Ayan Mallik and Ethan Talreja Agricultural Practices Destroying the Environment

Habitat Loss

- 50% of the world's habitable land has been converted for farming (Farming: Habitat Conversion, 2017)
- Indonesia rain forests have been cleared for the construction of palm oil plantations
- This threatens the habitats of endangered species such as the Asian elephant

Solution: Vertical Farming

- Urban farming on the stories of buildings
- Does not require land of other habitats



United States:

• The agricultural sector consumes more than twice the amount of water used for municipal use (Global Agriculture)

World:

• 70% of accessible water worldwide goes to the agricultural sector (Farming: Wasteful water, 2017)

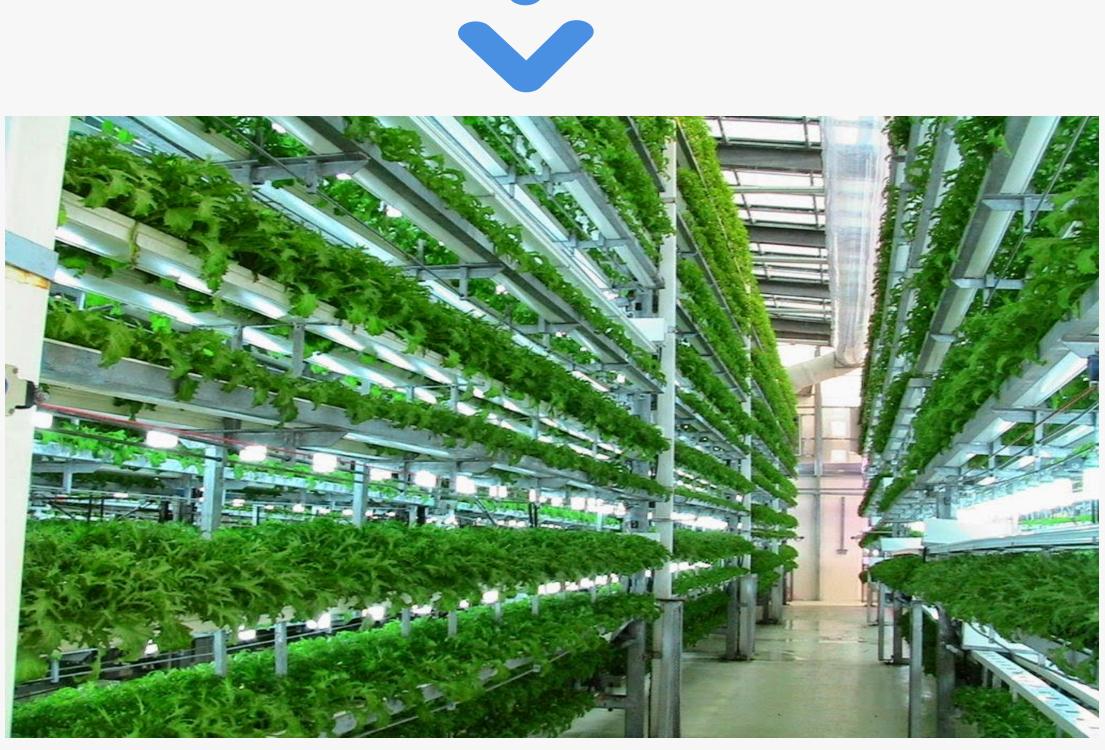
Solutions:

