

**Man and Environment
A Treatise on Arab Sub-Regions
of the Gulf**

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Abstract

In spite of the present day similarities of Modus Vivendi among Gulf Arab States, minute examination reveals differences in the past based on a variety of differences in the local physical traits and spatial relations. This produced two Arab sub-regions, i.e., the Omani and the inner Gulf regions. Topography, structure and climate in the Omani sub-region were responsible for a sedentary agrarian economy due to adoption of "Falag" irrigation system (Falag is a partly subterranean canal dug to divert ground water to desired land). While the people of the inner Gulf retained their customary bedouin life in addition to oasis culture in few instances.

Yet there were always three unifying elements presenting a prevalence of 1) Arab people and culture; 2) pastoral nomadism in the hinterland deserts of the Gulf, and 3) village-town dwellers all over most of the coastal strip of the Gulf engaged in pearling and sea-faring among the Mesopotamian and Middle East communities and the Indian and African littoral of the Indian Ocean. Accumulated wealth helped Gulf dwellers to invest in trade, agriculture and the acquiring of African labour.

In the past the population was nearly evenly distributed, but due to oil earnings, people tended to concentrate in capital cities, virtually creating "City States". Political powers used to be centralized in Oman for a long time, while it was dispersed among Sheikhs of several tribes in the inner Gulf, seldom assuming a greater Sheikhdom over smaller tribes on certain occasions. But since the discovery of Oil, the pattern changed all over the Gulf to modern State to the extent that even the true bedouins changed to satisfy needs of contemporary life, i.e., education, health and employment. We conclude that the new economy brought about a layer of likeness and similarity over subtle historic variations.

Introduction

The Gulf region at large is an ill-defined area which extends across both shores of the Gulf and merges, with few definite landmarks, into the mountains of Zagros on the Iranian side, and the many 'sands' of the Arabian deserts on the Arabian side. Generally speaking, it is a uniform cultural region. Yet, variations of its physique and spatial relations resulted in two cultural regions; the Iranian or Persian and the Arab regions. Map 1 shows locational differences which helped formulate the basic regional characteristics. Central Asian and Indian elements for long integrated within the Persian context, while Mid-Eastern Arab elements prevail in the Arab region, tinted however with Persian, Indian and East-African colouration.

The Gulf as a water body-composed of a) the Arab alias Persian Gulf, b) the Strait of Hormuz and c) the Gulf of Oman was never a separating water barrier¹. On the contrary, it was a highway of continuous relations between the Arab of the Persian coastal barren lands between Hormuz and the head of the Gulf.

This paper will concern itself with looking into the Arabian Gulf region, trying to discern the ecological and cultural factors that helped to produce its sub-regions.

I should also add that the major part of the text in this paper is partly due to observations of the author's many field-trips within the Gulf, and his long teaching experience in the University of Qatar.

The Physical Settings

A trial to mark the two Arab sub-regions in the Gulf is produced on map (1). Differences are sought in the perspective of sub-regional physical morphology (map (2), rainfall (map 3), traditional base economy and habitat (map 4) and society arrangements, all in the light of the historical political aptitudes. The dividing line should not be considered rigid; overlaps partly occur in certain economic and society organization.

The dividing line runs from the environs of Ras El- Kheima (northern-most Emirate in the United Arab Emirates) due south to the oasis agglomeration of Burami & Al-Ain, which is partitioned by the U.A.E. and Oman. The line then describes a big curve which ends on the Arabian Sea coast in south-east Oman. The area to the East of this line coincides with the core region of the Sultanate of Oman; in addition to the N.E. part of the U.A.E. Henceforth, this region will be referred to as the Omani Region, while the area to the west and N.W. of the line will be called the Inner Gulf Region.

Omani Region

The morphological backbone of this region is formed by the Omani mountain ranges which extend in a big curve for over 500 km, with a breadth of circa 150 km in the middle ranges and tapering to circa 50 km at both ends.

These ranges include Ro'us El-Jibal (mountain heads) over-looking the straits of Hormuz and rising to 2087 meters in the highest point, the western Hajar (Rockies) which is composed of dissected lower range in northern U.A.E., gaining height and ruggedness in western Oman. It continues without interruption into the Jabal El-Akhdar (green mountain) where the Omani ranges attain their greatest breadth and height; many peaks are well over 2500 m. with Jabal Kawr or Shams attaining 2980 m., 3018 or 3170 m. according to representations on different maps. Structural elements are responsible for the origins of the Semail valley which separates the Green mountain from the Eastern Hajar - a massive which is, more or less dissected by Mann valleys into smaller mountain ridges with some peaks over 2000 m.

Between the Western Hajar and the Green mountain on the one hand, and the Gulf of Oman on the other hand, lies the fertile Batina coastal plain. Though only several kilometers in width, the Batina is considerably populated in comparison with the rest of Oman. The Eastern Hajar and the Ro'us El-Jibal rise directly over the waters of the Gulf of Oman, leaving only few sockets of lowlands where valleys reach the sea. To the west of all Omani mountains the land descends to the 'Bajada' desert plateau which merges with the vast inhospitable desert expanse of the great Rub' El-Khali or the Empty quarter.

Inner Gulf Region

The region extends vastly to include most of the United Arab Emirates, the whole of Qatar, the islands of Bahrain, the eastern Saudi province, Kuwait and ends in the plains of Southern Iraq. This sub-region consists of lowlands rarely exceeding 150 meters in height. Its littoral is, for the most part, composed of Sabkha land (very saline coastal marshes), sand bars, Khors (elongated estuary-like inlets) sandy coral and salt-dome islets, all of which are dominated by the daily tidal waters that make the demarcation of land and sea very difficult. Village and town sites on this long coast were controlled in the past by the presence of, or the vicinity to a source of water represented by wells dug in suitable aquifers. Yearly replenishment of water is usually poor, and most of the aquifers carry fossil waters varying from Eocene to Pliocene pluvial periods. The size of settlements depended on the number and quality of wells in the vicinity. The case of Bahrain presented one of few exceptional cases where the aquifers, by geological accident, were considerably rich, hence its historical importance.

The hinterland is either stony desert, or true sand desert with several extensive fields of dunes and inland' sabkha land due to seepage of underground water in many small-sized localised depressions. Some big depressions coincide with rich aquifers and the resulting water strings are readily regulated creating classic oasis. The Al-Hasa oasis in eastern Saudi Arabia is the greatest in this sub-region, while Liwa, in the U.A.E., is a cluster of tiny oases.

