

COUNTRY PROFILE



PAKISTAN



Geography

Pakistan is a South Asian country with a total area of 796,000 Sq. Km. It is bordered by India to the east, Afghanistan to the west, Iran to the southwest, and China to the northeast. The coastline of the Arabian Sea and the Gulf of Oman forms its southern border. It ranks 34th among the largest countries of the world in terms of its total area and accounts for 0.5% of the total landmass of the world¹. The geographical coordinates of Pakistan are: 30.3753°N and 69.3451°E. Ranging from the coastal areas of the south to the lofty mountains of the north, Pakistan's landscape varies from plains to deserts, forests, hills, and plateaus.

Population and land use

The total population of Pakistan was estimated as 229 Million in 2022 as per the estimates and projections of Trading Economics², out of which rural population constitutes 62.84%³. The livelihood of rural population is mainly on agriculture which is dependent mainly on irrigation. Pakistan ranks fifth among the most populous countries of the world⁴. The density of the population of Pakistan is more than 287 inhabitants per Sq.Km⁵. Out of the total area of Pakistan, 34.85 Mha is the agricultural area and the forest area accounts for 3.92 Mha⁶.

Climate and rainfall

The climate varies from tropical to temperate, with arid conditions in the coastal south. June is the hottest month on the plains and July in the mountainous areas, with mean monthly maximum temperature over 38°C, while the mean monthly minimum is only 2.5°C in January⁷. There are four distinct seasons in Pakistan: a chilly, dry winter from December through February; a hot, dry

Geo. Area (MKm²)
0.796



Population (M)
229.00 (2022)

Average rainfall (mm)
242.3 (2021)



Arable Area (Mha)
30.93 (2019-20)

Irrigated Area (Mha)
19.34 (2019-20)



Drained Area (Mha)
7.86 (2015)

spring from March through May; the summer rainy season from June through September; and the retreating monsoon period of October and November. The average annual precipitation is around 242.3 mm but is unevenly distributed; It ranges from less than 100 mm in parts of the Lower Indus Plain to over 544.9 mm near the foothills in the Upper Indus Plain⁸. During Monsoon (July - Sep) Season 2021, close to average rainfall was recorded on whole country. The seasonal rainfall was close to average over KP & Balochistan, above normal over GB, whereas below average over AJ&K, Punjab & Sindh⁹.

¹ <https://www.worldometers.info/geography/largest-countries-in-the-world/>

² <https://www.worldometers.info/world-population/pakistan-population/>

³ <https://tradingeconomics.com/pakistan/rural-population-percent-of-total-population-wb-data.html>

⁴ <https://www.worldometers.info/world-population/pakistan-population/>

⁵ <https://www.worldometers.info/world-population/pakistan-population/>

⁶ https://www.pbs.gov.pk/sites/default/files/tables/agriculture_statistics/table_3_land_utilization_statistics.pdf

⁷ <https://www.weather-atlas.com/en/pakistan/islamabad#about>

⁸ http://www.pmd.gov.pk/cdpc/Pakistan_Climate_2021.pdf

⁹ http://www.pmd.gov.pk/cdpc/MS2021/monsoon2021rainfall_update.htm



Food and agriculture

The agriculture sector directly supports the country's population and accounts for 24% of gross domestic product (GDP) and employs about half of the labor force¹⁰. As per Pakistan's Bureau of Statics (land utilization statics 2019-20)¹¹, total geographical area of Pakistan is 79.61 Mha, of which 58.03 Mha falls under total reported area which is a sum of forest area, cultivated waste lands, uncultivable area and the area under cultivation. Punjab and Sindh are the two provinces in which the real agricultural wealth of Pakistan lies. These areas fall in the Indus Basin. Pakistan has agricultural land potential of about 34.85 Mha which constitutes about 59.77% of the total reported area. The total cropped area, whether irrigated or rainfed, constitutes 24.16 Mha. Forests occupy 3.84Mha and culturable waste area is 8.19 Mha. The major crops include wheat, rice, chickpea, apricot, sugarcane, date palm, kinnow, mandarin oranges, mango, onion, and other fruits and vegetables. The total cultivated area in Pakistan is 22.74 Mha.

