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## THE IMPACT OF THE AGRARIAN REVOLUTION ON NOMADISM OF THE ALGERIAN STEPPE.<sup>1</sup>

by Wolfgang Trautmann

The structural deficiencies of Algerian agriculture induced the government to start wide-ranging reforms in 1971 which were claimed as the "Agrarian Revolution" by national propaganda. Under the slogan of "democratic socialization", the living and working conditions of the rural population were to be improved. In 1972, the distribution of public lands and in 1973 the expropriation of the native landlords were decreed. Since 1975, the restructuration of the steppe areas has been implemented (see Trautmann 1979). These efforts are of interest insofar as the announced socialistic ideas are to be realized in a zone which remained excluded from national development until the present. Moreover, the concept of integrative planning seems to be remarkable, considering not only the socio-economic, but also the ecological conditions of pastoralism.

### 1) The situation of nomadism before the Agrarian Revolution

#### a) Social structure

The Algerian steppe covers over 20 million ha, being 50 percent of the agricultural area. About 1,699,000 people lived there in 1968. Twenty-nine percent of them were nomadic pastoralists (M.A.R.A., 1974: 77, 96), predominantly scattered through the western and southern parts of the steppe. In general, they feel attached to their ancient grazing territories, considered as common property (arch) since historical times, migrating over larger distances only during times of crisis. The migrations which have been undertaken by the tribes or their sub-groups in the past are now carried out by small or extended families settling down in one to four tents.

Six percent of the population have been classified as "semi-sedentary". They are located mainly on the southern escarpment of the Tell-Atlas, the Aurès and the Zab Mountains. According to the varying climatic conditions, the semi-sedentary nomads migrate very irregularly. In general, they take only a few months, but sometimes they can continue over one year (Wilaya de l'Aurès, 1971: 56). However, they spend the greater part of the year in permanent dwellings near their fields or plantations.

Twenty-seven percent of the population are sedentary pastoralists, in the majority farmers, small businessmen or workers who obtain a subsidiary income from herding. The livestock is attended by family members, community herdsman or nomads. The owners live not only in the dispersed settlements of the highlands between the Tell- and Sahara-Atlas, but also in urban agglomerations within the steppe.

Considering the size of flocks as a factor of social differentiation, 2 percent of the pastoralists possess more than 300 sheep, but they control 39 percent of the livestock (M.A.R.A., 1974: 96). Among these large-scale herders are often functionaries, merchants or livestock dealers, who were able to augment their livestock during the years of crisis which affected pastoralism. They reside in the capitals of the steppe districts or in the cities of the coastal zone, entrusting

their flocks to hired herdsman.

Twelve percent of the pastoralists are medium-scale herders, possessing between 50 and 300 animals. They control 39 percent of the livestock. The flocks are managed by the owners themselves, supported by family members. Considering that a number of 100 to 300 sheep is commonly believed as the optimum for subsistence, the greater part of the owners live below the subsistence level.

The bulk of the pastoralists is composed of small-scale herders, possessing less than 50 animals. They represent 85 percent of the herders, but control only 21 percent of the livestock. Because the size of their flocks is not sufficient to supply their needs, they often have to accept jobs as herdsman. Due to the low wages, however, they mostly fall into debt peonage (azela) to the herd owners.

The medium and large-scale herders with more than 50 animals are concentrated in the western and southwestern parts of the steppe. They possess over 95 percent of the livestock in the dairate of Ain Sefra, Mecheria, El Bayadh and Laghouat. The small-scale herders with less than 50 animals live mainly in the eastern part of the steppe. They dominate in the dairate of M'Sila and Barika possessing over 50 percent of the livestock (see M.A.R.A., 1974: 85-89, 121-125).

#### b) Economic activities

The main source of income for 45 percent of the pastoralists is herding (M.A.R.A., 1974: 201). Native breeds (Beneghil principally) provide them with meat, wool and milk products. Moreover, goats are kept whose hair is woven into tent sections. Camel-breeding has lost its importance due to the introduction of modern transportation. It has often been replaced by cattle-breeding based on imported animals. The upper social strata of the population are principally engaged in the latter activity, preferring it as an investment and a sign of status.

With an annual reproduction rate of 53 percent, the productivity of the flocks must be considered as low (M.A.R.A., 1974: 280). Kept as economic reserves, a market-oriented selection of sheep is lacking. The consequences are a superannuation of the flocks, an increased portion of rams and a high mortality among the lambs. Moreover, the supply of animals during the periods of drought has not yet been stabilized.