Westward the region's deserts of the hinterland merges with the habitat-foreboding Al Rub' Al Khali (The Empty quarter). Its northern linear extensions of Al Jafura and Al Dahna sandy deserts mark the frontiers between the Gulf region and the central Arabian Nejd plateau.

Rainfall In The Gulf

The main difference between these two Arab sub-regions is not only highlands and lowlands. Yet orographic differences engulf a whole spectrum of potentials for man's creativity in carving his mode of living. In arid climates, such as that in the Gulf, the degree of moisture and the meagre amount of precipitation depend much on morphological variations.

Climatically the Gulf region as a whole lies on the margins of two zones; the hyper-arid zone of the interior of Arabia and the arid zone in the highlands and the coastal area. In winter both zones are liable to astray rain-fronts that irregularly depart from their normal west-east paths over the Mediterranean towards Iran. Such rains, penetrating the region from the north, are erratic, very much localized and fall in downpours of short duration. In higher lands, and if conditions permit, much rain is induced to precipitate and rivulets and streams teem with water for a period concurrent with the size of the catchment area of each stream. Besides the direct influence of rains on the biotic life, these rains are responsible for the replenishment of the upper stratum of subterranean water where traditional wells were dug and which formed the mainstay of life in the past. Marginal monsoons touch Dhofar province of south-west Oman. But this area is outside the Gulf region, though politically it belongs to one of the Gulf States.

However, while talking about rain one should keep in mind that one is talking about an arid to hyper-arid climate. As an indication to this aridity, and though climatological data is - for the most part - available only for the wide flung Gulf capital cities, rainfall is only 114 mm per Annum in Kuwait, 78 mm in Doha, 33 mm in Abu Dhabi, and 107 mm in Muscat. Map 3 indicates a gradual decrease in rainfall from north to south. Muscat forms an exception due to the July- August sporadic showers of, perhaps, marginal monsoon origin. On the Omani mountains, rainfall is at least double the amount of the coastal areas.

Scanty as it is, rain is not a yearly occurrence; in some years there are virtually no rains at all.

Winter rains is not the sole life-giver in the Gulf. Relative humidity in summer may reach as high as 70 to 85 percent. Overnight humidity condenses in the coastal areas and mountains, forming dew over whatever vegetation that gives, thus enabling its existence (and wild life too) in the scorching heat of the Gulf summers.

Manipulation of Environment Water Regulation

In the arid climate regulating water is a vital organizational task. In the inner Gulf sub-region the task was facilitated by the simplicity of the form of water source, its up-keep and purpose of use. The source was usually the manually dug well, which, by necessity, did not exceed 15 to 20 meters in depth. The shaft of a well was strengthened by stone work and its upkeep and cleaning was not periodically imperative. As the use of water was mainly drinking purposes for man and beast among the nomad bedouins, the water lens in wells would replenish under normal conditions. Only in cases of consecutive extreme drought or excess of use, wells would dry up or become too brackish for any use. This being so because the water table in such wells is only fed by the superficial layer of underground water.

In certain cases wells were also used to irrigate small tracts of land and/or palm gardens. Such wells were readily exhausted and the many traces of abandoned fields are attributed to such past practices.

In the Omani sub-region the regulation of water resources was much complex as there was a relative abundance of water that tempted Omanis, past and present, to create an agriculture-based economy. Devices for tapping water had to be made and maintained. The ingenious device was the age-long subterranean and surface irrigation canal systems locally known as 'falaj' and 'gheel' respectively. The origin of this system is historically remote. Whether it was due to Persian influence some three centuries B.C., or A.D., is a matter of archeological research. The fact is that such water conduits belong to a well adapted system in the Middle East known under several names, especially 'Qanat' in Iran and 'Kehreez' in Iraq and Iran.

A falaj is a tunnel dug beneath slopes until its head reaches a rich aquifer, thus ensuring adequate water running down the tunnel to the desired spot where it will emerge on the surface in an open canal. Vertical shafts are dug at certain points over the tunnel to enable inspection and maintenance works. Many falajes are known to run two to three kilometers but large ones run for ten or more kilometers. The age of most falajes is unknown, but some

new ones are historically recorded as being constructed by this or that dynasty of Omani rulers for furthering economic prosperity and extending the settlement of the land.

The necessity of a precise method regulating the use of falaj water among its owners motivated the emergence of a kind of cooperative societal organization in the Omani village. A legal system empirically arose around the management of the falaj, giving birth to the post of a 'Wakeel', literary meaning the mandatory, but functionally may better be referred to as the Water Judge.

In the case of a small falaj there is only the Wakeel acting as the sole reference, while a falaj with a large catchment basin needed a heirarchy of administrators in the following order :

- 1) Owners general convention: They meet to settle complicated matters and are probably summoned by the Wakeel.
- 2) The Wakeel: The decision maker and overseer of the implementation of all regulating studs and actions.
- 3) The 'Arief' (that who knows): He is entrusted the task of water distribution among owners or users according to a known rotation and a known quantity relevant to shares.
- 4) The 'Daftar' (the book keeper): Assisted by clerk(s), he registers shares of owners and users, and other events relevant to water, e.g. selling, mortgage and inheritance of water shares.
- 5) The 'Dallaal' (the auctioneer): He helps the Wakeel in the yearly selling of the water shares of the Falaj.

Every falaj, as a physical entity, is entitled a share of its water which is sold to whoever needs it to fund the following duties:

- a) The expenses of the physical up-keep of the falaj and its administration
- b) Financing the mosque of the village and its Qur'an school (i.e. religious and elementary school)
- c) Social security fund for the poor and old
- d) Hosting strangers passing by.

Water claims which could not be settled by the aforementioned bodies were usually referred to the district or supreme judge.

The aforementioned water manipulation was partly altered by the

introduction of diesel or electric water pumps. The application of pumps without other ingredients of modern farming is one drawback. Another drawback is that the use of pumps, while giving quick results in enlarging the green area, soon deplete aquifers and/or increase their salinity.

An increase in farm activity, under the motto 'self-sufficiency' in certain vegetable crops was well propagated in the Gulf. To attain such a goal, governments supported interested local investors in various ways: facilitating procedures of bringing in expatriate farm laborers on the one hand, and by providing pumps, agricultural tools, water pipes, seeds, fertilizers and guidance, partly free and partly in loans over long periods interest-free. Moreover, crops were purchased by government bodies to guarantee a substantial profit. Total cost (services and purchase prices) of locally produced crops were more than twofold the price of the same commodity CIF imported. The goal was to bring about a diversified economic structure balancing oil and capital-intensive newly installed Industry.

