

SEED SAVING AND SUSTAINABILITY

A Presentation Prepared by CSUN's Sustainability Students

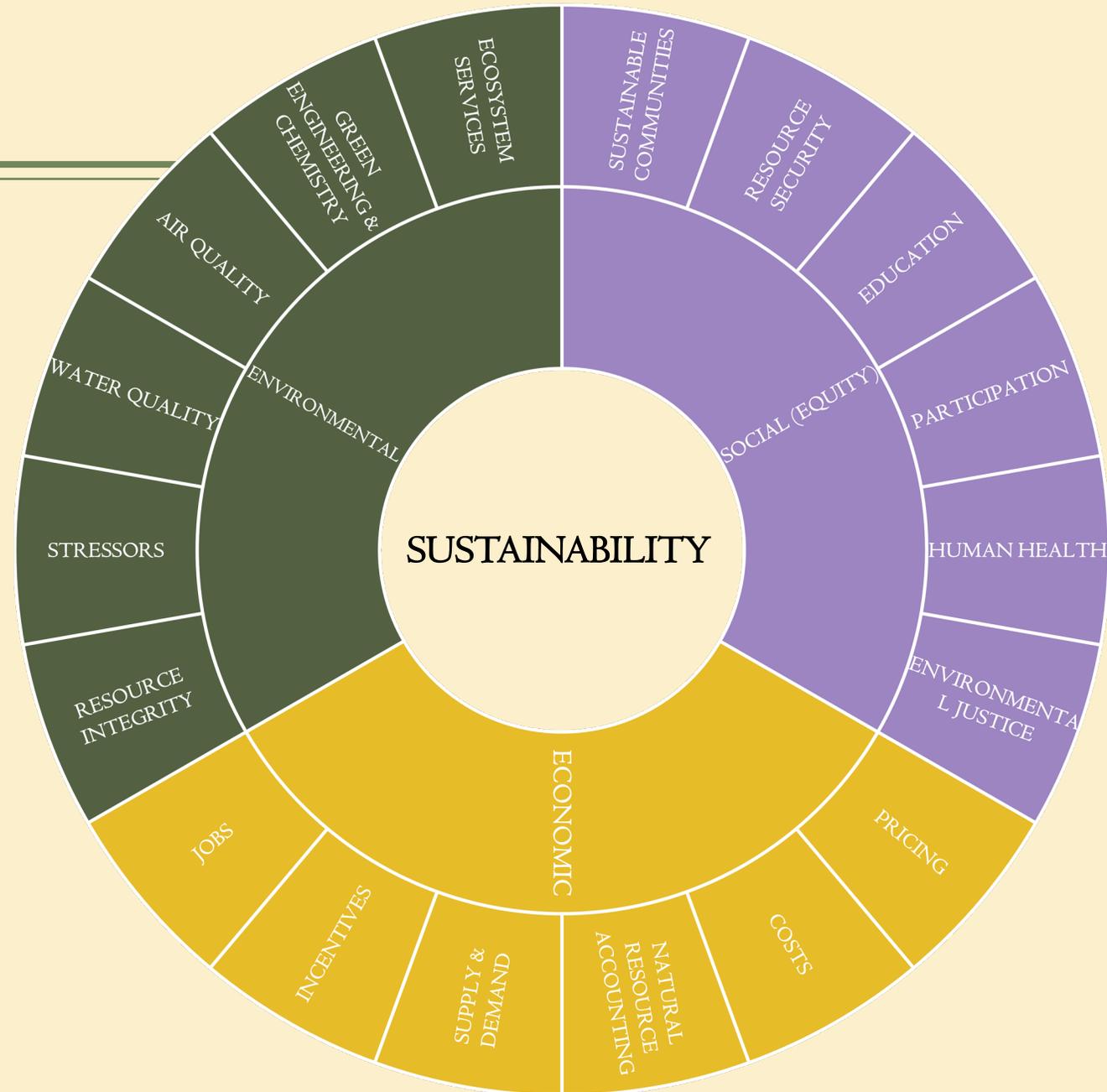


I Various seeds. Image credit: Nopparat Promtha via Shutterstock

INTRODUCTION

Seed saving is a solution to many problems presented by climate change and globalization and has the power to address inequalities in modern food systems. The CSUN Sustainability Institute is looking for ways to incorporate seed saving into systems on campus to combat local environmental and social problems. Seed saving can be an impactful way to make change locally but, it's also in line with several sustainable goals.

Sustainable development is defined as development that meets the needs of the current generation without compromising the needs of future generations (Brundtland Commission, 1987). The EPA further clarifies this definition by focusing on six particular topics per sustainability pillar. Seed saving relates to all three sustainability pillars and is a multifaceted solution that can be applied in sustainable development.



SUSTAINABLE GOALS

The entire point of sustainable development is to create solutions that impact each pillar of sustainability. We have identified five solutions to current problems that not only relate to each sustainability pillar but also meet 4 of the 17 United Nations sustainable development goals.

- What are the UN Sustainable Development Goals?
 - These goals are a call to universal action to create a more sustainable life for the Earth's inhabitants. There are a total of 17 goals and each of them are interconnected and meant to meet the economic and social needs of people without compromising the health of the environment (United Nations, n.d.). Currently there is a ten year plan to meet these goals by 2030.
- We chose 4 goals that seed saving relates to
 - Goal 2: Zero Hunger
 - Goal 11: Sustainable Cities and Communities
 - Goal 12: Responsible Consumption and Production
 - Goal 13: Climate Action

SUSTAINABLE DEVELOPMENT GOALS | 2 ZERO HUNGER



WASTE LESS FOOD AND SUPPORT LOCAL FARMERS.
A third of the world's food is wasted, yet 821 million people are undernourished.

