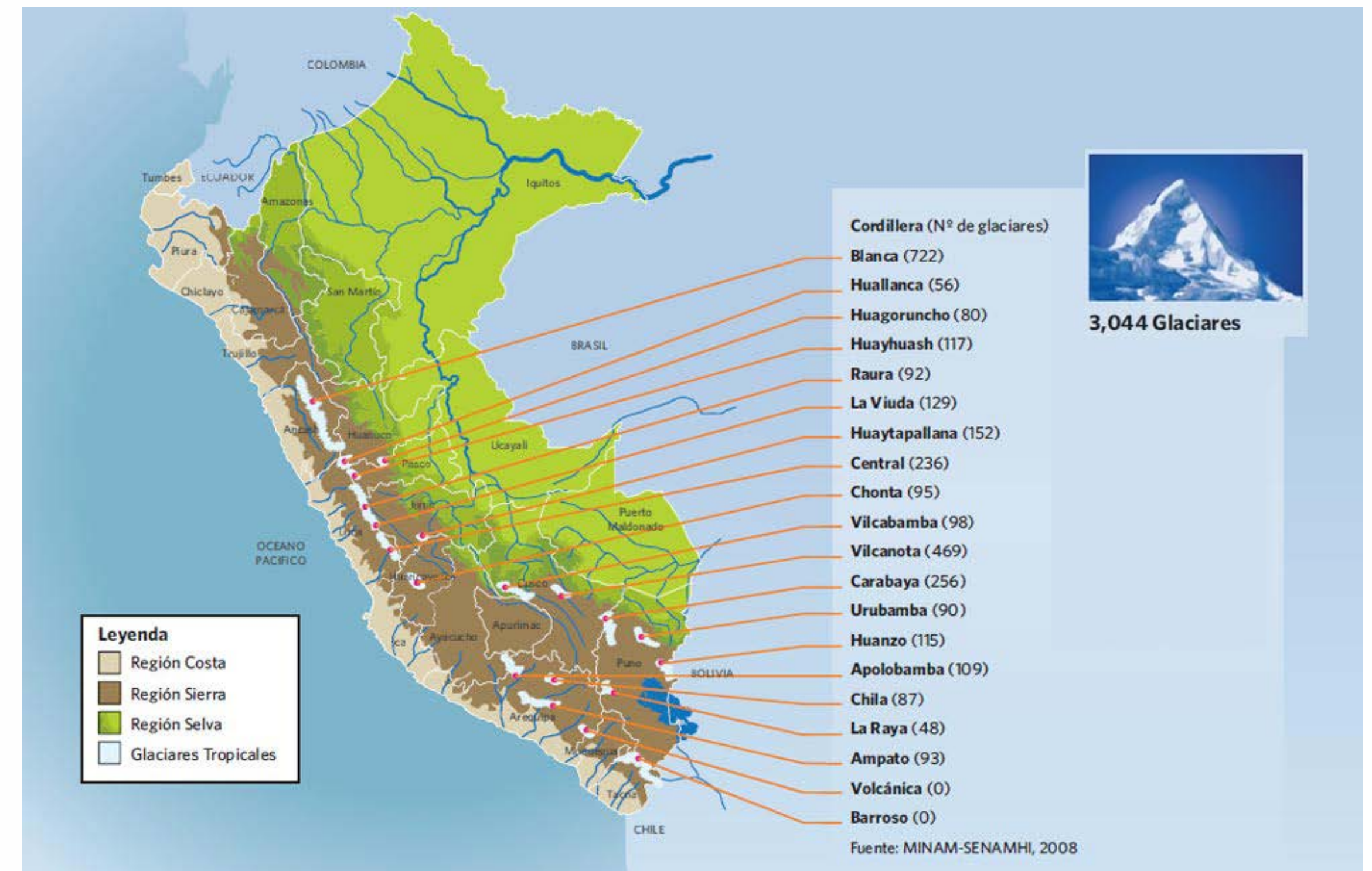


A high-altitude mountain landscape featuring jagged, snow-capped peaks under a blue sky with scattered white clouds. In the foreground, a large, vibrant turquoise lake is nestled in a rocky, brownish-grey valley. Several smaller, similar lakes are visible further up the slopes and in the distance. The overall scene conveys a sense of a cold, high-altitude environment.

