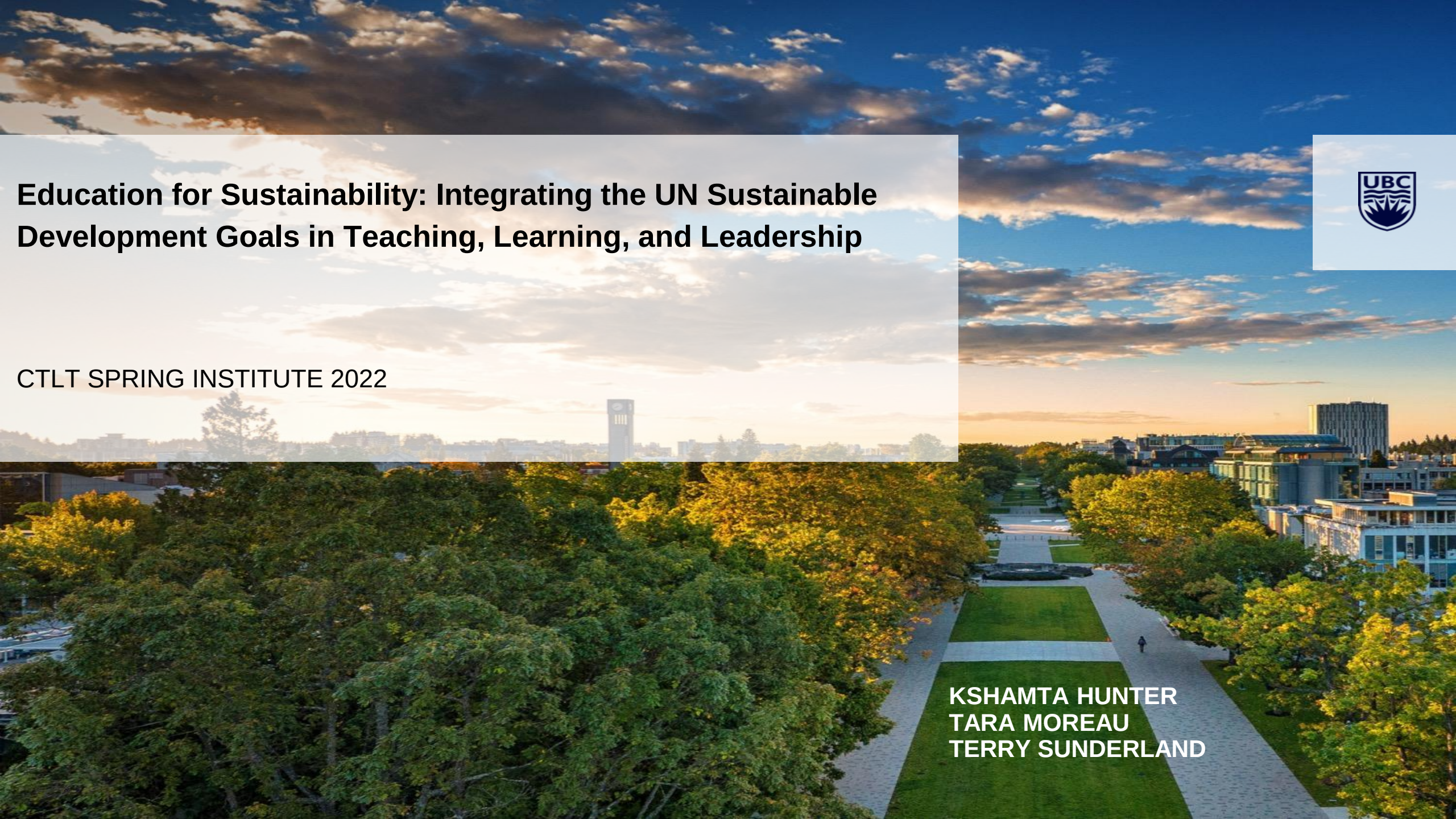
Education for Sustainability: Integrating the UN Sustainable Development Goals in Teaching, Learning, and Leadership

CTLT SPRING INSTITUTE 2022

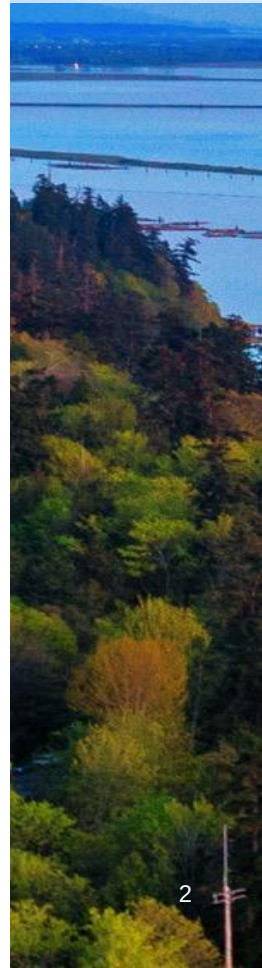


KSHAMTA HUNTER
TARA MOREAU
TERRY SUNDERLAND

LAND ACKNOWLEDGMENT

We would like to acknowledge that UBC's Vancouver Point Grey campus is situated on the traditional, ancestral, unceded territory of the Musqueam people. We would also like to acknowledge that you are joining us today from many places, near and far, and acknowledge the traditional owners and caretakers of those lands.

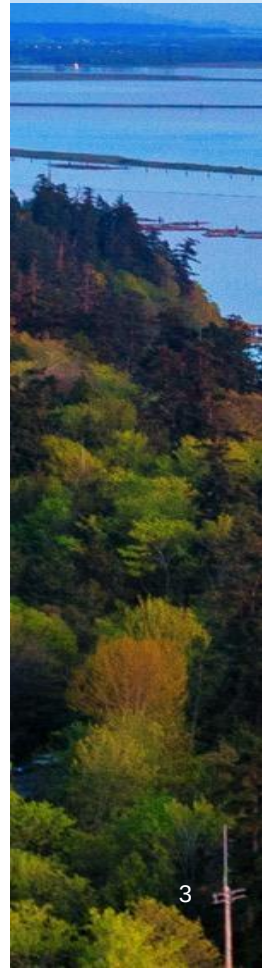
native-land .ca



POLL INTRODUCTIONS

1. How familiar are you with the Sustainable Development Goals (SDGs)
- Very familiar
- Somewhat familiar
- Have heard about them
- Not at all

2. Are you using the SDGs in your practice?
- New entrant
- Yes a little
- Yes a lot
- Not sure



Agenda

Welcome and Land Acknowledgment

Introductions

What are the SDGs?

