

# Economic losses from changing hydrology under future climate change, glacier shrinkage and growing water demand in the Tropical Andes

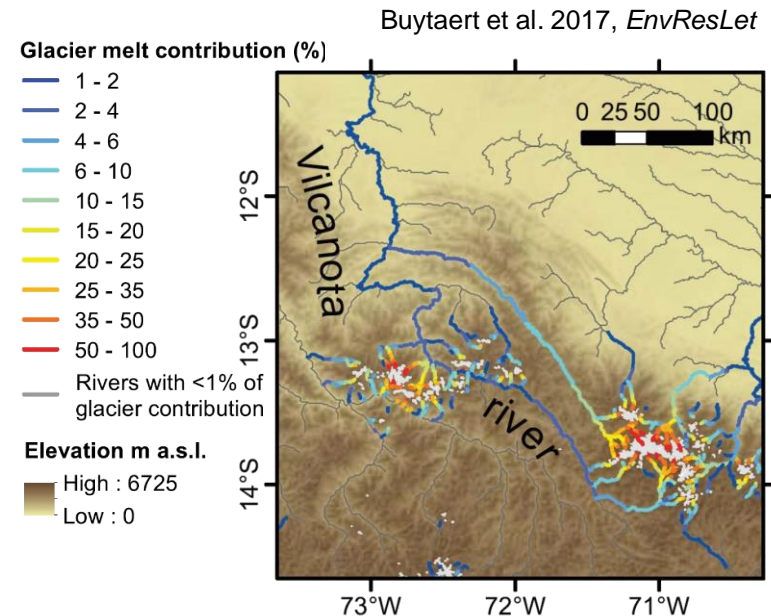


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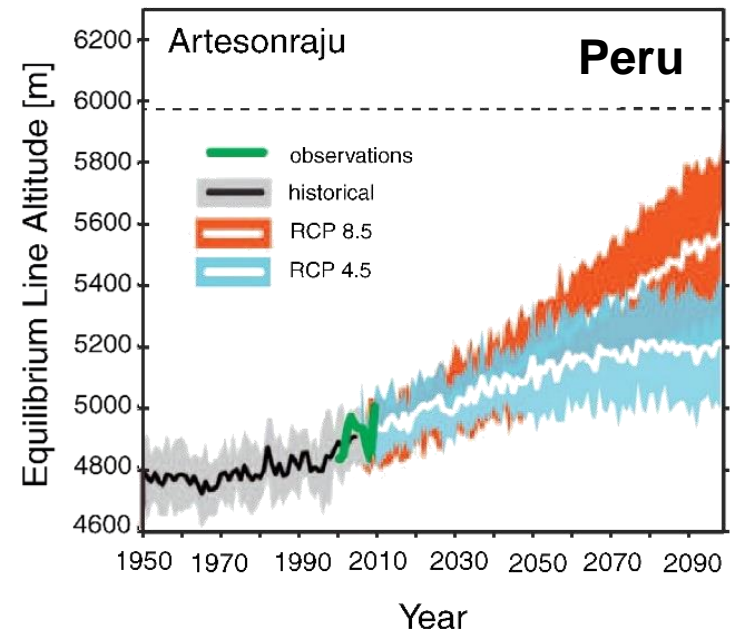
## Glacier shrinkage and meltwater contribution

- As part of the **tropical region**, **Andean glaciers** are among the **most vulnerable** to climate change impacts indicating **accelerated shrinkage rates**
- **Meltwater contribution to river streamflow** which plays a fundamental role for upstream and downstream water use might **considerably decline**, particularly in dry months

