SVENSKA ARALSJÖSÄLLSKAPET

Swedish Aral Sea Society

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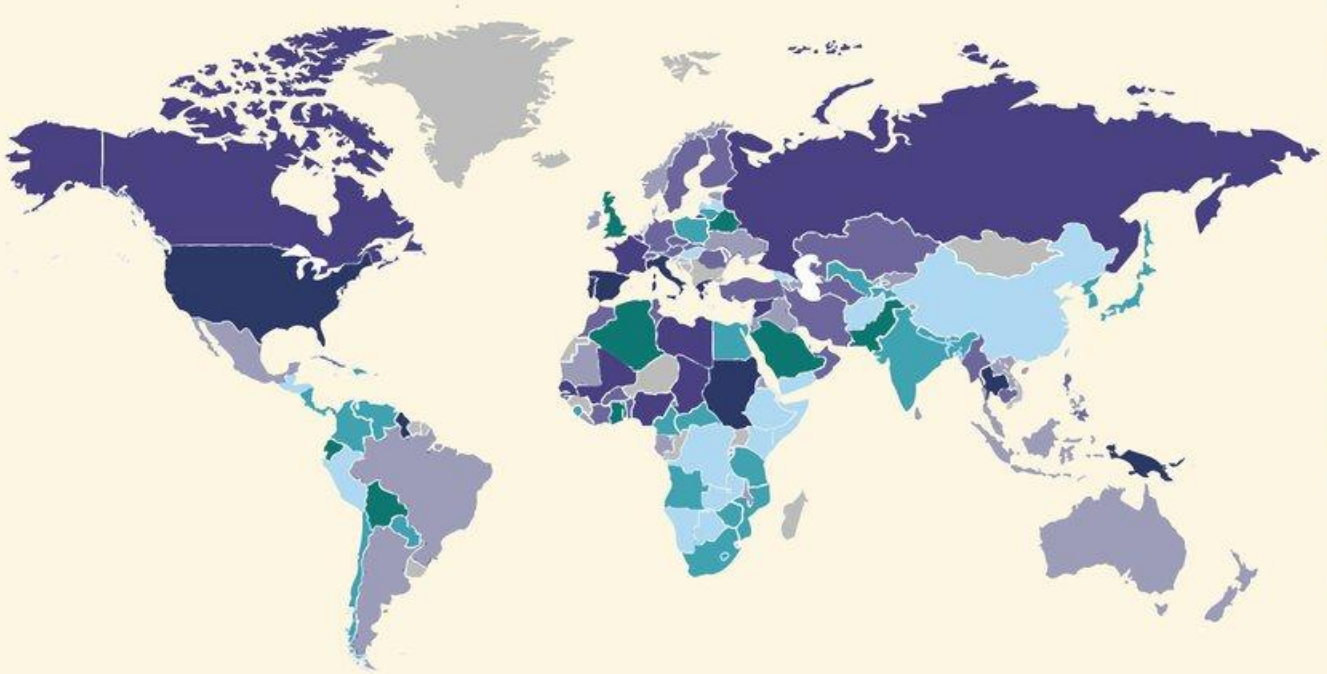
Water use and management - Agriculture and Sanitation

Today, we'll explore how agriculture and sanitation rely on water and how sustainable science can address global challenges.

Akmal Sultonov JizPI



Water footprint per capita (m^3)

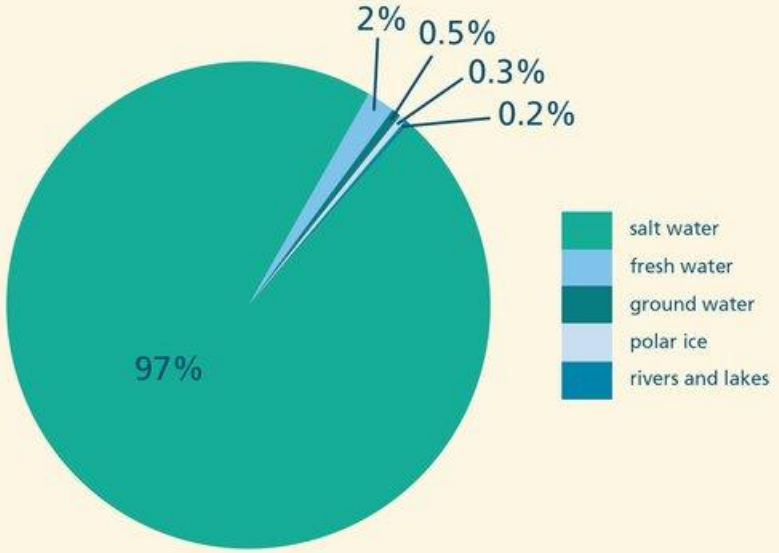
- 600 – 1000
- 1000 – 1200
- 1200 – 1300
- 1300 – 1500
- 1500 – 1800
- 1800 – 2100
- 2100 – 2500

