

Co-designing a resilient future for an agroforestry farm in southern Portugal

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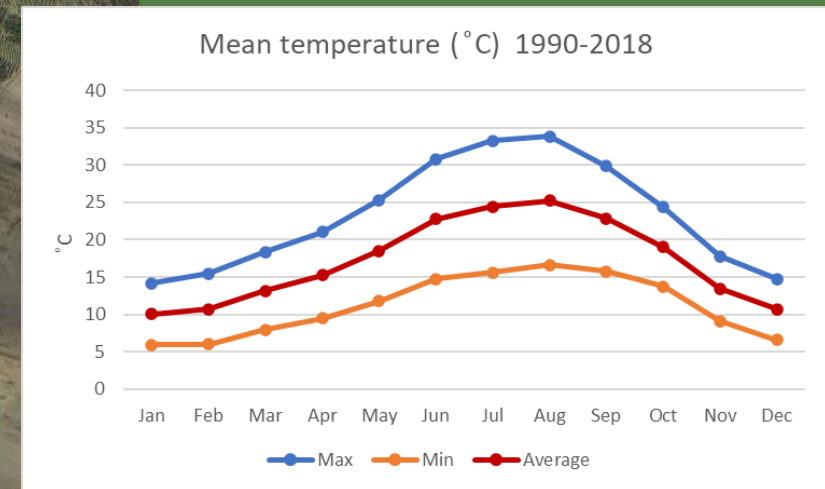
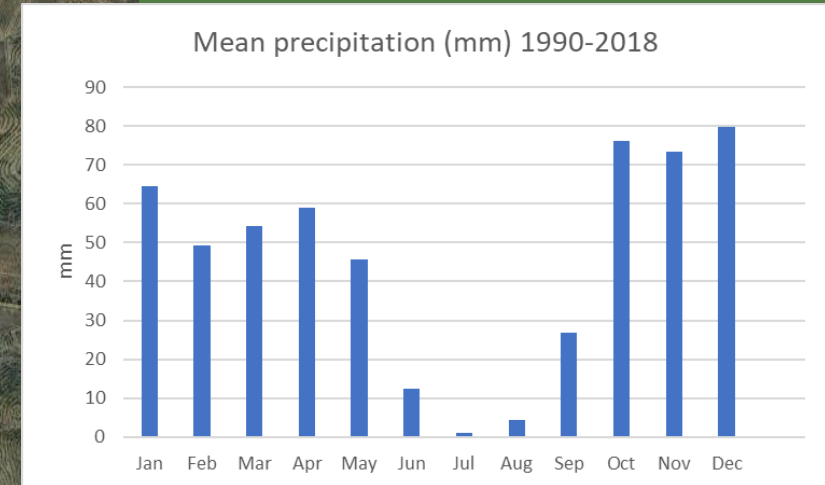
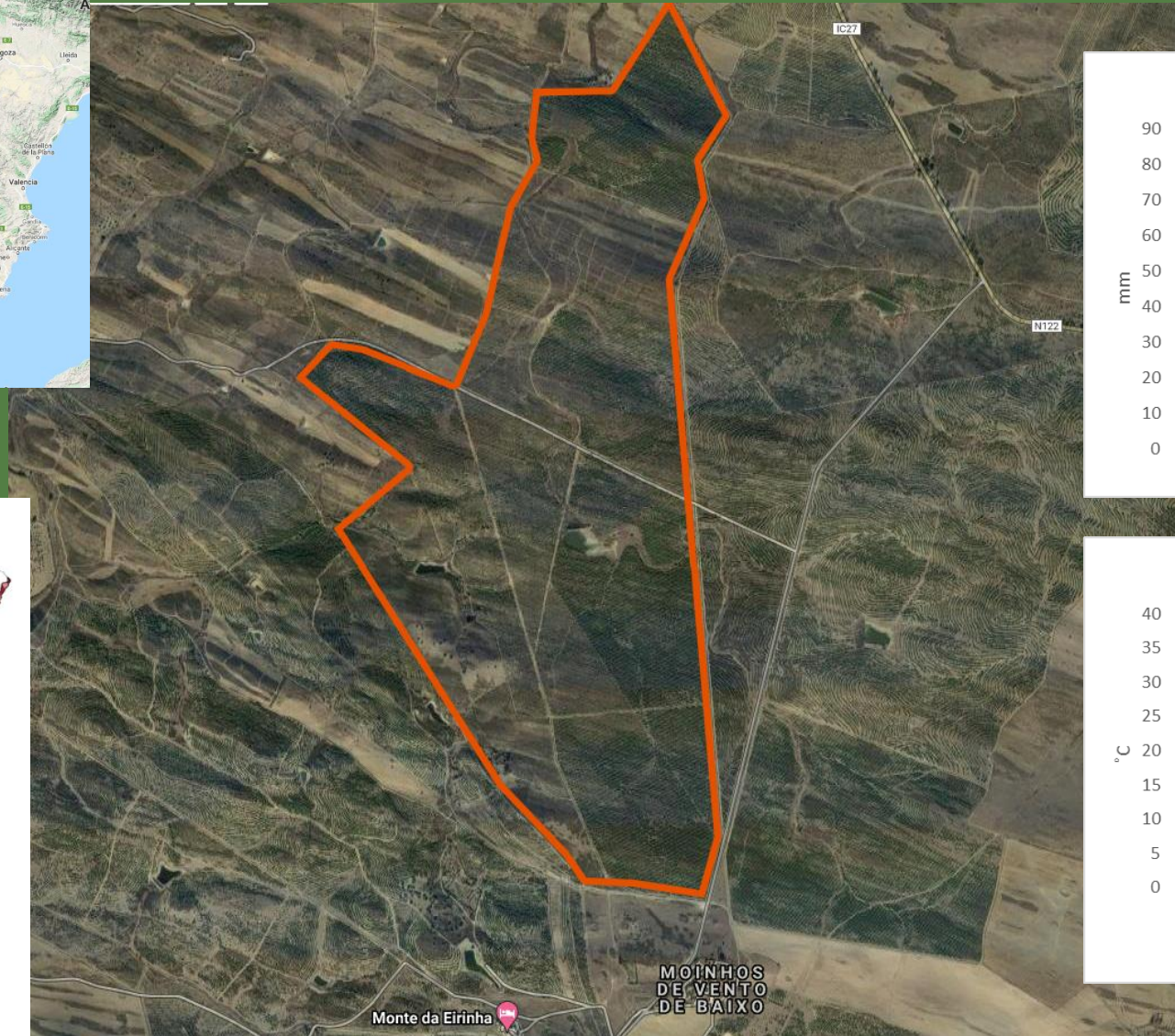
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With special thanks to our AGROMIX colleagues, Daniel
de Jong, Jolien Bracke, Bert Reubens and Marlinde
Koopmans and fellow pilot teams