Many nomads grow wheat and barley to complete their diet. For 31 percent of them, it has become the main resource. Dry-farming is widespread. Twenty percent of the fields are irrigated only occasionally and 6 percent regularly (M.A.R.A., 1974: 64). The centre of cereal-growing lies in the central highland between the Tell- and Sahara-Atlas where small depressions (dhayas) and the outlets of oueds (maader) are arable.

Three hundred and eighty thousand ha were cultivated by nomads in 1968. This represents 35 percent of the cereal areas within the steppe. With an annual

production of 130 million kg, the average yield is 340 kg per ha (M.A.R.A., 1974: 177). Despite this low productivity, cereal-growing has been extended during years of crisis to avoid drawing on animal capital.

Other kinds of work have become an important source of income for the majority of small-scale herders, and these were claimed by 9 percent as the main resource. Most of them are employed as herdsmen by sedentaries or nomads. In general, they are paid with 10 percent of the yield provided by the flocks. Among absent proprietors, fixed wages are usual.

During the summer, the nomads are employed as harvesters on self-governing estates or private farms. The flocks they take with them are allowed to graze on the stubble-fields, often against fees illegally exacted by the owners (see I.N.E.A.P., 1979: 80). During the winter, the nomads are attracted by the harvest of dates in the oases of Oued Djedi and Oued Rhir where they are principally occupied with the processing of the crops.

In some regions, the mowing of alfa-grass (*Stipa tenacissima*) on public lands, monopolized by the state for cellulose manufacture, is the main resource of the nomads. The grass is pressed into bales which are corded and piled up for transportation at storage places along the main roads. Southern Tlemcen, some parts of northern Saïda and the northwest of Bou Saïda are the main production areas.

### c) Migrations

Transhumance, performed mainly by train or truck today, is still an essential feature of steppe pastoralism. In 1968, about 138,000 persons with 1,100,000 animals participated in the summer migrations to the Tell-Atlas (*achaba*), being 8 percent of the population and 22 percent of the livestock (M.A.R.A., 1974: 143). The main areas of origin are Laghouat, Djelfa, the Ziban and the Southern Aurès. On the other hand, the main areas of destination are the plateau of Sersou and the highland of Constantine.

Contrary to the past, the motivation of the migrants has changed. The search for pastures has been succeeded by the search for jobs on self-governing estates or private farms for 74 percent of the nomads. It is characteristic that many migrants come from regions with a high demographic pressure and a significant portion of small-scale herders.

The winter migrations into the northern Sahara (*azzaba*) are more important. In 1968, about 144,000 persons with 1,749,000 animals were involved, being 8 percent of the population and 34 percent of the livestock (M.A.R.A., 1974: 156). With respect to the areas of origin, the Sahara-Atlas and the highland of Constantine predominate. On the other hand, the principal zones of arrival are the southern piedmont of the Sahara-Atlas and the Aurès.

In contrast to the summer, the migrations are principally connected with

the search for pasture. Only 21 percent of the sheepholders are looking for jobs, especially during the date-harvest. It should be also mentioned that the proportion of small-scale herders is reduced, due to the scarcity of watering places and means of transportation.

The traditional pattern of transhumance is overlaid by migrations which show the same seasonal rhythm, but in opposite directions. They are principally fed by regions outside of the steppe. On the one hand, the farmers of the Tell-Atlas send their flocks to winter on the steppe under the supervision of hired herdsmen. On the other hand, many nomads of the Sahara drive their animals to the cooler northern highlands during the summer. Thus, the livestock of the steppe increases by an additional 3,394,000 animals each year. The result is an overgrazing of pastures followed by the destruction of the grass cover.

## 2) The impact of the Agrarian Revolution on the steppe

### a) Ownership and exploitation

By means of the Code Pastoral, the Algerian government nationalized the steppe in 1975, creating the conditions for intervention in its exploitation. The first measure was to establish four planning zones which are oriented to the course of the isohyets:

1. The substeppe with annual precipitations between 300 and 400 mm, (zone semi-aride inférieure)
2. The northern steppe with annual precipitations between 200 and 300 mm (zone aride supérieure à influence tellienne)
3. The southern steppe with annual precipitations between 200 and 300 mm (zone aride inférieure à influence saharienne)
4. The subsahara with annual precipitations below 200 mm (région des dhayas aride inférieure)

This classification is important insofar as the maximum areas to be stocked with sheep have been fixed. With respect to a standard flock of 105 animals, it extends over 100 ha in the substeppe, 250 ha in the northern steppe and 400 ha in the southern steppe. The subsahara is reserved as a zone of transhumance (M.A.R.A., 1976: 51).

