PROJECT GREEN CHALLENGE DAY 11: SOIL (greener)

Name: Nurul Farhana binti Nazry
Username: Farhana385
Instagram username: frhn_air
School: University of Malaya (UM)

Challenge:

Reflect on which aspects I can apply locally:

Soil is one of the most important natural resources as it became our source of living, economics, and even habitats for many species. Healthy soils are important to human because 'we are what we eat' and considering that some of our foods are grown from soil, it's very important to ensure that we are using healthy soils for the sake of having healthy body.

Conventional agricultural practices usually does more harm than good for the soils. The major cause of degradation of soil health is deforestation, but we can't ignore the fact that it was the conventional agricultural practices that causes the greatest damage.

For example, using synthetic and chemical fertilizers can be harmful to the soils. Chemical fertilizers can be absorbed by plants faster than the organic synthetics but the it can risk our marine life if the absorbed chemicals flow into the water stream. Practices of tilling the soils are also risky as it compacts the soil under the tilled layer in long-term and exposes nutrient-rich top soil to water and win erosion, hence releasing carbon to the air. Another common agricultural practices are using pesticides and herbicides to prevent weeds and pests from growing up. However, this risks the soil organisms of being killed, and refrain the carbon from moving from plant roots into soil, as well as beneficial pollinators. And when these plants entered our boy system through foods, these chemical will also be transferred as well!

All of these practices are the reasons why atmospheric carbon dioxide keeps on increasing. So, we have to take action now if we want to restore the health of soil where we live.

For me, the aspect I can apply locally is by promoting regenerative agricultural practices to my local organisation and community. Some suggestions I would make for my local community is to plant perennial crops along with annual as perennials can remain productive for more than one growing season. This can help sequester carbon for longer periods of time and break up more soils.

I will also find more supplies of natural fertilizers and pesticides for my community to encourage them to stop using chemical fertilizers. Using natural ones allows beneficial microorganisms in soil to thirive, while still allowing the plants to photosynthesize, decompose, and sequester carbon. The price may be slightly expensive, but I believe if I buy them in bulk, we may have a consistent lower price and making it sustainable for long-term use.

Last but not least, I will encourage my local farmers to plant a wide variety of crops and rotate them. Planting only one crop can decrease soil nutrients as the crops use up all of them while they grows. But when crops are allowed to rotate, soils are given the chance to replenish their nutrients, hence making our soil healthy, and our plants remain safe to eat.

Three interesting findings from my quest:

1. We can find more individual living things in one tablespoon of healthy soil than the amount of people living on the planet! This comprises both macroorganisms and microorganisms. The carbon-rich organic matter is broken down by microorganisms, primarily bacteria and fungi, who also release nutrient-rich excrement into the soil. This makes the nutrients readily available for plants to absorb and utilise. In contrast, there are hardly any microbes in bad soil. Without them, organic matter cannot decompose and plants cannot get essential nutrients.
2. Healthy soils feel more light and spongy due that the presence of air pockets. These air pockets are created by the carbon-based organic matter to allow resident plants and animals to breathe and move easily. Meanwhile, unhealthy soils are more compacted and felt hard and solid, limiting the movement of animals and growth of plant roots.
3. Plants naturally sequester carbon in the soil through a process known as carbon sequestration. As much as 40% of the carbon-based sugar produced by plants during photosynthesis is released to the soil, with the remainder moving down to the roots where it will be stored until the plant needs it.

My graphic:

Instagram post: