

SOME ASPECTS OF PETRO-URBANISM

IN THE ARAB GULF STATES

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I

When Man discovers and puts to use an element of natural resources, a series of changes evolves in the organization of land and the administration of society. If this is true of manipulating for example, water for irrigation or radio-active material, it is more so concerning energy resources. When coal became the basis of Man's second economic revolution, it dramatically changed the whole aspect of demography, ecology and society in vast regions. Oil, while not bringing Man to a similar situation, proved to be the originator and motivator of many innovations in technology and industry. At the present scale of world oil consumption, it seems that world needs are insatiable, thus pivoting change in both producer and consumer society and politics. The "Quest" for oil is indeed the "Formula" of politics and geopolitics in our time.

However, a distinction should be made between oil struck in developed and in developing countries. In the first case it affects systems quantitatively, while in the second case it restructures a pre-industrial nation. Indeed, oil in developing countries sets in motion a rapid transition both economically and socially. The rapidity of change took societies unawares and unprepared to contain the shock. It undermined, with unparalleled suddenness, the roots of an ecosystem which reflected a perfect adaptation to an environment many generations old. It cut through the frame of society's value system and government.

In this connection one should distinguish between the effects of oil economics on producers of the Afro-Asian arid zone, i.e., Arab and Islamic countries of the Middle East and North Africa, and other oil producers elsewhere in the developing world. The distinction is based upon a long heritage of a world high culture and a solid societal organization among the Arabs and other Mid-Easteners, while such societal tenacity is rather weakly manifested in other OPEC countries.

It follows that the incursion of broad cultural elements associated with an oil-based economy were, and still are, encountering great resistance due to the value system incorporated in the socio-religious structure of the Middle East society. This resistance has stirred the current controversy over innovation and

modernization on the one hand, and the originality of cultural values on the other. Acceptance of culture change is not an easy process, and total change is not possible and not advisable.

Yet the acceptance of oil as a new basis of economy gave a strong impetus towards a gradual change in the traditional socio-economic set-up in a life span of one generation. The society is trying to achieve a balance to accommodate the new order, while at the same time, there are efforts to keep the privileged stratum as much intact as possible.

Among the major issues of the re-balancing process are the following :

Economic Aspects

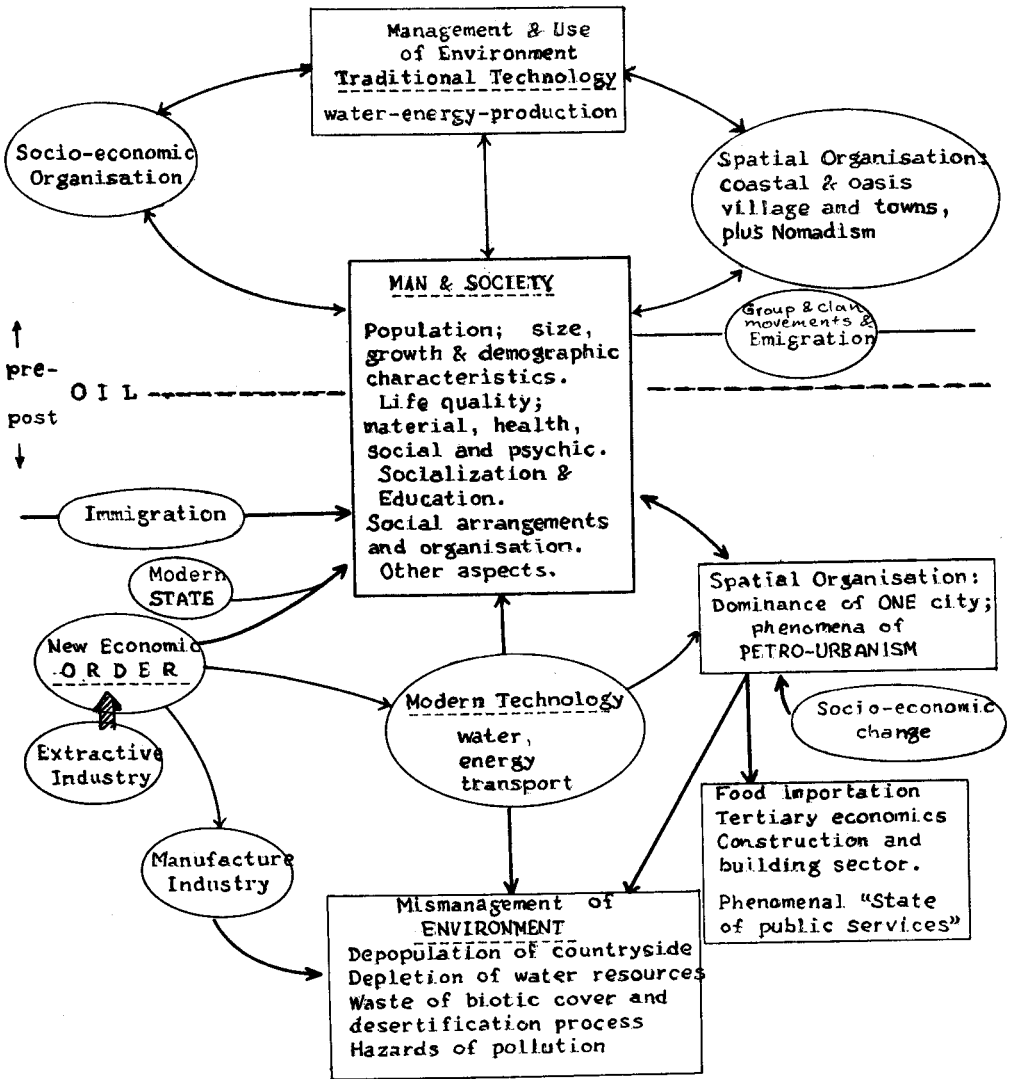
New spatial, physical and technical arrangements ; new order of employment ; immigrant labour force ; housing problems ; and the dramatic rise of land prices.