The communities situated within these limits are the basic units of restructuration. Their grazing areas have been divided into the following categories:

1. pastures exploited by the state-directed cooperatives for stock breeding

exclusively

2. pastures also open to private herders
3. pastures excluded from exploitation in order to be regressed.

This division supposes a control of pastoralism managed by the Communal Public Assemblies in collaboration with the state-directed multipurpose cooperatives for services. The government intends to register the previously autonomous pastoralists, so that they will now possess grazing rights only within their communities of residence.

Nevertheless, the abolition of the social disparities is the main aim of the Agrarian Revolution. According to the principle that the means of production should belong to those who directly use them, absent pastoralists would lose grazing rights. Moreover, the partial expropriation of all those herders is intended whose size of flocks exceeds the limits fixed by the government. In general, the maximum is 280 sheep and 18 rams per head of household, but it can be raised to 150 percent of the stock, depending on the number of children (M.A.R.A., 1976: 52).

The intended expropriations, however, failed due to the fact that the large-scale herders blocked the execution of the regulations, especially within the Communal Public Assemblies dominated by them. Many nomads also moved to the adjacent countries, sold part of their flocks or transferred them to relatives after the measures had become known.

Although the annulment of debts and the introduction of a minimum wage have been decreed by the government, the economic and social situation of the small-scale herders has not essentially changed. Most of them are furthermore forced to accept low-paid jobs offered by private farms, self-governing estates or cooperatives. At most, the abolition of the azela seems to have increased the readiness of nomadic pastoralists to emigrate, especially into small towns which have grown rapidly during recent years (see Benachenhou, 1979).

#### b. The rehabilitation of the natural resources

Another aim of the Agrarian Revolution is the intensification of production, which has been impeded by the advanced desertification of the steppe. The inventories of pastures, realized during the last years, show that between 40 and 90 percent of the vegetation cover has been affected. The damage extends from a destruction of the plants down to the roots, e.g. in the northwest of Ain Oussera, to soil erosion with the formation of gullies and dunes, e.g. in the north of Bou Saada. To guard against this, the Code Pastoral prohibits the rooting out of plants. Parts of the degraded areas are fenced in to render the regeneration of pasture possible. Special attention is given to revegetation by planting grass. In Ksar Chellalah (Wilaya of Tiaret), 50,000 ha have been reserved by the Ministry of Agriculture for the purpose of studying the resettlement conditions of typical

steppe plants like alfa-grass (Stipa tenacissima), chih (Artemisia herba alba), Sennagh (Lygeum spartum) and Guetaf (Atriplex halimus).

In order to conserve the intact pastures, the new cooperative ranches have to observe a rotation system. While half of the area is excluded from grazing, the other half is divided into four blocks each of which is to be stocked with sheep for 3 months. At the end of the year the halves are rotated (système australien). Unfortunately, the cooperatives do not observe this system. On the contrary, prohibited pasture areas are used for grazing.

Associated with the laying-out of a green belt following the shape of the Sahara-Atlas, the Hodna Mountains and the Aurès, wind breaks have been planted along main roads and hill slopes to stop desertification. The strips are 1 km long and 50 m wide, separated from each other by fire breaks. They are mainly composed of Aleppo pines, but also of cypresses or juniper-trees. Due to the lack of attention and drought periods, many plantations have decayed.

Water supply plays an important part in the planned intensification of sheep breeding. Although the number of wells was augmented after the War of Independence, there still exists a considerable deficit. The consequence is that about 7 million ha cannot be grazed due to the lack of watering places (M.A.R.A., 1974: 275).

Wells are constructed by drawing on underground water as well as stocks of fossil water layered at different depths. Up to the present, a lot of artesian wells have been bored in the surroundings of the Chott El Hodna, supported by the FAO. Because they are principally employed for the irrigation of fruit and vegetables, their utilization by flocks is limited.

In order to include those parts of the steppe which cannot be stocked with sheep due to the lack of wells, the communities are just about to be equipped with water tanks as well as with vans, tractors and trailers for transportation. Apart from a more flexible supply of the flocks, this method has the advantage that the grass cover surrounding watering places remains unaffected by overgrazing.

