

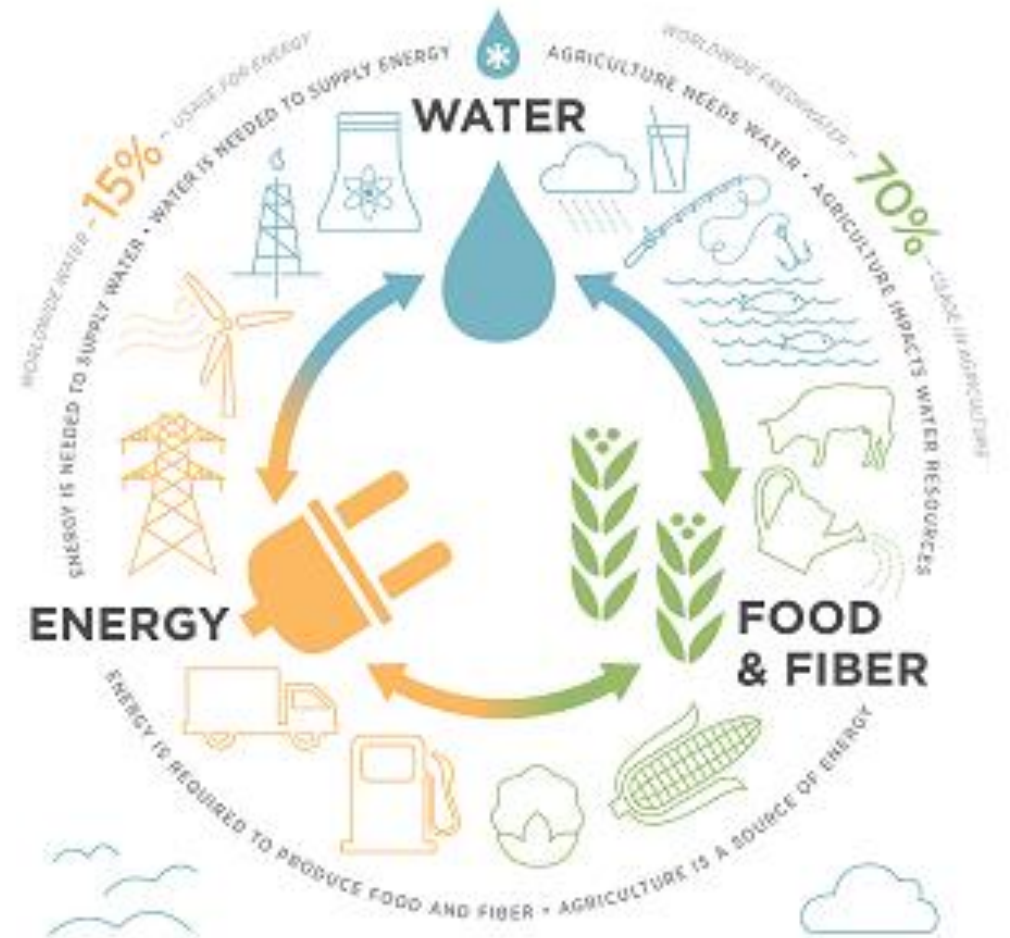
Agrivoltaics

The Water-Energy-Food Nexus

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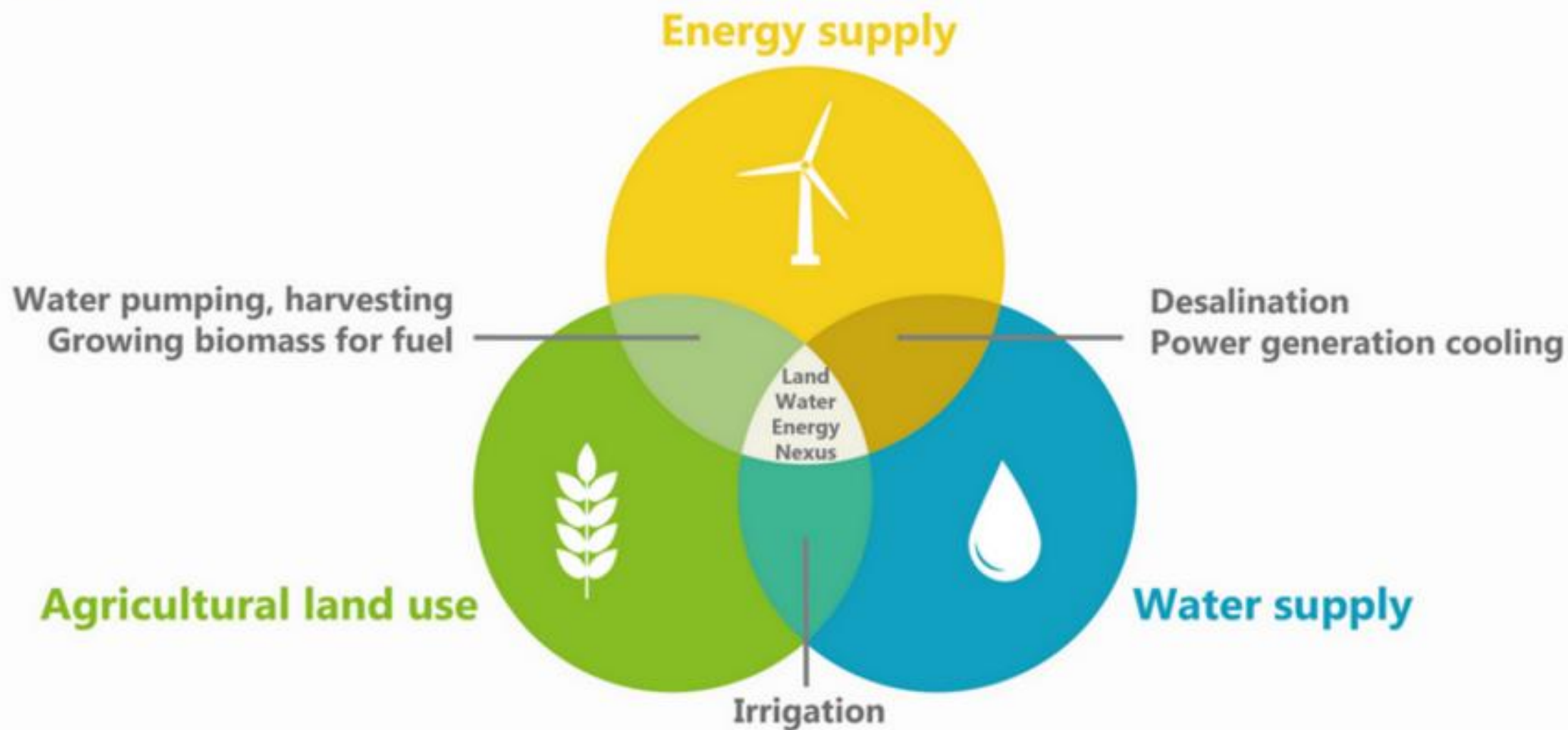
The Dead Sea and Arava Science Center



Global projections towards 2050

- 60% more food will need to be produced in order to feed the world population in 2050
- Global agriculture will withdrawals 80% of all freshwater for irrigation
- Global energy consumption is projected to grow by 50% by 2035