In the inner Gulf region such noble goals would have been more successful if the following conditions were realized :

- a) The underground water should be thoroughly simulated to ascertain a balanced intake and recharge of aquifers. In case of fossil unreplenished water, models of its use must evade expensive installations or elaborate infra-structure.
- b) Owners of farms should acquire the tricks of the trade and eventually become real farmers. One must bear in mind that agriculture among the people of the inner Gulf region was never a noble pursuit.

In the Omani region the situation was different, yet trends are discouraging for the following reasons:

- a) Pumps, among other incentives to farmers, were dug in the vicinity of Falaj systems - perhaps due to lack of good parable land elsewhere. Such pumps adversely affected the recharge of falajes. The government prohibited these practices. Some pumps were used to charge falajes and canals. But in the long run this practice will end by drying up the falaj and pumping the water source.
- b) Oman which traditionally had a large peasant population is now feeling a shortage in the necessary trained man-power to work out fields and its huge palm gardens. The educated young generation is drifting to the capital urban area, seeking the benefits of modern city life, its services and its job market.
- c) Model mixed farming projects may partly answer Omani needs if they are widely spread. If field crops replaced palm trees, would this be an invitation to soil erosion?

The dilemma of Omani agriculture is not going to be successfully solved unless exhaustive field studies are able to mark the better options in solving the problem of trained peasants, water resources, soil conservation and optimum crops.

Population: Past & Present

The total population of the Gulf Arab region, was estimated, at the turn of the century at less than one Million distributed as follows:

REGION	ESTIMATES AROUND 1905 in ,000			1988-89 in ,000
STATE	SETTLED POP.	NOMADS	TOTAL	
Kuwait	35	13	48	1958
East S.Arabia & [Sanjaq Al-Hasa]	101	57	158	769* 3030**
Bahrain	100	-	100	488
Qatar	27	6	33	341
U.A.E.	72	8	80	1501
Total Inner Gulf Region	325	84	419	7318
Oman Region	486	30	516	1422

* 1947 census. ** 1985 estimate of Encyclopaedia Universalis 1990

Since man's numbers are tied-up with resources, the population figures of 1905 - notwithstanding shortcomings - reflect the true relationship between ecology and man in a pre-industrial condition. Oman, with an area less than a quarter of all the inner Gulf region, has had slightly more than the same population number, of the whole inner Gulf and twice the population of Kuwait, Bahrain, Qatar and the U.A.E. together.

The higher density of Omani population was directly related to a productive economy, namely agriculture, while people of the Inner Gulf depended on an

extractive economy, namely fishing and pearling. The only exception was the East Saudi 'Sanjaq of Al-Hasa' (Turkish administrative appellation) where the big Hasa oasis, plus Al-Qatif oasis, were responsible for its relatively high population figure. (Map 4)

A case exemplifying population densities in different economic activities may be derived from population estimates of 1905. The population of villages of the 50 mile Semail valley in Central Oman was estimated at circa 25000 inhabitants, while the people of Qatar (11000 km²) were around 27000, including the population of the city of Doha. The wealth in Semail valley included 105000 palm trees, 1760 heads of cattle, 4150 sheep, 130 camels and 1105 donkeys. The activities of Semail villagers varied from agriculture to handicrafts: pottery, weaving, mat work, silversmith and petty trade. On the other hand, animal wealth of the Qatari people concentrated on camels and horses; 1430 and 250 heads respectively. There were also considerable numbers of sheep and goats, but nearly no cattle. Instead of palms and fields, the Qatari owned 817 pearling boats plus 140 boats for various uses.

The above case serves as a sample where by Semail valley represents the Omani Region and Qatar describes the status quo in most of the Inner Gulf Region. Both reveal the environmental factors at work, leading to an intent on rural economies in Oman and sea activities in the coastal zone of the Inner Gulf Region.

The population situation was reversed by the earlier (and richer) introduction of oil economy in the Inner Gulf region⁷. Oman was surpassed by the U.A.E. or Kuwait alone. However, the enormous and sudden population increase in the whole area is mainly due to contracted foreign labour necessary for the emergence of the Modern State in the Gulf⁸. Yet due to the great increase in health services in the Gulf, the average growth rate of the native population rose from circa 1% in the early decades of this century to between 3 and 4% per annum.

Besides this spectacular rise of the Gulf population, the new economies based on oil and its revenues, industry and tertiary activities necessitated a phenomenal rise in urban population - a process deserving the term 'Petro-urbanism'⁹. The balanced dispersal of people over most of the Gulf terrain was drastically changed; land was vacated, the majority of older settlements became virtual ghost towns, and the people drifted to the one capital city of every Emirate (state). The small States of Kuwait, Bahrain and Qatar changed to a true City State. The U.A.E. belongs to the same category, but because it is a federation of seven Emirates, it has seven capital cities in addition to the federal capital in Abu Dhabi. Nevertheless, two cities dominate the U.A.E., namely Abu Dhabi and the conurbation of Dubai, Sharjah and Ajman,

combining among them 66% of the total U.A.E. population.

Share of greater capital cities of total populations (mid 80 's)*

State	Total Pop. ,000	Name Of City and Pop. ,000	% Capital Pop. To Total Pop
Kuwait	1695	Greater Kuwait 1531	90
Bahrain	400	Manama/Muharaq 184	46
Qatar	369	Doha/Ryyan 309	84
U.A.E.	1170	Abu Dhabi 350 Dubai Conurb. 423	66
Oman	1130	Muscat Cap. Area 130	12

Source: Der Fischer Welt Almanach, 1986 Frankfurt.

- *) It is a difficult task to assess population of capitals in the Gulf due to the lack of clear or functional definition between city and municipality in addition to frequent changes of administrative units. Thus the term "greater city" is a compromise serving our purpose in a given time.

Naturally, Saudi Arabia and Oman are too big to be dominated by one metropolis. Their population is dispersed over many geo-economic regions with a tendency to a higher growth rate in their capital cities.

House And Village Forms

There are two major types of village and house forms in the settled area, i.e. in Oman and the inner gulf sub-regions. The nomads have their traditional and classic movable tents, though some nomad groups, who became accustomed to definite summer camps, have erected semi-permanent huts of palm-frond. The two house and village forms of the settled areas are as follows:

- 1) Oasis Type: Agglomerated village composed of huddled houses of two storeys; the ground floor contains storage rooms and a small courtyard, the second floor used as the main living quarters and the roof (sometimes partly partitioned) is used as sleeping quarters on summer nights. The roof is encircled by a decorative short balcony-like wall. This type is widely

distributed in the Omani region and oases of the inner gulf sub-region, e.g. Qatif, Hasa, etc.