Irrigation and drainage

In Pakistan, basin, furrow, and border irrigation methods are traditionally practiced. The basin method is most common. Due to higher yield of application efficiency, the drip, bubbler and sprinkler irrigation methods have been introduced in Balochistan under international support programmes, but being expensive, they have not been adopted yet by the private sector. The irrigated land supplies more than 90% of agricultural production, and 70% of all import earnings are derived from



agriculture. About 95% of the country's water resources are used by agriculture. The total cropped area in the country is 24.16 Mha which also includes area sown more than once. The present irrigation system comprises three (03) storages reservoirs, 21 barrages/headworks, 12 inter-river long canals, 2 major syphons and 45 main canals. The total length of main canals, link canals, branches and distributaries etc. is about 56,360 Km. The system has about 107,000 outlets and length of farm channels and water courses is about 1.61 MKm. Overall irrigation efficiency ranges from 35% to 40%.

Water Resources Management

The flows of Indus rivers system constitute the major surface water resources of Pakistan. The river flows are heavily dependent on glacial melt (41%), snowmelt (22%) and rainfall (27%). Pakistan is mainly dependent on the three western rivers of the Indus (including Kabul, Jhelum and Chenab). Post-Tarbela (1976-2008) flows (Indus at Kalabagh, Jhelum at Mangla and Chenab at Marala) were 130 MAF. Pakistan is extracting more than 49.80 MAF from the aquifers annually. The private tubewells account for withdrawal of 42.20 MAF and public tubewells account for 7.60 MAF¹². The Indus basin covers more than 520,000 Sq.Km. or 65% of the territory. The Indus River has two main tributaries, the Kabul on the right bank and the Panjnad on the left bank. The flow of the Panjnad results from five main rivers: the Jhelum, Chenab, Ravi, Beas, and Sutlej. The Hub, Porali, Hingol, and Dasht are the principal rivers in the coastal zone.

Water policies

Taking cognizance of issues of the water sector, Federal Government approved the first ever National Water Policy of Pakistan on 24th April 2018 to take stock of emerging water crisis and provide an overall policy framework and guidelines for a comprehensive plan of action. Side by side other landmark event was signing of the Pakistan Water Charter by the Federal Government and all the four provinces pledged to work together for National Water Security irrespective of political affiliations.

The Indus Water Treaty between India and Pakistan was effected in 1960. Pakistan made massive investments in the Indus Basin

Project during the 1960s to construct a network of canals and barrages to divert water from the western rivers to the command of the eastern rivers as replacement works. As per the Indus Water Treaty, the flow of the three western rivers of the Indus basin the Indus, Jhelum, and Chenab is assigned mainly to Pakistan after its independence from India. After the 1960 treaty, the Pakistan Water and Power Development Authority built several canals and barrages to divert water from its western rivers to areas in the east. The biggest of those canals are the Chashma-Jhelum link joining the Indus River with the Jhelum River. The water supplies by Irrigation Department are fixed according to time schedule, irrespective of actual needs of the end users, while technical advice rendered by Agriculture Department is general in nature without accounting factual water supplies through canals and other causes. The major issues for sustainability of water resources identified in Pakistan are equity in water distribution, O&M and cost recovery, environmental degradation, coordination between irrigation and agriculture departments, and water delivery efficiencies.

ICID and National Committee

Pakistan joined ICID in the year 1953 and formed its national committee - PANCID. Pakistan hosted the 37th IEC meeting in Lahore in October 1986 and 5th International Drainage Workshop also in Lahore in February 1992. The 59th IEC Meeting and the 20th Congress was held again in Lahore in October 2008. Mr. M.A. Hamid (1961-64), Late Ch. Altaf Hussain (1981-1984), Mr. Shams ul Mulk (1989-1992), Mr. Khalid Mohtadullah (1995-1998), Dr. Illahi B. Shaikh (2007-2010), Engr. Husnain Ahmad (2010-2013) and Mr. Waseem Nazir (2016 - 2019) from the Pakistan National Committee have been the past Vice Presidents of ICID. Mr. Ahmed Kamal is currently the Chairman of PANCID and can be contacted at chairman@ffc.gov.pk

Prepared by: PANCID Secretariat.

¹⁰ <https://www.pbs.gov.pk/content/agriculture-statistics>:

¹¹ https://www.pbs.gov.pk/sites/default/files/tables/agriculture_statistics/table_3_land_utilization_statistics.pdf

¹² https://www.pbs.gov.pk/sites/default/files/tables/agriculture_statistics/table_9_over_all_water_availability.pdf