Money Surplus

Domestic, economic and social development ; international investments and aid programmes for the Third World, leading to a rise in international interests and relations.

Domestic Problems

Redistribution of population ; rural-bedouin migration to the ever-dominating "one metropolis" in each emerging nation. The problem is worsened by the congestion of newly-founded secondary and tertiary activities within the capital cities of these countries, thus creating new jobs necessitating an influx of expatriate technocrats, bureaucrats and skilled labour. Surprisingly, cheap Asian unskilled labour is contracted in growing numbers, and are mainly employed in the non-productive sector of domestic services. Further more, the growth of urbanism is accompanied by the development of public services, especially in the area of education and public health ; also development of an infrastructure with



A Conceptual Model of Man and Environment in the Arab Gulf States, pre and post Oil economies

emphasis on road transport, leading to excess in the private car population; the rise of a new business elite; and there are great efforts to train nationals in different areas of specialization and skills.

Political Developments

The attainment of Statehood and the introduction of new institutions, government bodies and other media of administration — most of which are new to the traditional Order; more job creation processes with a tendency for nationals to occupy the upper directive strata — a drive to 'contain' the new national system.

II

The Arab Gulf States represent a typical example of the case. The Gulf has been a highway of trade since neolithic cultures evolved in the area. Seafaring and a wider world outlook accounts for the tolerance which characterises the attitude of the littoral people in comparison with their bedouin kin. Consequently, their aptitude for accepting change is substantial.

Currently, the general feature of human ecology in the region carries a dual character. The material culture of the developed world is readily accepted and used — though partly in a different context and hence with a different value, e.g., the excessive use of energy or the high quality of makes of cars. On the other hand, society has manifested a slow change — even a resistance — to structural response to the formative elements of the new societal arrangements, e.g., the kin bond, status of women, and traditional hierarchy.

The wide horizon of change in the region is beyond the scope of this paper, which will endeavour to concentrate on the management of space economy and settlements, past and present. However, one should be aware that the term "past," in the Gulf area does not necessarily refer to any appreciable time distance. It simply refers to pre-oil periods which ended around the fifties of this century.¹ Since it is so near, it is vivid and nostalgic in the lore of the people, but to the new generation it is antiquated.

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1. Oil was actually produced in, and shipped from, Saudi Arabia and Kuwait in the mid-forties; in Qatar and the U.A.E. in 1950; and in the Sultanate of Oman in 1967. Bahrain is the oldest oil producer in the area (1934), but the quantity produced was, and is, negligible.

III

Habitat, Economy and Society in the Past.

During the last two centuries, human ecology in the Arab Gulf was based on sea activities :

- (a) daily fishing,
- (b) seasonal pearling, and
- (c) participation in sea-borne trade within the Gulf and the Arabian Sea from East Africa to the West coast of India.

Settlements reflected attachment to the sea. Villages and small towns studded the length of the Arabian shore. A settlement's site was conditioned by two factors, namely, fresh water resources (usually well-kept wells within a radius of about 5 km from the settlement), and a good sheltered and protected harbour (Geomorphological factors: deep tidal waters, well-defended spits on **khors** (estuary or bay) mouth; protection from the seaward side by sandbanks, — bars, tidal islets and other obstacles).

The size of a settlement depended upon :

- (a) the amount of fresh water in the vicinity,
- (b) its geographical location in connection with pearling grounds (the **heerat** pearl banks) were mainly situated in the West part of the Gulf, i.e., confronting the Arabian shores, especially the area between Bahrain and Abu Dhabi),
- (c) the size and properties of the natural harbour and its location with regard to inland trade routes, and
- (d) alliances, whether political or tribal, to secure peace necessary for the flourishing of trade.

