

## Permaculture: Approaches to a Sustainable Future

Industrial agriculture is a keystone to our society – one that allows the existence of supermarkets and incredibly cheap food to permeate all across the United States. It has created jobs, encouraged populations to boom across the planet, and even grants access to food commodities that would otherwise be unavailable. And according to Boody and Devore (2006) its cost is the threat to over 146 estuaries across the globe, the great barrier reef, and the potential decline of plant biodiversity as a whole, not to mention the environmental pollution that comes along with it. If this sounds bad, that's because it is. There has also been major failure from governmental regulatory agencies to address these issues as the consumption of valuable and scarce resources continue at an unprecedented rate (Ferguson & Lovell, 2015). This issue begs for a solution and yet one has not come, even when that solution stands at the ready.

There is a form of not only agriculture, but living, that would allow society to address all different challenges such as unsustainable agriculture, climate change, water shortages, environmental pollution, soil degradation and much more (Rhodes, 2012). This solution is known as permaculture, and according to Ferguson & Lovell (2015) is an approach to human settlement that focuses on a sustainable design. There is a famous quote surrounding the philosophy of permaculture: “working with, rather than against nature” (Donovan 2002). But how does permaculture work?

Permaculture is the basis for many environmentally sustainable designs but each of these approaches the topic from radically different angles. One form called Urban Permaculture is the integration of permaculture and this philosophy into urban environments like cities. Jenny Donovan provides an introduction and breakdown of the methods used in Urban Permaculture such as “urban farming”, “energy cycling”, “emphasis on biological resources”, “small scale intensive systems”, “time stacking”, and so many more (2002). Urban farming is the simplest of the bunch, the introduction of farming in urban areas to decrease the ecological footprint of communities, the ecological footprint being the “amount of land needed to biologically produce the resources they [a city] consume and to assimilate their waste indefinitely” (Donovan, 2002). And for some cities like Vancouver Canada, the footprint is 80 times larger than the city itself (Donovan 2002). This introduction of Urban farming would lessen that footprint and the competitiveness for resources, taking stress off the environment whilst allowing the city to be

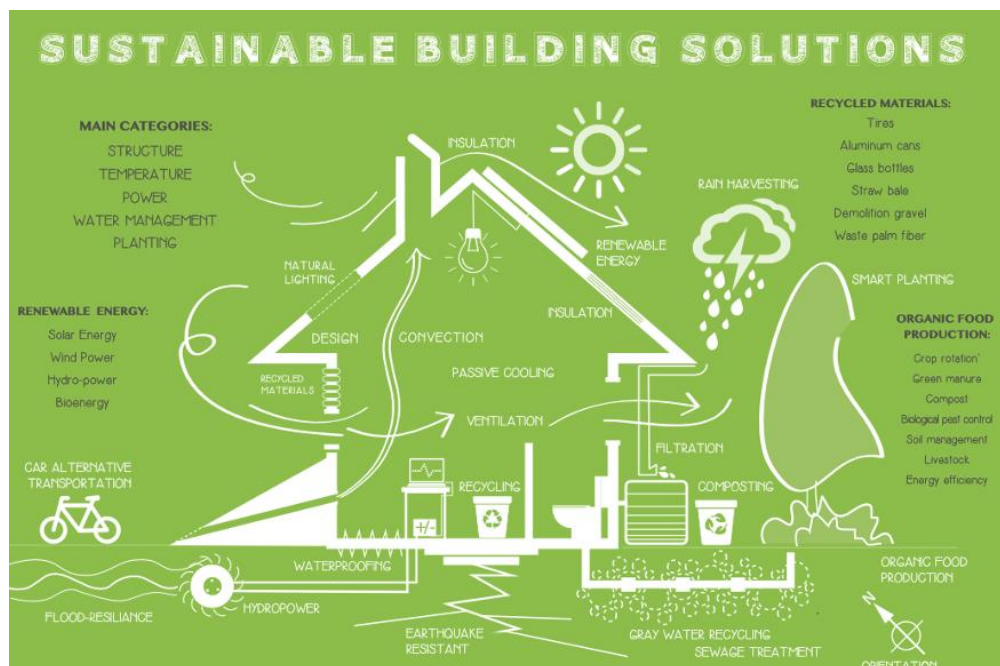


Figure 1: Diagram of a sustainable building [Online image].