DEGLACIATION: A NATIONAL PERSPECTIVE

Tropical Andean glaciers

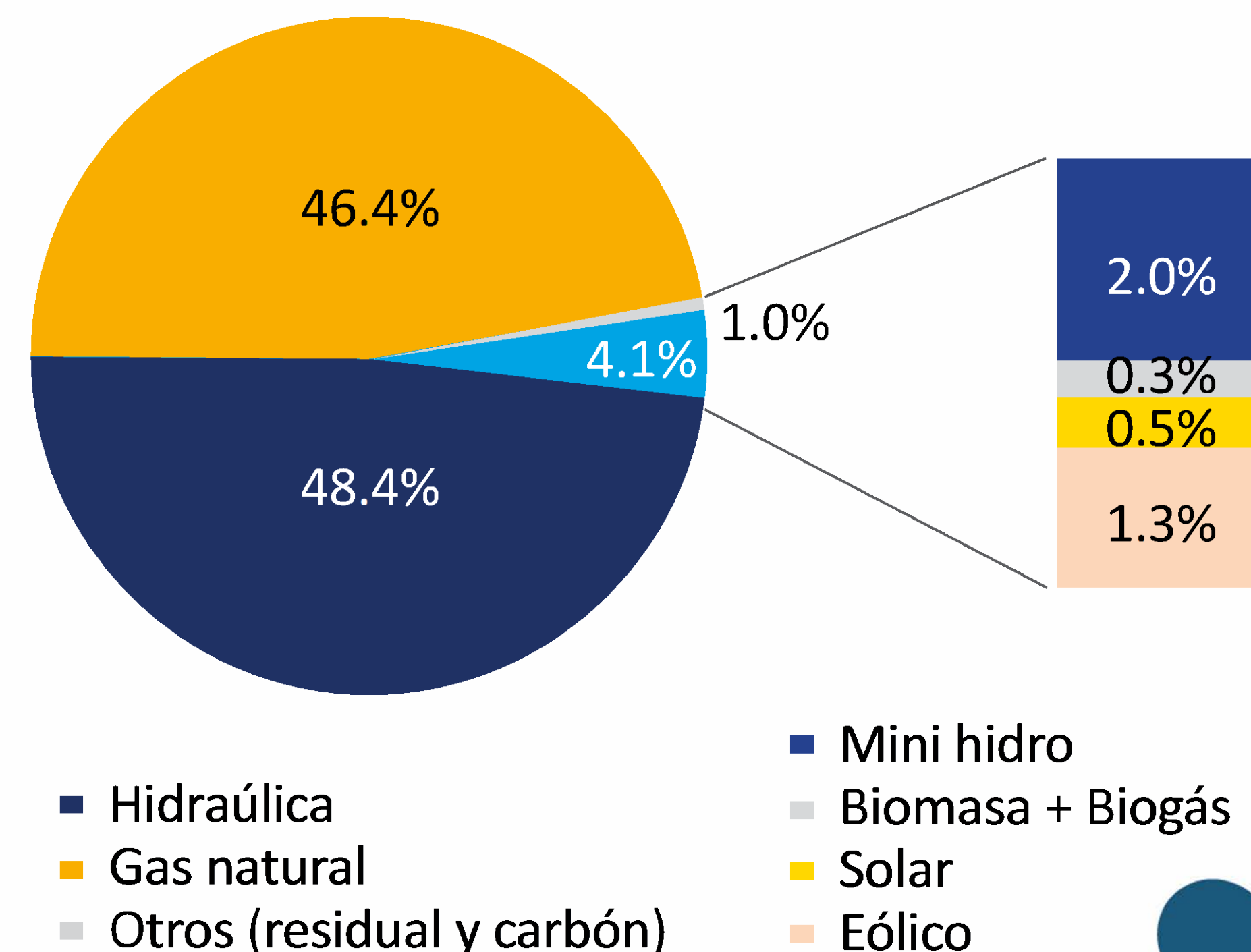
- The Andes are home of 99% of the world's tropical glaciers.
- The largest fraction, 71%, is located in Peru.
- Peru's glaciers are concentrated mainly in the Cordillera Blanca.
- Glacial runoff provides water for drinking, agriculture, hydroelectricity and industry.



