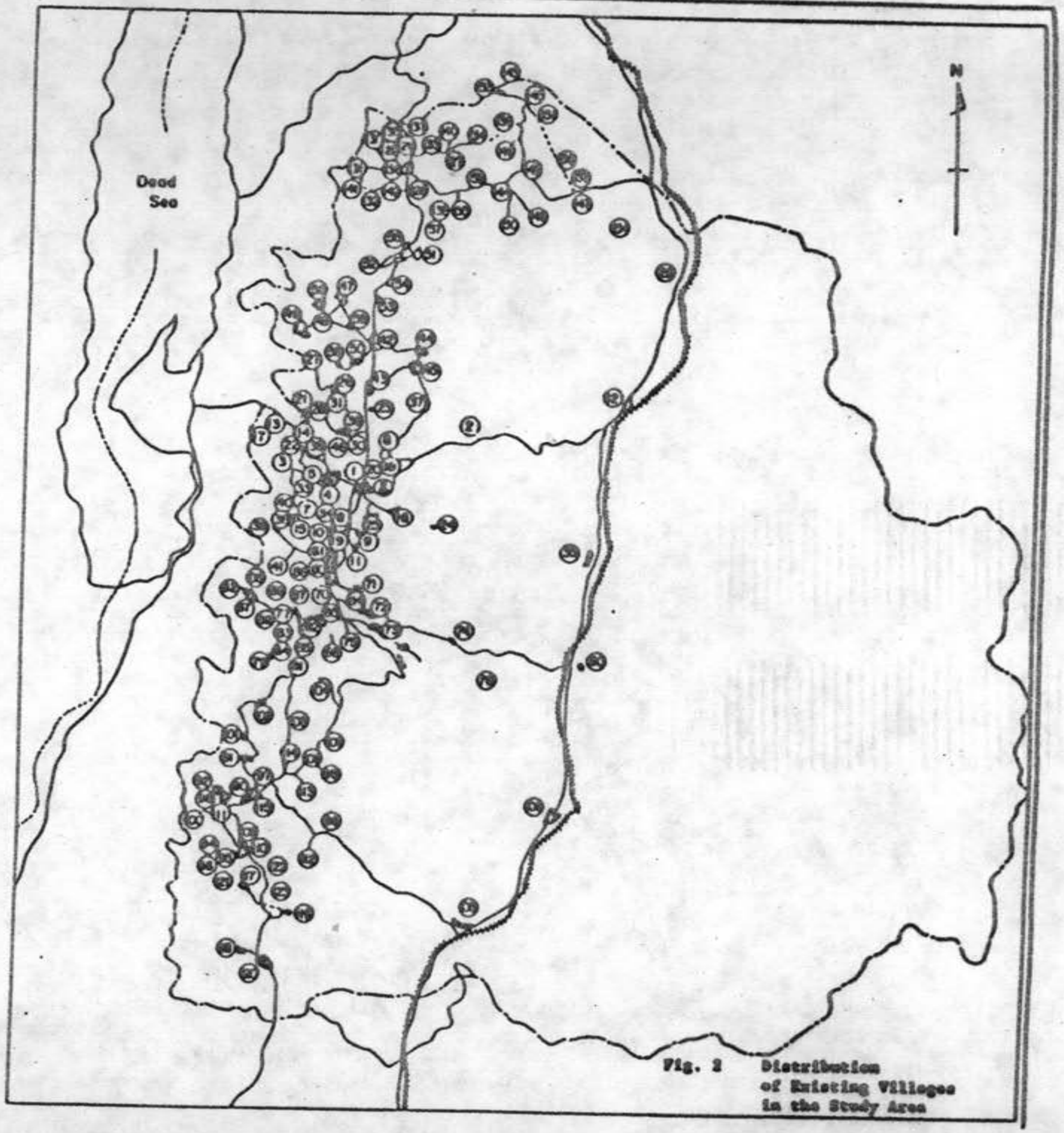
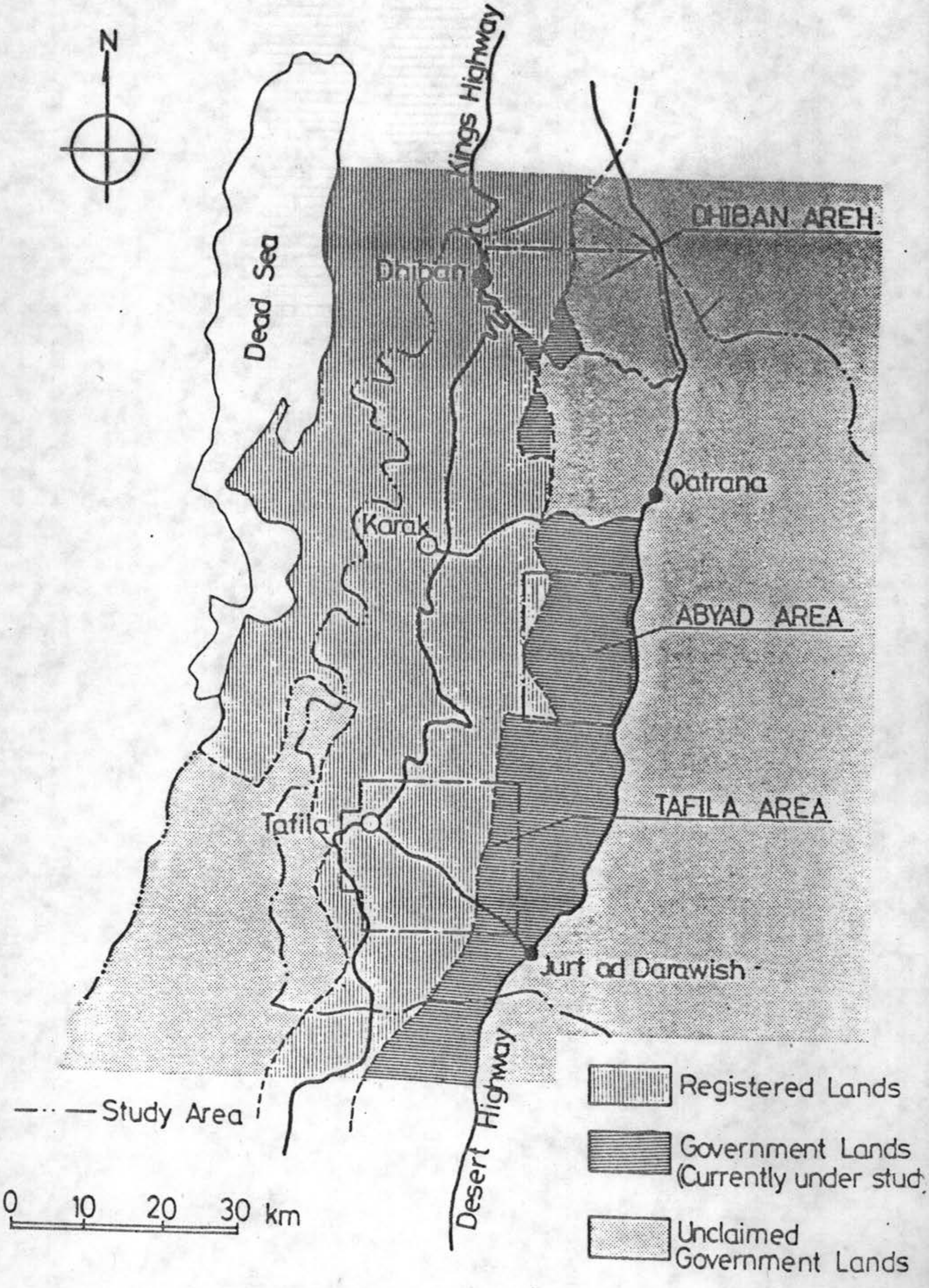
