

Food and Nutrition Security by Mobile Pastoralists in the Mediterranean Region: Challenges of Revitalizing Pastoralists' Heritage

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ABSTRACT/SUMMARY

Mediterranean food systems represent an array of food and nutritional security, which strongly relies on animal proteins and fats. This paper will explore the contributions made by mobile pastoralists to the food and nutritional security in the Mediterranean countries, and their challenges to survive and preserve the heritage of pastoralism.

Evolved as socio-cultural and biocultural diversity heritage, the mobile pastoralism involves transhumance across extreme environments while herding animal flocks for accessing and exchanging products and services, seizing ecosystemic opportunities, and evading animal diseases or other risks. About 26 million km² of land (nearly 25%) worldwide are under managed-grazing systems engaging about 120 million pastoralists/agro-pastoralists worldwide, with about 31 million in southern Mediterranean region. At present, people in the developed world obtain 27% of calories and 56% of protein from animal sources. According to an estimate, livestock products contribute 17% calories and 33% protein globally to the world's diets. FAO data indicate that human-edible protein from livestock is produced much more efficiently where the sector is dominated by pastoralism. This highlights the comparative advantage for livestock production in pastoral systems over intensive industrial livestock production. Sheep and goats provide milk being used as fresh milk, sour milk, yoghurt, ghee, cheese and "Jameed" (Beduin-Jordanian food made from goat milk). Cattle provide milk being consumed fresh or used to produce ghee and sour milk. Camel's milk is consumed fresh and as sour "Qaress". Nevertheless, sustainable livestock production (such as through mobile pastoralism) is able to provide enough animal products for healthy human diets (with high-quality protein), especially when red meat has received health risk alerts. Animal food quality is another important aspect. Evidently, mobile livestock is less affected by animal diseases. Livestock, especially local/native breeds, reared in the open air and fed on natural pastures is more likely to be fit and resistant to diseases. As a result, the meat, milk and other derived products are of high quality, more secure, and healthier. Evidences exist that pasture-fed animal products consistently yield a better nutritional profile: healthier lipidic composition, higher content of polyunsaturated fatty acids (PUFAs) or conjugated linoleic acids (CLAs), or higher Omega 3 content (better Omega 6/ Omega 3 balance), low iodine content, etc.

In Mediterranean ecoregion, pastoralism has played a key role in shaping arid and mountainous landscapes characterized by highly unpredictable rain patterns and high climatic variability. In southern Mediterranean, livestock trade and marketing are also important economic drivers, as the demand for animal protein consumption has grown steadily since the 1960s. In Mediterranean region, small ruminants (sheep, goats) mostly compose the livestock, along with certain proportion of cattle, equines and camels. For example, in Greece, out of 20 dairy-farming products (cheeses) 18 are made of sheep and goat milk. Likewise, meat production in southern Mediterranean increased from 5 million metric ton in 1983 to 15 million metric ton in 2020. Similarly, milk consumption was 223 million metric tonnes higher in 2020 compared to 1993. However, we see stark differences in southern Mediterranean (mostly arid and plateaus landscapes) and northern Mediterranean (mostly highland landscapes) where number of livestock has increased in the former and decreased in the latter. In southern Mediterranean, livestock population (cattle, camels, sheep, goat), especially small ruminants, has got more than doubled in 40 years (from 1967 to 2007) counting from 207.5 million heads to 430.3 million heads. Economic reasons, human population growth, oil wealth, advancing urban life, policy favours, subsidies, and higher per capita consumption are certain reasons behind this scramble. On the contrary, northern Mediterranean countries, such as Greece, Spain, Italy, France, etc. witness a decline in population of sheep and goats. For example, sheep in Italy decreased from 1.1293 million heads in 1985 to 0.7285 million heads in 2016. But the average sheep farm size has increased between 1990 and 2020, which means intensification process has gained momentum under various complex reasons including EU's Common Agriculture Policy. Scientific research indicates that when industrial livestock production has increased by 4.3%, mixed farming and extensive livestock grazing have increased 2.2% and 0.7%, respectively, reflecting that the preference is given to the openly grazed animals for meat consumption.

The Mediterranean region has pastoralism with embedded local cultures and landscapes – mountains, drylands, coastal basins. Mobile pastoralism, as a major traditional cultural practice in the Mediterranean, is dating as far back as 10,000 years. It is a unique example of a mosaic of biological and cultural components evolved over centuries. This innate interaction has shaped traditional Mediterranean landscapes and produced innumerable cultural manifestations, such as traditional farmhouses, huts, watering points, cultivated terraces, bridges, stone walls, hermitages and monasteries. Countless rural architectural features form part of a material heritage having a physical expression of ancient relationship between nature and humankind. The creation and maintenance of local animal breeds is classical way in which their practice contributes to maintaining cultural heritage. Therefore, immaterial heritage of pastoralism in the region is exceptional having countless manifestations of folklore, local agroecosystems, traditional ecological knowledge, cultural practices, art, traditional celebrations, gastronomy, poetry, etc. Despite massive contributions to regional economics and Mediterranean diets, the heritage of pastoralism is under pressure and threat from a number of challenges. Inherently, pastoralism is a ‘slow response’ system; the reproductive cycle of livestock is not adapted to making major changes over a short period. For example, if the price of dairy products falls dramatically, a herd cannot be suddenly switched into meat production. The challenges of eroding commons, fragmenting rangelands, State enclosures, tenurial uncertainties, shifting occupations, climate change, erring policies, restrictive regulations, globalized market systems, inter-community conflicts and militarization will be discussed.