<https://www.mesym.com/en/projects/volunteers-needed-for-earthship-malaysia/>

more self-sustaining.

Energy cycling is the process of keeping energy, nutrients, and other beneficial resources as local as possible (Donovan

2002). One such

strategy is the reuse of greywater within a building allowing it to be filtered on site through items like plants and bacteria allowing individuals and communities to consume less resources and decrease the cost of living. There are even some companies like Earthship Biotecture in New Mexico who have created a way to filter water four times before it has to be removed from the system. Time stacking is the method where a location can be used for multiple purposes. For example, a marketplace could double as both a town meeting location and a park depending on the dates and times, allowing communities to get more use from less land (Donovan, 2002). Although there are more systems implemented and used in an urban system the overarching goal is to get more from less. Every choice made in a permaculture oriented urban community is made to create a cost-efficient flourishing living situation that does not negatively impact the environment. But this solution does not tackle the agricultural system as a whole.

The agricultural system and the growing pronouncement of its flaws has inspired many to approach agriculture from a different angle. One suited toward a sustainable and permaculture-esque future. George Boody and Brian DeVore (2006) actually present a completely different approach to the system using methods such as local foodsheds, wild gardens, and much more. The introduction of local foodsheds, the idea that more food should be grown locally, could help reduce the amount of synthetic nitrogen utilized in food production. Before going in depth on this revision of agriculture there needs to be an explanation about synthetic nitrogen fertilizer. This kind of fertilizer was originally introduced as a way to increase the amount of food growth, to such an extent that it was quoted to be one of the “holy grails” of “inorganic chemistry” (Boody & Devore, 2006). Without these nitrogen fertilizers the entire American diet would be changed and the U.S.A. would no longer be the largest exporter of food (Boody & Devore, 2006). However, the positive tradeoffs

are astounding: Diets would be cleaner and healthier, and the negative impact of nitrogen fertilizers (which there are many of) would be reduced. The largest issue with the nitrogen intensive agricultural system is that it is not a long-term solution to the hunger problem. Its negative impact on the environment is unsustainable and is only a short-term solution. The introduction of local foodsheds could reduce the use of synthetic fertilizers because as they are small production farms focusing on plants that grow locally to their regions, they don't require a heavy input. The only real input required would be that of composted fertilizer "cooked up right on the farm" (Boody & Devore, 2006). Wild gardens would function in much the same way, reducing the need for fertilizers. However, they mimic the natural ecosystem in their function. One method is to introduce natural predators that would kill pests, replacing pesticides. This methodology can also be seen in what is known as forest gardening, a strategy where one creates a forest that will sustain itself packed with food growing plants. Food forests require no input after a certain threshold, create an abundant yield of local crops, and contribute to the preservation of local ecosystems.

As evidenced, there are many available solutions to the unsustainable ways which humanity lives, it is a question of getting the solutions started that is the difficult part. There is also the fact that many are unaware of the damages that are caused by this unsustainable system. With proper education and catalyzation, these issues could be tackled, it is rather a matter of when rather than how.

## Bibliography

Boody, G., & DeVore, B. (2006). Redesigning Agriculture. *BioScience*, 56(10), 839-845.

doi:10.1641/0006-3568(2006)56[839:ra]2.0.co;2

Donovan, J. (2002). An Introduction To Permaculture and Urban Farming. *Environment Design Guide*, 1-3. Retrieved July 29, 2021, from <http://www.jstor.org/stable/26148055>

Ferguson, R., & Lovell, S. (2015). Grassroots engagement with transition to sustainability: Diversity and modes of participation in the international permaculture movement. *Ecology and Society*, 20(4). Retrieved July 29, 2021, from <http://www.jstor.org/stable/26270300>

Rhodes, C. (2012). Feeding and healing the world: Through regenerative agriculture and permaculture. *Science Progress (1933- )*, 95(4), 345-446. Retrieved July 29, 2021, from <http://www.jstor.org/stable/43425784>

Diagram of a sustainable building. (n.d.). MESYM. <https://www.mesym.com/en/projects/volunteers-needed-for-earthship-malaysia/>