

Pastoralism: Adaptation and Optimization

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In this study, an attempt will be made to factor out and briefly describe important ecological and social variables in order to indicate under what conditions pastoralism is a process of adaptation and optimization and its implication in "Development Policies" of the Middle East.

First, it is essential to define what is meant by the term PASTORALISM. Numerous typologies have been constructed employing such terms as nomadism, semi-nomadism, transhumance, agro-pastoralism, mixed farming (Awad, Abou-Zeid, Brice, Fisher, Hill). Different bases have been used in building these typologies, resulting in confusion and ambiguity. For example, when typologies are built upon the migratory range as the basis of the definition, then:

- a. if the entire human group accompanies the flock and herds for grazing, the form is referred to as pure or full nomadism (Capot-Rey).
- b. if the entire human group accompanies the flock or herds for grazing as well as incidental crop cultivation, the form is referred to as semi-nomadism (Capot-Rey).
- c. if only part of the human group accompanies the herd for grazing, the rest attending to cultivation, the form is often referred to as semi-settled or transhumance (Awad, Peppelenbosch).

But when typologies are built upon the major economic activities as the basis of the definition, then:

- a. if the economic activities are directed primarily towards animal husbandry and entail little if any attention to cultivation, the form is referred to as pastoralism (Phillips).
- b. if the economic activities are directed toward animal husbandry and cultivation with approximate equal dependence upon both activities, the form is referred to as agro-pastoralism (Murdock).
- c. if the economic activities combine animal husbandry and cultivation with greater dependence on the latter, the form is referred to as pastoral-agriculturalism (Cruz de Carvalho).

On the basis of these typologies and other readings, the definition I have drawn up of *pastoralism* is animal husbandry by natural graze with some access to crop cultivation. The particular forms or economic structures of pastoralism are related to certain variables:

1. Ecological variables such as rainfall, water resources, pasture location and carrying capacity, seasonal conditions of the ground cover, and the limits of crop varieties.
2. Social variables such as the division of labour, the demographic composition of and fluctuation within the human group, and the range of flexibility in the social organization.

These variables are key factors in terms of the extent and duration of migration, the type and numbers of animals raised, the reliance on crop cultivation, and trade and exchange.

No pastoral group is entirely self-sufficient. It is tied in relations of interdependence and reciprocity to sedentary communities in the adjacent area. The pastoral adaptation to the ecological environment presupposes the presence of sedentary communities and access to their products (Barth, Stenning). In the Middle East, this has been referred to as the ecological trilogy (English). As far as the economic structure of the region is concerned, the pastoralists and the agriculturalists can be regarded as specialized occupational groups within a larger economic system. This fact has great implication for an understanding of the role of pastoralism in the development of modern nation-states.

In the Middle East as well as other regions, the general consensus is that pastoralism is a major obstacle to social and economic development. Central governments of the Middle East generally regard non-sedentary populations as tribes, forming a state within a state, and constituting a "national problem" (Krader).

The concern is that nationhood in the Arab world cannot be achieved on a stable and permanent basis unless the tribal segment becomes fully integrated with the rest of the nation. In this respect, concern with tribal or non-sedentary populations is based on a desire to achieve an integrated, united, and balanced nation (Awad). At the same time, pastoralism in the Middle East has become associated with "anti-progressive" forces. Administrative policies in agriculture, health, education and land reform often appear to be obstructed by pastoral populations. The pastoral population is, as a source of trouble, a backward entity that stands in the way of national progress with the only overall solution that is then suggested is the settling of the tribe, meaning the transforming of the man who lives upon the products of the herd and flock, into a settled cultivator of the soil (Awad, Panel of Consultants, ILO, also see references in Phillips and Barth). The key

point of this attitude, as Cunnison points out, is the "anxiety" of many administrators, that pastoralism is a mode of life that is a holdover from an irrational past, and therefore lacking "modern" rational administration and responsible use of the world's resources. This attitude reflects the cultural and value gap between many administrators and pastoral people within a nationstate.