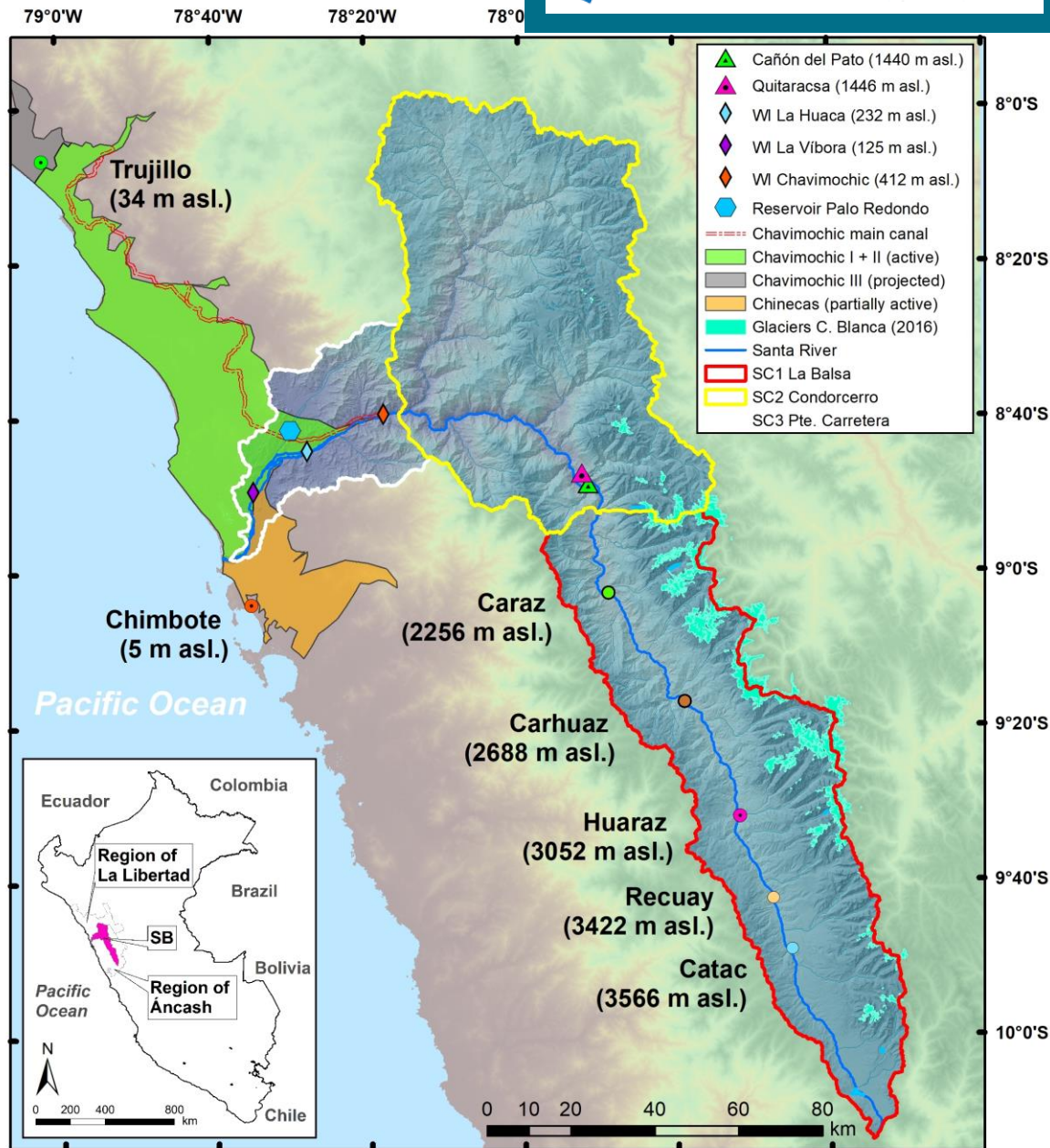


## Glacier shrinkage + socioeconomic processes

- **Future projections** of glacier extent in the Tropical Andes indicates a possible **vanishing of entire glaciers below 6000 m asl.**
- **Combined impacts from current and projected glacier shrinkage and increasing water consumption would lead to severe consequences in spatio-temporal water availability and long-term water security**