global average water footprint is around

1,240

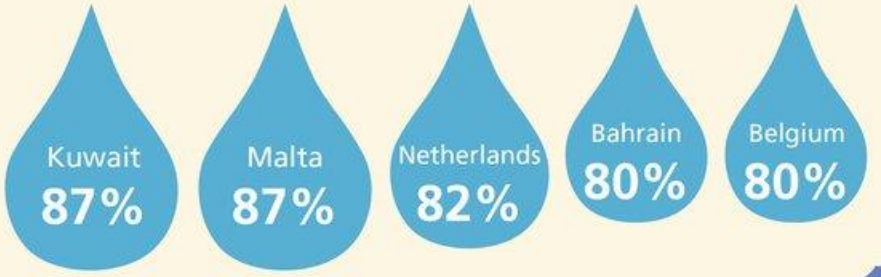
m^3 per person

Breakdown of the world's water types



Highest water footprint per capita

Countries most dependent on water imports

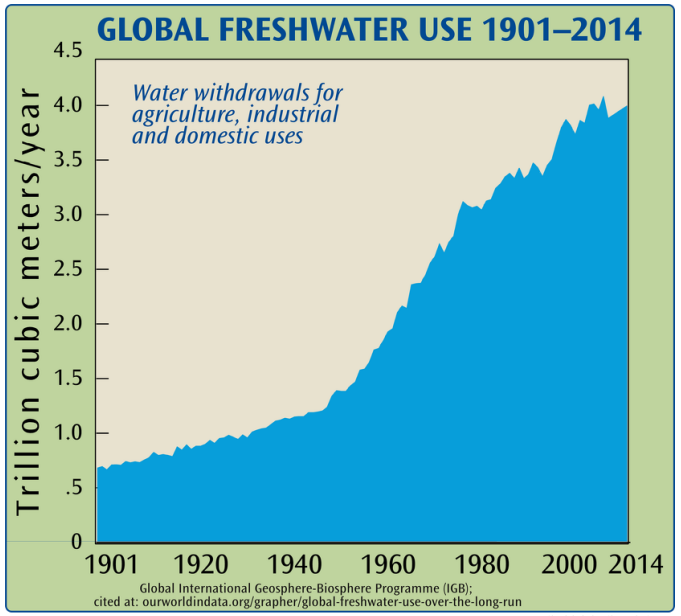


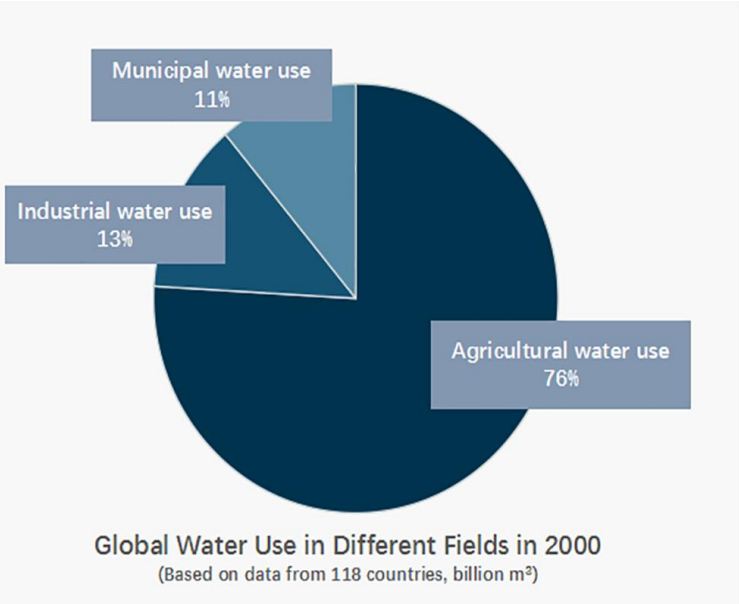
Water footprint of different foods

Water around the world https://australian.museum/

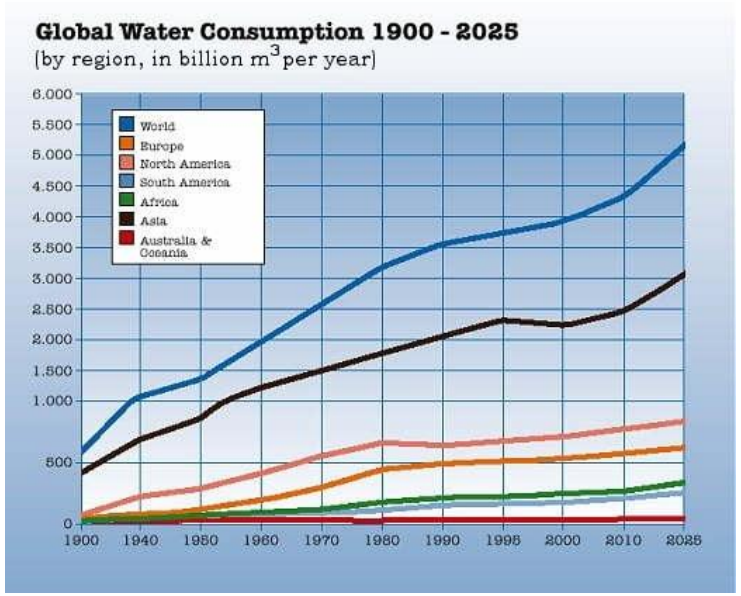
Introduction

- Water is a critical resource for life, agriculture, and sanitation.
- Unsustainable water use threatens food security, health, and ecosystems.
- Sustainable development goals (SDGs), especially SDG 6 (Clean Water and Sanitation), emphasize efficient water management.
- Without efficient water use, we risk losing the ability to feed growing populations sustainably.



