

Piura region at a glance

Overview: The Piura region covers 35,892 sq. km. It is an ecologically diverse region containing Peru's largest desert as well as small valleys with tropical microclimates. It is Peru's second most densely populated region and is faced with serious natural resource challenges due to its aridity, population density, and reliance on irrigated agriculture.

Geographic and climatic features: Located in northwest Perú at 6°22' S, 81°19' W, the Piura region is characterized by a low-lying, hyper-arid coastal plain which constitutes 70% of the total land area within the region and is typified by a tropical dry climate (1). In the western extent of the region lies semi-arid sierra and páramos which are endemic neotropical alpine ecosystems (2). Piura experiences monsoons from December to April and is heavily impacted by ENSO.

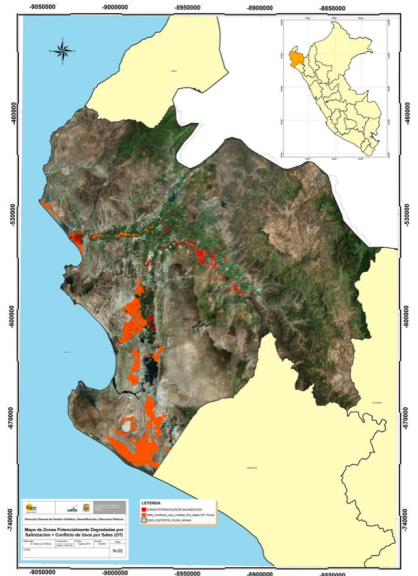
Hydrologic features: The Piura region includes two river basins: the Piura and Chira. The Piura river runs for 280 km and drains to a watershed of approximately 12,000 km. The Chira river runs for 300 km and drains to a watershed of approximately 19,000 km. Both the Chira and Piura rivers are fed by upstream, alpine páramo ecosystems which provide essential water storage and moderate downstream flows (2). Páramos provide a sustained base flow in the Chira and Piura rivers, but are sensitive to degradation from overgrazing, *pinus* afforestation and agricultural intensification leading to reduced water quality and quantity (3). Downstream communities in the hyper-arid lowlands and semi-arid sierra are reliant on water from the páramos for irrigation, domestic use and industrial use. There are 1448 operative wells in Piura (5). Export-oriented agricultural producers in the arid lowlands supplement water resources with groundwater.



Image source: Juárez et al. 2006

Socioeconomic features: An estimated 1,676,315 people live in Piura Region. 40% of the residents of Piura live in the provincial capital of Piura. The population is predominantly urban (74% in 2007) (6). Poverty in recent years has steeply declined from 60.7% in 2004 to 42.4% in 2011 though poverty is far more prevalent in the eastern highland provinces. The province of Huancabamba in southeastern Piura has a poverty rate of 75.5% (7). The sectors of forestry, hunting, livestock and agriculture employ 30% of the population (8). Highland communities are generally involved in subsistence agriculture. Coastal areas, which are home to 82% of the population (1) are typified by extensive exported-oriented, irrigated plantations growing primarily rice, mangos, corn, forage and sugar (5). Nearly 95% of surface water is used for irrigation within Piura (4).

Institutional Features: Peru is in the midst of a significant transition in their water resource management framework. The 2009 Water Resources law created the National Water Authority (ANA), 14 administrative authorities of water and regional River Basin Councils. The ANA, which is the overseeing body, is tasked with reshaping the centralized, irrigation focused water management system into a river basin focused integrated water resource management framework (9). The ANA, which is housed within the Ministry of Agriculture, is currently in the process of drafting a National Water Resources Plan which will serve as a guiding document for water resource management nationally. Despite these recent changes in water resource management, there remains a legacy of hydraulic infrastructure which privileges coastal communities and disproportionately allocates in favor of irrigation (10).



Land Degradation in Piura

Source of image: Willems 2014.

Current challenges:

- **Land Degradation:** Following the neoliberalization of the Peruvian agricultural sector in the 1990s, there has been an explosion of export-oriented, irrigated agriculture in the arid lowlands. Increasing water scarcity, coupled with agricultural intensification, has resulted in Piura's designation as one of Peru's two desertification "hot spots" by the United Nations Convention to Combat Desertification (11). This land degradation has already led cultivators to shift agriculture and pasture to higher altitudes for more secure water resources. Between 2000-2014, 19,842 hectares in Piura were degraded (1). The leading causes of degradation are overgrazing by goats, burning of vegetation, and excessive irrigation on land with poor drainage particularly in rice paddies (12).
- **Conflict with Extractive Industries:** There has been significant social conflict between communities and extractive industries within both the highlands and lowlands of Piura. These tensions have recently resulted in protests and riots within Huancabamba where local communities have been in strong opposition to the development of a mine by Río Blanco (13). Aquaculturalists in coastal Sechura province have recently begun actions against nearby gas exploration operations for contaminating shared water resources. Also within Sechura, there have been protests against a proposed reservoir that a mining operation plans to construct, which would impact nearby irrigation districts (14).
- **Water Scarcity:** Increasing population growth within lowland communities, continued expansion of downstream export-oriented plantations, and declining upstream water resources due to climate change and overgrazing impacts on páramos (2) has led to increased stress on and competition for water resources within the region.

Footnotes: (1) Willems, 2014 (2) Buytaert et al. 2006 (3) Buytaert et al. 2007 (4) Instituto Nacional de Estadística e Informática 2012 (5) Censo Nacional Agropecuario 2012 (6) Censo Nacional 2007 (7) Ministerio de Economía y Finanzas 2012 (8) Censo de Población y Vivienda 2007 (9) Autoridad Nacional de Agua (2013) (10) Alegria 2006 (11) UNCCD 2014 (12) Morales et al. 2013 (13) Kirsch 2014 (14) La República 2014

For Full References see: <http://aquasec.org>

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