- Fix leaks in irrigation systems
- Avoid over watering plants

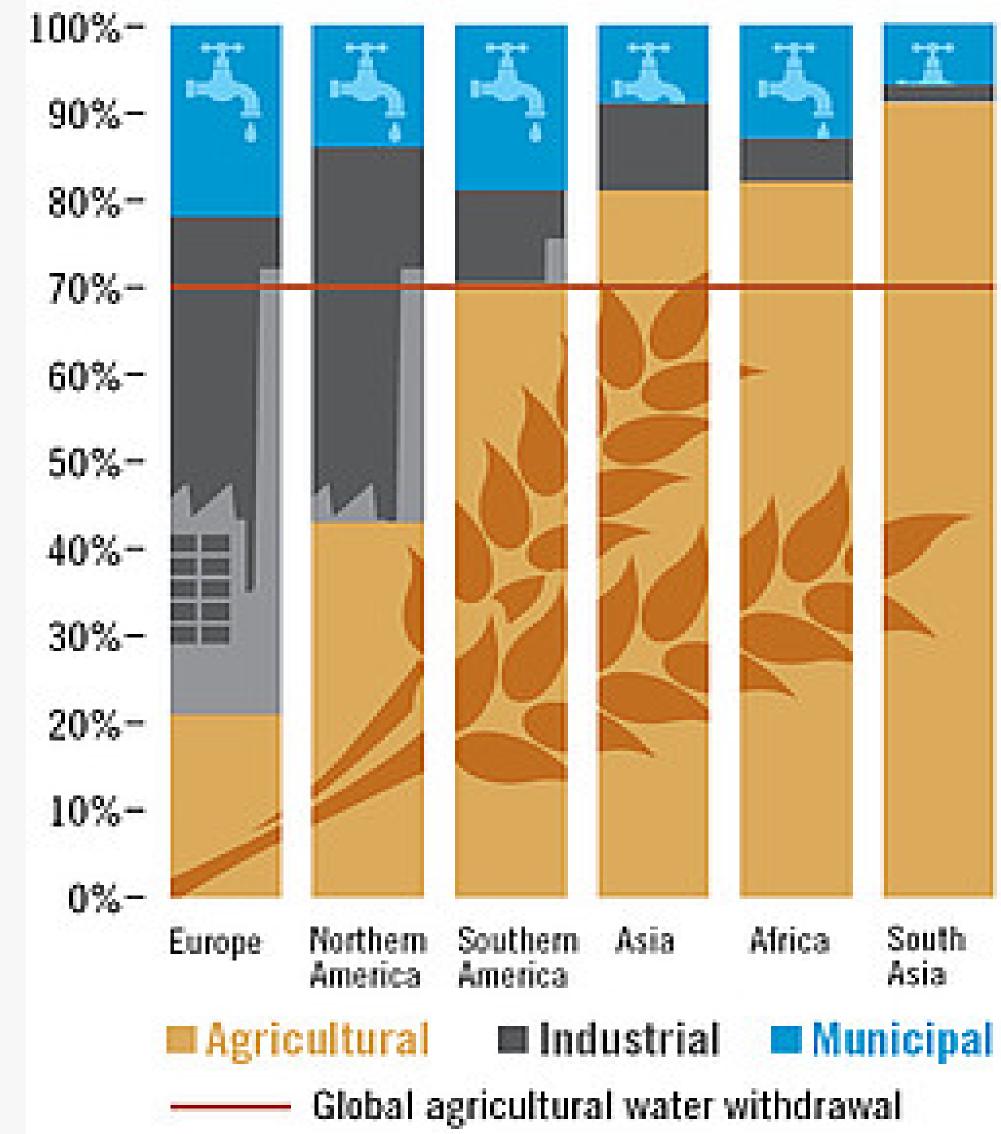


http://blog.farmsreach.com/wp-content/uploads/2014/02/Water_Irrigation.jpg

http://www.goldmanprize.org/blog/clearing-way-plantations-land-grabs-deforestation-and-endangered-species/



