

## PERU



Source: esri

### General

Peru - officially the Republic of Peru - is bordered in the North by Ecuador and Colombia, in the East by Brazil, in the Southeast by Bolivia, in the South by Chile and in the West by the Pacific Ocean. Peru has an area of 129 Mha (million hectares) with, in 2022, a population of 34.0 million, or 0.26 persons per ha (Wikipedia and United Nations, 2022).

### Climate and geography

The combination of tropical latitude, mountain ranges, topography variations and two ocean currents (Humboldt and El Niño) gives Peru a large diversity of climates. The coastal region has moderate temperatures, low precipitation and high humidity, except for its warmer, wetter northern reaches. The Peruvian Amazon is characterized by heavy rainfall and high temperatures, except for its southernmost part, which has cold winters and seasonal rainfall (source: Wikipedia).

Peru is an extremely biodiverse country with habitats ranging from the arid plains of the Pacific coastal region in the West to the peaks of the Andes mountains vertically extending from the North to the Southeast of the country to the tropical Amazon Basin rainforest in the East with the Amazon River.

### Existing polders

The Group Polder Development (1982) stated that small polders can be found in the Tumbes area in the North. In addition a polder at Canete was under construction. At Google Earth it can be observed that there are indeed polder type landscapes in this area.

Oosterbaan (2008) has studied the drainage needs for the Hualmey Drainage Project. For Subarea IV (about 25 ha) he found that it is partly cultivated, and that there are signs of previous, but abandoned, efforts to grow crops. This shows that landowners have an interest in agriculture. Drainage by wells was not advisable as the area is close to the sea, and the groundwater is salty. Instead he recommended that if Subarea IV would be reclaimed, to excavate a number of open field drains that discharge into the existing central drain. The field drains would need to be approximately 1.5 m deep with gentle side slopes and spaced at about 50 m. The central drain would have to be equipped with a pumping station to discharge the drainage water into the Hualmey River. Measures would have to be taken to guarantee the operation and maintenance of the pumping station. The landowners would require assistance with the acquisition of additional irrigation water and other agricultural inputs, as well as with the maintenance of the drains. His recommendation implied that a polder would be created. At Google Earth it can be observed that there are indeed polder type landscapes in this area.

General characteristics of the polders in Peru are shown in Table I.

### Proposed polders

The Group Polder Development (1982) mentions that a number of studies have been made into the development of the Amazon area in the north-eastern part of Peru. In this area there is in principle a potential for impoldering. They state that there were impoldering activities on-going at a very limited scale.

### Location of the polders in Peru as shown on the World polder map

The locations of the polders in Peru are shown in Figure 1.



Figure 1. Locations of the polders in Peru (source: esri – Batavialand)

## References

- Group Polder Development, Department of Civil Engineering, Delft University of Technology, 1982. *Polders of the World. Compendium of polder projects*. Delft, the Netherlands.
- Oosterbaan, R., 2008. *Huarmey Drainage Project, conceptual phase*. Consultancy report to Ground Water International. Lima, Peru.
- United Nations, Department of Economic and Social Affairs, Population Division. 2022. *World population prospects, medium prognosis. The 2022 revision*. New York, USA.

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Table I. General characteristics of existing polders in Peru

Name	Reclamation	Area in ha	Type *)	Latitudes	Longitudes	Elevation in m+MSL	Land use
<i>Existing polders</i>							
Polders in Tumbes area			RLL	3° 34' S	80° 29' W	5	Agriculture
Polder at Cenete			RLL	12° 46' S	76° 35' W	20	Agriculture
Subarea IV of the Hualmey Drainage Project		25	RLL	10° 05' S	78° 09' W	9	Agriculture
Sub-total		25					
<i>Recommended polder</i>							
Amazon area							
Total		25					

\*) RLL = reclaimed low-lying land; LGS = land gained on the sea; DL = drained lake