- Does this framework make sense to you?
- Why are they important?
- Limitations and their potential for a decade of action

Sharing approaches to sustainability and the SDGs at UBC

- UBC Botanical Garden
- Forestry
- Sustainability Hub

Group Activity: How can we use the SDGs for education, teaching and learning at UBC?

Sharing resources

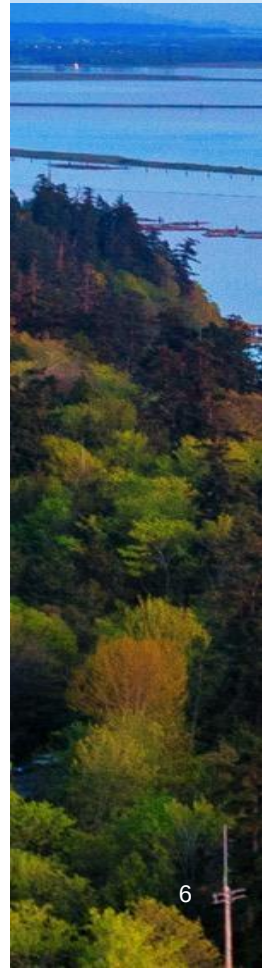
Adjourn

SUSTAINABLE DEVELOPMENT

“humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland Report: UN World Commission on Environment and Development (WCED) – Our Common Future, 1987, p. 43).

Education for Sustainable Development (ESD)

“ESD empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity. It is about lifelong learning, and is an integral part of quality education. ESD is holistic and transformational education which addresses learning content and outcomes, pedagogy and the learning environment. It achieves its purpose by transforming society.” (UNESCO, 2017)



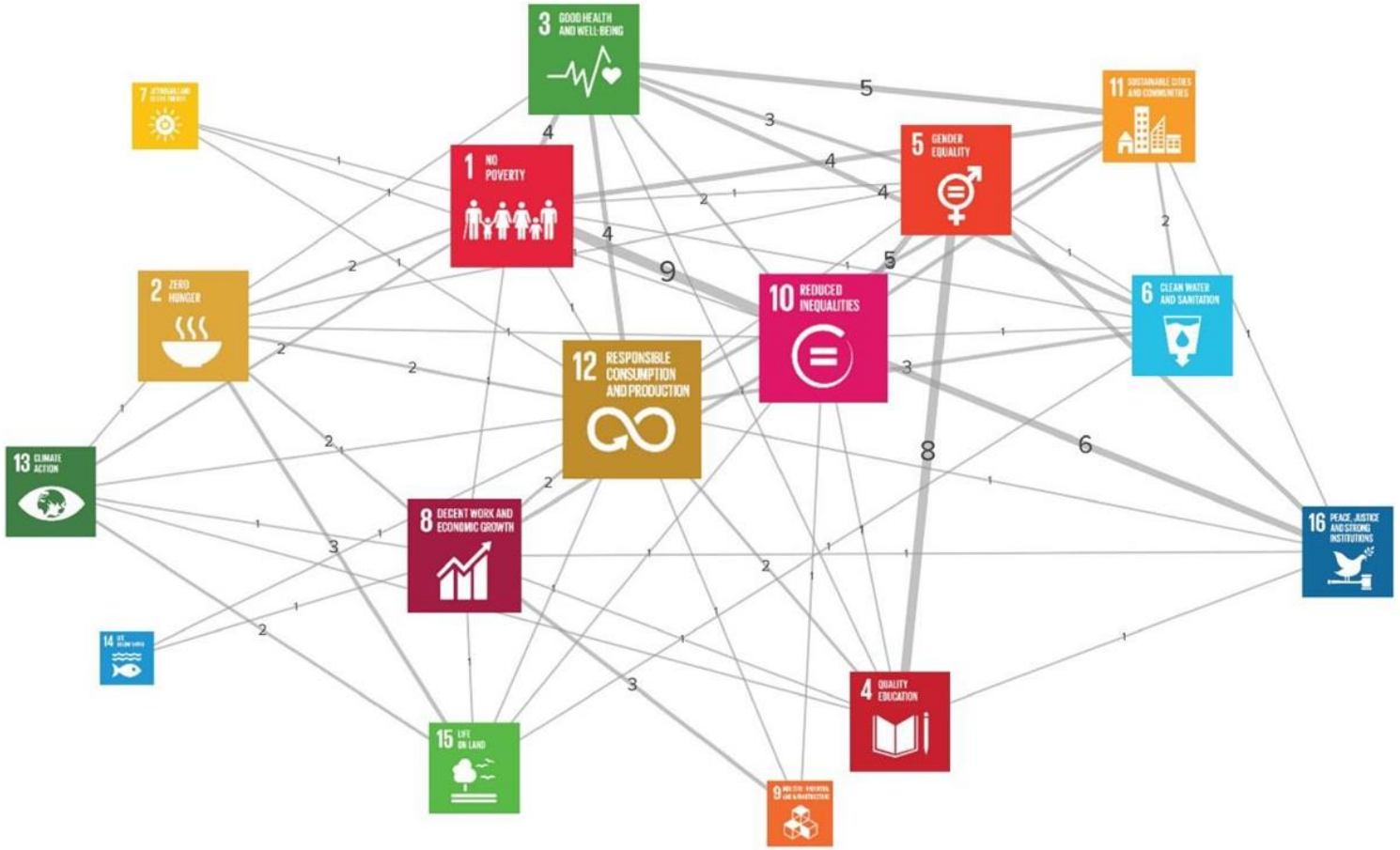
SUSTAINABLE DEVELOPMENT GOALS
1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS
SUSTAINABLE DEVELOPMENT GOALS

Do you think there are any linkages between the SDGs and the course(s) you teach?
If yes, which SDGs connect well with your course(s)?