- 2) Littoral type of the Inner Gulf Region: One floor house form built at the end of a big courtyard enclosed in by high walls with two entrances for use by different sexes. The bigger ratio of void (courtyard) to solid (rooms) expresses the need for space in a woman's realm. Consequent to this house type, the littoral village extends horizontally over a comparatively big space - usually a linear form facing the sea shore.

The above two types adapt to their physical resources, socio-economic organization, women status and value system.

The oasis type answers many requirements of which, a) the multi-storey house is a space saver of valuable cultivable land, b) agglomerated village, usually built on a mound (which may be in many cases due to continuous habitation over centuries), and provided with a watch tower (and rarely also walls) answers defence requirements against nomads or clan feuds, c) working together in fields and gardens helped to lessen segregation of sexes, hence facilitating the principle of huddled-house type, and d) in several instances clan organization was superseded by the mechanics of village commune.

The littoral type of settlement conforms with a) the principle of separate clan entity manifested in continued endogamous marriages in father's kin, and giving rise to clan quarters in each village, b) the dominant economic role of man, with few activities for women, added logos to the seclusion of women within the walls of courtyards, c) sea activities being dominant in such settlements (fishing, pearling and overseas trade) induced villages (and towns) to elongate on the sea front, hence the rise of linear settlements in the area overlooking the inner Gulf.

However, the harsh hot humid climate favored similar building principles in both sub-regions. Important similarities are: a) thick walls with several niches in the inside to add to spaciousness, b) three-fold ceilings of mats, wooden beams and earth, c) many windward windows or openings complemented by 'badgeer' or wind tower - a device to induce air to fall in rooms, thus keeping a continuous circulation of the air, and d) female segregation, in conformity with socio-religious values dominant in the Gulf region as a whole, is observed with different intensity between the two sub-regions.

Political Organization And Regional Integrity the Case Of Oman

The survival of agro-village type of habitat in the Omani region was not totally alluded to the locality by locality successful management of ecology. A political framework in Oman was another major factor in the persistence of 'irritated' agriculture by keeping longer periods of peace, by containing invading

cultural elements and reinvesting them within the society.

Oman was invaded twice in its known history; a) the intermitant Persian occupation, from circa the fifth century B.C. to the early centuries A.D., to which period the irrigation system is attributed, and b) the Portugese occupation 1507 -1650 to which certain military structure elements and some ship-building techniques are attributed.

But the enduring influence started with the 5th century B.C. waves of Yemeni Arabs settling in Oman (and other parts of Arabia) due to climatic changes and the drying up of Yemeni irrigation system of the Saba' period¹⁰. The advent and acceptance of Islam in Oman (630 A.D.) brought with it, and especially in early 8th century, waves of northern Arabs.

Assessing the influence of Arabs prior and after Islam upon Oman is beyond the score of this paper. But allusions to later recorded processes of nomad settlements may lead us to think that the existence of a central authority in Oman lessened the impact which led to a two-way process: a) Omani society changed to a tribal structure, even taking the names of several incoming bedouin tribes¹², and b) the economic base of the bedouin waves changed - in due time - from pastoralism to agriculture.

The following two cases may illustrate the role of a central government in the welfare and conservation of society. Case one exemplifies how peace and security in an unified Oman encouraged wealthy enterprises and sea captains of the Omani port cities to invest in reclaiming land, digging canals and setting up a commercial network in the interior of Oman, linking it to an economy of surplus and trade.

But around mid 19th century the government of Oman drifted to a dual model: a) The Sultan of Muscat with authority generally extended over the coastal region, and b) the Imam (secular and religious leader) of Oman administering the Omani interior. The conservative Imamate of Oman was considerably shut of money sources of the coastal region, it soon fell into comparative stagnation. Political duality was resolved in the 1957-9 by armed conflict. With British help the Sultan emerged victorious and a unified Oman now enjoys the benefits of oil revenues and State modernization.

Case two: A modern case of bedouin transformation in the 19th and 20th centuries is supplied by the various studies on the "Dru'" - a big nomadic tribe of the Oman interior¹³. The process of Dru' settlement is phased as follows : a) a constant recurrence of Dru' summer camps to certain grounds in S.E. Oman, b) summer camps became semi permanent with the erection of huts - a step supplemented by a claim to the land, c) Dru' sheikhs reside permanently in the claimed land, and d) the sedentarization of most of the Dru' was hastened by economic and service benefits bestowed by the government, including

recognition of land titles. At present other incentives for nomadic settlements include job availability - especially military jobs - and the installation of public services centres in the fields of education and health. All these benefits, in a way, compensated the Dru' previous autonomy.

On the other hand, this process had negative aspects on a traditional spatial land-use pattern. Previously a great region extending from the western foothills of the Omani Massif to the fringes of the Empty quarter, namely the 'Bajada' country, was economically productive: a) it constituted the winter and spring grazing grounds for the Dru' and other pastoral groups, and b) it formed a source of some mineral wealth; salt and sulphuric compounds were collected from inland sabkhas and pans. The products of the Bajada (camel and sheep fattening plus minerals) were traded in the traditional market towns on the desert contact line, especially Nizwa, Adam and Ibra. Since the introduction of oil based economies, motorized transport and changes of bedouin mode of life, the structure of these market places has changed drastically in its zone of influence and the marketed goods, and constitutes an interesting area for further investigation.

Nomadism Of The Hinterlands

Developments in the last half century, political and economic, had obliterated many phenomena that would have helped in understanding human adaption to environment or the real socio-political mechanism. Talking about nomads in the classic sense has no relevance to the existing remnants of nomadic people in the area under consideration.

One case of argument is that though camels are cherished in the lore of people as the noblest of all animals, camel rearing is restricted now to a mere token of the past. In front of villas-and petit palais in modern cities like Abu-Dhabi, a camel or two are tied up near the gate. Also due to the outburst of camel racing courses in the region many camel owners concentrate on breeding race camels only. Lastly, many nomads have changed career to the more rewarding military and para-military service in their respective countries.

Yet, driving along the magnificent highways in Eastern Saudi Arabia, Oatar or the U.A.E., one encounters sporadic grazing herds of camels, dangerously lost among vehicles of another Age. One cannot escape the question, when will they vanish? Or could camels be reared on fenced farms? And is it economically viable ?