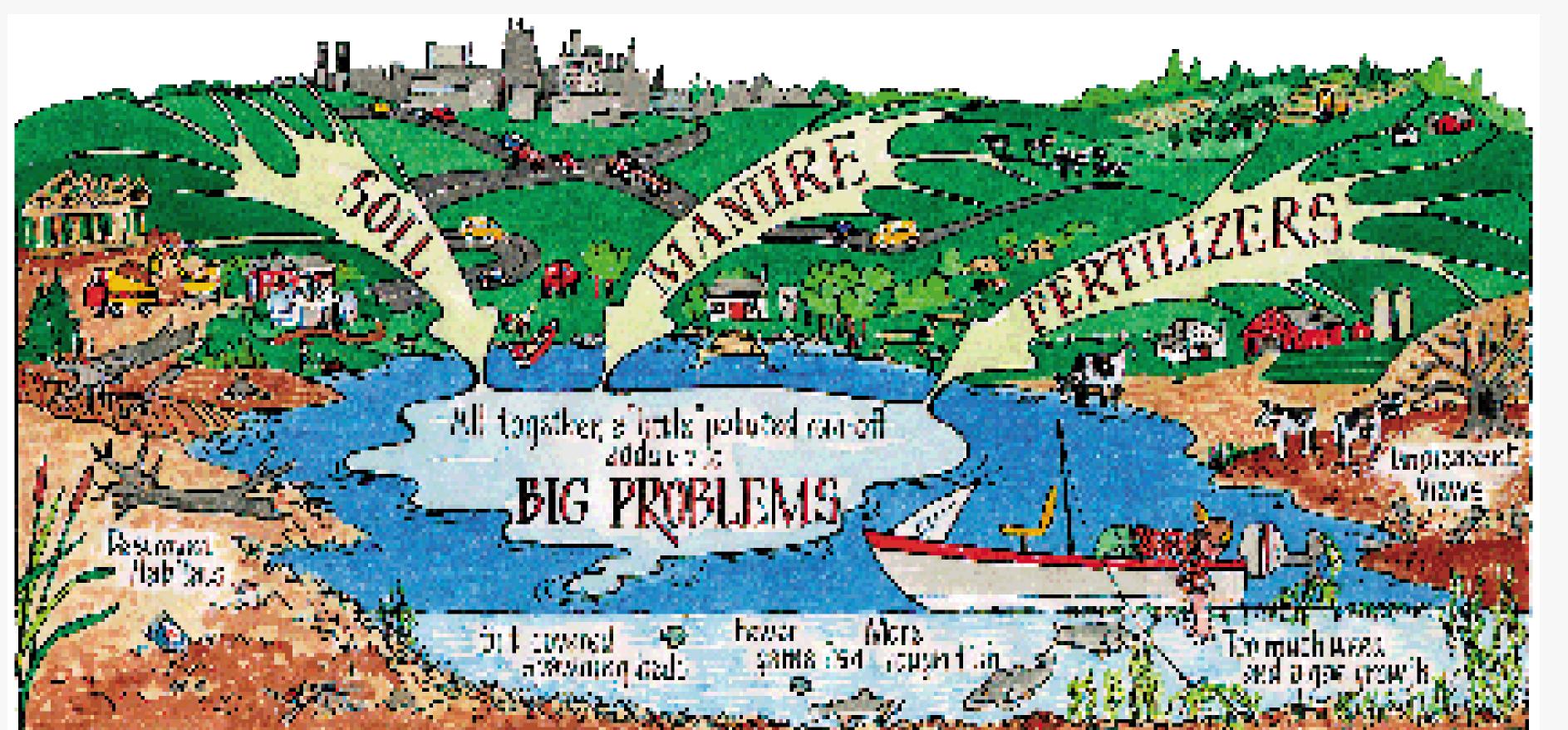
https://www.roboticsbusinessreview.com/wp-content/uploads/2016/07/aeroponics.jpeg



http://www.globalagriculture.org/report-topics/water.html

Runoff

- Excess water from irrigation systems washes pollutants into nearby bodies of water
- In California, high levels of pesticide application caused pheasant populations to decline (Coates et al., 2017)
- Excess water used in California farming carried pesticides through streams to pheasant habitats