Very few studies by anthropologists have been made of pastoral communities in the Middle East. Earlier theoretical evolutionary anthropological interpretations and schemes categorized and typologized all pastoral groups as one stage above hunters and gatherers and one stage below agriculturalists (Sahlins, Service, and Steward). More recent theories (Toynbee, Y. Cohen) which view pastoralism as an adaptation from an agricultural base to the increasingly severe environments, further promote the view of many administrators that this way of life does not and cannot contribute to economic and social development in the nation. Furthermore, studies which have previously argued for cultural and psychological determinates of behavior (Hagen) have viewed peasant behavior as not oriented to rational economic considerations.

More careful consideration of a pastoral society and its relationship and interdependence with sedentary communities may show that both specializations, the pastoral as well as sedentary are not anachronistic, but in principle rational. Such a study may also lead to the conclusion that pastoralism is a dynamic process of adaptation for optimization, not maximization.¹

Recent U.N. publications concerning the "nomad problem" (*Selected Studies on Development Problems in Various Countries of the Middle East*, 1970; *Sedentarization of the Nomadic Population in the Countries of the UNESOB Region*, 1970; *Arid Lands: A Geographical Appraisal*, UNESCO, 1966; *Land Policy in the Near East*, F.A.O., 1967) illustrate current attitudes. These studies point to three practical issues: 1) economic contribution to national development; 2) land use and management; and, 3) population health and demography. These reports maintain that:

1. Pastoralism is both self-impoverishing and inimical to national development. The economic weakness of pastoralism is its complete dependence on rainfall, and whatever agriculture the pastoralists practice is based on a system of shifting cultivation which is barely sufficient for subsistence, and also wasteful and destructive, since it contributes to soil erosion.
2. Nomadic grazing practices have lead to loss of ground cover and as an effect of the politically drawn national borders, pastoralists take less interest in range management and conservation.
3. The habits of the pastoralists isolate them from whatever educational, and medical services may be available to the rest of the society. The

general health of the pastoralists also affects national development as they are more liable to malnutrition than sedentary communities.

Examination of recent anthropological studies (Barth "Nomads in the Mountains and Plateau Areas of the South West Asia", UNESCO, 1962; *Nomads of South Persia*, 1964, Cunnison, *Baggara Arabs*, 1966; "Nomads in the 1960's", 1967, Asad, *The Kababish Arabs*, 1970) indicate that many of the attitudes which recent "development expert" reports hold may be incorrect.

Economic contribution to national development

Under certain circumstances, pastoralism may not be deleterious to national development but actually beneficial. Studies by Asad on the Kababish Arabs indicate that the pastoral economy is in principle a rational one. Given the natural resources of the region, and the population to be supported, the investment required to raise by a given population the output of pastoralism is less than required to settle them and enable them to maintain a comparable level of output as cultivators.

In many of the countries of the Middle East, the only natural resource found in abundance (other than oil) is extensive semi-arid land. These countries could export considerably more trade commodities such as meat, hair, wool and hides. However the low level of animal production per unit of land (caused by inadequate forage, poor local management, disadvantages of aridity, extremes in temperature, parasitism, and disease) leaves much room for future development and expansion, should central authorities decide to tap its economic potential. In many areas, pastoralism is the only fully rational and expedient form of land utilization. W. B. Fisher, in enumerating cases where pastoralism represents the only possible utilization of limited geographical opportunities, states that this limited means of utilization does "not seem to be fully appreciated by some governments of states in which pastoral nomadism exists. The governments tend to regard the nomadic population as an inferior community to be civilized as quickly as possible by the imposition of a different way of life, usually agriculture" (Fisher, *The Middle East*, p. 120). However, the limits of increased agricultural output in the Middle East must be carefully considered.

Dry farming or rain farming is a well established system in the Middle East, aimed at producing the maximal amount of dry vegetable matter in the shortest possible growing season, with the minimum of water. Nevertheless, whatever the technique, dry farming cannot be successful in the truly arid lands and the bulk of effective dry farming takes place in the semi-arid land-margin zone. Even under the most favorable conditions, dry farming is necessarily an extensive type of cultivation which in general does not war-

rant or permit, for reasons of cost, the application of fertilizers since the amount of available soil moisture cannot sustain the increased vegetable growth. Yields are low and to produce harvest comparable with the humid lands much larger areas must be cropped.