Universal

SUSTAINABLE DEVELOPMENT GOALS
17 GOALS TO TRANSFORM OUR WORLD

Indivisible

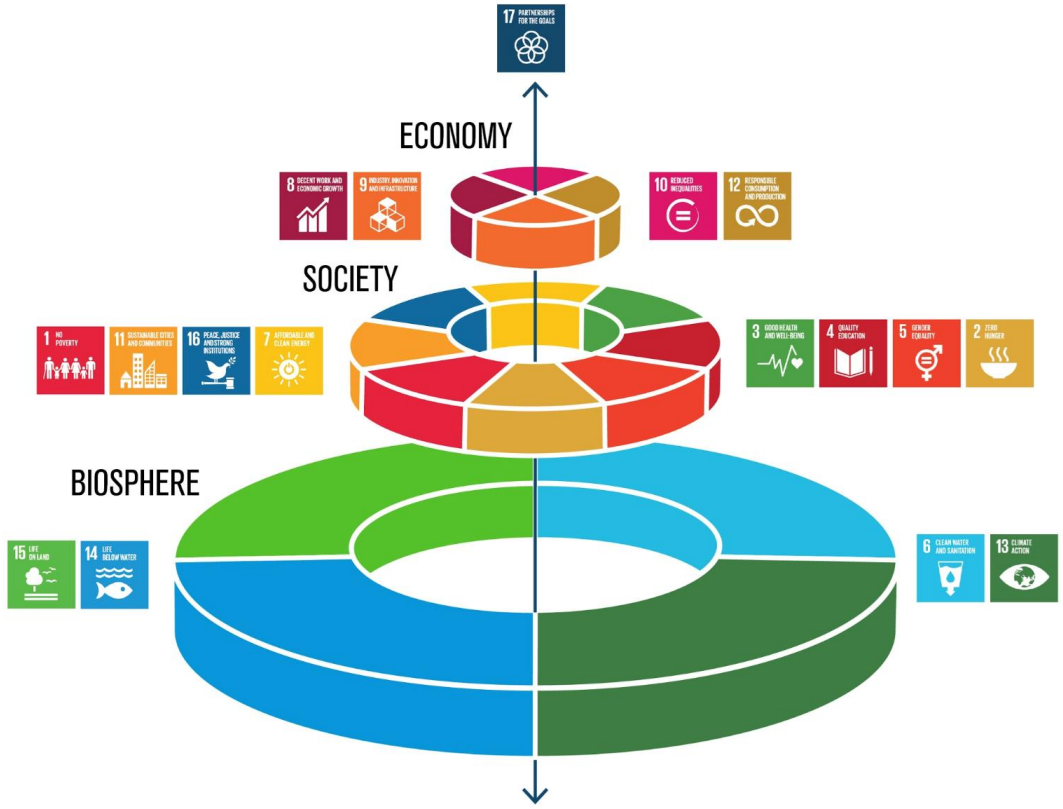


Transformative

Leave No One Behind

Another Way to Look at SDGs – The Five Ps

Another Way to Look at SDGs – The three pillars



SDGs are Robust and Detailed

169 targets, 232 indicators

Some very well defined, others less so

TARGET 1·2
1 NO POVERTY
REDUCE POVERTY BY AT LEAST 50%

TARGET 2·4
2 ZERO HUNGER
SUSTAINABLE FOOD PRODUCTION
AND RESILIENT AGRICULTURAL PRACTICES

All 232 SDG Indicators: What data is available?

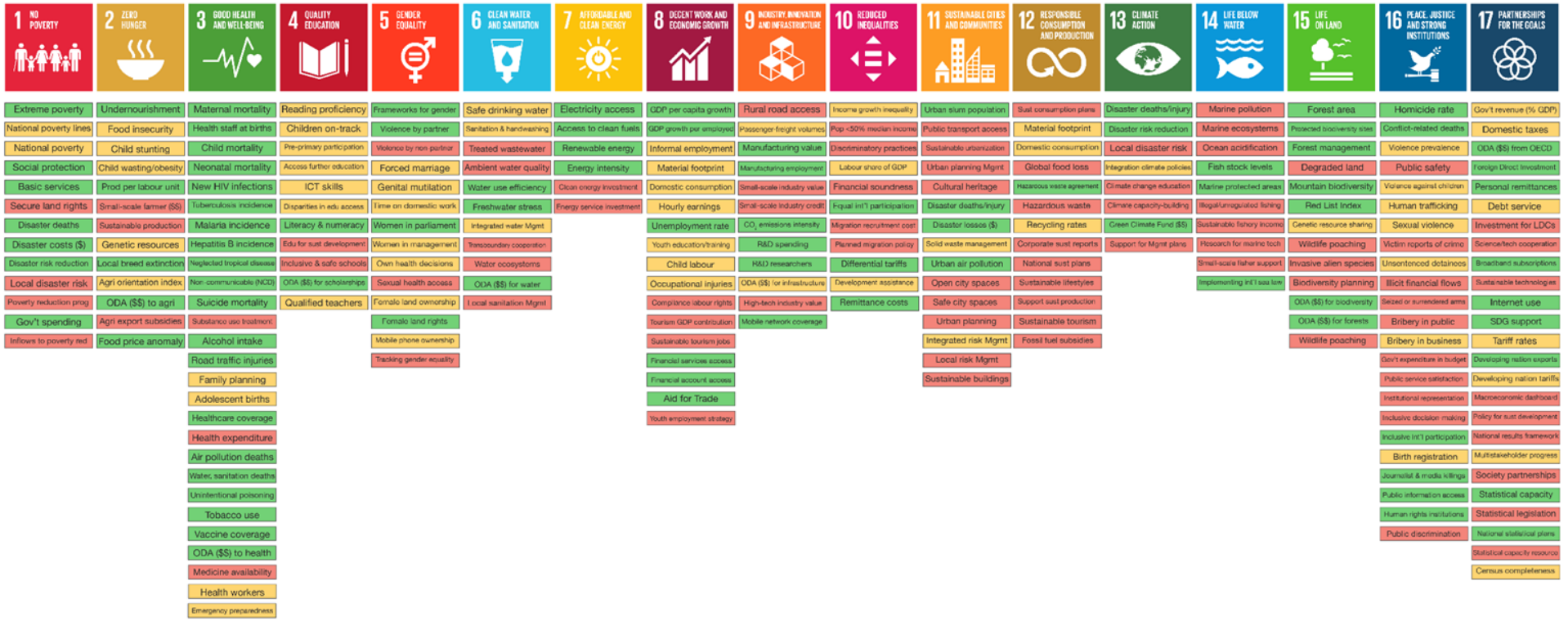
Our World in Data

This visualization shows for which of the 230 *Sustainable Development Goals (SDGs) Indicators* data is available at **SDG-Tracker.org**.