Building materials were derived both locally and imported. Local mud, mud bricks and gypsum were used for erecting walls, while roofs were made of different kinds of wood, bamboo and thatched mats that were imported from India or Africa. The walls were usually thick and whitewashed and roofs consisted of three layers — wood, mats and mud — and were thus good insulation against the excessive heat of the region for most of the year round. Windows were constructed some 20 cm from the floor to ensure good circulation and were covered by wooden shutters. Another device for adaptation to the heat was the **badgeer**, a funnel-like structure which induced cool air to flow down into the rooms. This device is thought to be a cultural borrowing from neighbouring Persian culture area.

Homesteads were usually compounds accommodating extended paternal families. The courtyard was big enough to add rooms for newly-wed sons next to their parents' quarter. With one kitchen for the whole compound and sons following their father's trade, we get the nucleus of the socio-economic organization of the society.

Siblings clustered around their elders' compounds, developing spatial lineage divisions within the village, which was usually the abode of one great descent group or clan. Tribes and clans occupied several settlements in a geographic area, but bigger towns and villages were composed of different clans. Settlements usually took a linear form along the beach and within easy access to the waterfront. The beach was the busiest part of the settlement: boats and boat repair, nets and other fishing traps and devices, and many other things. The mosque was another focal point in traditional life as it functioned both as the religious centre and as the village school. The **majlis** — the common room or men's club of a descent group — was the centre for socialization of the group.

In bigger towns and capitals of sheikhdoms, districts of a city lay some distance apart. A district was usually occupied by one clan and its adherents. But the district lying on the harbour and encompassing the **souk** (market) was usually cosmopolitan, i.e., peoples of different lineages as well as traders and craftsmen belonging to various countries in the area such as India and Iran.

The socio-economic organization was characterised by a dual hierarchy, not often complementary. On the one hand, there was the hierarchy of the sea activities, which was more stable and deeply rooted in the society. Here were found the upper strata of the society belonging to one or more of the following trades: pearl dealers, wealthy merchants, ship owners, overseas traders, and sea captains. On the other hand, there was the hierarchy of nomadism which usually wielded the political power. The latter was changeable due to movements of bedouin tribes, wars and alliances. However, the supremacy of certain tribal groupings was consolidated during the last one hundred years or so due to alian powers, especially the Ottomans and the British, whose conflicting interests compelled them to seek alliances with actual Sheikhs, hence recognizing them as lawful territorial rulers.

The settled population of the Arab Gulf region depended heavily on three basic sea activities, namely, fishing, pearling and trading. This is reflected by estimates made at the turn of the century by Lorimer.

TABLE 1
Estimates of Population c. 1900 A.D.²

Country	Population	People Engaged in Sea Activities	Boats		Total, Including Fishing Boats
			Pearling	High-Sea Trading	
Kuwait	50,000	12,000	461	36	
Bahrain	99,000	18,000	917	245	1,000 (?)
Qatar	30,000	13,000	817	140	1,760
U.A.E.	80,000	13,000	1,215	90	1,207 (?)


Taking these estimates as indicators only, we can still see the dependence Gulf Arabs had on the sea. The percentage of people engaged with the economics of the sea ranged from about 16% of the total population in the U.A.E. to an exaggerated 45% in Qatar. This indicates that all the economically active population was engaged in such a profession, which would seem rather doubtful. However, one must take into account two factors :


- (a) during the pearling season, there were many recruits from the inland bedouins, and
- (b) there was no limit to the age of participants in sea economics, i.e., as long as they were able-bodied, boys and old men were accepted in the profession.