If water can make the desert bloom, it can also sterilize the land as effectively as does wind erosion under poor techniques of dry farming. The manipulation of the landscape in areas of perennial irrigation have led to many problems. It is now being realized that the almost universal perennial irrigation systems expressed in huge dams and major canals are wrong in principle, since they lead to silting, high rates of evaporation, and loss of water. The water is wasted, leading to major land use problems and in turn to problems of public health. One is almost forced to conclude that the "qanats" of the Middle East offer the best of both worlds, with underground storage fed by seasonal and perennial run-off. The most fruitful forms of perennial irrigation must, in the future, be more carefully devised to fit in with, rather than be built on to, the physical environments, (Walton, *The Arid Zone*, 1969, p. 100-132). Clearly there is a physical limit to convertibility of pastoral grazing lands into agricultural plots.

Attention is not often enough directed at less dramatic solutions. For example, planned improvements of domestic animals, considering also the extent to which the low productivity is due to the environment the animals and management have created, could greatly increase their contribution to the nations' economies.

Yet modern methods of animal husbandry in a pastoral environment may be difficult to incorporate into the thinking and practices of the pastoralists. The success of any program which may be planned will be largely influenced by the extent to which the benefits they provide can be fitted to the community's requirements and on the way in which any new methods or findings of research can be assimilated into the practices of the pastoralists.

Barth in his discussion of South West Asia has indicated further lines for study in terms of the economic contribution of pastoralism to national development. His study indicates that the economic exchanges and other social ties of the pastoralists with the sedentary community are more pervasive than believed by many, and that pastoralism is closely integrated into the wider society. The relations of dependence and reciprocity to sedentary communities of the pastoralists lead Barth to regard the economic structure of the area as composed of two specialized occupational groups within a single economic system. Barth indicates as well that due to the general avoidance of main market centers by pastoralists, it is impossible to form a picture of the pastoralist's contribution to an area's economy in terms of the provenance of market goods. He maintains that a better estimate can be made in terms of the consumption rate of nomadic households. He concludes that the consump-

tion patterns of "S.W. Asian nomads are everywhere such as to require established relations with sedentary communities... consequently are integrated into the economic life".

In the past, pastoralists established relations with sedentary communities through the office of the sheikh. As Barth points out, this touches on a very fundamental problem in the organization of societies composed of distinct groups in close interdependence in some fields of social life. Where persons belonging to such different parts of a plural society meet, there must be mechanisms mediating the relationship between them—within the limited situation of their interaction they must be "comparable" in some framework. When relations between pastoralist and others are of a judicial nature there is a greater problem of equivalence and comparability. As the pastoralist must move for the sake of his herd, and the agriculturalist must remain stationary, contact between the two cannot be maintained for long. Between the two there is no mechanism on the local level for the regulation of social relations by other means than violence. A workable mechanism can be achieved by channeling such conflicts through administrative superstructures which bridge this difference by transforming this interest and the social units concerned to a point where they are comparable and thus able to communicate.

In the past, it was in the sheikh's interest to maintain stable and peaceful relations with the centers of power in the sedentary communities, and while the pastoralist's relations with the sedentary community were largely passing and unstable, his becomes co-terminous with the land owning elite of the sedentary community. He became acceptable as a person and equal of the sedentary community and a mediator. Thus it is obvious that since nomads everywhere in the region are part of a larger economic system, changes in their numbers and adaptive patterns will have direct consequences for the economic life of the sedentary community.

The question of wealth in livestock is also crucial in this context. Two aspects are frequently raised: social prestige and rate of exchange. Some recent anthropological studies of pastoral communities have indicated that pastoralists tend to value their livestock more for reasons of social prestige than exchange value (Stenning, Schneider). Stenning indicates in his discussion of ranching schemes in Nigeria that although the "Western attitude is that Fulani are merely holding back cattle which they ought to sell," ecological conditions are such that no significant part of the pastoral Fulani herd will ever be regarded by its owner as surplus. "Disposal of stock in any but emergency circumstances is a notion which runs counter to their social experience not to say their morality". Stenning seems to suggest that the Fulani do not trade, or sell their cattle. A similar attitude held for the pastoralists of the Cunene region of Angola was recently questioned in a study by E. Cruz de Carvalho. By careful analysis and study of herd size, composition and struc-

ture, he was able to show that in actuality, there was more attention to quality and productivity rather than numbers of cattle, and that there was a much higher rate of trade, exchange or barter of the herd than was previously believed to be the case. A comparative analysis of herd structure might reveal similar results among the pastoralists in the Middle East.