= Indicators for which recent global official metrics are available, or for which alternative good-quality cross-country source are available (e.g. estimates from independent research institutes).

= Indicators that do have official metrics, but for which available data is very incomplete or outdated. Yellow boxes also mark Indicators for which there are no official metrics, but for which closely related estimates are available that allow informative but imperfect monitoring.

= Indicators for which – to the best of our knowledge – global monitoring is not currently possible.



You find all data on SDG-Tracker.org, a sister project of OurWorldinData.org. In case you are aware of relevant data we have not included yet please let us know via SDG-Tracker.org.

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SDG Weaknesses

- Development- or growth-focused approach
- Human-centric
- Ethnocentric
- Missing alternative visions of sustainability and development
- No accountability

EDUCATION FOR SUSTAINABLE DEVELOPMENT
Towards achieving the SDGs: *ESD for 2030*

GLOBAL ACTION PROGRAMME (2015-2019) → ***ESD for 2030*** (2020-2030)

Vision

ESD for 2030 aims to build a more just and sustainable world through strengthening ESD and contributing to the achievement of all 17 Sustainable Development Goals

Priority action areas

2) Transforming learning environments
3) Building capacities of educators
4) Empowering and mobilizing youth
5) Accelerating local level actions

Strategic objective

Promote ESD as a key element of quality education and a key enabler of all 17 Sustainable Development Goals with special attention to a) individual transformation, b) societal transformation & c) technological advances

Target groups

Policy-makers, institutional leaders, learners, parents, educators, youth & communities

ACTIVITIES BY MEMBER STATES: COUNTRY LEVEL MULTI-STAKEHOLDER INITIATIVE

1	2	3	4	5
Advancing policy	**Learning Environment**	**Educators**	**Youth**	**Community**
Integrating ESD in global, regional & national policies of education & sustainable development	Promoting whole-institution approach	Providing capacity development opportunities	Providing opportunities for youth engagement	Empowering local communities as "nodal" platforms for all priority action areas

Country level multi-stakholder initiative on ESD	Inclusive network of partners	Monitoring & evaluation	Communicating for action	Evidence-informed implementation & resource mobilization
Normative guidelines & country-level support	Provide regular platforms to meet & exchange	Monitor achievements in the 5 priority action areas & programme implementation, in line with SDG Target 4.7 monitoring	Develop a dedicated programme to inform about the SDGs & the role of education	Monitor emerging issues & trends and mobilize resources to support ESD implementation

UNESCO SUPPORT TO MEMBER STATES

If you could have an 18th SDG what would it be? What is missing from the framework?