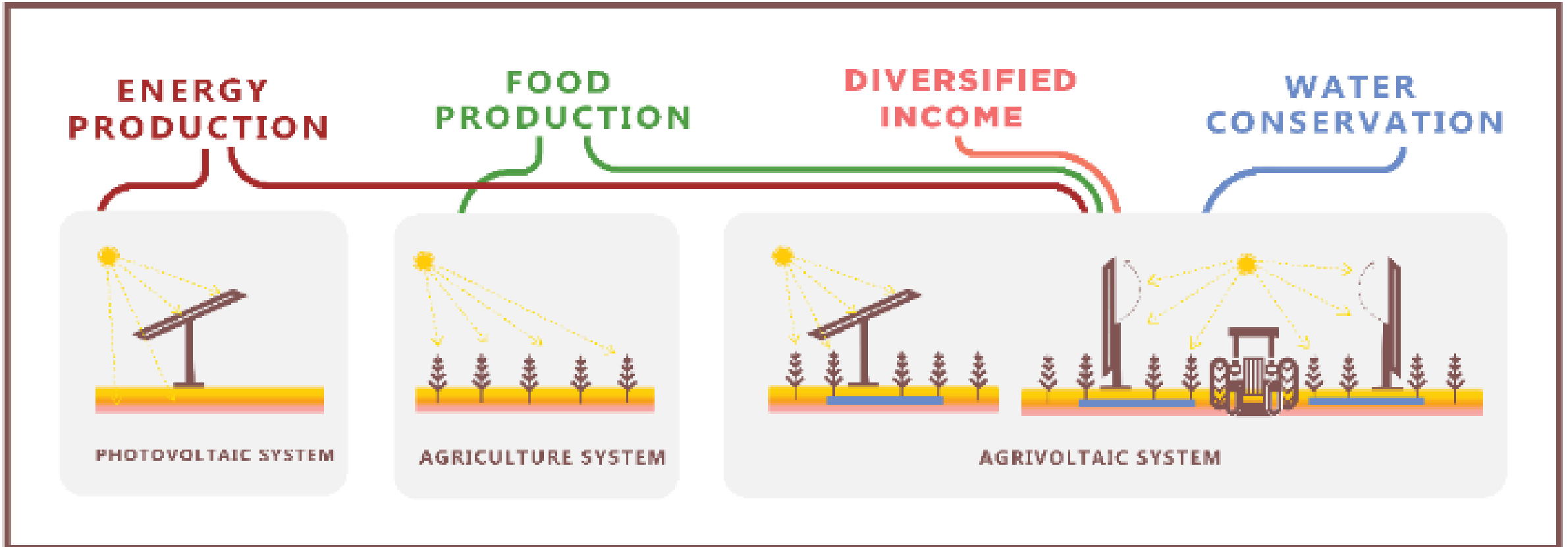


Impacts of nexus approach on SDGs



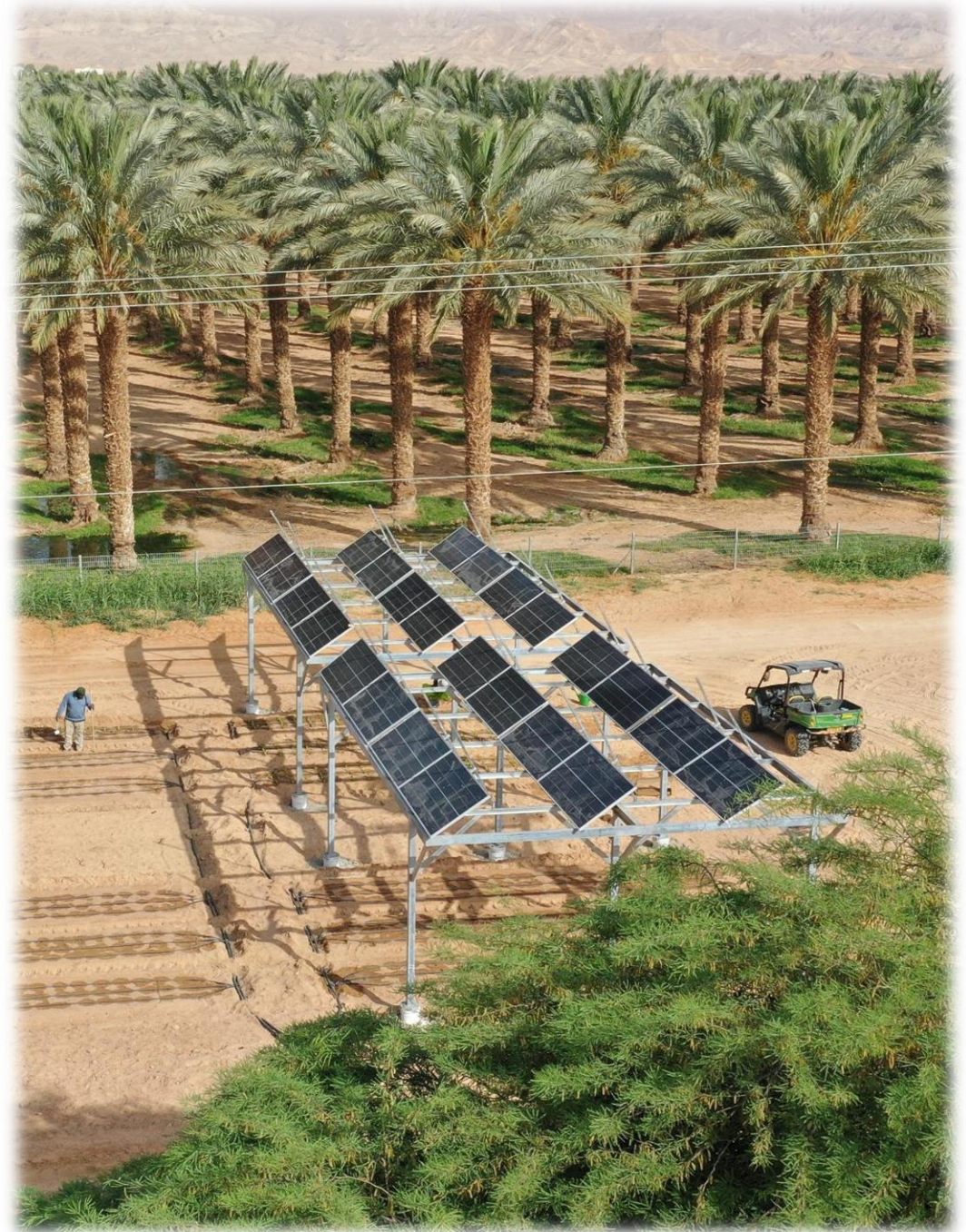
Liu, J., Hull, V., Godfray, H.C.J. *et al.* Nexus approaches to global sustainable development. *Nat Sustain* **1**, 466–476 (2018)