2. Lorimer, J.G., "Gazetteer of the Persian Gulf," Arabic translation, Doha, 1976, various pages.

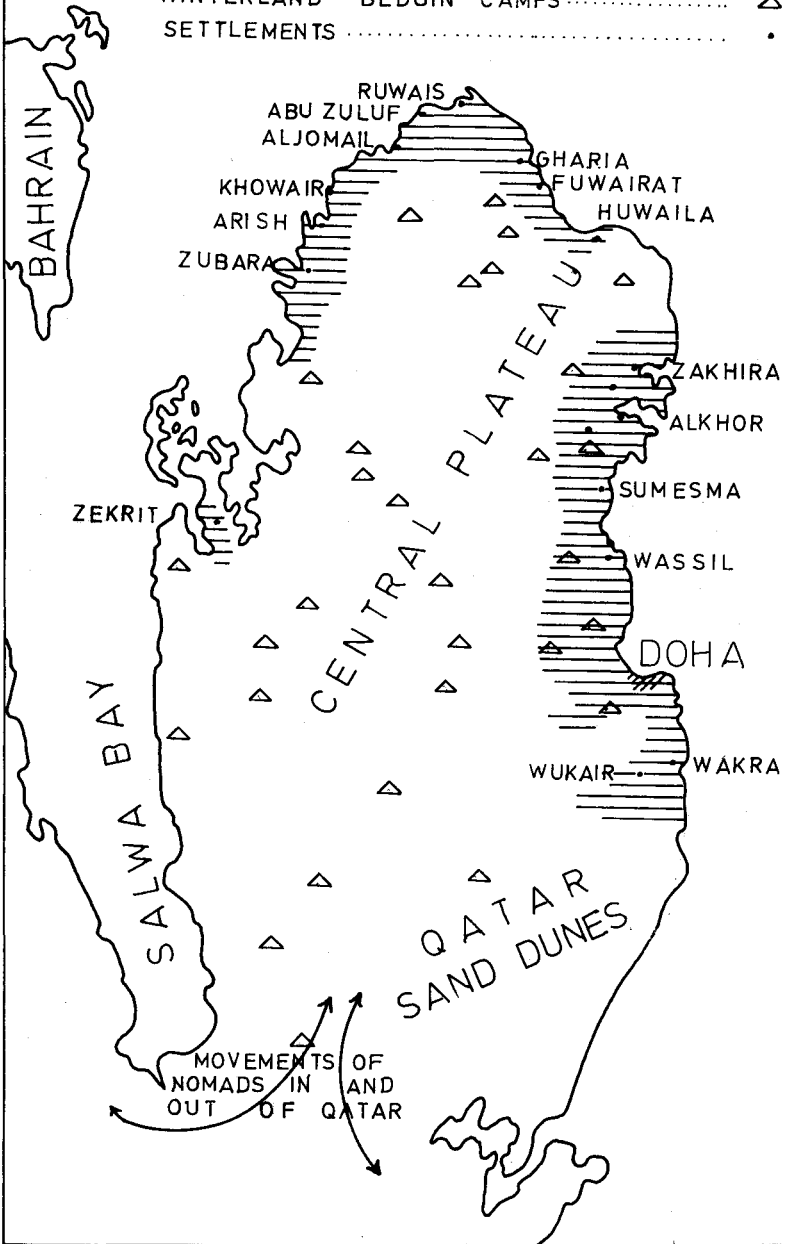
MAP -1-
 MAJOR ECOLOGICAL DEVISIONS OF QATAR
 BEFOR OIL ECONOMY

ECONOMIC ACTIVITIES

SEA ACTIVITIES SETTLED LITTORAL ZONE 

HINTERLAND BEDUIN CAMPS 

SETTLEMENTS 



The interest the people showed in land economics was certainly much weaker than their orientation to the sea. For example Lorimer says that the people of Qatar owned 1,430 camels and those of Sharja and Ras El-Kheima (presently part of the U.A.E.) owned 500 camels and 130 head of cattle. Most of the camels were tended by bedouins far in the interior on behalf of the owners. There were fair numbers of sheep and goats around the settlements and small numbers of cows and horses. Donkeys were only fairly abundant where some cultivation existed like in Bahrain and Ras El-Kheima. In other parts of the area cultivation was patchy — tiny holdings irrigated by animal-drawn buckets from nearby wells. Dates were the major product in addition to some vegetables and barley.

The lack of agricultural products left its imprint on the people's diet. The major imported food item was rice — a product which does not need further preparation before cooking and which endures long transportation as well. It is surprising to note that apart from fish, not all other seafood was edible by the people, (who are now acquiring new dietary habits). The staple food consisted of fish, rice, dates and milk. Sheep meat was prized and alternated every now and then with fish. This must have produced its own kinds of illness especially if accompanied by malnutrition, in addition to skin diseases because of lengthy diving for pearls. Mortality must have been high, especially when considering the dangers of sea professions and continuous tribal feuds.

The ecosystems in the Arab Gulf in the past could be summed up as follows :

1. **The Sea** — the dominant element, as
 - (a) the source of daily food; specific boats, gears, and crew, fishing grounds mostly littoral, produce for personal consumption with little for the market especially in capital towns,
 - (b) a source of income; specially equipped big ships for Gulf and Indian Ocean trade,
 - (c) a source of wealth; special pearling boats, pearl beds within the Gulf, the formation of a hierarchy of traders, investors, and sea captains on the upper strata, while divers, assistants and sailors occupied lower economic ranks. The pearl trade centred in Bahrain and Kuwait which, in turn, had direct relations with Bombay, then the centre for world pearl export trade.
2. **The Hinterland**
 - (a) as the fresh water source. Due to the severe aridity of the region subterranean water was the only source of fresh water. Natural water springs are rare occurrences and most of the water had to be dug out. Wells had to be kept and well managed to achieve a balance between needs and the replenishment rate,