A few projects have endeavored to develop grazing potential rather than agriculture, when dealing with the question of sedentarization. The largest such scheme is the Ras-el-Hikma project in Egypt. The logic of the project is derived from Toynbee's theory of the growing desiccation as a principle factor in the development of pastoral nomadism. The theory is that the excessive misuse of pasture plants have caused aridity and consequently obliged the people to adopt a nomadic life style in search of pasture for their animals. Therefore if pasture lands could be developed and grazing lands organized, it would be easy to bring the herders back to a form of sedentary life in which they could practice animal husbandry. It is believed that the long term result of this project will be both an increase in livestock and a greater interest in the land and in intensive agriculture.

Most projects contemplated by the various governments tend to achieve sedentarization by encouraging agriculture, at the expense of animal husbandry; at least they do not give this vital item in the economic life of the nomads due care and consideration. Such policy may in the end be harmful to animal production, and may have deleterious effects on the animal resources. The effect may be more obvious in a country like Egypt where animal resources are relatively meager and thousands of herds of animals must be imported each year.

Land use and management

A corollary issue to that of livestock wealth is that of land use and management.

The infringement of tribal lands into different nation states have created numerous problems in terms of migratory habits. Administrators view this generally as the "cause" of pastoral misuse of grazing land. At the division of the Ottoman Empire into numerous mandates and territories, each governed by a different system, no consideration was taken of the tribal lands which often lay across several international boundaries (Walton). For example between the modern states of Iraq and Syria, numerous international disputes have been caused by the fact that the traditional lands of the Shammar, as well as the Anza, cross this boundary. In some cases central authorities' attempts to control the movement of these tribes lead to international disputes when tribes have crossed the national boundaries in refuge. In other cases where central authorities are strong and administrative control is good, the pastoral nomads are unable to cross the national boundaries.

Recently, agreements between governments have been concluded whereby nomads in effect temporarily assume the nationality of the country in which they find themselves (Walton p. 138).

Although the administrative attitude is that pastoralism is deleterious to the land, it has been challenged recently within government circles. Some administrators are beginning to question whether, in so far as overgrazing and uprooting of shrubs can be prevented, pastoralism may not be the best adaptation to an arid land (Awad). This view has been espoused by many (Monteil, Phillips, Capot Rey, Asad) not only in terms of the utilization of marginal or otherwise unproductive land, but also in terms of efficiency of capital investment. Alternative interpretations and schemes, such as ranching projects, have been suggested recently (Stenning, Meredith).

The effect of land registration and land reform policy must be considered. The perpetual, or seasonal migrations which pastoralists carry out in search of new pastures, and the irregularity of rain, raise many problems concerning the ownership of land and the rights to exploit it. These problems involve not only the various tribes, but also central authorities for whereas the tribes claim that they have owned and inherited the land since immemorial time, the central authorities insist that all land is the exclusive property of the state with the right of usufruct granted to the people.

There is a certain correlation between the right to exploit land and the distribution of tribal sections. In spite of the wide dispersal of its members, a tribal section is associated with certain areas of land. Thus despite the distinction between ownership and usufruct, the two are practically welded together; and the people defend the boundaries of the areas to which they have always been associated. The tribe whose name is associated with a certain area has the right to exploit it to the exclusion of all other tribes.

It is important to note that land is held in common. The question of individual or private ownership of particular parts of the tribal land does not arise. The only right an individual has is the use of the land in accordance to the tribal customs.

