



GOLESTĀN PROVINCE

Three natural zones may be distinguished in Golestān Province: the aquatic zone, wetlands, and the landmass.

The Aquatic zone. This zone includes the Caspian Sea, the rivers, and the dams. The Caspian Sea leaves its particular climatic and geomorphological effects on its shorelines. The topographic changes are primarily caused by the currents, produced by the river Volga, and the difference of temperature and salinity of its water with the Caspian Sea. The currents start in the north and move in an anti-clockwise direction, resulting in the easterly orientation of the capes. In the north of the Bay of Gorgān, the currents move in a northwest direction. Between 1953 and 1965, the total discharge of waters flowing into the Caspian Sea had fluctuated by 232 millimeters and the total sea level evaporation had fluctuated by 234 millimeters (Kamālzāda, p. 183).

The principal rivers of this province are Gorgānrud, Qarasu, and Atrak. Gorgānrud begins its course on the upper slopes of the Alborz Mountains and Khorasan highlands and follows a southerly direction as far as the south of the city of Āq qal'a, where it veers to the west. It is one of the most important rivers of the province. Its water basin covers an area of some 10,250 km² and is about 350 km long. Many rivers flow into this river, including the river Ḥājilar, which is itself formed by the rivers Čhelčāy and Narmāb. Ḥājilar River irrigates Minu-dašt valley before joining the Gorgānrud. There are many other tributaries, including the rivers Owgān, Karkar, Nowdeh, Sārisu and several smaller streams. This area is one of the most fertile regions of the province, where many crops, and most notably cotton, are produced. The



source of the Qarasu River is near the peak of Mārān range; it follows an east-west direction and flows into the Caspian Sea between Bandar-e Gaz and Bandar-e Torkaman. It is 160 km long and is joined along its course by the minor rivers Zarrinkal, Kafšgiri, Bālājādda, Māyān, Čaqar, Širdārān, Zilān, Kōlāšarud, Nowčaman, Šuriān, Zavārdašt, and Čerdeli.

The river Atrak rises from the mountains north of Qu-čān, following an east-west direction. It is about 545 km long and an irrigation canal carries its water 40 km away. This river constitutes part of the border between Persia and Turkmenistan and is also joined by a number of minor tributaries (Sāzmān-e barnāma, p. 15).

The principal dams of the province are: The Gorgān Dam, situated 60 km northeast of Gorgān City, with a capacity of 100 million cubic meters and the Kowtar Dam, situated 13 km southeast of Gorgān City, with a capacity of 7.5 million cubic meters. There are several other dams under construction, including the Pol Dam on the river Atrak.

The Wetlands. The reason why the wetlands have been distinguished from the aquatic zone is because of their geographical specificity. One of the most important wetlands of the Caspian Sea is the Bay of Gorgān, which serves as a spawning ground, especially for the sturgeon. This bay is in the shape of a triangle with its cone pointing to the west and its base to the east. It is some 60 km long and 12 km wide at its maximum width between Bandar-e Gaz and the islands of Ašurāda and has an area of 350-400 km². It used to serve as an anchorage when the sea level was high (Kayhān, *Joğrāfiā* II, p. 282). The bay floor is muddy in the east, south and southwest and sandy and gravelly in the north. There are a number of smaller marshlands along the coastline created by a certain slope of the sand dunes holding back the course of rivers. Together with the narrow coastline, these marshlands have created ecosystems of their own for the migrating birds (Markaz-e moṭāla'āt wa taḥqiqāt, pp. 30-31, 33).

The Landmass. The landmass constitutes the bulk of the province's physical features and covers various ecological conditions, including coastlines, plains, mountain slopes, pastures and grasslands, and forests and mountainous regions, each with its specific environmental characteristics.

The major part of the plains and the mountainsides of this province are parts of the same geological formation as the Gorgān-Rašt zone, which runs along



the north of the Alborz fault, extending from Gorgān to Lāhijān. Its eastern section is covered by thick layers of loess. The steppes of Gorgān and Gonbad emerged out of water in the first age of the fourth Pliocene period and share generally the same climatic characteristics. Rivers are steep and tend to turn into torrents in the highlands, which have moved rocks and there is much erosion. Consequently, river beds are covered by rocks brought down from the mountains (Darvišzāda, pp. 253, 1350, 1370).

The Gorgān and Gonbad plain, which extends from the Bay of Gorgān and continues eastward, ends up in the salt marshes and deserts in the north. This plain is dry and arid in the north, with little potential for cultivation. There are many pastures, however, used by migrating cattlemen. The southern part is semi-dry, fertile, gently sloping, fed by rivers, and has the highest population density in the province (for detail see Gorgān Plain, 2. below).

The eastern and southern parts of the province are mountainous. The mountain ranges are in a parallel formation, stretching in an east-west direction, forming the eastern wing of the Alborz mountains. They include Hezār Jerib, Rostāq and Firuzkuh mountains, the first two joining the mountains of Ālādāq, Binālud, and Hezār Masjed of Khorasan at Hezār Jerib. The most important mountains are Šāhkuh, Siāhmarzkuh, Čāhbid and Kuh-e Kord, and their most important peaks are Čālu'i (altitude 3,750 m), Šamširbor wa Qezleq (altitude 2,850 m), Kuh-e Kord (altitude 2819 m), and Gazdāq (altitude 2,802m; Sāzmān-e barnāma, p. 2). The Alborz centerline in the south marks the boundary of Golestān with the province of Semnān and a part of the Gazdāq Mountain centerline north of Gonbad marks the Persian frontier with Turkmenistan.