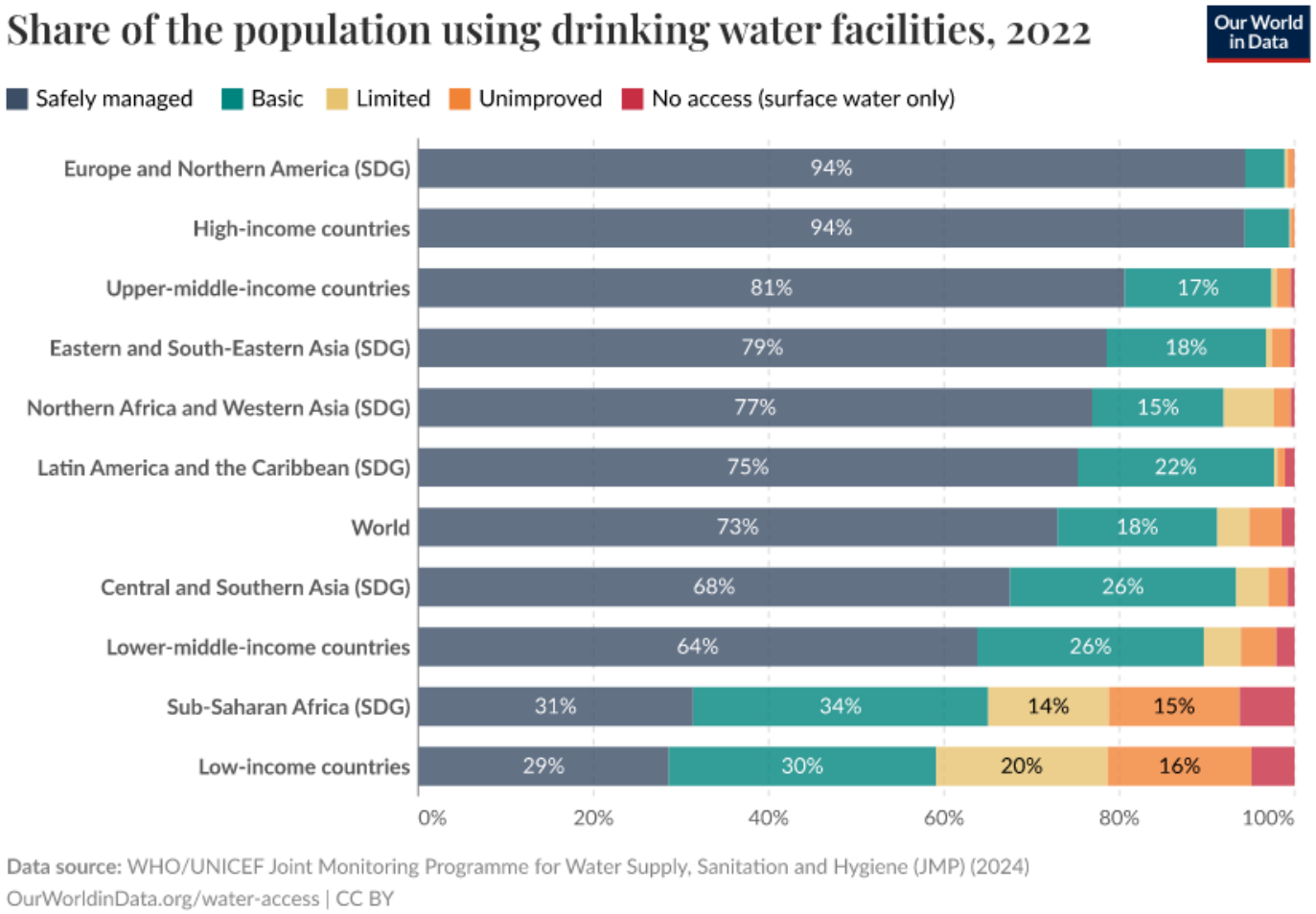


Current situation of global Water Resources https://www.rifeng.com/



Global water report

Water and Sanitation



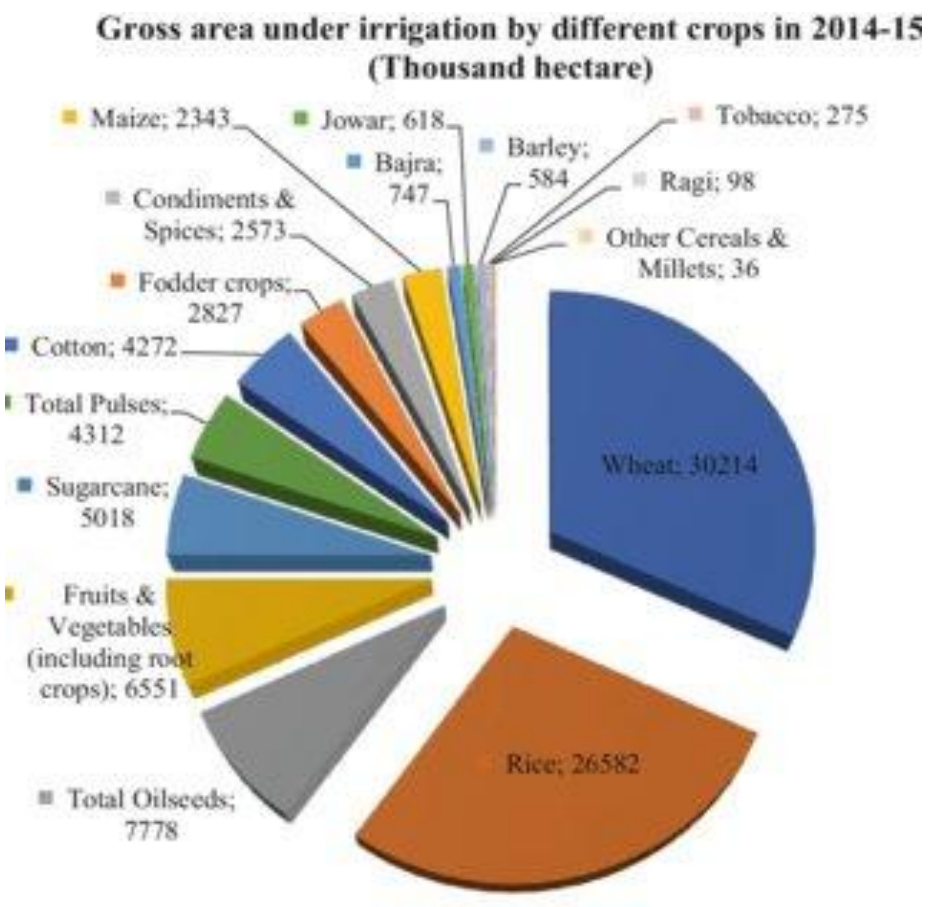
2.2 billion people lack access to safely managed drinking water (UN, 2023).

Poor sanitation leads to water contamination, diseases like cholera, and environmental harm.