IV

Oil and Changing Ecosystems in the Arab Gulf

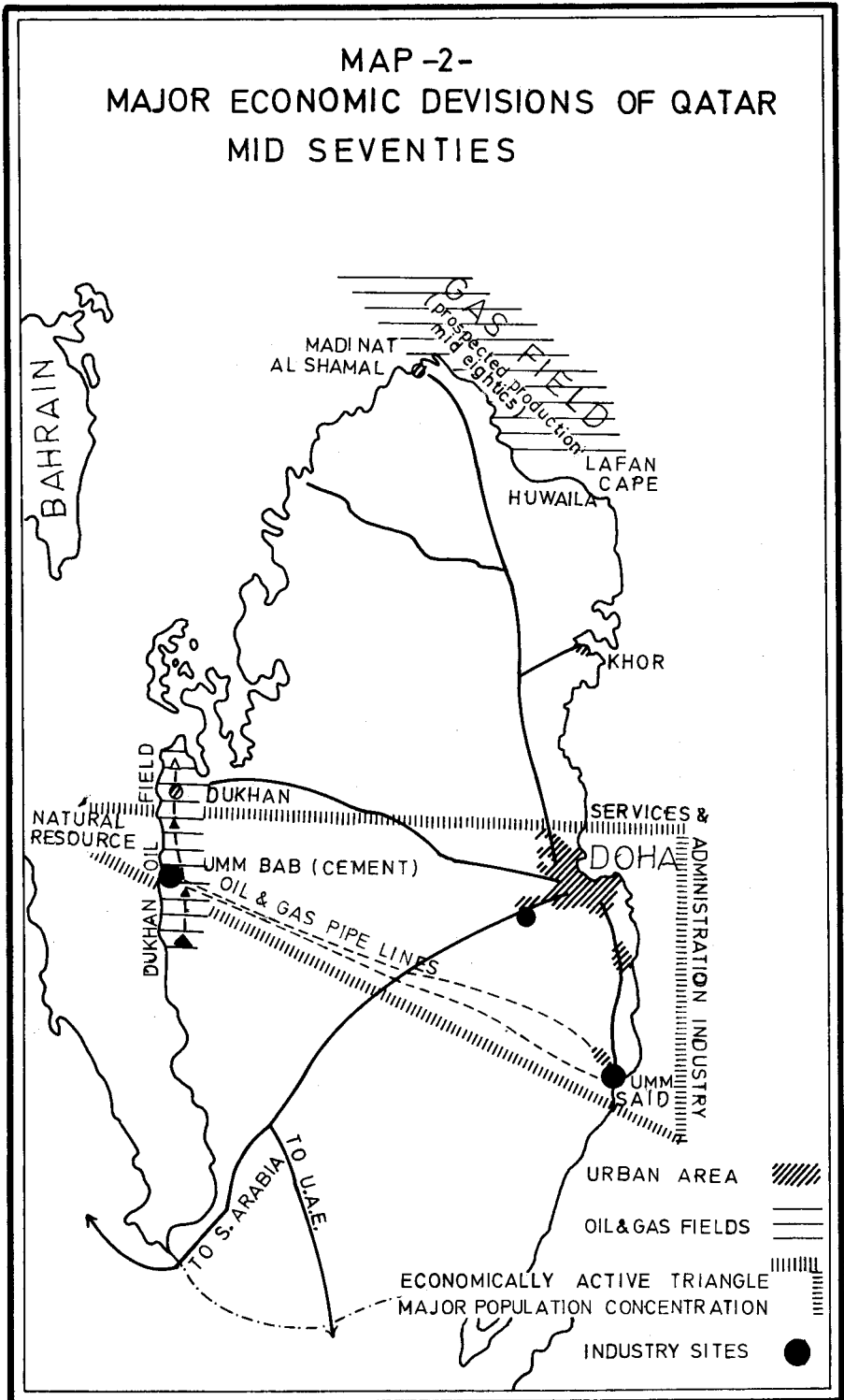
The world of the fifties brought a new era to the Arab States of the Gulf. The geological structure is the sole factor behind the radical change in the economy of the region. Slow changes were associated with the exploitation of on-shore oil fields. It was then accelerated in the sixties by discoveries of large off-shore fields and by the price increase of crude oil to correspond with the cost of oil in the Gulf of Mexico — a decision reached through OPEC, created in 1960, and ever since a successful organ for Third World oil exporters. The seventies brought yet another drastic change. Associated with the 1973 Middle East war and oil embargo, OPEC quadrupled the price of oil, and around the middle of the decade oil fields became the property of their respective countries, thus ending an era of monopoly by giant Western oil companies.

