Northeastern University
College of Engineering

STEM Newsletter 43 - (January 2023)

UN Sustainability Goals: Decent Work and Economic Growth, Industry, Innovation, and Infrastructure

Introduction

As mentioned previously, for the next few weeks, we will be focusing on and discussing three different UN sustainability goals, each under an overarching theme. For this week, the theme is Progress and the sustainability goals that will be discussed are “Decent Work and Economic Growth'' and “Industry, Innovation, and Infrastructure”.

The Decent Work and Economic Growth goal seeks to identify the main reasons for economic instability and promote the process of recovery. Through understanding global economic events and patterns, the UN hopes to establish stronger worker retention and productivity and decrease unemployment. With this, it is important to promote sustainability and be mindful of inclusivity and safety within and around the workplace.

The Industry, Innovation, and Infrastructure goal seeks to revolutionize three similar features of the economy. By introducing novel technology and helping the industries negatively impacted by the COVID-19 pandemic regain their footing, the UN hopes to revitalize small-business, the backbone of the global economy. With the promotion of industrialization and innovation, it is imperative to have a sustainable and reliable process to nurture safe and beneficial practices.

Northeastern Connections

Faculty Connection

Auroop R Ganguly (Related News)

Auroop R Ganguly is a Distinguished Professor at Northeastern University in the Civil and Environmental Engineering Department. His research focuses on urban sustainability, climate change, spatiotemporal machine learning, and network science for lifeline infrastructure. Professor Ganguly is also the director of the Sustainability and Data Sciences Lab (SDS Lab) which works to “develop novel insights in the interdisciplinary sciences of climate extremes and the engineering principles of networked lifelines to inform adaptation and policy” as stated on their website [Link].

Student Connection

At Northeastern University, the Model United Nations team seeks to address many topics surrounding the UN, including the sustainability goals. In a debate-style format, students discuss the feasibility and opportunities that will pave the way for goals set forth by the UN to be achieved in a timely and realistic manner.

Also at Northeastern University, the Economics Society (a trio of individual collegiate clubs) seeks to address issues of economic productivity and potential factors for growth. Centered around fiscal responsibility and current economic news, the econ society works towards understanding economic patterns and making a real change.

Similarly, the Origin team at Northeastern University seeks to promote entrepreneurship in the STEM field. By bringing technology and science together, the club hopes to inspire students to pursue and present innovative ideas. Many times, the club has helped students secure financial aid to make their projects come to fruition and have the potential to change the technological world.

Do Now

Understand Goal 9: Industry, Innovation, and Infrastructure (Secondary)

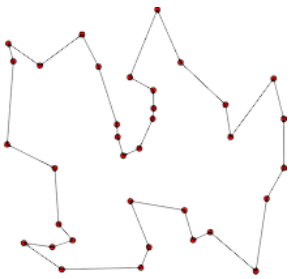
Watch the video above and think about the questions listed below afterward.

Discussion Questions:

- How did COVID-19 impact businesses all around the world?
- Why is it essential to support small businesses?

Activity

Dams are a sustainable way to prevent erosion and help provide a sustainable water source that conserves ecosystems. They can last hundreds of years



without any major repairs. And help keep water out of cities!

Materials Needed:

You can use any materials you want but here are some suggestions:

- Large plastic bin
- Water
- Plastic Wrap
- Paper
- Cups
- Straws
- Cotton Balls
- Felt
- Fabric
- Tape
- Cardboard
- Scissors

Steps:

- Using any of the materials, begin constructing your dam in the center of the large plastic bin. Some factors to consider while constructing your dam is how tall should your dam be in order to contain all the water on one side, how thick should your dam be to withstand the flow of water, which materials would allow water to flow through and which materials would prevent water from flowing through?
- When fully constructed, bring your bin to somewhere where it is okay to spill some water, such as the outdoors or a tub. Pour water on one side of the tub, make sure to pour a substantial amount of water so there is a force pushing against the dam.
- Take note on how much water your dam was able to contain

Discussion Questions:

- If water leaked through your dam, why do you think this occurred?
- If you could reconstruct your dam again, what would you do differently?
- What are some famous dams around the world and their properties?

Share Your Results

We'd love to know how the activity and/or the "do now" turned out! What worked and what didn't work? Please share with us something you learned and/or send us pictures! Email us at stem@northeastern.edu.

Related links/Extensions

- UN Goals
- Northeastern University International Relations Council
- Northeastern University Climate Change and Sustainability
- Try Engineering - Engineer a Dam