



Open Design of Appropriate Technology for Sustainable Agriculture in the Peruvian Andes

A sabbatical presentation by Devin Berg

It started with a summit

Polytechnic, Summer 2018
Lima, Perú



MATER
INICIATIVA



Let's go to Perú!

A home in the mountains





Po-tay-toes



I met Canastas Verdes



Organic farming collective



mercado moderno

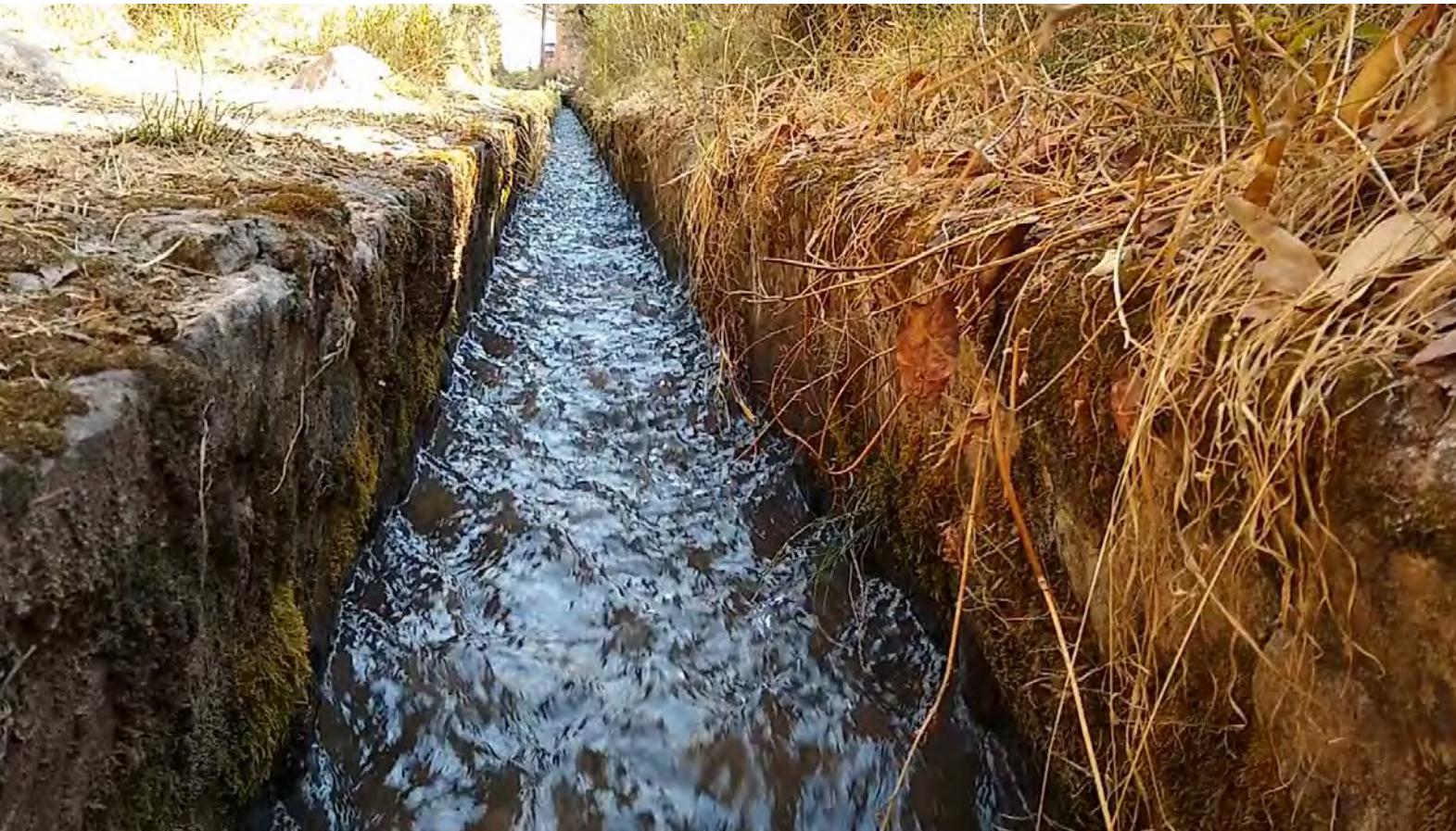
Chakras supply food and income





Making biol

Water access is limited and
sporadic



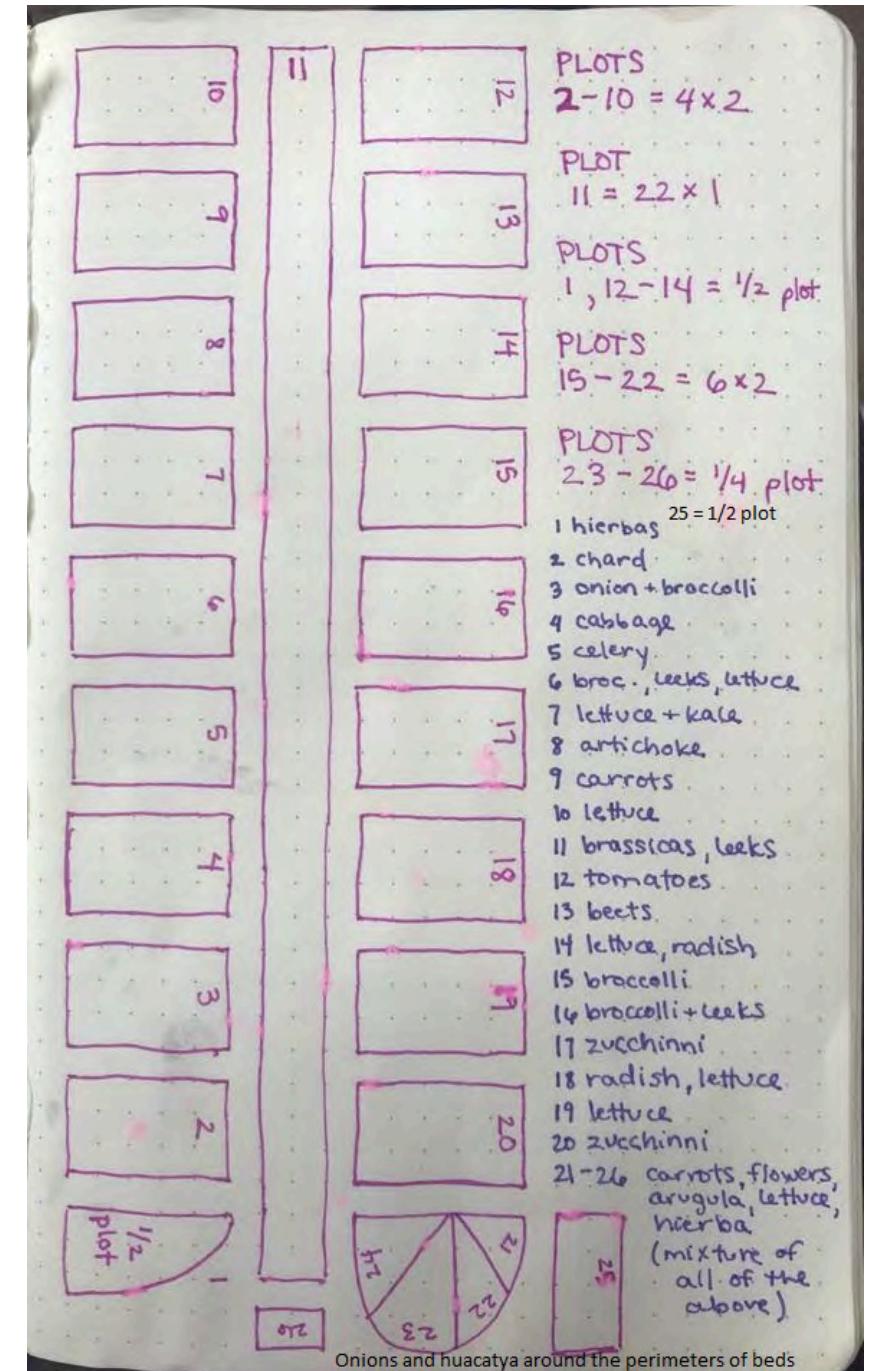
Water considerations

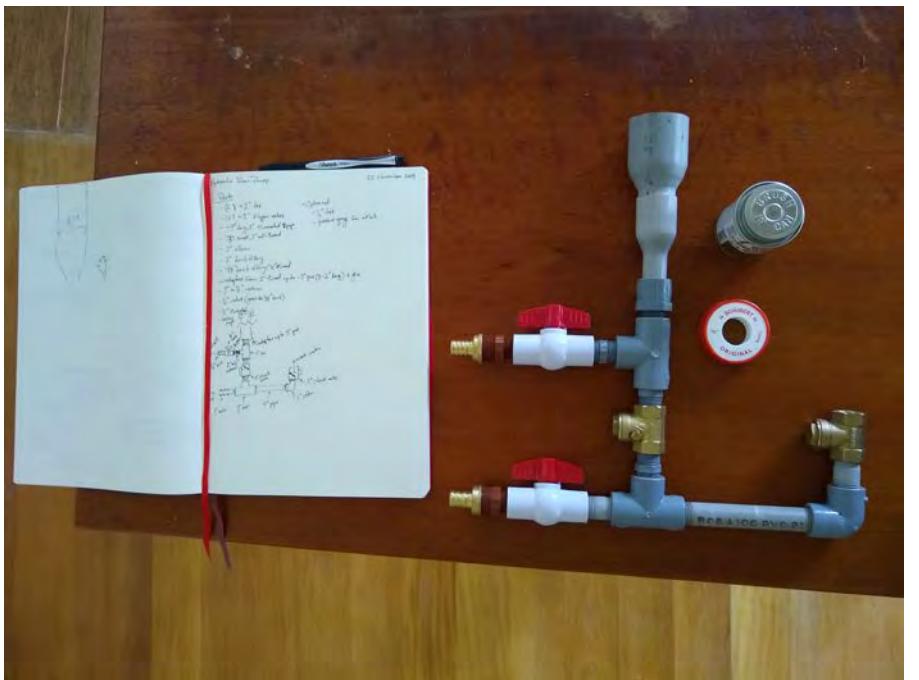
- Water need: 650 to 3000 L/day
- Water available
 - By rain: ~215 L/day (annualized)
 - From channel: ~33.5 L/s

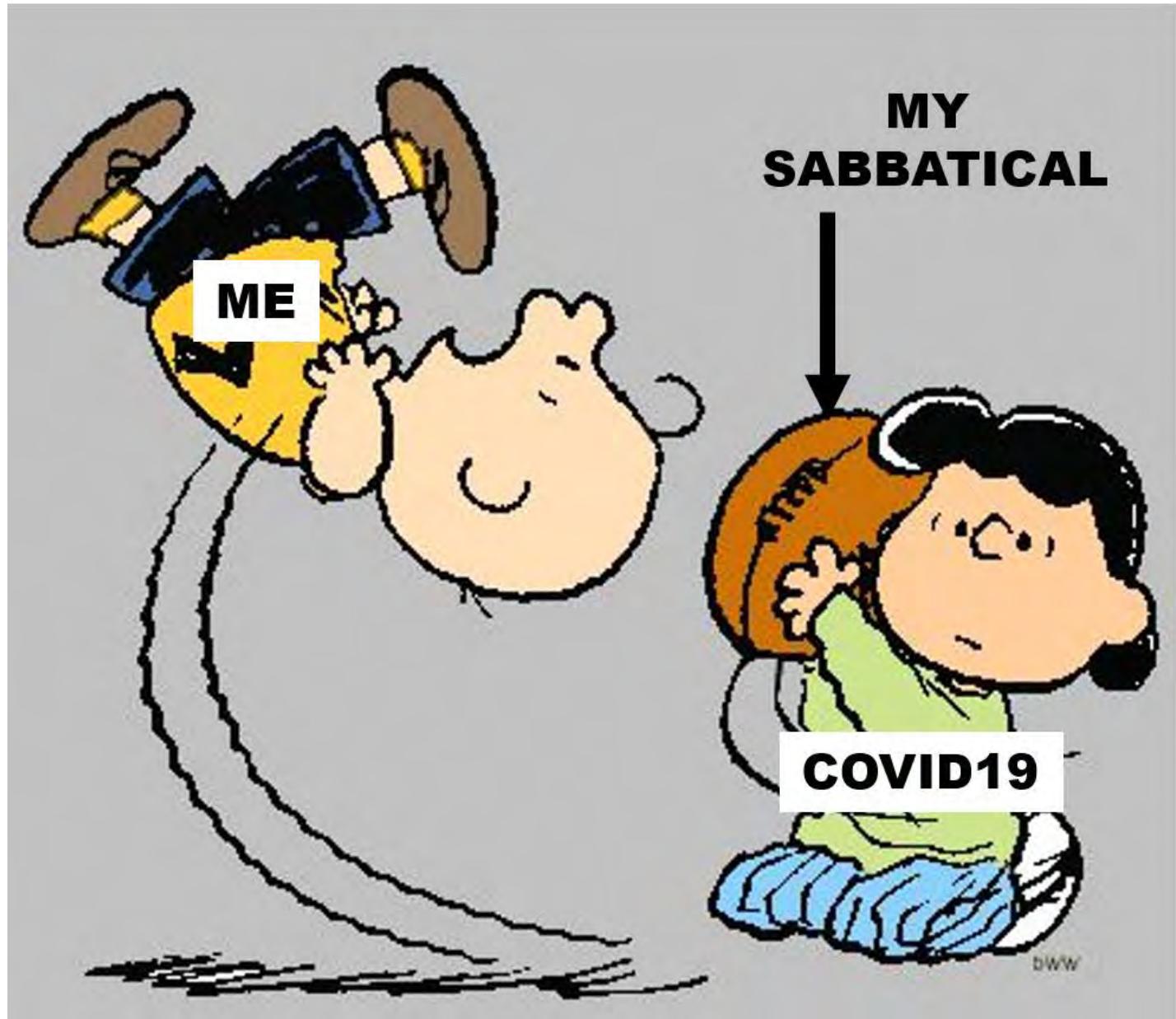
Daily water needs could be met in ~4.5 minutes assuming the chakra can harvest 1/3 of the channel water. With watering every 4 days, **only 18.5 minutes of water access would be necessary.**

However, access is only granted every 2-4 weeks for 2-3 hours each time.

Note: water access less of an issue in wet season, but currently no coordinated effort to store water







<https://twitter.com/lauraalbertphd/status/1284625391039197185>

Other things done during this time...

- Started a 501(c)(3) non-profit, Open Engineering Inc.
 - <https://www.openengr.com/>
- Helped author an OER textbook in Engineering Statics
 - <https://engineeringstatics.org/book-1.html>
- Published 2 journal articles and 1 conference paper
 - [Issues of Privilege in University Service-Learning](#)
 - [Design and Preliminary Testing of a Continuum Assistive Robotic Manipulator](#)
 - [Student Perceptions of First-year Engineering Justice Curriculum](#)



It wasn't all
fun and
games...

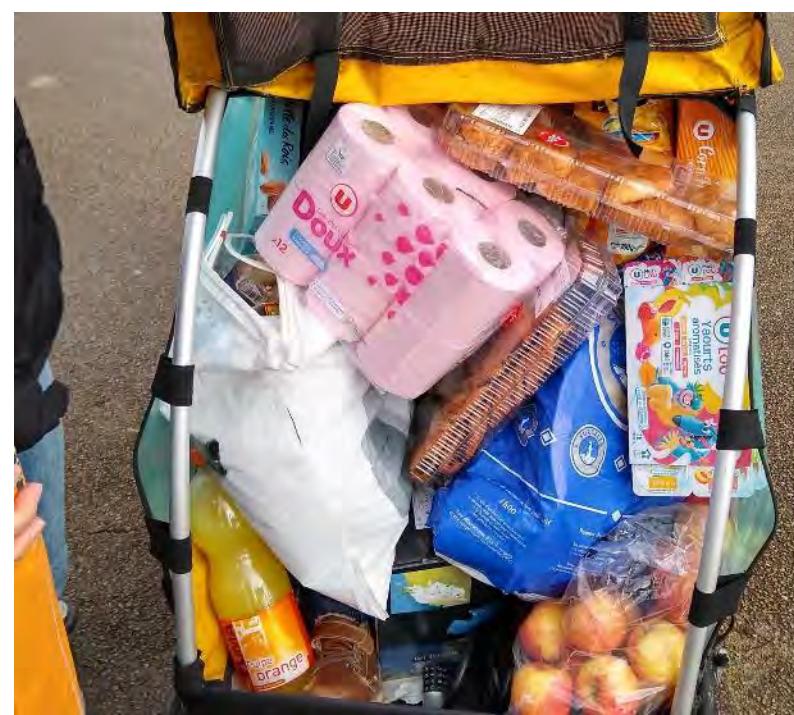




Chile and Argentina



Un mois en France





A quick stop
in Brussels





One month in Scotland





By the numbers

- 9 months
- 6 countries
- 9 AirBnBs
- 7 hotels
- 1 rental house
- 1 hospital room
- 25,000 miles traveled



Further reading

- <https://odatsa.gitlab.io/Peru/>
- <https://osf.io/7q3ma/>
- <https://www.livinginperu.com/canastas-verdes-project-organic-farming-and-produce-delivery-in-the-sacred-valley/>
- <https://devin.travel.blog/>