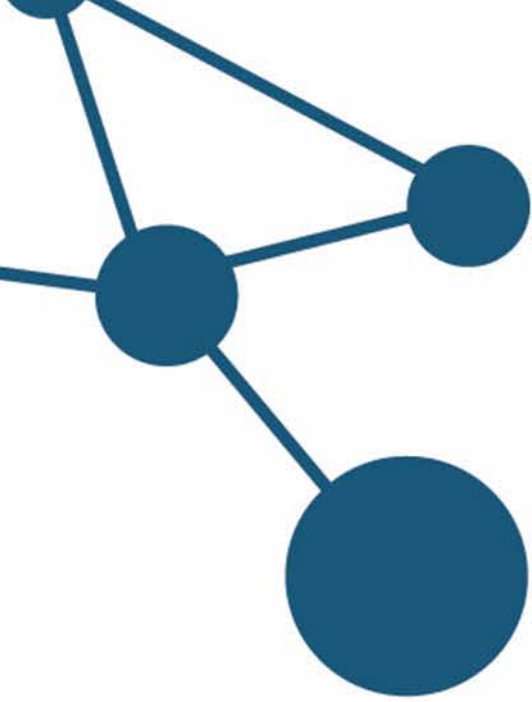
Source: MINAM

Importance of Peruvian glaciers

- Source of water for the Andes during dry season.
- Source of water for the coast, characterized by a desert climate and low rainfall.
- Source of energy provided from hydroelectric power reliant on glacial runoff water.



Fuente: COES. Elaboración: GPAE - Osinergmin.



Current state of Peruvian glaciers

Glaciar Broggi – CORDILLERA BLANCA - 4860 m.s.n.m. (1932 -2003)



Glaciar Yanamarey – CORDILLERA BLANCA - 4890 m.s.n.m. (1982 -2005)