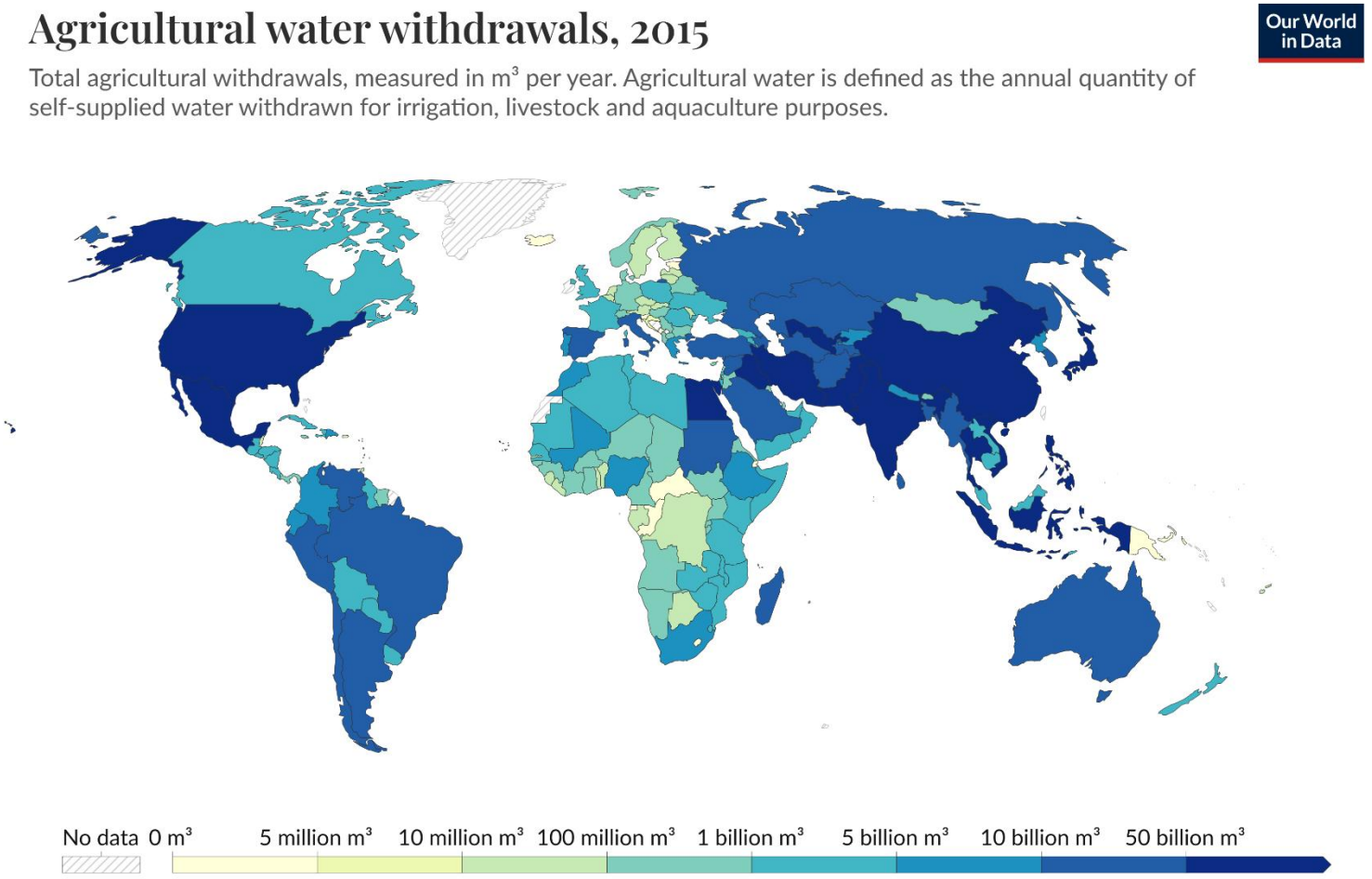
Connection to agriculture: Runoff from farms pollutes water sources.

"Sanitation isn’t just about health—it’s about protecting our water resources for all uses."