During periods of drought, the herders have to buy stock feed from the north of Algeria. To reduce these imports, the growing of greenfodder is planned, using irrigation. For this purpose, the southern slopes of the Tell-Atlas offer possibilities for retaining the few permanent water-courses. The most important example is the reservoir of Oued Ksob in the north of M'Sila with a capacity of 28 million m<sup>3</sup> which will irrigate about 6,000 ha after completion. The risk is, however, that the areas devoted to forage will be taken over for the more lucrative cultivation of fruit and vegetables. To prevent this, the increased exploitation of run-off water is intended. Planning is focussed on the outlets of the oueds (maader) where the temporary watercourses have been dammed up for irrigation purposes since historical times. Apart from the restoration of ancient dams, new constructions (djobs) are provided, e.g. in the Wilaya of Tebessa. These constructions consist of a funnel to collect the water coming down the hill sides, a basin to deposit the gravel and a walled reservoir measuring 26 by 15 m for



irrigation.

c) The establishment of cooperatives

The agro-social transformation of the steppe is closely connected with the setting-up of state-directed cooperatives. The types are different according to the level of development achieved, the setting of objectives, as well as the position within a hierarchic cooperative system.

1. Associations for the improvement of land: These groups have to prepare for productive use of grazing areas which are not fertile enough to support a sufficient number of livestock. During this time, their members are paid from public funds. From the fact that no association was reported in 1983, although the founding of cooperatives was going on, it may be concluded that either this concept of organization was abandoned or that the associations were transformed into cooperatives for stock breeding after a short time. Thus, there are doubts whether the intended improvements have been achieved.

2. Cooperatives for stock breeding within the Agrarian Revolution: Members have received flocks of sheep from the funds of the Agrarian Revolution. The flock sizes are fixed at 100 ewes and 5 rams for each beneficiary. The herders operate collectively. While half of the cooperative members erects the buildings, the other half guards the flocks. By 1982, about 92 cooperatives of this type had been established, 45 of them in the Wilaya of M'Sila. The number of effective cooperatives is reduced, however, since many of these originated from the former associations for the development of breeding and pastoralism (see table 1).

3. Communal multipurpose cooperatives for services: These are composed of the representatives from cooperatives, self-governing estates and private farms. On the one hand, they have to provide their members with credits and working supplies. On the other hand, they serve as collecting points for the storage, refinement and sale of agricultural products. Within the third phase of the Agrarian Revolution, these cooperatives supervise the apportionment of the flocks, create the indispensable infrastructure for herding, distribute the imported forage, and control the stocking of the pastures (see M.A.R.A., 1975, 1976).

An analysis of the development of the cooperatives indicates that the withdrawal of members has been remarkable. Although this withdrawal has not achieved such dimensions as in the agricultural cooperatives for production, it is increasing. Including the herders who left their cooperative as well as those who resigned their candidature or were excluded, the average numbers of members decreased from 11 to 9 in M'Sila, from 27 to 23 in Saida and from 37 to 32 in Tiaret (I.N.E.A.P., 1981: 33). This rate of withdrawal should be attributed not only to low wages, but also to the inadequacy of the attraction of the collective organization promoted by the government. The majority of the cooperative members prefer the individual allotment of sheep without the obligation of being attached to any form of collective organization prescribed from "above".

Because the lower age-groups are mainly involved in migration, the



superannuation of the cooperatives keeps up with the times. Thus the age of their members has risen from 38 to 40 years, being 7 years above the national average of the active population (I.N.E.A.P., 1981: 39). If this trend continues, the necessary replacement of cooperative personnel will be made difficult. There are indications that the exodus is also due to the social heterogeneity of the cooperatives. An analysis of professions of members before they joined the cooperative shows that only 63 percent of the members had been pastoralists previously. Eighteen percent had been helpers, 7 percent had been agricultural and non-agricultural workers, and 5 percent farmers (I.N.E.A.P., 1981: 111). This result suggests that a high proportion of non-pastoralists is involved in conflicts which reinforce the inclination of members to emigrate.

Because the productivity of the flocks could not be stabilized, the accounts of the cooperatives often show a deficit. A survey of the financial situation of five cooperatives in the Wilaya of Tebessa between 1976 and 1979 shows that 3 suffered losses for two years and 2 over the whole period. Apart from the drought periods during these years, it must also be considered that the members are familiar with neither the techniques of market-oriented sheep-breeding nor the methods of modern management.

Because many cooperatives operate with deficits, the average annual income of their members has hardly risen. In 1979, the average annual income was 8,125 Dinars (ca. \$1,625), being below the legally guaranteed minimum wage of 9,600 Dinars (ca. \$1,920) (I.N.E.A.P., 1981: 127; see Benachenhou, 1979). Therefore many cooperative members are looking for outside jobs. Analyzing the spectrum of their resources, 64 percent depend on the advances and bonuses of the cooperative, 27 percent on the yields of their own flocks, and 5 percent on wages from non-agricultural activities.