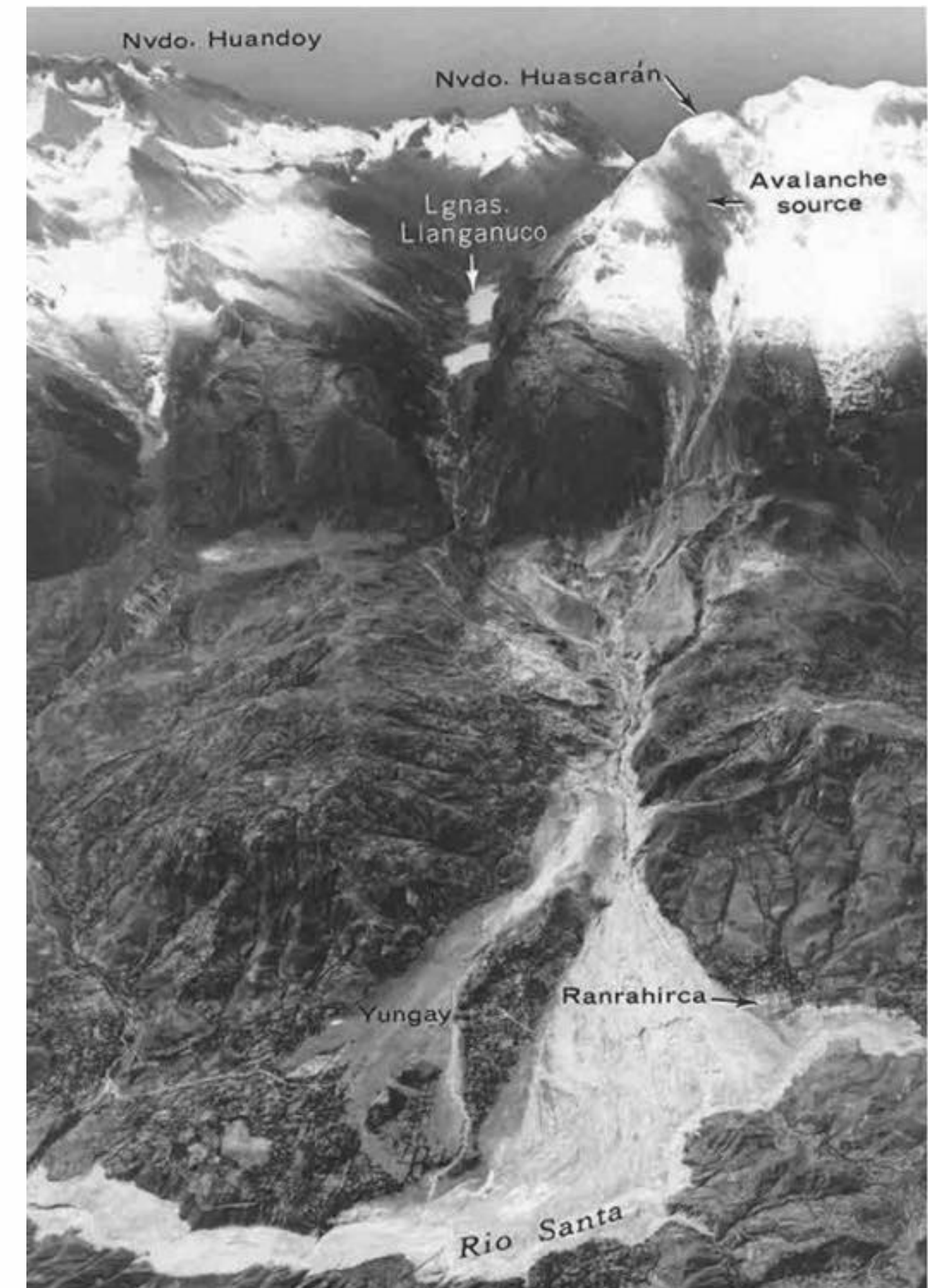


Source: Rabatel et al. 2013

Source: INRENA

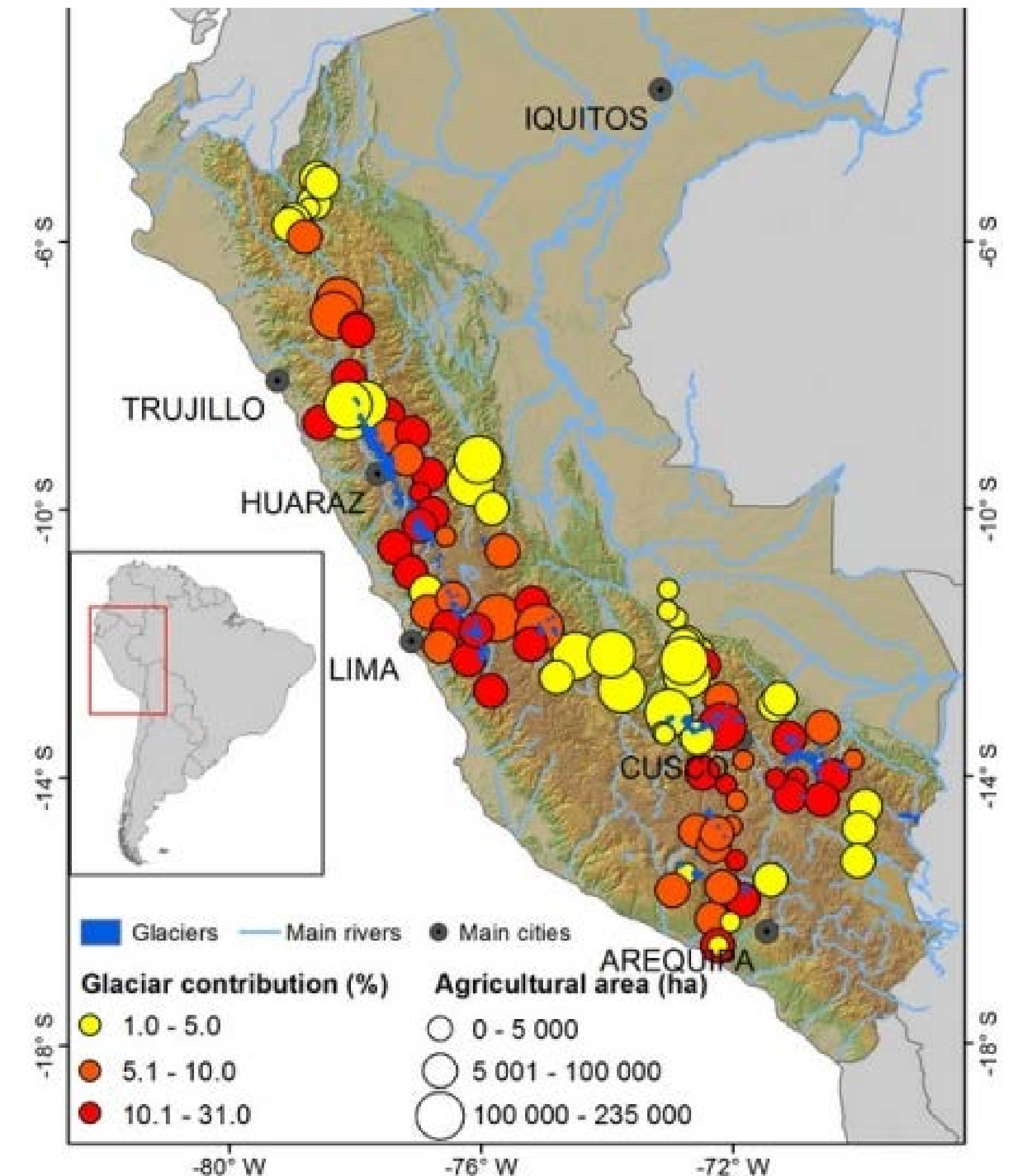
Relationship with natural hazards

- Large detached sections of glaciers can cause huge avalanches:
 - In 1970, after a massive earthquake, an avalanche killed thousands.
- Glacial lakes during the melt season can overflow and cause floods.
 - Between 1941 and 1950, three floods killed about 6000 people.



Glacier melt and water security

- Exposure of heavy metals increases their concentration in the meltwater.
- Current research focuses on the use of essential wetlands that retain heavy metals as part of the natural hydrologic system.