Water use in agriculture



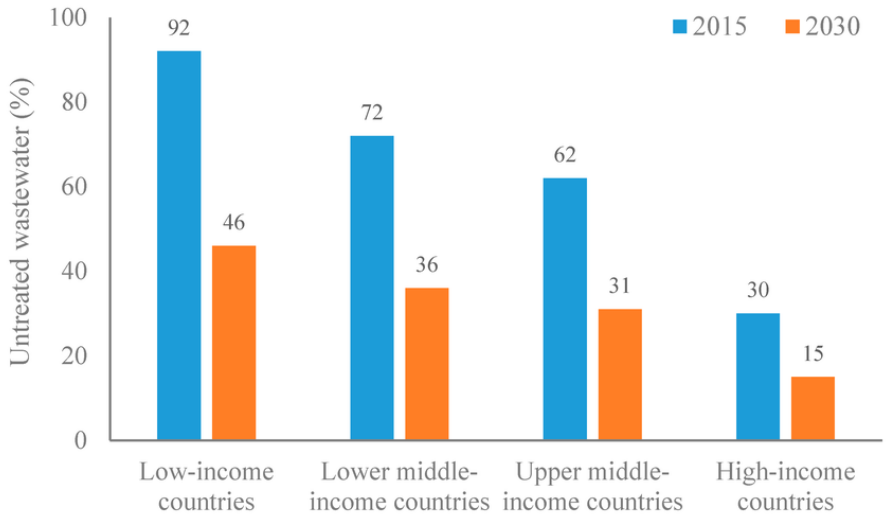
Water Resource and Use Efficiency Under Changing Climate, Abhilash Singh Chauhan and others

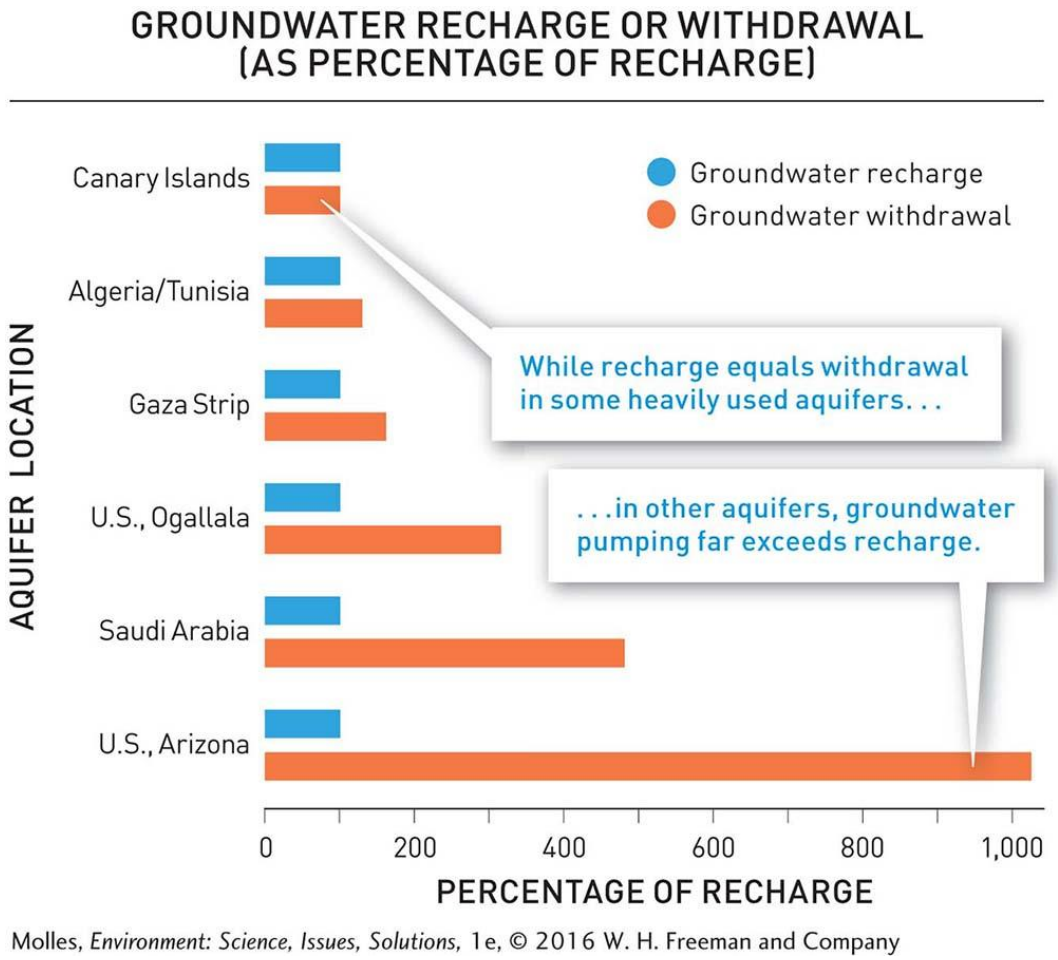


Challenges in Water Management

Challenges in Water Management

- **Overuse** — Depleting aquifers faster than they recharge.
- **Pollution** — Fertilizers, pesticides, and untreated sewage.
- **Climate Change** — Droughts and floods disrupt water availability.