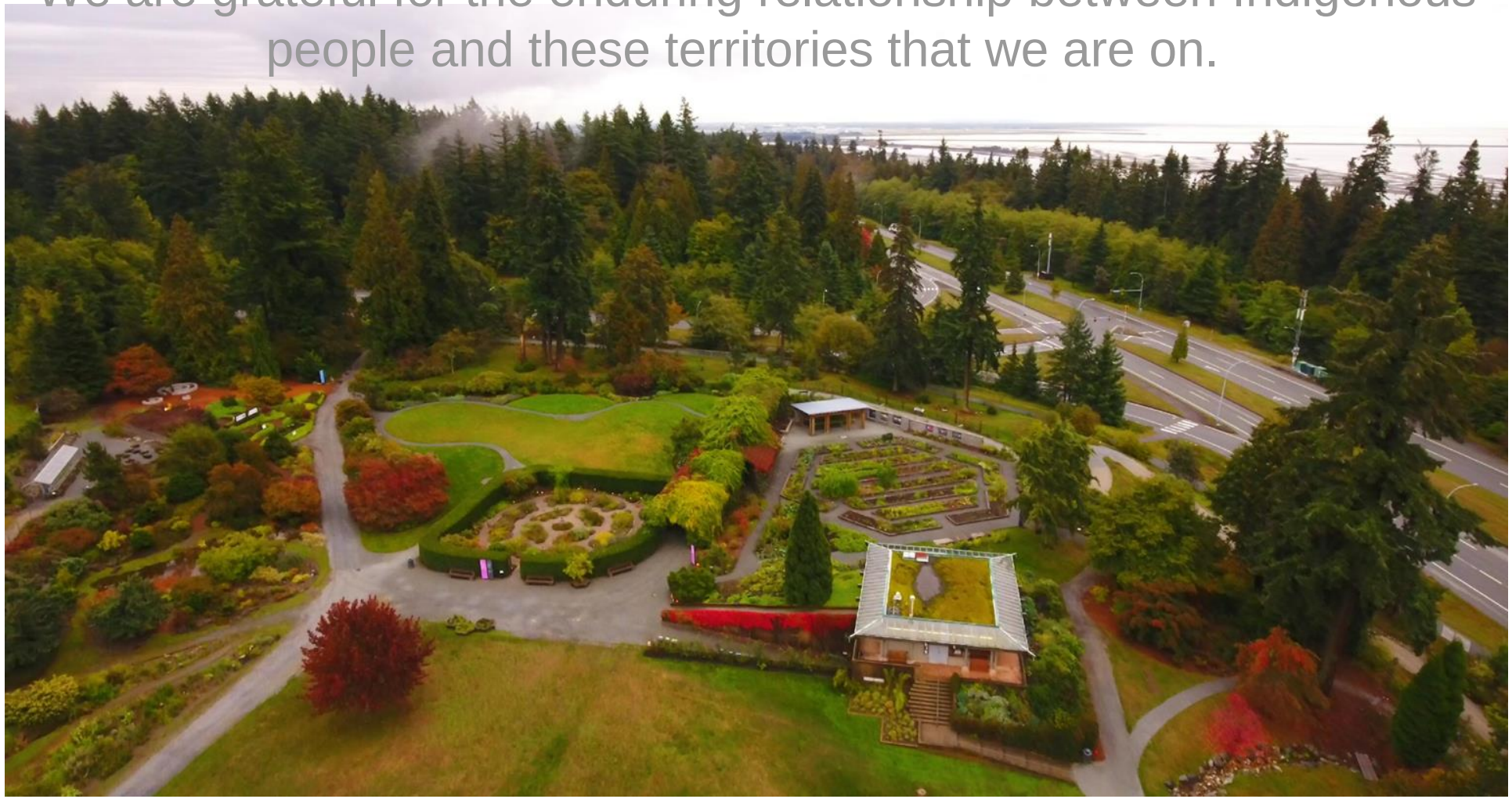
Local Gardens Growing Global Goals

UBC Botanical Garden

THE UNIVERSITY OF BRITISH COLUMBIA
Faculty of Science

Tara Moreau,
Associate Director
Sustainability and Community Programs
tara.moreau@ubc.ca

UBC Botanical Garden and Nitobe Memorial Garden grow on the unceded territories of the xʷməθkʷəy̓əm (Musqueam) People. We are grateful for the enduring relationship between Indigenous people and these territories that we are on.