SUSTAINABLE DEVELOPMENT GOALS | 11 SUSTAINABLE CITIES AND COMMUNITIES



BIKE, WALK OR USE PUBLIC TRANSPORTATION.
9 out of 10 urban residents breathe polluted air.

SUSTAINABLE DEVELOPMENT GOALS | 12 RESPONSIBLE CONSUMPTION AND PRODUCTION



RECYCLE PAPER, PLASTIC, GLASS AND ALUMINIUM.
By 2050, the equivalent of almost three planets could be required to sustain current lifestyles.

SUSTAINABLE DEVELOPMENT GOALS | 13 CLIMATE ACTION



ACT NOW TO STOP GLOBAL WARMING.
Global emissions of carbon dioxide (CO2) have increased by almost 50% since 1990.

CHANGING THE HUMAN CONNECTION WITH NATURE

Learning more about where our food comes from, where it is grown, how it is cultivated, and how it benefits the environment allows for a more conscious relationship with not only our food but also nature. Seed saving can increase self-sufficiency, inspire spiritual teachings and well-being, and provide knowledge on how to better care for the local/regional environments. It can also help reduce carbon emissions by supporting and growing locally sourced food, herbs, and plants. Seed saving can also help communities and environments be more resilient to the threats of climate change, global warming, and food insecurity (McCullough, 2018).

The hope with seed saving is the effect it will have on people's perspective on their role in nature. Experiences of nature can improve personal well being, transform the perspective of the human role in nature, increase community engagement which can eventually lead to fundamental societal changes (Clayton, 2017). It can also contribute to more resilient and circular lifestyles, economies and systems by shrinking the scale of food systems and creating more intimate connections between people and their food and the land on which it was grown.

DECREASING GREENHOUSE GAS EMISSIONS

Transportation is a big part of greenhouse gas emissions. To get produce into local stores, it needs to get transported from either far places or near places. Transportation of produce is a big cause of greenhouse gas emissions. Food can be shipped via air or ground transport. According to Striebig et, al., air transportation of produce releases six more times the CO² than road transport. In this study, different produce has different emission rates, it is calculated from both transportation and the different fertilizers that are used for the specific plant. Some plants need more fertilizer than others.

One of the best ways to combat these emission rates is changing the sources of our food. If we invest in creating local food systems (systems in which food is eaten in close proximity to the place it was grown) then these rates could decrease greatly. Seed saving can sustain and create unique local food systems through the creation of local seed systems. Local farmers or gardeners could share seeds with fellow farmers and gardeners. These transfers could support future growing seasons and communities that rely on local food system producers.

FOOD SECURITY

In the coming years climate change may cause great stress to the world's food systems. Variations in the world's climate systems may make it difficult to have successful harvests and cause crop failure. Events such as flooding and severe draughts may continue in certain regions and cause food insecurity (Gregory, et. al, 2005). Food security is when everyone at all times has physical and economic access to sufficient and safe food that meets their daily nutritional needs (FAO, 1996). Informal seed systems (seed systems that are local and have no governmental assistance) can help mitigate the effects of food insecurity. Seeds circulating these systems are often more diverse and unique, which helps preserve biodiversity in certain regions (Gill, et. al., 2013). The increased biodiversity may increase crop hardiness which will be good for the variations in climate change. Also, healthy and active informal seed systems can ensure future harvests by being another source of seeds should governments not be able to meet seed demands.

Informal seed systems do not necessarily have to only exist in small rural areas. They can also exist in urban spaces. Seed sharing has a long global tradition, local informal seed systems ensures the circulation of seeds that are not manufactured or distributed by big business or governments. This means greater biodiversity and the fact that these seed systems can be in different settings means greater food security in more places.

PRESERVING BIODIVERSITY

Seed saving can increase the amount of biodiversity due to the increase of usage of native and indigenous plants and seeds being utilized in farming/agriculture. On average today, most of the food that is commercially grown are main staple foods (corn, rice, maize, potatoes, soy, beef, chicken, etc.) The global food supply mostly depends on just around 150 plant species. However, in the past there used to be more crop variety for example, in the early 20th century in the U.S. there was around 307 varieties of corn. Today only around 12 are commercially grown. Countries around the world face similar if not the same exact issue. China has reportedly lost over 90 percent of its native wheat seed varieties. In Mexico, over 80 percent of its maize, corn, and wheat seed varieties has been lost/underused (Krug, 2018).

Preserving biodiversity via seed saving has many positive effects. It safeguards increasing threats of pests, diseases, climate change, unprecedented weather, improves yield and supply output. It increases the number of native/indigenous animal species (birds, insects, microorganisms, etc.), food security, nutrition and well-being. It can also provide safe income opportunities to rural/poor/underserved communities and sustain productive agricultural ecosystems. Wild indigenous plants also provide alternative sources of food when commercial harvests fails.

PRESERVING CULTURE

All around the world people use different types of crops. Today certain types of fruits and vegetables are dominant in the American diet such as apples, corn, carrots, grapes, onion, oranges, pumpkin, tomatoes, etc. However, there are certain crops that have long histories and close ties to cultural identities, crops such as corn. In Mayan culture corn/maize symbolizes one of life's never ending (especially for subsistence farmers) and is often referred to as sacred, holy and life-giving. The crop preserves the Mayan people's connection to the land (Huff, 2006). Crops like corn/maize exist in many other cultures, saving their seeds can help preserve not only the biodiversity of our crops but also various cultural identities.

While this particular solution does not directly address one of the four chosen sustainable development goals it does relate to the social sustainability pillar and the EPA participation topic. Seed saving helps preserve cultural identities by preserving culturally significant crops. This may also lead to greater participation of certain cultures in local food systems that have a seed saving system in place as well. This could mean that in certain regions local food and seed systems can be representative of cultural groups.

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