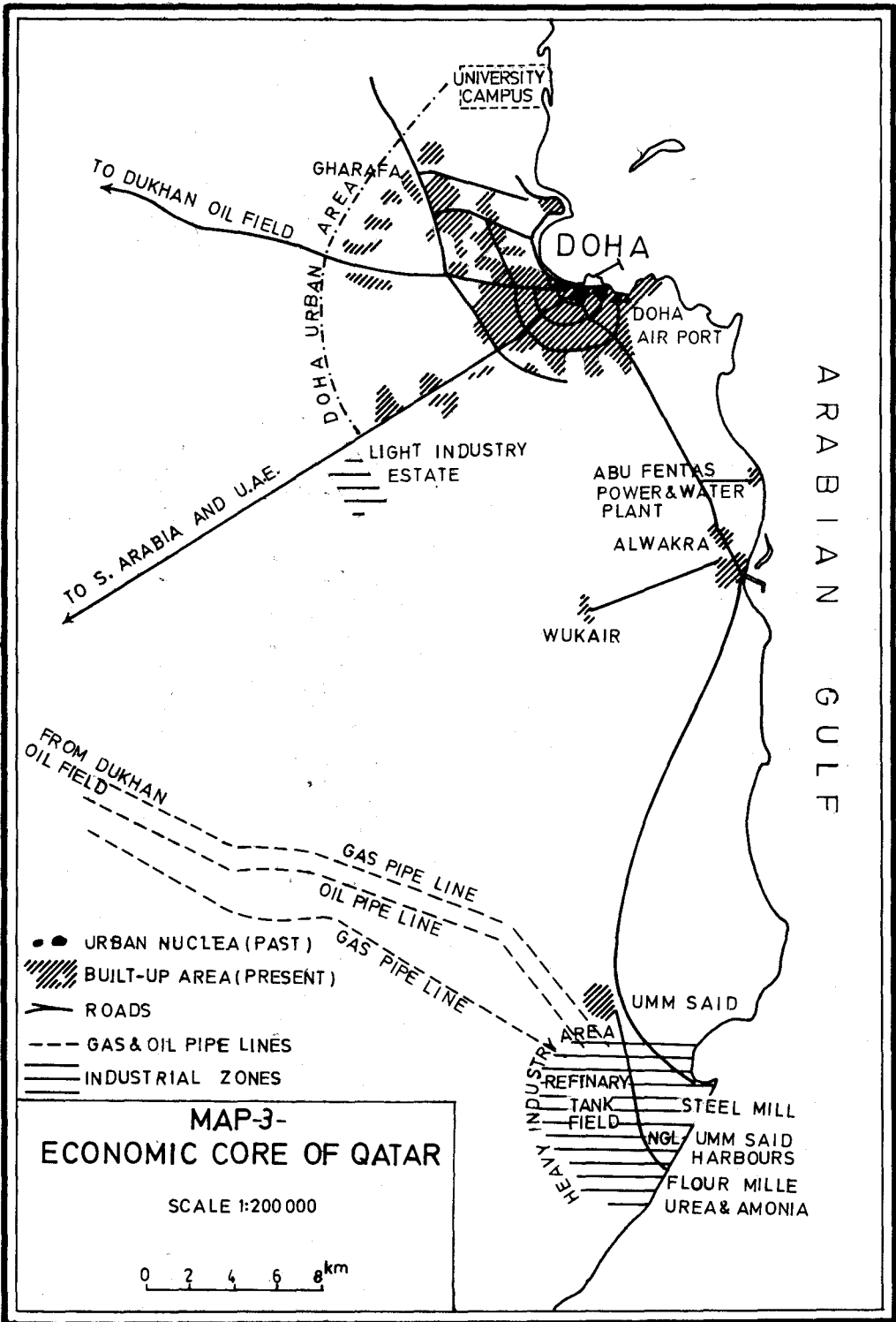
The direct result of this accelerated economic sequence was a rapid accumulation of wealth by the Gulf countries that led to a development boom unprecedented in the economic history of the world. One criterion for assessing the case is to follow the ever-rising Gross National Product of these countries. For example, the Saudi GNP rose from \$US 3,000 million in 1970 to \$US 46,110 million in 1977, and that of Kuwait during the same period from \$US 2,500 million to \$US 13,850 million. In general the GNP per capita in the Gulf is higher than any Western country; in 1976 the GNP per capita was \$US 14,480 in the U.A.E., \$US 13,960 in Kuwait, and \$US 11,640 in Qatar, while at the same time it was \$US 9,160 in Switzerland, \$US 9,030 in Sweden, and \$US 7,880 in the U.S.A.

The financial strength of these Gulf countries is further demonstrated if we take a look at their current account surplus. The foreign assets of Saudi Arabia, Kuwait, the U.A.E. and Qatar together rose from \$US 5,435 million in 1972 to \$US 114,200 million in 1978. However, one must correct these figures according to an inflation rate of about 15-20%.³

3. Figures derived from: (a) "Middle East Year book 1980," IC Magazines Ltd., London; (b) "Der Fischer Welt Almanach 1980," Fisher Taschenbuch Verlag, Frankfurt am Main; and (c) "The Gulf Handbook 1978," Trade and Travel Publication, Middle East Economic Digest, Ltd., (MEED), London.