The piedmonts have an altitude of 100 to 500 meters and are mostly used as winter quarters by mountain cattlemen. There are no urban concentrations in these regions, the Caspian climate gradually loses its impact and the rivers become seasonal; even such important rivers as the Atrak and the Qarasu are much reduced in volume during the summer (Markaz-e moṭāla'āt wa taḥqiqāt, p. 107).

Out of a total of 1.5 million hectares of forest in Māzadarān and Golestān, some 420 thousand hectares are in Golestān, covering its southern and southeastern parts, as well as part of the Gorgān plains (Dašt-e Gorgān), extending from Galugāh in the west to Golidāq in the east (Sāzmān-e barnāma, p. 18; *Kayhān, Joḡrāfiā* III, p. 126).



Pastures cover some 1.3 million hectares and are located in the four main water basins: (a) The Atrak basin, covering the pastures of Morāva Tappa, Dašliborun, Āq Qal'a and Gomišān; (b) the Gorgānrud basin, covering sections of Kalāla, Gālikaš and Āq Qal'a; (c) the Qarasu basin, covering central Gorgān and parts of Āq Qal'a; and (d) summer pastures, covering parts of central Gorgān, Kordkuy and Bandar-e Gaz.

Wheat, barley, rice, cereals, industrial raw material, kitchen garden products, vegetables and fodder constitute the main agricultural products of Golestān Province, the importance of each of which, as percentage of the area under cultivation, is as follows: wheat 33%, industrial raw material (cotton, and oil seeds) 23%, barley 20%, cereals 10%, vegetables 6%, rice 5%, kitchen garden products 2.2% and fodder 10% (which exceed 100%, because some products, such as cereals, vegetables and kitchen garden products are harvested more than once during the year). In 1998, the area under cultivation for wheat reached some 222 thousand hectares (Sāzmān barnāma wa budja, p. 388).

Climate. Four climatic regions can be distinguished in this province, as related to four main geographic areas (as shown in the map of the province), with the following characteristics: the desert area covering much of the northern part of the province with cold winters and warm and dry summers; the western part of the Gorgān Plain (the area extended from Gorgān to Bandar-e Gaz, Bandar-e Torkaman, Kordkuy, 'Aliābād, and Minu-dašt) with cool and relatively cold winters and hot and humid summers. The central and eastern part of the Gorgān Plain with relatively cold winters and warm and humid summers (much of the inhabited area of the sub-provinces of Āq Qal'a and Gonbad-e Qābus); and southern and southeastern mountainous areas with very cold winters and semi-warm and dry summers.

Soil conditions. The soil is generally saline, alkaline, marshy, and brown. A layer of fine desert loess carried by the winds is found around Gorgān and Gonbad-e Qābus. A large part of the province may be considered as an earthquake zone and potentially vulnerable. During the 20th century, there were two earthquakes in the region. The first occurred in 1917 with a magnitude of 5.3 on the Richter scale while the second occurred in 1944 with a magnitude of 5.2.



BIBLIOGRAPHY

- Aḥmad Barimāni, *Daryā-ye Māzandarān*, Tehran, 1355 Š./1976.
- Mānuel Berberian, *Naqša-ye sismotektonik-e Irān*, Tehran, 1355 Š./1976.
- Masiḥ Ḍabiḥi, *Esterābād-nāma*, Tehran, 1365 Š./1986.
- Masiḥ Ḍabiḥi and Manučehr Sotuda, *Az Āstārā tā Estārbād VI*, Tehran, 1354 Š./1975.
- ‘Ali Darvišzāda, *Zamin-šenāsi-e Irān*, Tehran, 1364 Š./1985.
- Jamšid ‘Eywaži, *Joḡrāfiā-ye āb*, Tehran, 1366 Š./1987.
- Jamšid Farhiḳta, *Sistemhā-ye ṭabaqa-bandi-e eqlimi*, Tehran, 1366 Š./1987.
- Markaz-e moṭāla‘āt wa taḥqiqāt-e šahr-sāzi wa me‘māri-e Irān, *Ṭarḥ-e manṭaqa‘i-e Gilān o Māzandarān: moṭāla‘āt-e joḡrāfiā‘i wa moḥiṭi*, Tehran, 1368 Š./1989.
- Mohandesin-e mošāwer-e tarḥ o me‘māri, *Ṭarḥ-e jāme‘-e šāhrestān-e Gonbad-e Kāvus I*, Tehran, 1375 Š./1996.
- Idem, *Ṭarḥ-e jāme‘-e šāhrestān-e Gorgān I*, Tehran, 1375 Š./1996.
- Sāzmān barnāma wa budja/Plan and Budget Organization, *Āmār-nāma-ye sāl-e 1377-e ostān-e Golestān*, Tehran, 1378 Š./1999.