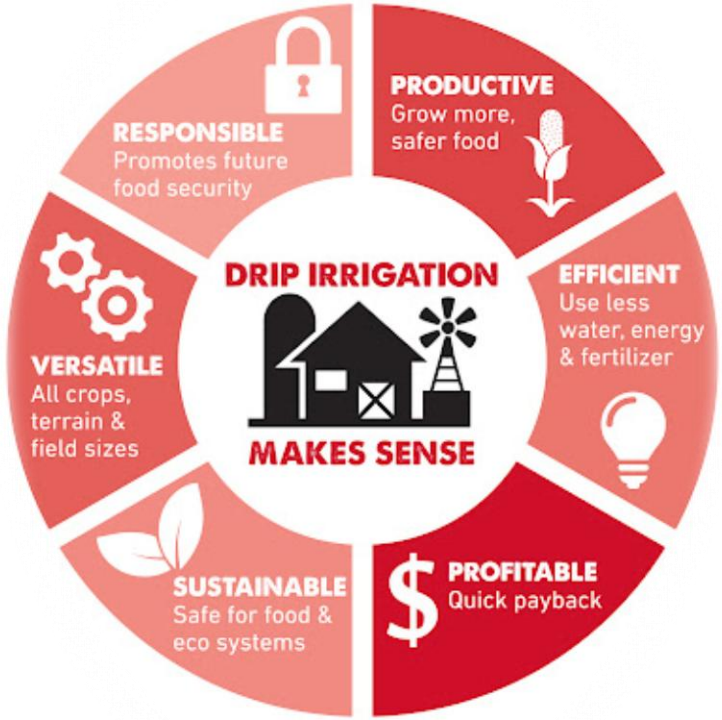


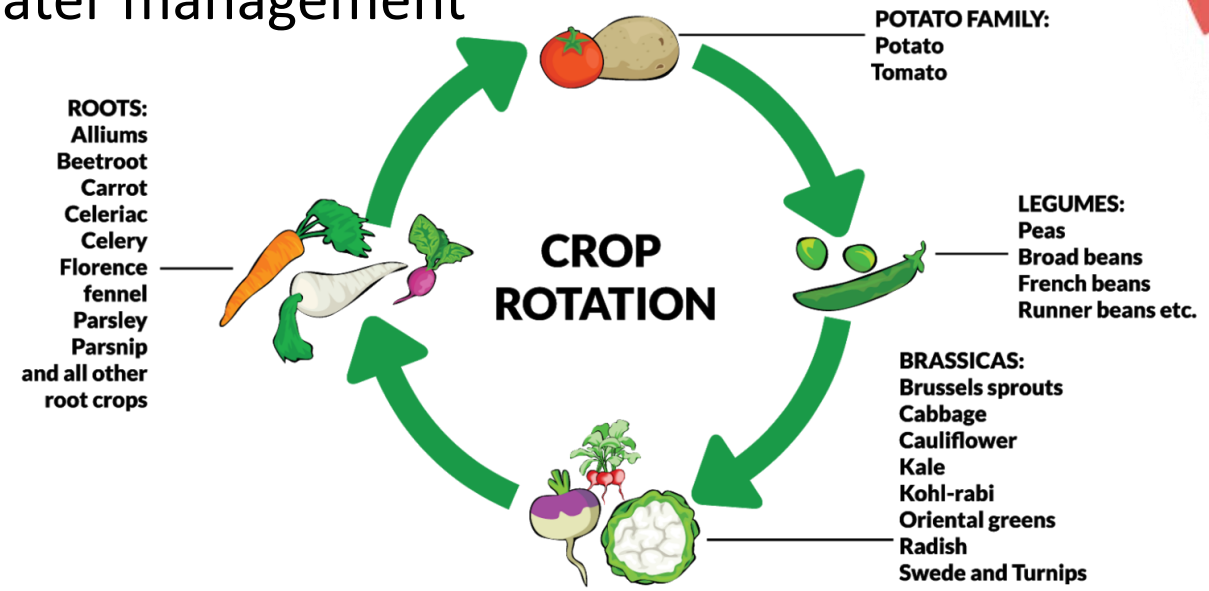


Molles, *Environment: Science, Issues, Solutions*, 1e, © 2016 W. H. Freeman and Company