MAP -2-
 MAJOR ECONOMIC DEVISIONS OF QATAR
 MID SEVENTIES





1) Petro-Urbanism Praxis :

The effects of this financial power on the ecology of the Gulf countries are two fold, but may be summarized as follows :

- (a) The main economic interests are equally divided between land and sea, namely, on — and off-shore oil fields and oil-associated new industry. This is a different ecological perspective on the situation, because in the past the sea was the focus of regional economies (Map 1).
- (b) The physical landscape underwent changes due to economic installations on the oil fields, oil exporting terminals, oil pipes crossing the country, and the establishment of new settlements. In short, the creation of a new economic heartland spatially different from the former littoral economic centres (Map 2 & 3).
- (c) Changed man-land relations may be exemplified by two major processes :
 - (i) redistribution of population leading to actual desertion of most of the older ecumene ;
 - (ii) the unprecedented growth rate of capital cities due to migration from within and without the area, and the rise of the phenomenon which we may call "Petro-urban" settlements and cities. The end result is the formation of a virtual "city state" in the small-sized Arab countries of the Gulf.

These processes need further elaboration as they could be considered the main key to the present situation in the Gulf region.

2) Phenomenal Growth of Gulf Capitals :

The redistribution of the population in the Gulf is a process of agglomerating people in limited urban space and a virtual evacuation of the greater part of the country, leaving it unused or ill used. Though the Gulf area is part of the arid zone, a *modus vivandi*, created long ago, helped to exploit — though thinly — large tracts of the hinterland. Now most of the desert economy is part of history. The endeavour of governments, plus sheer economic impetus, drove the bedouins to settle down in purpose-built settlements and to pursue the available occupations which are mostly related to the services sector, sepecially transport. As an after thought this may be considered a cultural continuity disposition on the part of bedouins — considering their heritage of continuous movement and caravan guidance.

The ever-growing share of the total population in capital cities may be statistically⁴ illustrated by the case of Doha. At the turn of the century 40% of the estimated population of Qatar lived in Doha. This percentage persisted until about the early sixties. Since the late sixties and up to now Doha encompasses around 80% of the population of Qatar. A look at the following table confirms the case.

Population Estimates of Qatar and Doha City

Year	Population of Qatar	Population of Doha	Doha Percentage
1905 ⁵	30,000	12,000	40.0
1959 ⁶	40,000	15,000	37.5
1971 ⁷	111,000	83,000	74.7
1975 ⁸	180,000	144,000	80.0
1980 ⁹	220,000	190,000	86.3
2000 ⁹	450,000	375,000	83.3

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4. Since Qatar has no published census, all the figures here are estimates and projections on one reconnaissance census executed in 1971, but not officially recognized.
 5. Lorimer, J.G., "Gazetteer of the Persian Gulf," Arabic translation.
 6. Abdel Badi Saqr, "Qatar Geographical Gazetteer," (Arabic), printed in Beirut probably 1960, p. 37 and p. 53.
 7. UN Interdisciplinary Reconnaissance Mission, Vol. 2, "Qatar," U.N.E. soB July 1972 (first pop. census of Qatar), Table I.
 8. William Pereira Assoc. "Qatar Planning Studies — National Growth Forecasts," Doha, May 1977, pp. 23—28.
 9. Shankland Cox Partnership, "Qatar Planning Studies — Interim Structural Plan 1980-1990," "Ministry of Municipal Affairs, Doha, April 1980, p. V—VII.

The same situation is encountered in almost every part of the Gulf region. The case is further proven by the existence of many "ghost towns" along the Gulf shores.

The phenomenon of ghost towns should not be wholly attributed to modern oil economy. The phenomenon was recorded by J. G. Lorimer early in this century. However, the magnitude and reasons underlying the desertion of settlements in the past are different from those of the present. Economic mishaps due to failure of, say, pearling seasons, and continued communal warfare and feuds were major causes of ghost towns in the past. The stagnation of the pearl market due to the successful competition of the Japanese cultured pearl and the 1930's world crisis were responsible for the same phenomenon in the thirties and forties. Oil in the fifties and the aftermath dealt the last blow to the fragile land and sea economies of the Gulf communities, obliging a mass migration to the new metropolis of each State of the region.

The growth of these capitals may be inferred by simple calculations of urban area over several map editions, or from statistical data if it exists. According to Shuaib¹⁰ the built-up area of the city of Kuwait was 7.5 km² in 1921 and 22 km² in 1951. It rose dramatically to 300 km² in 1971. This means that the urban growth of Kuwait was slow and gradual in the first stage and accounted for a three-times areal growth in 30 years. The second stage, with fully-fledged oil effects, showed a fourteen-times areal growth in 20 years. The city now extends over 600 km², and the urban sprawl connects it with other cities southwards, making it the "megapolis" of the Gulf, with a population of over one million.