Some tribes like the Murra of Eastern Saudi Arabia, the Manaseer of the U.A.E., the Dru' of Oman and other bedouin groups do partially practice a nomadic economy, roaming on large tribal grounds around the fringes of the Empty Quarter. But soon They will be engulfed in the many facet process of sedentarization, either voluntarily or

induced by the corporate society they live with.

In the past practices of classic bedouins, each tribe or clan puts claim to a certain territory, i.e. its 'Deera' (territory) which includes water source(s) whether water holes or wells dug shallow in the beds of 'Wadi' (dry valley), and pasture land which is usually shrubs and varieties of acacia trees. Grass pastures were rare and may grow only for very short periods after sporadic rains.

The claim to a 'deera' may be permanent in relatively rich conditions coupled with a balance with human and animal population. Such equilibrium was rare since security and relative abundance tends to increase the population and puts stress on the environment due to over grazing. One must bear in mind that both factors of increase and decrease were very slow and become perceptible after two or three generations of peace and prosperity. However, conditions of such durations were exceptional due to the institutionalized 'Ghazuw' (raids) coherent in the modus Vivandi of bedouins.

The custom of incorporating weak clans with stronger ones seems to have affected the demography more often and resulted in war, break-up of tribes, setting forth of migrations and a process of segmentation of new tribes and clans.

It follows that: a) territories were only valued while being in use and readily abandoned if resources were exhausted, b) land could change hands due to 'Ghazuw', and c) whole territories were vacated in cases of prolonged droughts. In the latter case, bedouins spill over neighbouring settled communities peacefully or in force - a case determined by the migratory numbers and the strength of authority of their neighbors.

Since the new order in economy and politics of the early fifties, the spatial and traditional organization of bedouins was beset with changes; no more 'Ghazuw' or mass migration were allowed by the central State authorities. Allowances for a limited seasonal move of bedouins across borders were guaranteed with the condition that they should carry passports. Changes were quick in the political and judicial system. The 'Sheikh' as the hub of the system still exists but with very few prerogatives. Courts and district commissioners (Wali in Oman and Emir in S. Arabia) replaced Sheikh's authority. Indeed Sheikhs became government dependants to the degree that the title became, more or less, memorial.

Economic change was a cornerstone in government policies towards the bedouin question. Nomads were invited to a sedentary life provided by the Gulf States. Whole townships and irrigated lands or other economic projects are repeated across the Gulf to induce and hasten the process of sedentarization of bedouins. The full assessment of such planned societies would be a research task for the future.

Coastal Region: Inner Gulf Per se

The area is best represented on the Inner Gulf Region. Economically, it extends also on the coastal strip of the Omani region. The difference is that the littoral of Inner Gulf was directly in contact with the bedouins and culturally influenced by them. While the Omani littoral was more or less in contact with Omani peasantry. Indeed the fertile Batina coast of Oman was agriculturally worked by the population of coastal villages and towns.

The Omani coastal population were engaged in sea activities that entailed travel over ocean expanses, while the Inner Gulf coastal towns were much less orientated to this kind of overseas trade with the exception of the 'Qawasim' of Ras El-Kheima (Ancient Guilvar) who were as much overseas traders as their Omani neighbours. Hence their colonies on East African coast, and their many naval battles with the British until the latter destroyed Ras El-Kheima in 1820.

Fishing and pearling were the mainstay of coastal people. They perfected many kinds of lateen-sail boats-collectively referred to as Dhow in European literature, but each has its name, technique and use among the Gulf people - each adapted to its function; coastal fishing, pearl diving, inter-gulf trade and overseas travel and trade. Every coastal village and town had its kind of fleet according to their needs.

Because fresh fish was a staple food, fishing was nearly a daily routine. Pearling was seasonal, occupying most of able men and young trainees plus some bedouin hands. Summer with its stable weather and warm waters was the major pearling season, but it usually was preceded by a short season in spring. The great pearl reef of the Inner Gulf is situated on the Arabian side, especially from Bahrain to the U.A.E. Pearling grounds were usually divided up between Bahraini, Qatari, Dhabiani (Abu Dhabi) etc. Much Kuwaiti and Persian pearling was also done in the great pearling reef and other reefs north of Bahrain and along the Persian coast. Naturally, quarrels over pearling rights did happen and were settled through accepted procedures of which we know little.

Pearls were the only tradable product of the Inner Gulf. Bahrain, for reasons not thoroughly studied, was the pearl handling centre in the Gulf. It was then exported to Bombay, India, which was a world pearl centre at times. One may hurriedly connect pearl markets of Bahrain and Bombay in the 19th century with the Pax Britannica in this part of the world. But such conclusions may be negated by connections between the Gulf and India extending centuries before the coming of Europeans to the Gulf.

Pearling and trade were not only the basis of existence in the barren lands of the Gulf littoral. Its riches helped to strengthen certain ruling families in micro geographic regions of the Gulf; taxes levied by rulers in the 19th century on all commerce in their respective regions, and investments of taxes in trade and

pearling processes, changed the Sheikh from the status of peer among peers (i.e. other tribal Sheikhs) to a peerless Sheikh.

Tribe, clan and lineage¹⁴ were the cornerstones of the social organization of peoples of inner Gulf coast. Certain tribes were localised, others dispersed over several areas on the coast and the hinterland. Alliance was to tribe rather than territory and migration took place even among the populace of coastal villages, hence the changing habitat of tribes and lineages in various documents and travelers registers over periods of time.

The early decades of this century saw a consolidation of tribe locus, and by the fifties (the phenomenal petro-urban process) tribesmen trickled and fused with others in the growing metropolis of each oil State. Though adherence to earlier clan is still proudly kept by keeping the tribal surname, it has a very formal function and does not habilitate a person to a position unless he has some of its prerequisites. Yet in certain areas in all Gulf region senior or honorary posts, e.g. minister, under-secretary, or speaker of consultative councils could be - for the time being - distributed among notables of tribes and clans.

The end result of the urban processes of the seventies and eighties was that many of the villages and towns of the coastal area became virtually ghost towns. for example, the process in Qatar concentrated people of the northern part of the State in two port towns, i.e. Al-Khor and Al-Shamal instead of a dozen villages and towns. Al-Khor is an old port city, while Al-Shamal is a newly built town between two older villages (Al-Roweis and Abu El-Zolouf). People were induced by the government to concentrate in these two towns to facilitate services; education, health and security. In the northern interior of Qatar two other settlements were built for the aforementioned reasons to house dispersed nomadic bedouins in Al-Shahania and Al-Gemilia.