http://clean-water.uwex.edu/pubs/clipart/images/LAKESIGN/color/LAKEART.gif

Solution: Minimize Water Usage

- No excess water
- No water shortages

References

Al-Chalabi, Malek. (2015). Vertical farming: Skyscraper sustainability?. Sustainable Cities and Society, 18, 74-77. https://doi.org/10.1016/j.scs.2015.06.003California Drought. (2017). Retrieved from https://ca.water.usgs.gov/data/drought/Coates, P. S., Brussee, B. E., Howe, K. B., Fleskes, J. P., Dwight, I. A., Connelly, D. P., Meshriy, M. G., & Gardner, S. C. (2017). Long-term and widespread changes in agricultural practices influence ring-necked pheasant abundance in California. Ecology and Evolution, 7, 2546–2559. doi: 10.1002/ece3.2675Farming: Habitat conversion & loss. (2017) Retrieved from http://wwf.panda.org/what.we.do/footnript/agriculture/impacts/habitat_loss/Farming: Wasteful water.

http://wwf.panda.org/what_we_do/footprint/agriculture/impacts/habitat_loss/ Farming: Wasteful water use. (2017) Retrieved from http://wwf.panda.org/what_we_do/footprint/agriculture/impacts/water_use/García-Orenes, F., Roldán, A., Mataix-Solera, J., Cerdà, A., Campoy, M., Arcenegui, V., & Caravaca, F. (2012). Soil structural stability and erosion rates influenced by agricultural management practices in a semi-arid Mediterranean agroecosystem. Soil Use Manage, 28, 571–579. doi:10.1111/j.1475-2743.2012.00451.xKayoda, T., Suda, S., & Washitani, I. (2009). Dragonfly crisis in Japan: A likely consequence of recent agricultural habitat

degradation. Biological Conservation, 142,1899-1905. https://doi.org/10.1016/j.biocon.2009.02.033Laurance, W. F., Sayer, J.,& Cassman, K. (2013). Agricultural expansion and its impacts on tropical nature. Trends in Ecology and Evolution, 29,107-116. https://doi.org/10.1016/j.tree.2013.12.001Palm Oil. (2017). Retrieved from https://www.indonesiainvestments.com/business/commodities/palm-oil/item166Ramesh, T. & Downs, C. T. (2015). Impact of land use on occupancy and abundance of terrestrial mammals in the Drakensberg Midlands, South Africa. Journal for Nature Conservation, 23, 9-18. https://doi.org/10.1016/j.jnc.2014.12.001Robinson, D. A. & Phillips, C. P. (2001). Crust development in relation to vegetation and agricultural practice on erosion susceptible, dispersive clay soils from central and southern Italy. Soil and Tillage Research, 60(1-2), 1-9. Retrieved from https://www.journals.elsevier.com/soil-and-tillage-research. Santelmann, M., Freemark, K., Sifneos, J., & White, D. (2006). Assessing effects of alternative agricultural practices on wildlife habitat in Iowa, USA. Agriculture, Ecosystems & Environment, 113(1-4), 243-253. Retrieved from https://www.journals.elsevier.com/agriculture-ecosystems-and-environment/. Vickery, J. A., Tallowin, J. R., Feber, R. E., Asteraki, E. J., Atkinson, P. W., Fuller, R. J., & Brown, V. K. 001). The management of lowland neutral grasslands in Britain: effects of agricultural practices on birds and their food resources. Journal of Applied Science, 38, 647-664. doi:10.1046/j.1365-2664.2001.00626.xWater. (n.d.). Retrieved from http://www.globalagriculture.org/report-topics/water.htmlZhang, Q., Chen, S., Dong, Y., Liu, D., Yang, X., & Yang, Z. (2017). Controllability of Phosphorus Losses in Surface Runoff from Sloping

Farmland Treated by Agricultural Practices. Land Degradation & Development, 28, 1704–1716. doi:

10.1002/ldr.2702.