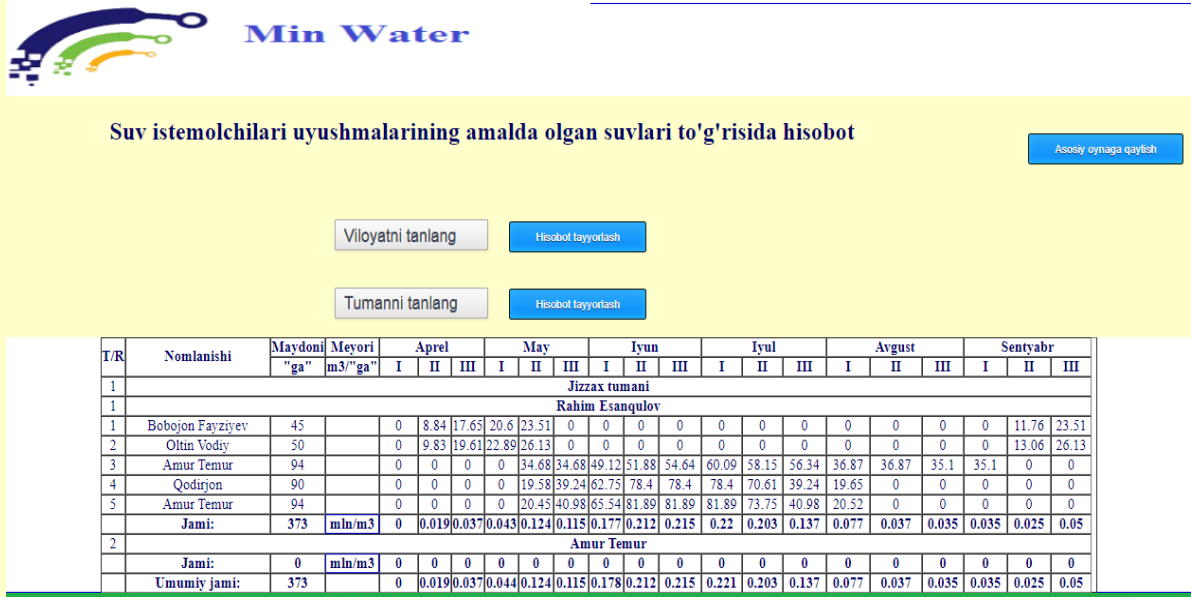
Sustainable Science Solutions for Agriculture

- Precision irrigation (e.g., drip systems) reduces water waste.
- Crop rotation and drought-resistant crops minimize water demand.
- Rainwater harvesting for small-scale farmers.
- Digital water management





Creating list of water consumers' association



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1	Jizzax tumani																				
1	Rahim Esanqulov																				
1	Bobojon Fayziyev	45		0	8.84	17.65	20.6	23.51	0	0	0	0	0	0	0	0	0	0	0	11.76	23.51
2	Oltin Vodiy	50		0	9.83	19.61	22.89	26.13	0	0	0	0	0	0	0	0	0	0	0	13.06	26.13
3	Amur Temur	94		0	0	0	0	34.68	34.68	49.12	51.88	54.64	60.09	58.15	56.34	36.87	36.87	35.1	35.1	0	0
4	Qodirjon	90		0	0	0	0	19.58	39.24	62.75	78.4	78.4	78.4	70.61	39.24	19.65	0	0	0	0	0
5	Amur Temur	94		0	0	0	0	20.45	40.98	65.54	81.89	81.89	81.89	73.75	40.98	20.52	0	0	0	0	0
	Jami:	373	mln/m3	0	0.019	0.037	0.043	0.124	0.115	0.177	0.212	0.215	0.22	0.203	0.137	0.077	0.037	0.035	0.035	0.025	0.05
2	Amur Temur																				
	Jami:	0	mln/m3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Umumiy jami:	373		0	0.019	0.037	0.044	0.124	0.115	0.178	0.212	0.215	0.221	0.203	0.137	0.077	0.037	0.035	0.035	0.025	0.05

Sustainable Science Solutions for Sanitation

- Eco-friendly wastewater treatment (e.g., constructed wetlands).
- Greywater recycling for non-potable uses.
- Community-led sanitation projects (e.g., India's Swachh Bharat).