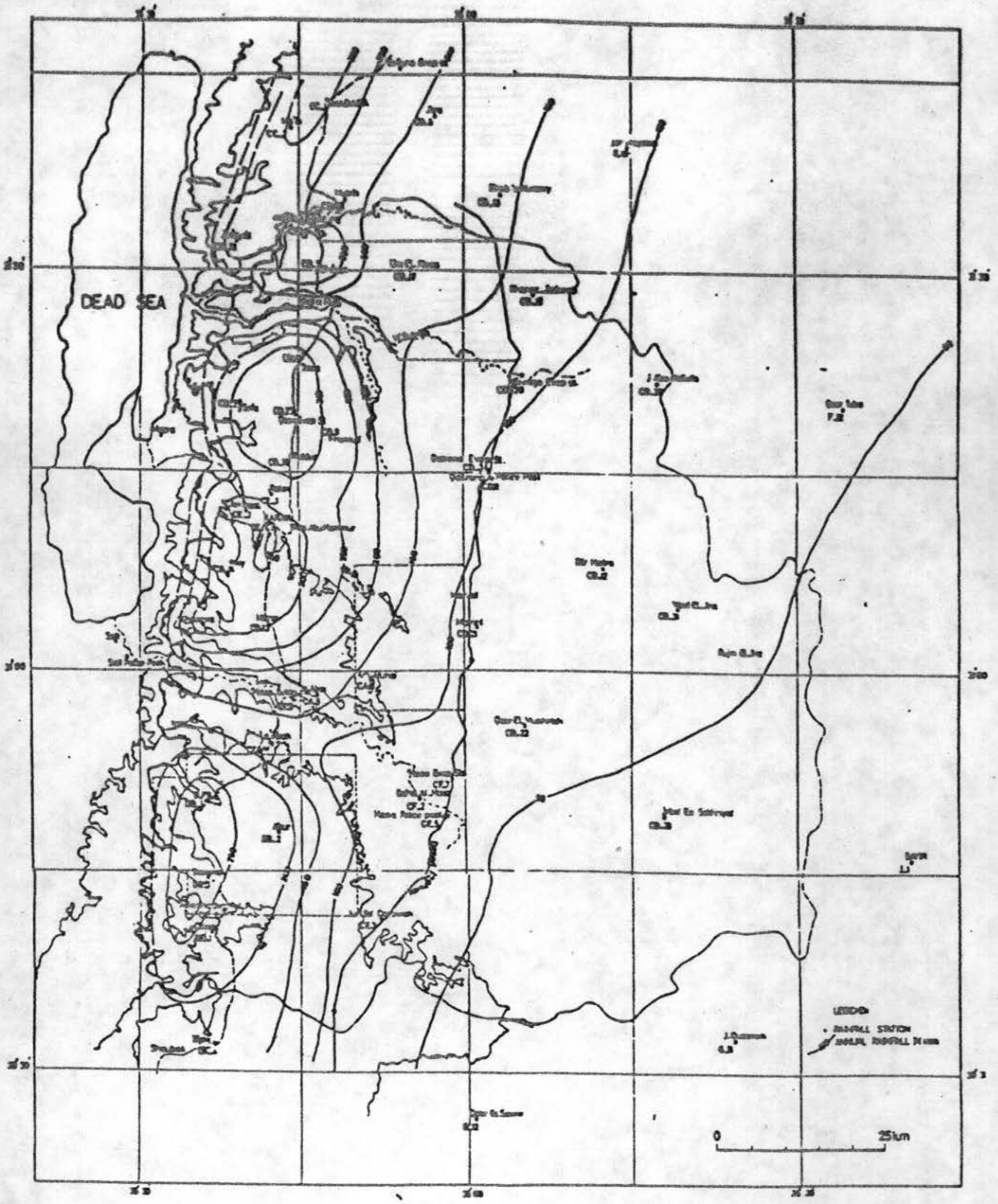


Fig. 2 Distribution of Existing Villages in the Study Area



Land Tenure Status
(Boundaries approximate)



Rainfall Distribution Isohyet
(Long Term Average)