In its initial phase these schemes were successful with only one exception; the lack of economic base to contain the new population. All have their major economic activity in Ad-Doha, the capital of Qatar. The end result was: 1) these towns became actual satellites of Doha.¹⁵ 2) The potential of the country outside Doha was either vacated and void of any activity, or misused in a universal Gulf pattern of a recreation and/or productive farm which depleted much of the underground water reservoir.

Conclusions

To sum up there were a lot of differences between the Omani and the inner Gulf sub-regions based on environmental potentials which man successfully manipulated through: a) Setting the appropriate organizational framework starting from the size of community, land value, solidarity of human groups and ending with a political model. b) Culture contact with foreign worlds due to

political events and overseas trade which were responsible for many Persian, Indian and African elements within the Gulf Society from their material life to their lore. Tolerance towards foreign things among the coastal people of the Gulf may be attributed to their constant contact with overseas territories, while comparative isolation of bedouins is responsible for their conservatism and suspicion.

One last example of differences between the sub-regions is the case of head gear. The Omani use a kind of turban while the ghotra (white or chequered cloth protecting the head and neck) and 'oqal (the double circular fixative of ghotra over the head) prevails in the inner Gulf region. There may be many explanations of which: a) The turban is a modified derivative of Indian origin, considering the heavy Indian connections of Oman and Southern Arabia. b) The turban was the original head dress which retreated southwards as ghotra-oqal coming from the North replaced it. This May be supported by a recent research¹⁶ which concluded that 40-50 years ago the turban was predominant in the U.A.E., with remnants of turban-like handling of the ghotra among elderly people. But as the U.A.E. partly is contact region between Oman and inner Gulf sub-regions, the above conclusion may be reversed. The topic, as many other topics, is open to further studies.

The introduction of the new economic order (oil-industry-tertiary activities), supplemented by the emergence of the Modern State, education western style, and health care, disturbed the traditional man-environment relations. It produced trends of similarity between the two Gulf sub-regions, especially the central government, which was lacking in the inner Gulf Region.

Gulf society is now organized on the following basic lines: concentration in few cities. Tribe and extended family replaced by nucleus family-movement in social rank is now an individual rather than a clan or tribe affair. Degree of education may compensate social status; hence the drive to university degrees in unrelated ratio to job needs and size of population drive that may end with a waste of manpower potential by producing too many Ph.D.'s, bureaucrats and technocrats. Women status is undergoing a perceptible change due to the modern culture context and increased female university enrollment. Job market is already showing strains due to a very young Gulf population pyramid. Health care increased population by 3-4% annually, which may present a strong pressure on the present economic structure in the next decade.

Such are the problems of present day Gulf region, Many of which may find reasonable solutions in: a) Gulf cooperation in financial, economic and population free movement and b) restructuring economic specialisations in regions well adapted to environmental potentials.