The uniqueness of Kuwait in the Gulf is only size-wise. The same qualitative elements of quick growth is at work everywhere in the area. Doha, for example rose from a built-up area of 4.4 km² in the early fifties to about 40 km² in the late seventies. Planners projected a southern extension of 16 km² staged to completion in 1990, while the West Bay project, presently in its finishing stages, and the fast-growing suburbs of Rayyan and Gharafa, would bring the area of Doha to the neighbourhood of 100 km² by the end of this decade.

Quick and phenomenal urban growth can yet be attested by the rise of power generated and the production of desalinated water. In Qatar the generation capacity of electricity rose from 30 megawatts in 1963 to the dazzling figure of 800 megawatts in 1980.¹¹ The domestic demand for power has increased at an annual rate of 31.6%. Similarly the capacity of water desalination plants in Qatar rose from 130,000 gallons per day in 1954 to 2 millions in 1963 and around 40 millions in 1980.¹² In the U.A.E. the generation capacity of electricity rose from 10 million KW in 1973 to 131 millions in 1977.¹³

3) Land Value and Housing :

The result of hastened urban growth was that demand on land within and around urban areas rose sharply leading to a similar sharp rise in land value.

Assuredly land had a certain value in the past. It must be assumed that such value was stabilized over long periods. The demand was not high, the population did not increase to any remarkable extent, and vacant land was in abundance. However, vacant land does not mean that there were no claims to it. Usually big areas were claimed by clans and tribal groups. But the ways and means by which individual property rights were acclaimed needs further investigation. For this, in our opinion, is the basis upon which present claims and titles to land intensified the sharp rise in land value starting in the sixties and continuing up to the present. For example the price of a square metre in Kuwait city rose recently from about \$US 35 to \$US 450 in a matter of one or two years. In high-class suburbs the metre is sold for \$US 900.¹⁴ In the central business district of Doha the value of a square metre is calculated at \$US 1,000. The same applies to all Gulf major cities.

At present building materials and types of buildings and architecture are more or less imported and to a great extent represent the universal wave of high-rise, concrete and glass, all of which are alien to environmental conditions. Thus it necessitates high power consumption for air conditioning. High-rise contradicts — at least for the one or two generations to come — the traditional and ethical standards of the original Gulf society, whose preference is the detached villa with a courtyard behind closed doors.

Other constraints that lead to higher construction prices and rising rental values are :

- (a) the high price of imported materials,
- (b) the lack of modern skills in building and fitting, and
- (c) the unadaptability of standard building materials to the elements, i.e., intense heat, sunshine, humidity and corrosive agents.

10. Hamed Shuaib, "Urbanism and Planning in Kuwait," (Arabic), Seminar on Planning and Human Settlements in the Arab Countries, Doha, March 1980.

11. "Qatar Yearbook 1978—1970," Doha, p. 79.

12. *Ibid.*, p. 81.

13. United Arab Emirates, Ministry of Planning, "Annual Statistical Abstract," Abu Dhabi, 1978, p. 127.

14. Abdel-Rasoul El-Mousa, "Social Changes and Their Effects on Residential Areas," (Arabic), Seminar on Planning and Human Settlements in the Arab Countries, Doha, March 1980.

V

Research Tasks

Since economic change has set a course of unavoidable change in other areas of land and society relationships in the Gulf region, some guiding lines of further investigations may be proposed.

1. Alternatives to the present source of wealth are currently associated with the creation of an industrial sector. Industrial endeavours are under way in all Gulf countries. All industrial implications concerning population structure, land utilization and regional markets must be explained.
2. In theory the interest in reclamation of land to produce food — plant and animal — is much publicised in the area. All environmental, cultural and human power constraints must be studied in depth. Special importance must be given to studies of water resources to achieve the balance necessary in an arid zone.
3. Problems of the one metropolis must be tackled to avoid the fate of other Third World urban problems.

The Gulf cities have not yet reached the point when a city can self-generate its own laws of growth despite human control. A fairly distributed population over economically-sound settlements may be proposed as a means of correcting the status quo, and inducing land use over much of the country's space.

4. Studies must concentrate heavily on the problem of expatriates in the Gulf region. Their sheer numbers (50-80% of the total population) and the diversity of their origins, cultures and languages (the majority of the labour force and immigrants are from the Indian Sub-Continent, and Arabs and non-Arabs from the Middle East, and the minority are from Western countries and the Far East) necessitates sociological, demographic and economic research, along with other political implications that may arise in the future.
5. A revival of sea activities may be stirred up by studies on fisheries, pearling, and a commercial fleet.