a place of mind
UBC SCIENCE

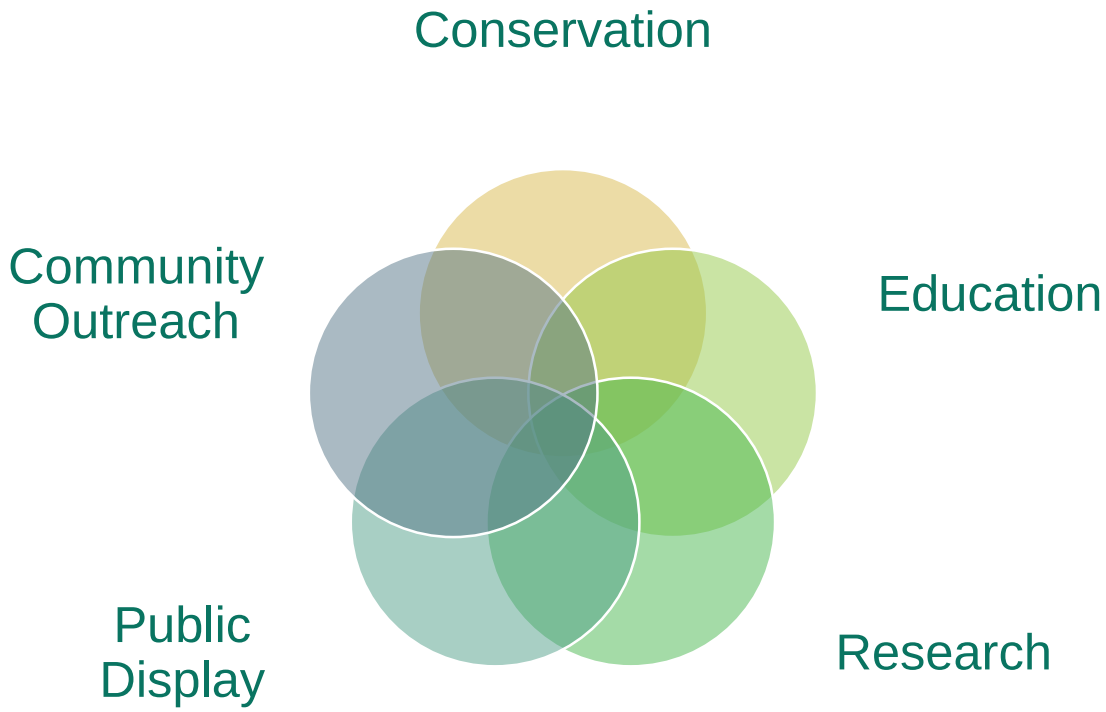
UBC Botanical Garden

Nitobe Memorial Garden

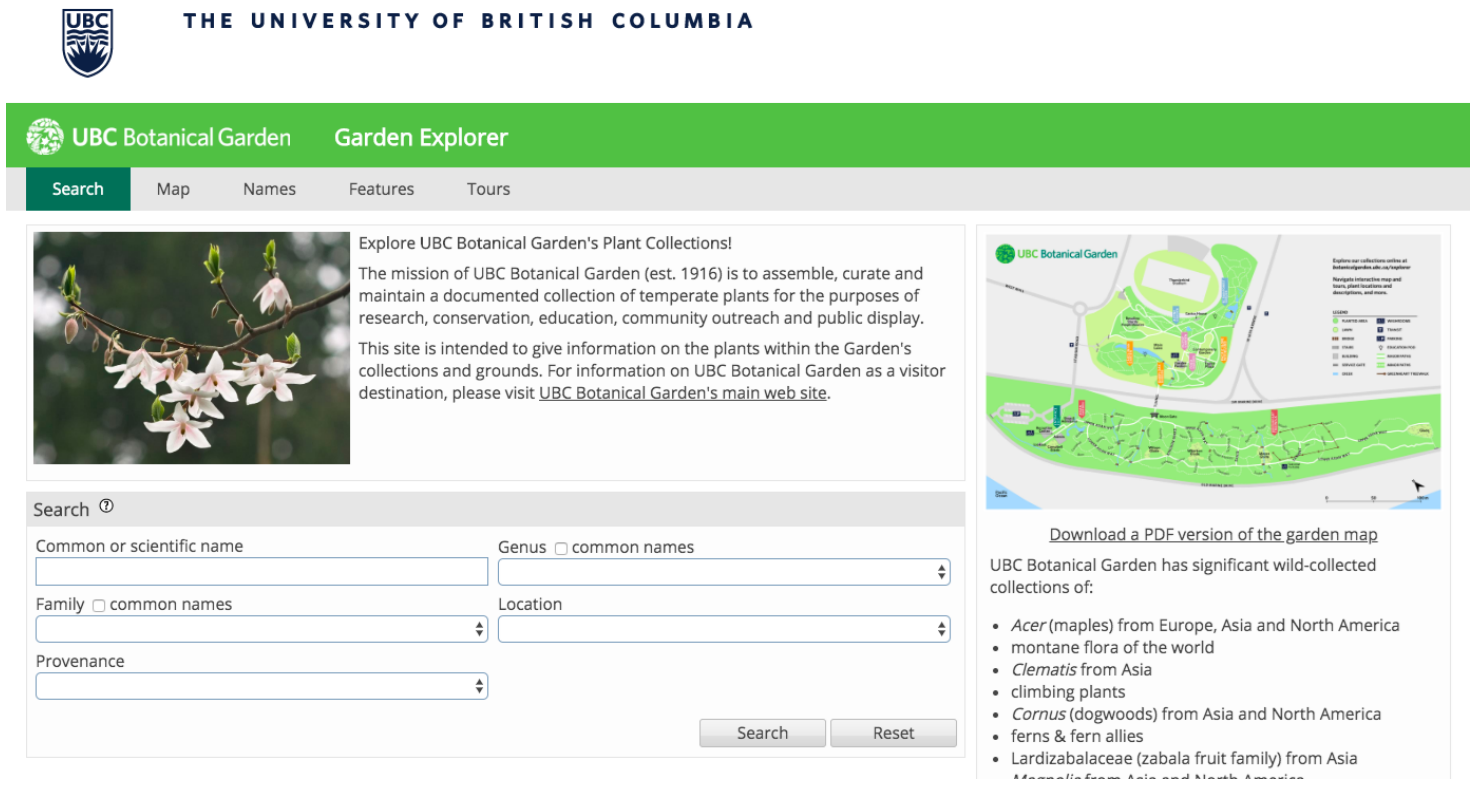
UBC Botanical Garden

THE UNIVERSITY OF BRITISH COLUMBIA
Faculty of Science

Plants are understood, valued, celebrated, and secure in a healthy, biodiverse world.