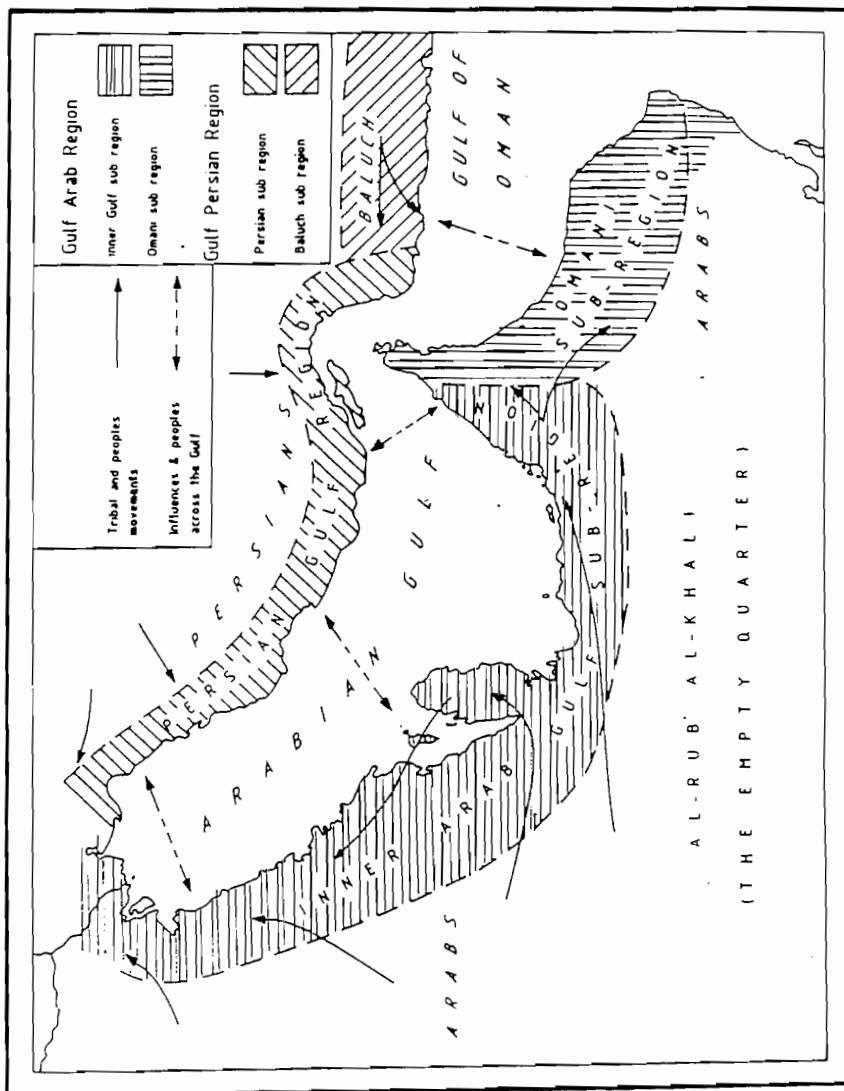
NOTES

- (1) Dimensions of the inner Gulf (rounded): length from Hormuz strait to the head of the Gulf on the Iraqi-Irani coast: 1000 Km. Breadth from Qatar and Bahrain to the Iranian coast: 200-250 km. The strait of Hormuz: 60-70 km. The Gulf of Oman near the approaches of the Hormuz strait 150-200 km.
- (2) Tidal waters extend for several kilometers in flat coasts, and as much as 10 km and more in extreme cases, e.g. part of the Saudi coast. This adversely affected the rise of port towns of importance in the past, and building the several kilometres causeway to the piers of Modern Dammam port. This phenomenon poses difficulties in ascertaining the base line upon which territorial water is measured.
- (3) Falaj systems were subject to many studies, especially the use of its waters. J.C. Wilkinson in his book 1977 "Water and tribal settlement in S.E. Arabia (Arabic translation: **"Falaj and Irrigation Methods in Oman"**, Muscat 1981) is probably the best general reference to the subject. A detailed study of a limited number of falaj is provided by F.Scholz, **"Falaj-Oasen in Sharqiya, Inner Oman"**, in "Die Erde, Berlin 1984, pp 273/294.
- (4) Anderson, E. W., Water Problems In the Sultanate Of Oman **GeoJournal**, vol. 13 no. 3, 1986, D. Reidel Pub. Company, Dordrecht and Boston.
- (5) Estimates were calculated and collected from several volumes of the monumental work of J.G.Lorimer, **"Gazeteer of the Persian Gulf"** Calcutta 1908 (Arabic translation, Doha 1976-7, vol. 1, 2, 4, 5, 6.
- (6) **Ibid**, vol. 5 and 6.
- (7) Oil was struck in Kuwait in 1934, but began to be exported 1948, in S. Arabia in 1938, 1948 respectively, in Qatar 1939, 1949, in the U.A.E. in 1962. Bahrain started earlier in 1932, but it is a poor producer. In Oman oil was discovered in 1967.
- (8) The average annual modulation increase rate of 8 to 10% was observed on a different period for each Gulf State, whereby the peak of increase was related to manpower needs of each state. Thus the peak in Kuwait was circa 8.5% for period 1950-65, retarding to 3.5% in 1975-80. The peaks of 14.5% and 11.3% were attained in the period 1965-75 in the U.A.E. and Qatar respectively, while the Omani peak of 13.3% was attained only in the period 1975-80. Against these very high rates, the indigenous population increase was 3 to 4% per annum, which is also among the highest increase rate in the world. (See Riad, M., 1980, 'Gulf Towns: Development and Problems', **Bul. Of The Faculty Of Humanities & Social Sciences**, University Of Qatar, Doha, (In Arabic), Riad, M., 1983, 'The Gulf And Its People Before 1930: A Study In Geography, Population and Economics', **J. Of The Gulf And Arabian Peninsula**, vol.9, no.36, Kuwait University (In Arabic), Al-Khayat, H., **'The Population Of The Arabian Gulf'** Research Centre for Documentation and Humanities, University of Qatar, Doha, 1982 (in Arabic), and El-Arifi, S., 'The Nature Of Urbanisation In The Gulf Countries' **GeoJournal**, vol. 13 no. 3, 1986, D. Reidel Pub. Co., Dordrecht & Boston.
- (9) Riad, M., 1985, 'Some Aspects Of Petro-Urbanism In The Arab Gulf States';

- Arabian Gulf Studies 1, Nürnberger wirtschafts und sozialgeographisches . Arbeiten, number 37, Friedrich-Alexander-Universität, Nürnberg, and
 Ritter, W., 1985, 'Qatar: Ein Arabisches Erdolemirat', Nürnberger Wirtschafts und sozialgeographisches Arbeiten no. 38, Friedrich-Alexander Universität, Nürnberg.
- (10) This catastrophe is referred to in Arabic lore as the destruction of Ma'rib dam and the dispersal of the people of Saba'.
 - (11) The settlement in Oman of southern Arabs (known as Qahtani) and northern Arabs ('Adnani) resulted in two confederacies of tribes; the Yaman or Hanawiya confederacy and the Nizari or Ghaferiya confederacy. Sectarian differences added much to the division and past hostility; the Hanawiya are for the most part Ibadi Moslems (an old Islamic sect as early as the late 7th century) while the Ghaferiya are Sunni Moslems. A tribal conflict led to a civil war between both confederacies in early 18th century. In 1905 both sects were estimated to be equal in numerical strength; 220000 Hanawi and 205000 Ghaferi. At present they play no role in the political life of Oman.
 - (12) This should not be surprising because the in-coming bedouins play their influence on a basically Arab group, i.e. the Omani population. Thus when a new bedouin group arrives they remain segmented rather than integrated with the village population. Some of the villagers become absorbed in the tribal system of the newcomers through mixed marriages and by virtue of superior bedouin solidarity organization. In due time full integration of bedouins is attained especially after the economic change of bedouins to cultivation, and/or when a new bedouin wave wanders in and starts the process anew.
 - (13) scholz, F., 1976, 'Entwicklungstendenzen im Beduinentum der Kleinen,erdolexportierenden Staaten am Arabischen Golf- Kuwait und Oman Al Beispiele', Mitteilungen Der Oster- reichischen Geographischen Gesellschaft No. 118, wien. (trans. in Arabic in 'German Geog. Research in the M. East', Erlangen 1983),
 Scholz, F., 1980 (and C. Rainer) '**Bedouin Wealth and Change**' U.N. University, Tokyo,
 - (14) The terms of tribe, clan, lineage are not used in their anthropological references among the Arabs. Among bedouins, a tribe may mean a small or bit subsection of a lineage, or a group of lineages. The terms Beni (sons of), Batn (abdomen), Fakhz (thigh), Al (lineage) are commonly used to denote a patriarchal descent and describes the descent minutely. In this paper common terms e.g. tribe, clan, etc., are used to facilitate reading.
 - (15) The distances from Doha are: Shahania circa 35 km, Al-Khor 45 km, A1-Gemilia 60 km, Al-Shamal 110 km.
 - (16) Al-Abboudi, N. H., "The traditional Men's Costumes In The U.A.E.: The Headdress" A1-Ma'thurat Al-Sha'bia (**Review of folklore**) vol. 1, No. 4, Oct. 1986, Doha, Qatar.