Context

Semi-arid climate
Annual precipitation 548mm



28 years average of precipitation and temperatures (max, min, average). Data source: <https://snirh.apambiente.pt/>, Martinlongo weather station

Source: Jones N et al. (2011)

<https://doi.org/10.1016/j.apgeog.2011.01.024>

Moinhos de Vento (Curraloes)

- 240 ha, family owned, currently no staff
- Pre-1994 extensive livestock (sheep, cattle)
- In 1994 130,000 *Pinus pinea* (stone pine) trees planted on 160ha to reduce soil erosion and increase carbon storage (CAP Pillar 2 – 20 years). Afforestation restrictions = no agricultural production.
- 20 year forest management plan – pruning, thinning – now finished. Tree densities now 326 to 653/ha. Average tree size 4m, dbh 15cm.
- Eligible for direct payments (Pillar 1) as classified as fruiting tree (pine nuts) – shrub (*Cistus ladanifer*) must be controlled.



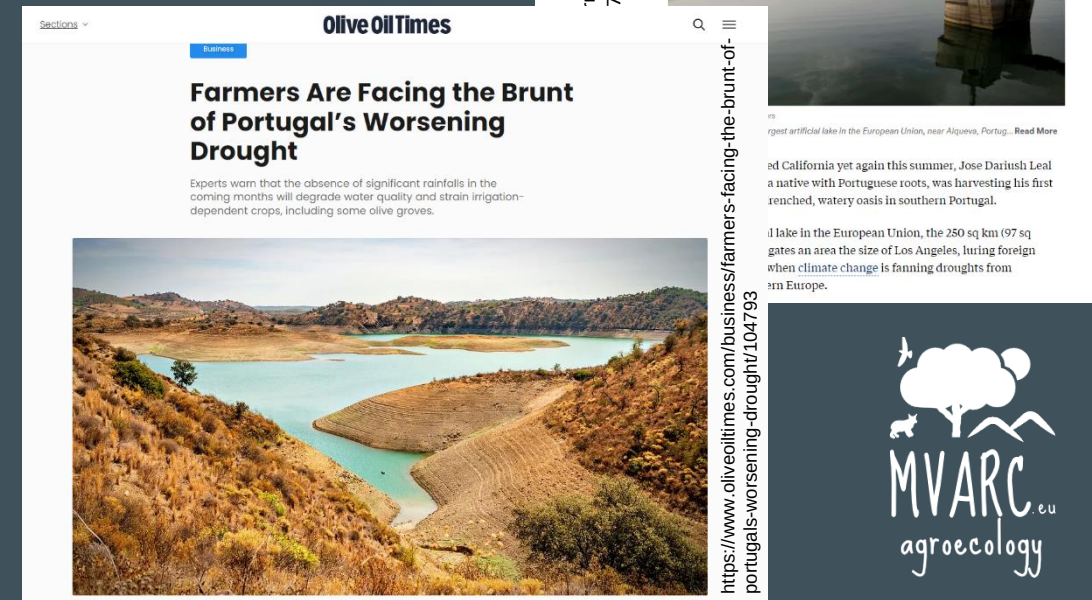
a new approach to land management on the farm is needed, with the dual aims of reducing reliance on subsidies and increasing resilience to climate change.