Dual-use of land



* Miao R, Khanna M. 2020. Harnessing Advances in Agricultural Technologies to Optimize Resource Utilization in the Food-Energy-Water Nexus. Annual Review of Resource Economics, 12

The Joint Institute for Global Food, Water and Energy Security



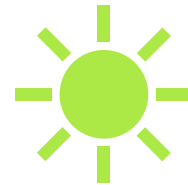
Insights from AgriVoltaic research



Water demand
reduction



Increased biomass
production



Increase solar panels
efficiency



Shade-intolerant crops
growth feasibility



Crop growth



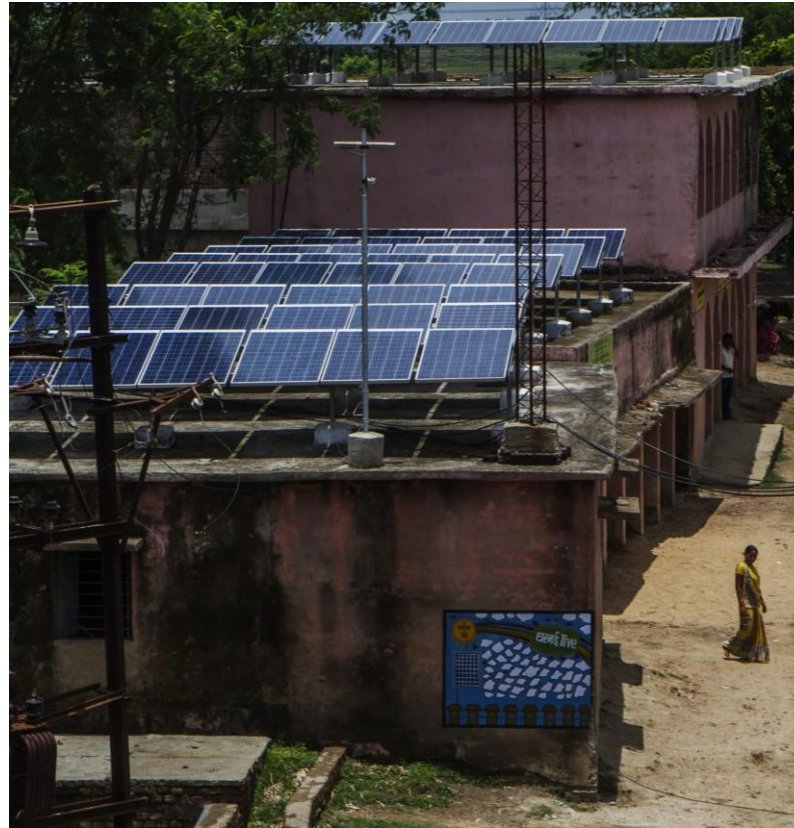
50% shade



100% shade



Full sun



Off grid solutions

Off-grid Agrivoltaics



Food Processing



Cold Rooms



Electricity to Communities



Irrigation



Drinking Water



Water for Animals



WATER



ENERGY



FOOD



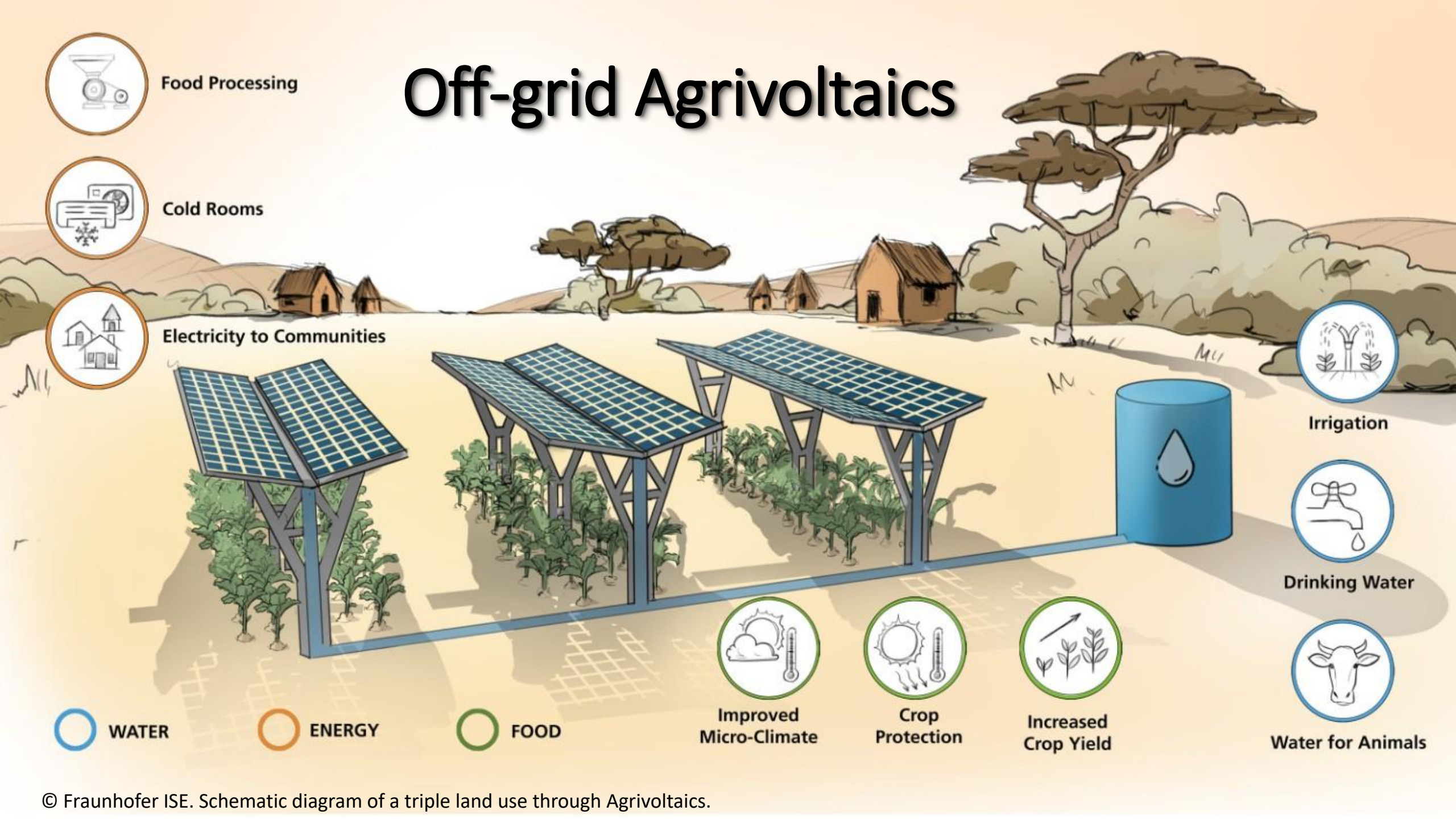
Improved
Micro-Climature



Crop
Protection



Increased
Crop Yield





Thanks for listening! Questions?

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