Garden Explorer: A Living Collection



Visit - https://collections.botanicalgarden.ubc.ca/

✓ 5000 kinds of plants

✓ 200 plant families

✓ 34% of the worlds plant families

UBCBG Sustainability & Community Programs

Citizen Science & Conservation

Community Outreach Programs

Events & Engagement

Food Plant Diversity

Group Experiences and Camps

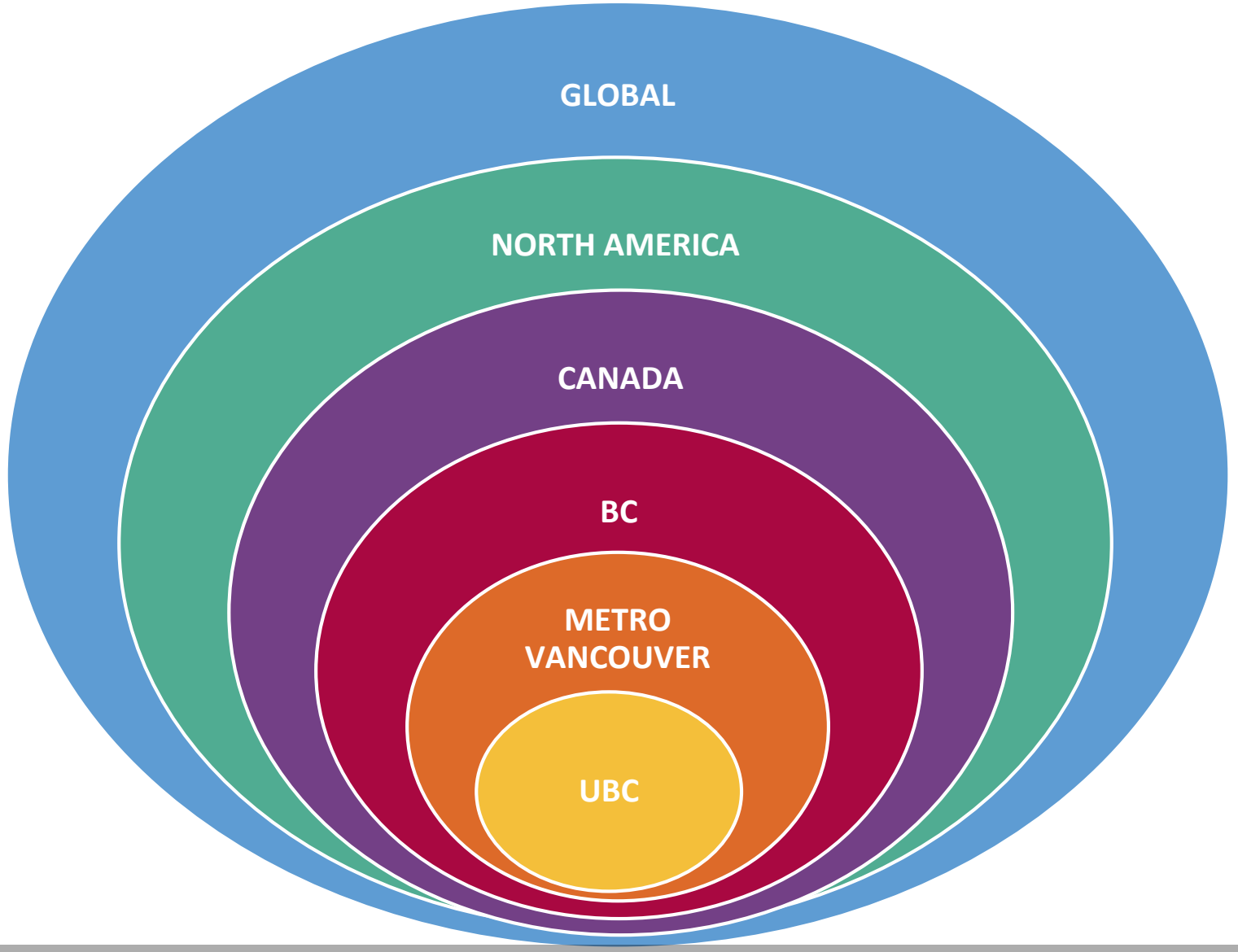
Grow Green Guide

Student Engagement

Sustainable Communities Field School

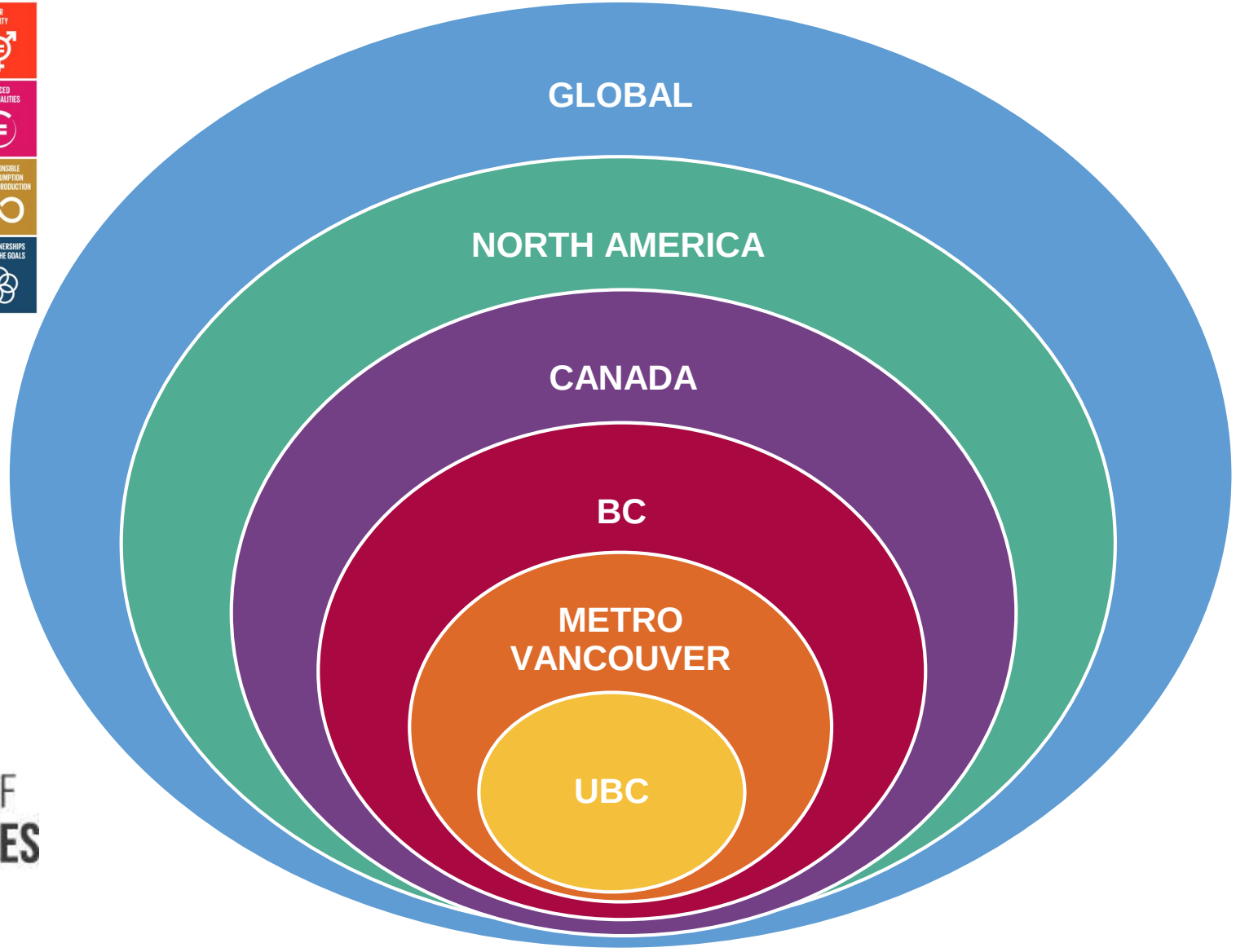
Volunteer Programming

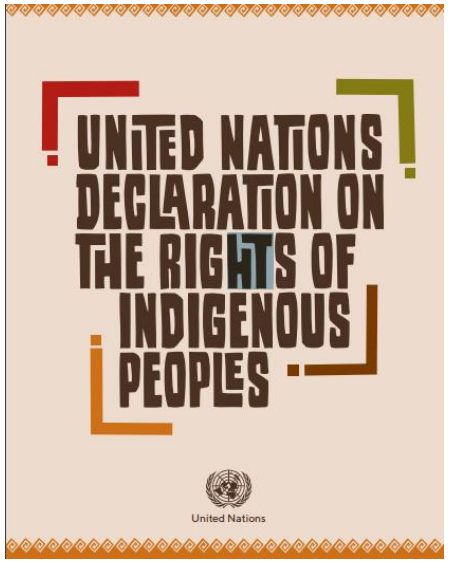
Act locally and think globally



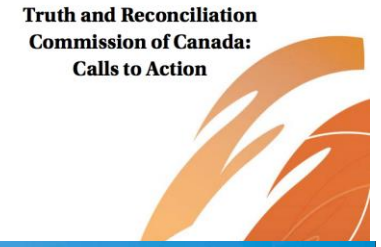
Macrae, R. 2011. A joined-up food policy for Canada. Journal of Hunger and Envir Nutrition

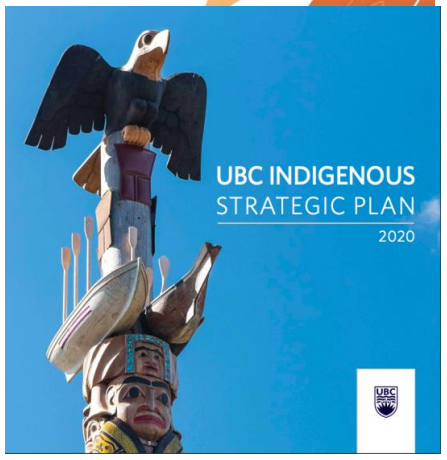
Policy-Aligned Educational Programs





Truth and Reconciliation Commission of Canada





INTERNATIONAL YEAR OF
FRUITS AND VEGETABLES
2021

Hot off the Press! Aligning to the Global Goals

sustainability

MDPI

Article

Aligning to the UN Sustainable Development Goals: Assessing Contributions of UBC Botanical Garden

Adriana Lopez-Villalobos *, Dionne Bunsha, Delanie Austin, Laura Caddy, Jennifer Douglas, Andy Hill, Kevin Kubeck, Patrick Lewis, Ben Stormes, Ryo Sugiyama and Tara Moreau *

UBC Botanical Garden, Faculty of Science, University of British Columbia, Vancouver, BC V6T 1Z4, Canada; dionne.bunsha@ubc.ca (D.B.); delanie.austin@ubc.ca (D.A.); laura.caddy@ubc.ca (L.C.); jennifer.douglas@ubc.ca (J.D.); andy.hill@ubc.ca (A.H.); kevin.kubeck@ubc.ca (K.K.); patrick.lewis@ubc.ca (P.L.); ben.stormes@ubc.ca (B.S.); ryos@mail.ubc.ca (R.S.)