Business as usual #1: return to extensive production



Business as usual #2: intensive production through irrigation



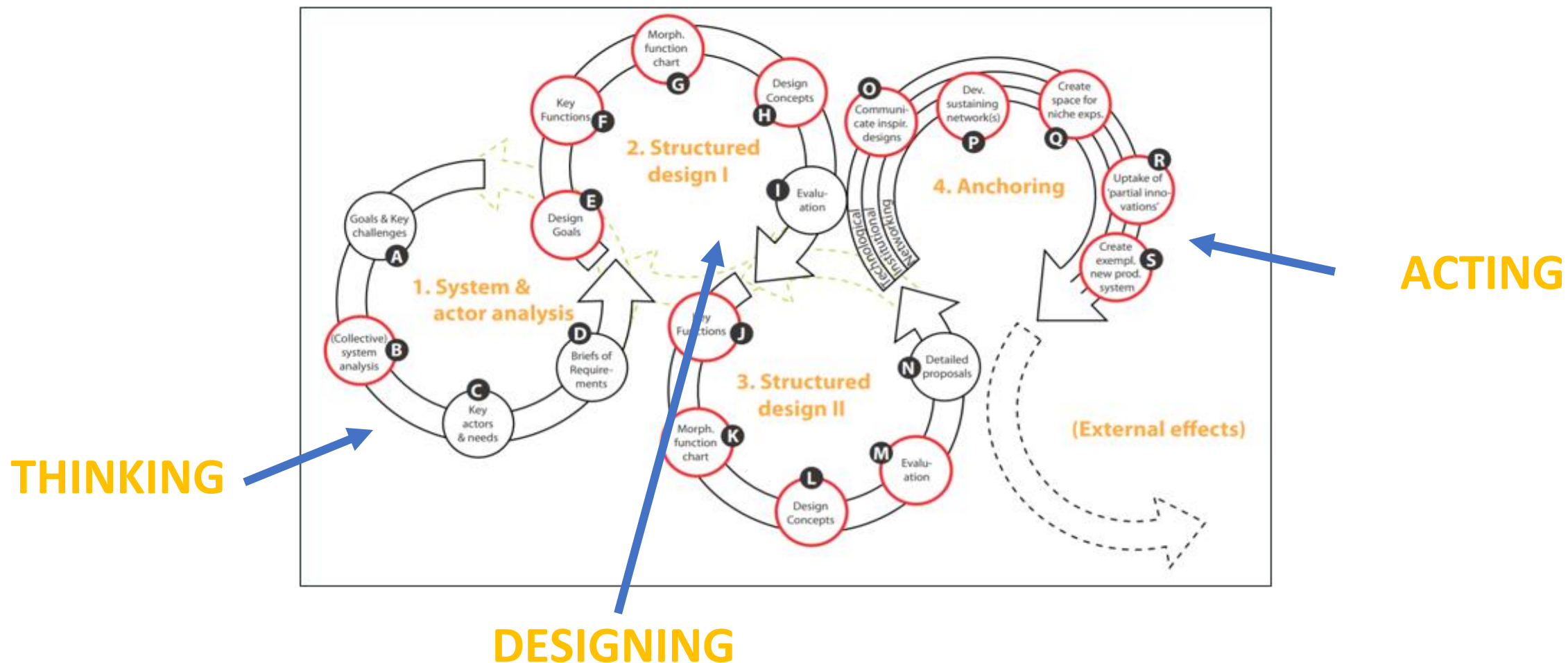


Co-Design for a climate resilient farming system

Designing tailor-made systems for specific contexts

Reflexive Interactive Design method