- Contribution of glaciers to river flow will diminish as they shrink, affecting human populations and economic activities.



Source: Gratham Institute, Imperial College London

Future challenges

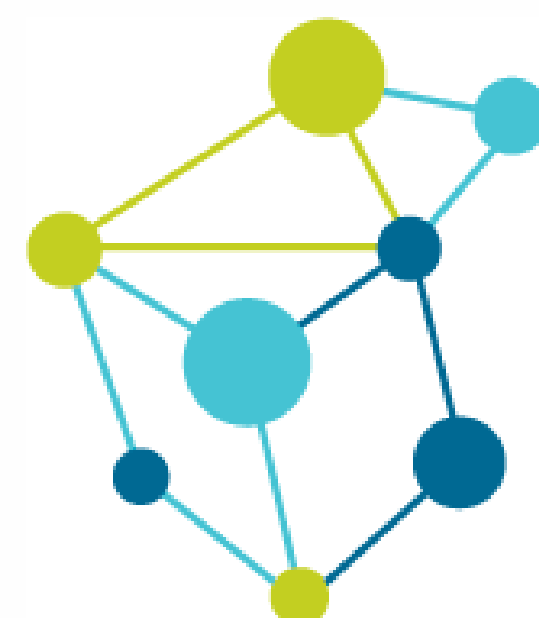
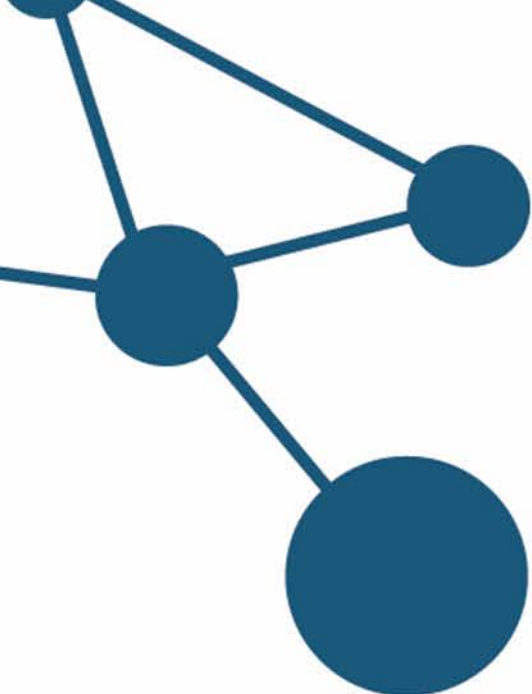
- Water availability and conflicts over water usage (energy, drinking water, agriculture, mining).
- Adaptation and mitigation measures with scientific evidence.
- Changes and resilience of the ecosystems associated to glaciers.



Source: Proyecto Chavimochic. Exitosa



Thank you



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