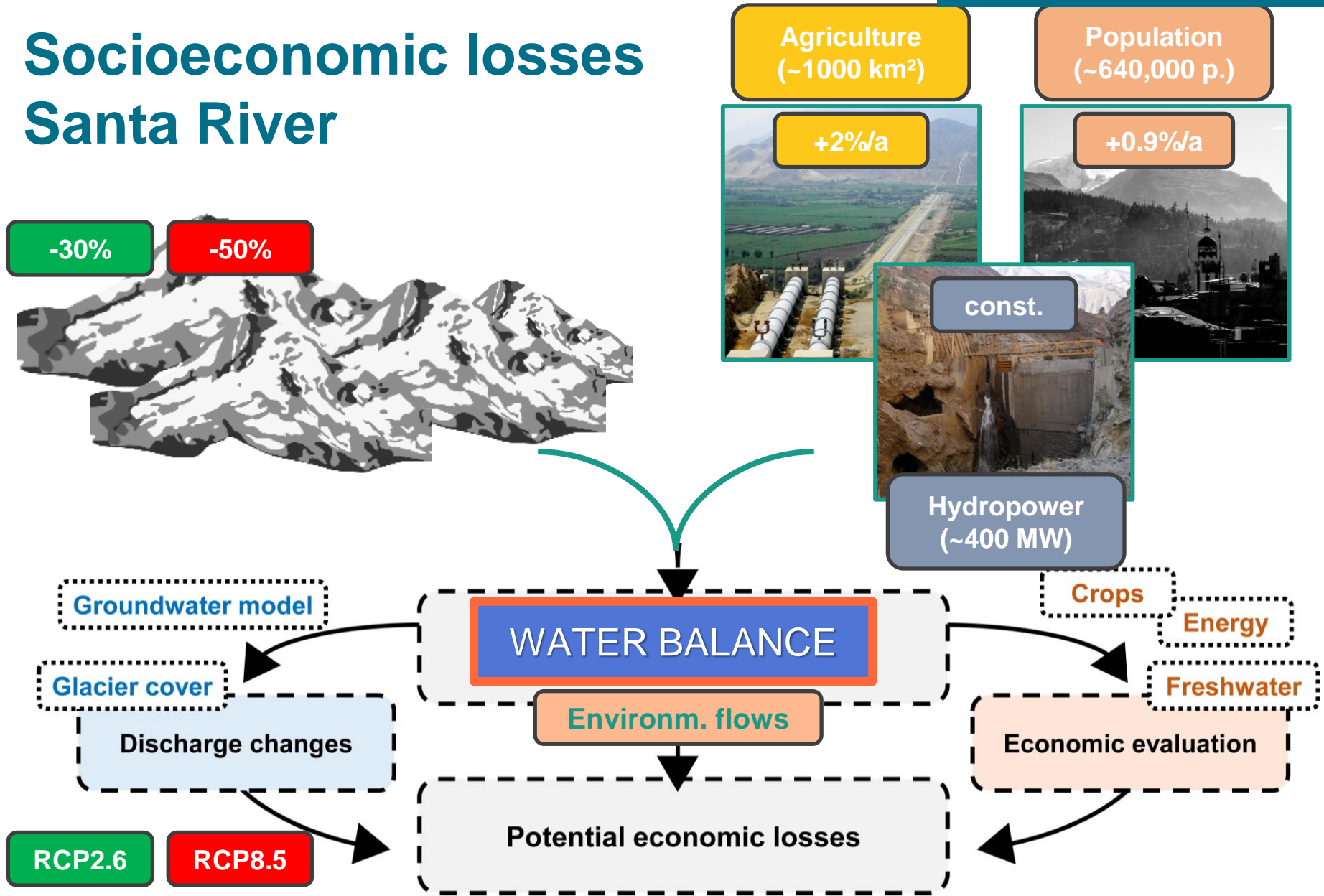


## Santa River basin Cordillera Blanca Peru

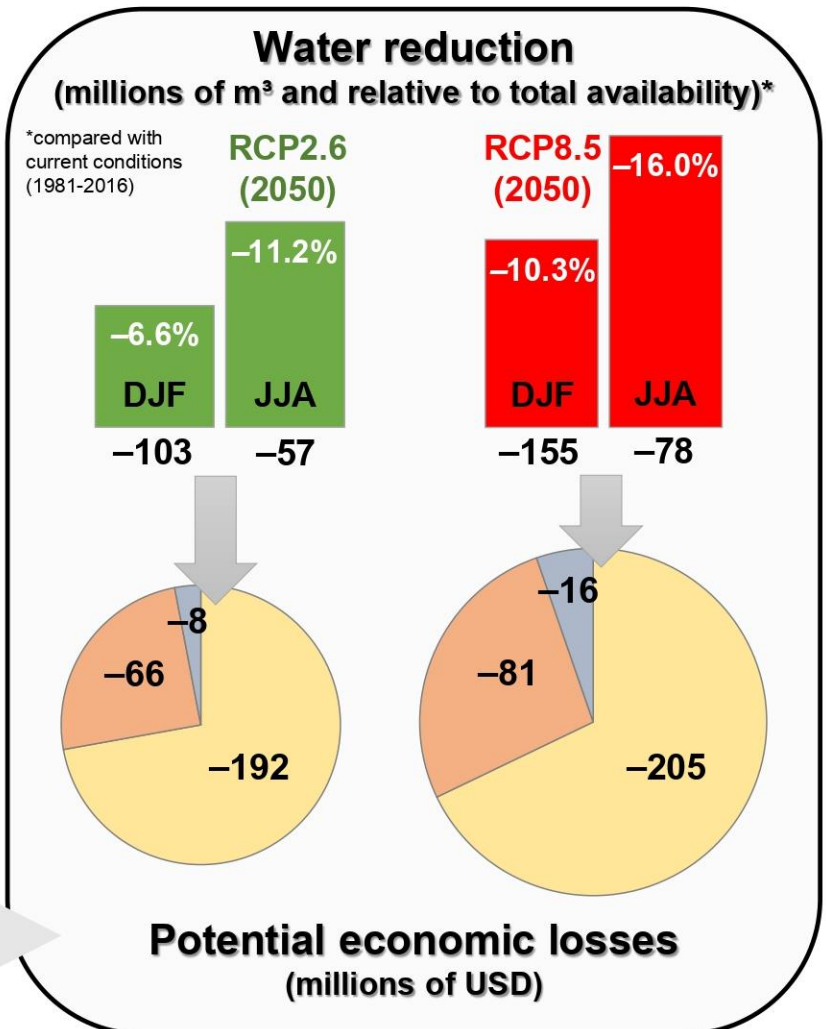
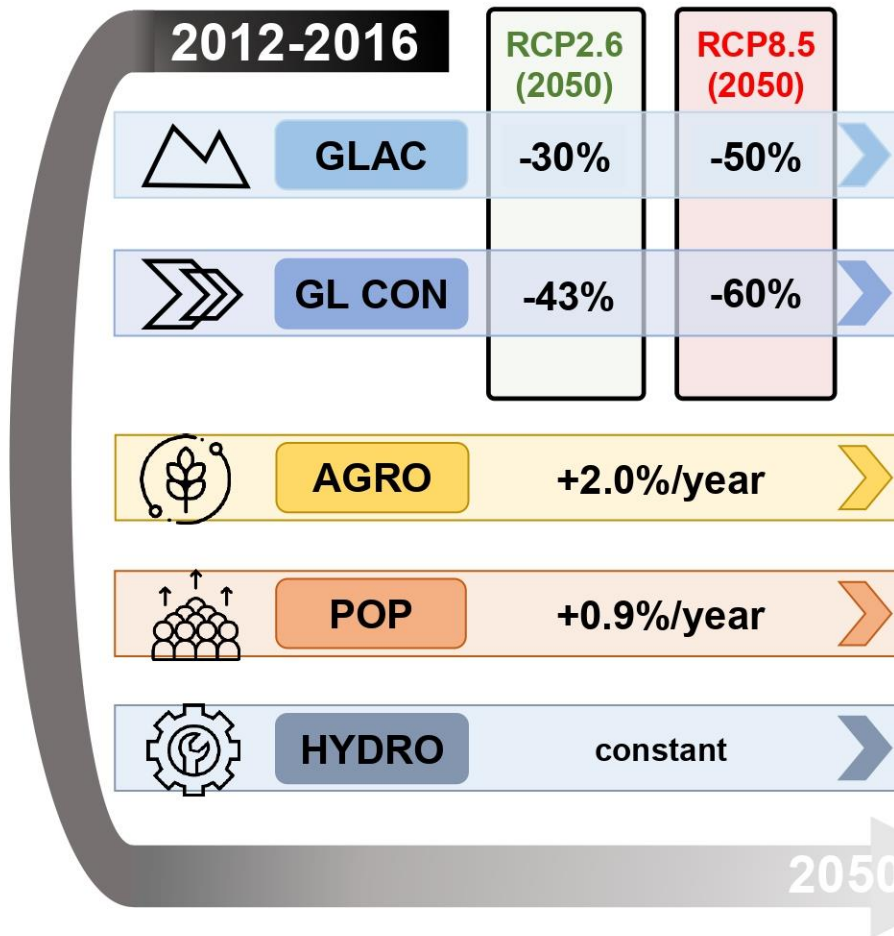




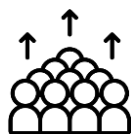
## Socioeconomic losses Santa River



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## Identification of potential negative feedbacks increasing losses



**Domestic:** investment in new infrastructure

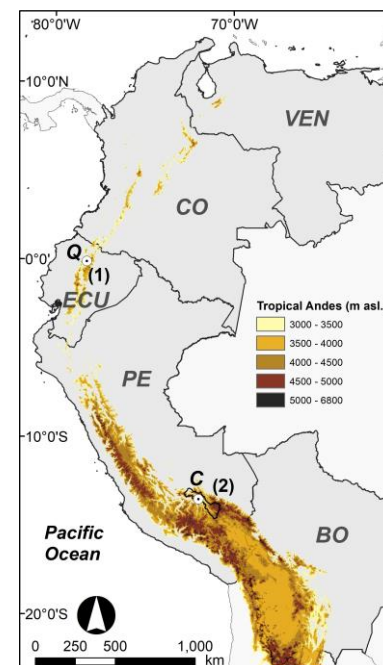


**Agriculture:** CC driven crop failure and lower productivity



**Hydropower:** potential rationing costs

**Potential for upscaling  
Andean region and beyond**







¿Questions?

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