Bos, A. P., & Grin, J. (2012). <https://edepot.wur.nl/242654>



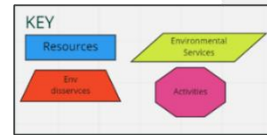
1st Workshop: setting the goal



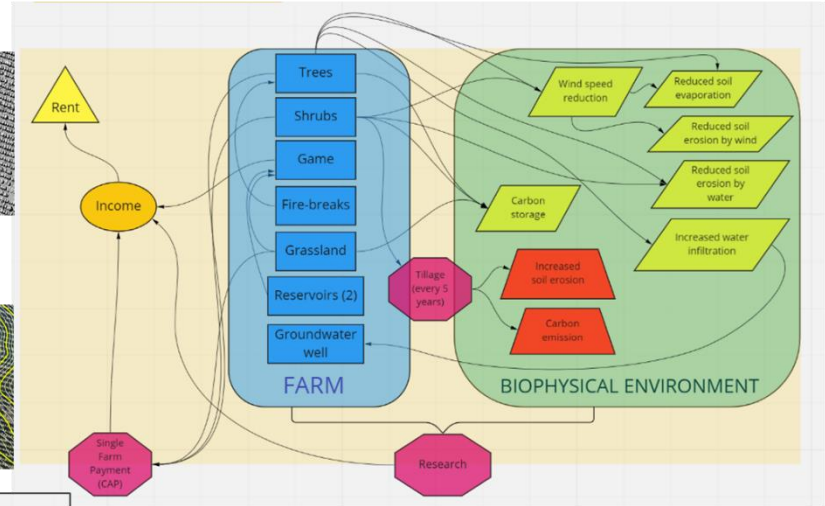
Tree resources



Topography



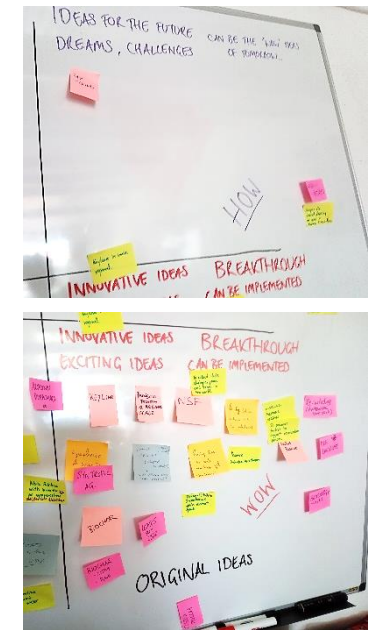
System analysis



Biodiversity

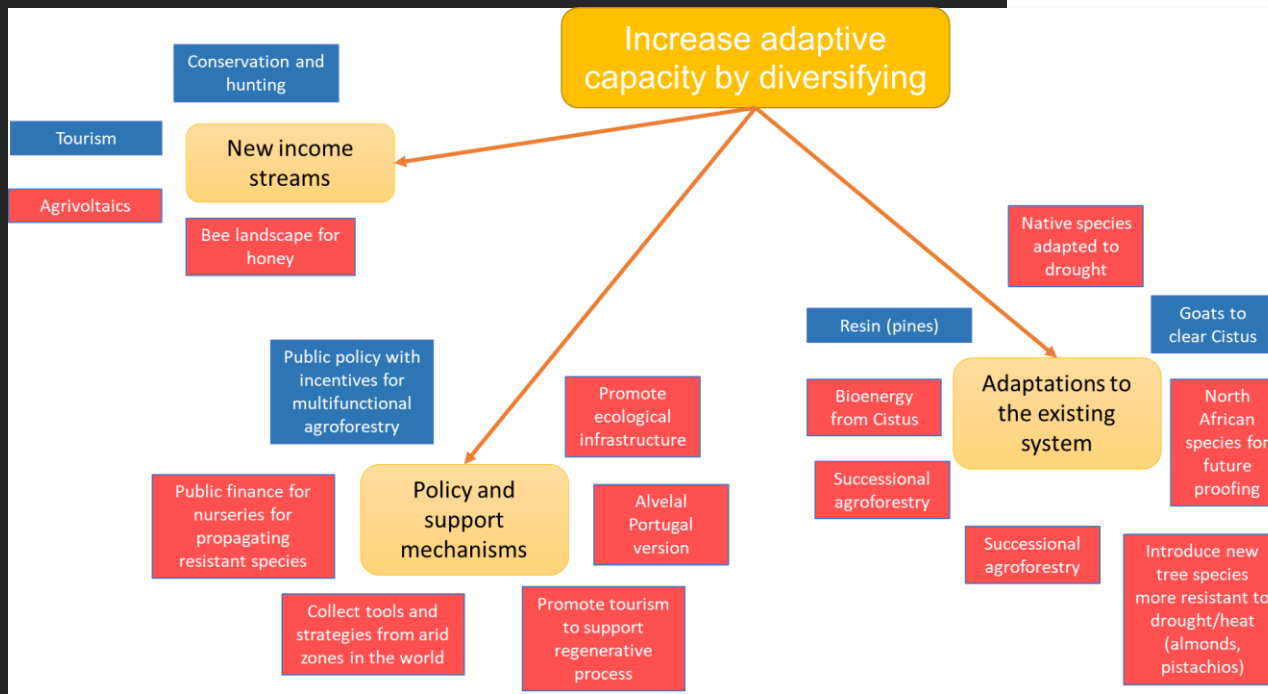


2nd Workshop: identifying solutions