As the pastoral community defines the tribal land as belonging collectively to the whole, with subunits utilizing various parts at different times, the introduction of land registration by central authorities introduced many adaptations and alterations within the tribal system. Large stretches of land came into the hands of sheikhs in the Fertile Crescent for example. Their economic standing, and their closer contact with settled and urban populations, enabled them to register much more tribal land in their names. Among the tribes which settled in the 19th and early 20th century, the ex-sheikhs became the large land owners while the tribal members were scattered among the fellah tenants as laborers. Such settlements generally brought great wealth to the sheikhs who gradually moved to towns where they entered high ranks

of urban society and became identified with the vested interests of that society while tribal connections weakened. Yet this weakening of the tribal connections has not in general been the rule. Often the sheikh, finding himself with greater extension of power is able to convert his prestige, authority, and increased wealth into national political power. This is especially true in Iraq, where of 135 members of parliament in the 1960's, 66 were ex-sheikhs.

Consideration of the variables named above indicate that land use patterns and pasture management for the pastoralists as well as the sedentary community must first be described and analyzed in depth in order to determine the extent to which the system represents a process of adaptation and optimization of resources, and the extent to which alternative systems of maximization can be introduced in terms of economically feasible inputs.

Population health and demography

The third question to be considered centers upon that of the population health of the pastoral community which the U. N. report maintains is worse than the sedentary community. Recent anthropological studies indicate the reverse may be true. Barth has presented evidence which indicates not only the greater wealth of the pastoralist in terms of the sedentary community, but also presents population figures which indicate that the pastoral community is and has been in approximate demographic balance, and not as prone to disease and epidemics as the sedentary communities who live, in general, in less sanitary and hygienic conditions. His study shows that the pastoralist population has consistently produced a large population excess in every generation which is assimilated into the villages, thereby closing the gap between the low fertility rate and high mortality rate in sedentary populations. This phenomenon may indicate that there is a correlation between the standard of health and nutrition of pastoral communities and their higher fertility rate, and lower mortality rate.

Concluding remarks

Pastoralism has frequently been regarded as an irrational, outdated economic system. Today it is often regarded as inimical to "national development" in the Middle East.

This paper has attempted to briefly indicate variables for further study which may show that pastoralism is not an irrational system, but a rational one, and may lead to the conclusion that PASTORALISM is a dynamic process of adaptation and optimization for economic security and social advantage. The resistance of pastoralists to sedentarization has been explained quite convincingly by Barth in terms of self interest—few pastoralists are willing to accept the reduction in standards of living which sedentarization

implies except when forced to do so because of economic loss or administrative duress.

The major explication, for sedentarization offered by central authorities is not entirely convincing. If it is meant that in order to extend health, education and welfare services to the pastoralists, they must be settled, it may be perhaps more effective to first establish such services to a larger extent among the sedentary populations and later the lure of such services will attract the interests of the pastoral nomads. The expense of the numerous experimental settlement schemes which are by no means self sufficient could very well be funnelled to finance the expansion of national education, public health, and hygiene programs, and other welfare services for the entire populations.

As to the question of national integration, enforced sedentarization does not necessarily disrupt the relationship between the individual and his tribe. Often, enforced sedentarization results in a strengthening of tribal ties and attachments. Tribal groups which lead completely sedentary life with agriculture as their main occupation are very common throughout the Middle East. In most instances their conversion to sedentary life has been recent, but even where this is not the case, they still continue to maintain their tribal solidarity and refuse to intermarry with earlier settlers and fellahin. A good example is the Hawara of Egypt. Though their political power is a thing of the past, they still maintain their tribal cohesion and refuse to give their daughters in marriage even to wealthy fellahin. This "reality" leads Awad to conclude that the problem of merging tribal and non-tribal groups may be somewhat different from that of converting the nomads to sedentary life and that local tribal solidarity is a handicap in the development of a national spirit and outlook (Awad, ILR).

The transfer of loyalties from the pastoral nomadic traditional system cannot be forced. But administrative activity can promote integrative mechanisms such as helping in the economic effectivization of pastoralism itself (improving the pastures and livestock), supervising and governing the rights of all the citizens in exchange, security, land and justice. These activities can prove more effective than an imposed political integration. Furthermore if central authorities will accept pastoralism as a specialized economic pursuit within a wider economic and social system, then the pastoral adaptation to and optimization of their environment may very well take the form of organizations which further integrate the pastoral communities into the wider system, such as coordinating or bargaining organizations for the pastoral nomadic herders.

NOTE

1. "Optimization"—rate of increase in total animal numbers for enhancing of economic security and social advantage, rather than the maximization for financial advantage.

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