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Map (1) Regions and Sub-Regions in The Gulf



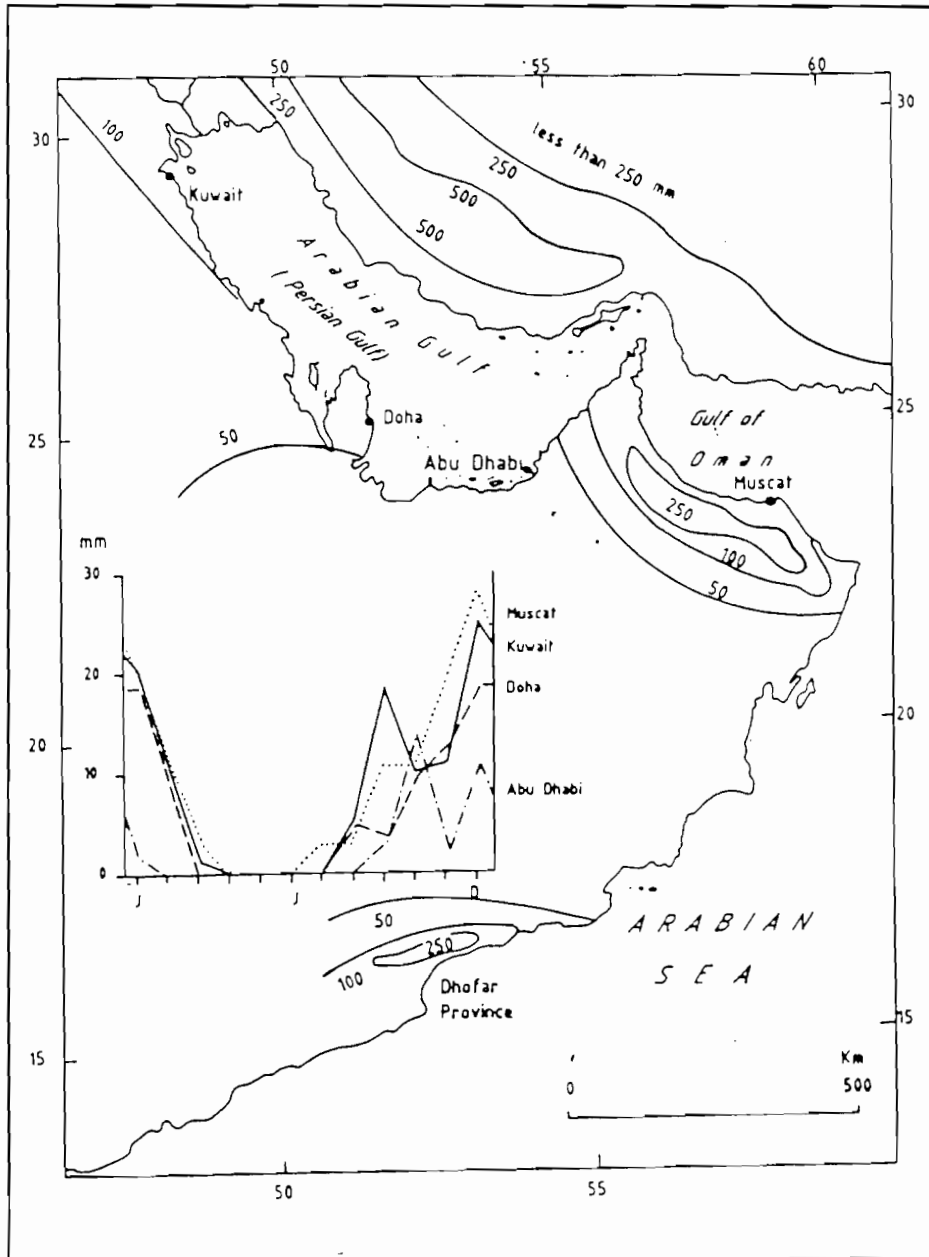
(Author's conception)

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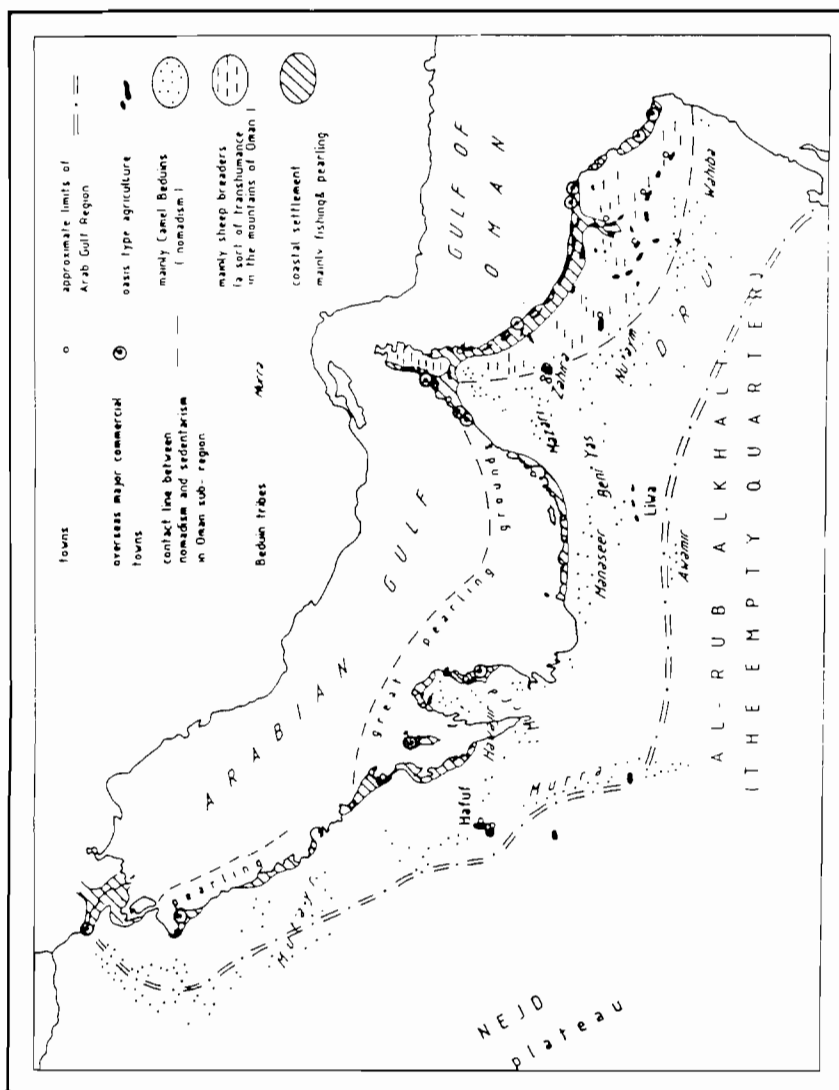
Compiled from several reports, researches and maps.

Map (3) Annual Rainfall in the Gulf Region (in mm).



Compiled from statistical books of Gulf States and maps

Map (4) Reconstruction of Economic division in the Arab Gulf- Regions before oil economies



(Author's concept)