#### d) Sedentarization

In order to adapt the habitation to the transformed conditions of production, the Code Pastoral also provides for the sedentarization of the nomads (M.A.R.A., 1976: 15). Within this process, the state-directed cooperatives for stock breeding have to promote their social integration. The building of new ranches is a point of crystallization for the settling down of nomadic pastoralists.

The establishment of the cooperatives seems to have positively influenced the process of sedentarization. An analysis of habitation shows that 66 percent of the members lived in tents before joining the cooperative, whereas afterwards only 36 percent preferred to do so. (I.N.E.A.P., 1981: 58, 60). The total number of 1,385 cooperative members in 1980 constitutes only a minority of the nomadic population.

The so-called "socialistic" villages, which have been erected throughout Algeria since 1972, seem to be especially suited to freeing the nomadic pastoralists from their social and cultural isolation. Although at first the future residents participated in the planning and construction of their dwellings, the villages were finally erected by state-directed companies, private firms and the military.

Within the steppe, two basic agro-social types of villages have been established: On the one hand, there are villages open principally to the members of cooperatives for stockbreeding and agricultural production as well as cooperatives dedicated to both activities (villages agro-pastoraux). On the other hand, there are villages reserved for the cooperatives for stock breeding exclusively (villages pastoraux). At present, 8 villages of the latter type have been finished and 8 are under construction in the Wilayate of M'Sila and Tebessa. In general, they include between 100 and 150 dwelling units, showing a uniform style of architecture (see Table 2).

Apart from the expanding Forthassa (Wilaya of Saida), the villages have been only partially occupied. Apparently, more dwelling units have been constructed than were requested by applicants. The nomads prefer the dispersed settlement pattern characteristic of the sedentarization areas. Although the villages offer facilities like electricity and running water, they are not suited to the specific needs of pastoralists. Because the dwelling units have not been provided with stables, the privately held herds (mainly goats) are fenced in outside the villages.

Nevertheless, the reluctance of the pastoralists should also be attributed to the lack of public utilities. Although a mosque, a primary school, and a mayor's office are decreed for each village, there are settlements where this minimum requirement has not been met. An example is set by Ouled Sidi Said, in the south of M'Sila, which does not possess any public utilities, except the building belonging to the two cooperatives and used for sheep breeding.

Moreover, the development of the villages is restricted by the lack of possibilities for employment. Although the active people much outnumber the employed ones, there are scarcely any jobs outside the state-directed cooperatives for stock breeding. Therefore, the government intends to diversify the occupation of the residents by implementing new lines of business, especially tapestry and the keeping of small animals which are being tested in Sidi Brahim, in the north of Bou Saada. Up to the present, the building-up of poultry farms was of major importance.

### 3. Perspectives for future development

Obviously, the aims of the Agrarian Revolution have been only partially achieved. The agrarian policy of the Algerian government has changed in this respect. Since 1981, the decentralization of decisions and the promotion of initiatives within the rural population have been requested. These constitute first steps towards solving the following problems:

1. The expropriation of the large-scale herders and the redistribution of flocks cannot be realized. Existing numbers of stock would not cover the needs of most herders. Only the possibility of creating jobs outside pastoralism, may stop the increased rural exodus. In addition, the state-directed projects of diversification do not seem to have increased employment significantly.

2. The exploitation of the natural resources is restricted by the competing claims

between agriculture and pastoralism as well as between the new cooperative ranches and the nomads. Because the Communal Public Assemblies and the multipurpose cooperatives for services are not able to coordinate the different pastoral activities, the foundation of a High Commissariat for pastoralism (a kind of pastoral police), with residence in Djelfa has been decreed. Although a regulation of herding seems to be necessary, the intervention of a governmental agency in the traditional pattern of transhumance might prevent the gradual integration of the nomads.

3. The state-directed system of cooperatives has proved itself unattractive. The disintegration of cooperatives into family units is an indication that the collective organization is not preferred by the pastoralists. Moreover, it seems to be disadvantageous that the cooperatives are not economically autonomous. The restriction on selling their products to the communal multipurpose cooperatives for services will not strengthen the initiative of cooperative members.

4. The foundation of Socialistic Villages has been halted, and construction continues only on those already in progress. The causes of this cessation are: the unsuccessful transfer of urban concepts to the rural environment as well as the large distances between the villages and the land of the cooperatives. Now, the government intends to promote home-building within the existing settlements and to interest the inhabitants in participation. However, the future location of high-ranking public utilities, e.g. secondary schools or hospitals, still remains unsolved.

#### FOOTNOTES

- <sup>1</sup> I thank the members of the departments for the development of agriculture in M'Sila, Djelfa, Tiaret, Saida and Tebessa for their information. The research was supported by a grant from the German Research Foundation.

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