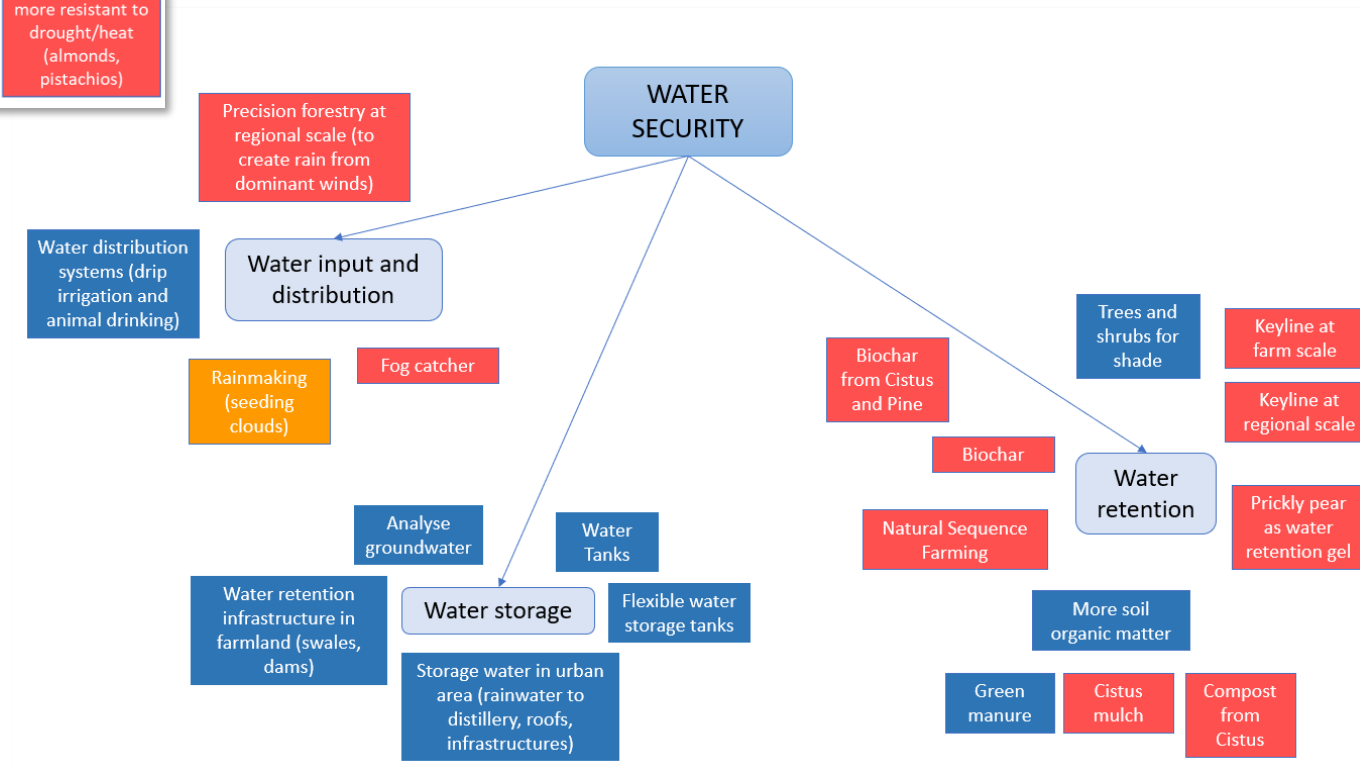




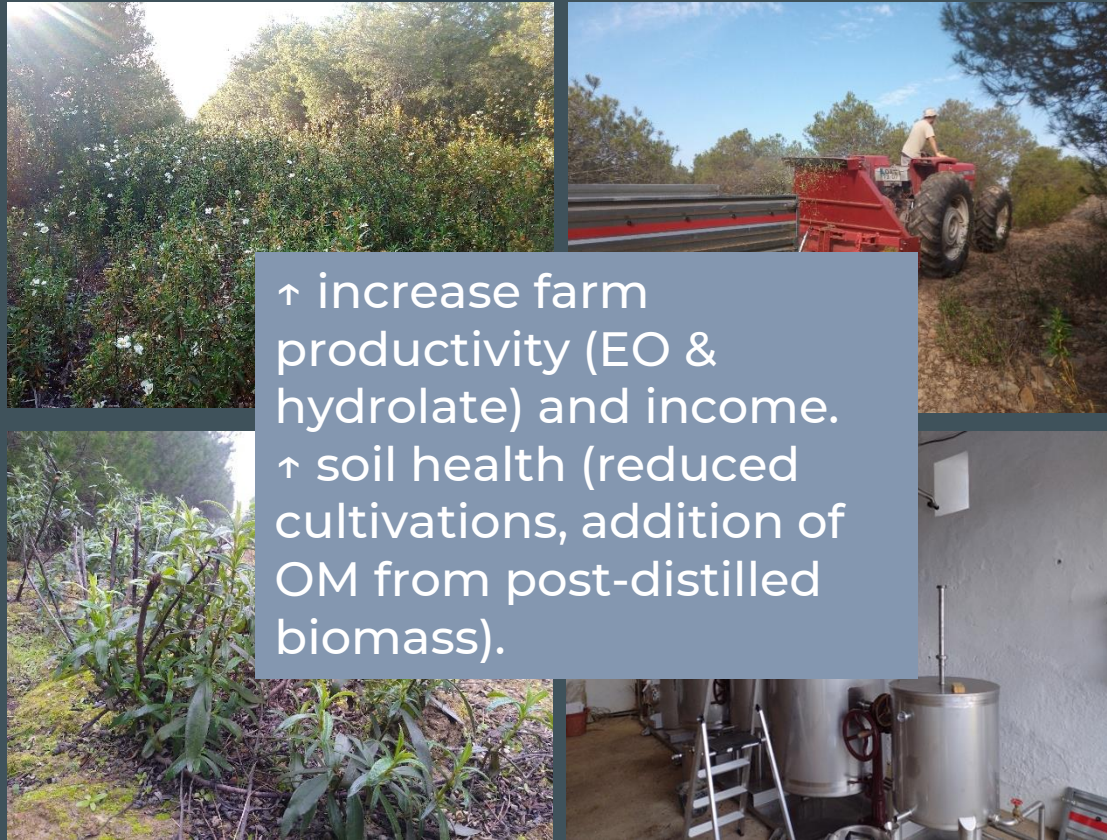
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Developing goal trees



Scenario 1: essential oil production from Cistus



Scenario 2: water security and tree diversification



Next steps – codesign diverse agroforestry for planting in autumn

Reflections

- Did the co-design approach work?
- Enthusiastic engagement
- No shortage of ideas!
- The brainstorming and classification of ideas was a useful exercise
- Did the participating farmers get anything out of it?

Thank you for listening!

....and to the participating farmers and
AGROMIX partners.