* Correspondence: adriana.lopez@ubc.ca (A.L.-V.); tara.moreau@ubc.ca (T.M.)

Abstract: The United Nations 2030 Agenda for Sustainable Development outlines 17 goals for the wellbeing of people and the planet. The purpose of this study was to understand how University of British Columbia Botanical Garden (UBCBG) contributes to the United Nations Sustainable Development Goals (UN-SDGs) and to identify opportunities for future action. To address this, we worked across departments to assess our programs and activities against the UN-SDG 17 goals and 169 targets. The UN-SDG indicators were only used to identify potential metrics that could be consider for future tracking. The main activities of UBCBG include ex situ plant conservation, sustainability education and community engagement. Our results found that UBCBG contributes to 12 of the 17 goals and 24 of the 169 targets. The two UN-SDGs with more targets aligned to UBCBG's activities were Goal 15—Life on Land and Goal 12—Responsible Consumption and Production. Through its partnerships with other botanical gardens, research institutions and the regional government, the Garden amplifies its work at a global, national and regional level. We are re-imagining the role of botanical gardens in an age of equity, decolonization, the biodiversity crisis and the climate emergency. Since the UN-SDGs address both nature and people, they are an appropriate framework to guide our work.

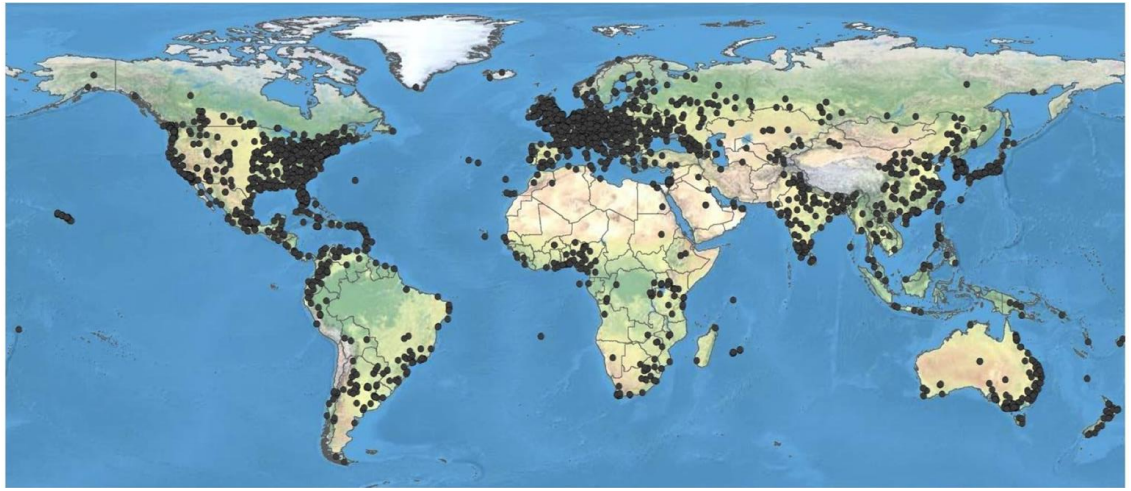
Keywords: botanical gardens; environmental education; plant conservation; sustainability; United Nations Sustainable Development Goals; university botanical garden

check for updates

Citation: Lopez-Villalobos, A.; Bunsha, D.; Austin, D.; Caddy, L.; Douglas, J.; Hill, A.; Kubeck, K.; Lewis, P.; Stormes, B.; Sugiyama, R.; et al. Aligning to the UN Sustainable Development Goals: Assessing Contributions of UBC Botanical Garden. *Sustainability* **2022**, *14*, 6275. https://doi.org/10.3390/su14106275

Sustainable Communities Field School 2015-2022

Local Gardens Growing the Global Goals
Toolkit for Garden Educators 2019



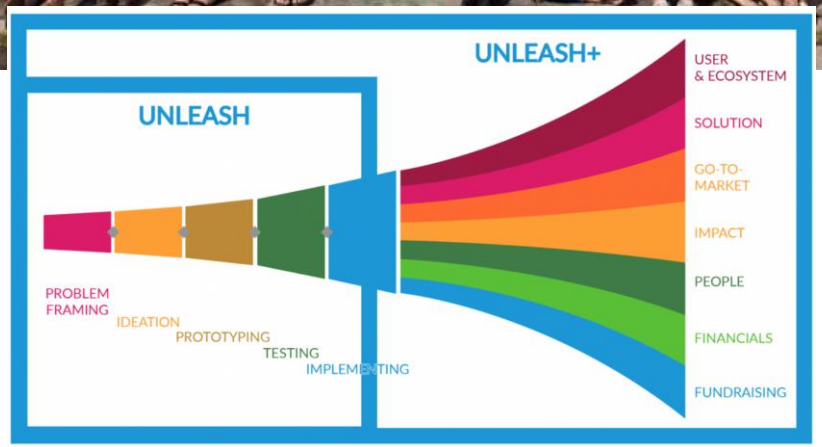
over 3700 Botanic Gardens in 2022

Explore our Toolkit:
https://storymaps.arcgis.com/stories/fde60c0a7f784f8b888a63869b9be47a

UNLEASH - A Global Innovation Lab for the SDGs

UNLEASH is a global innovation lab, which gathers 1,000 talent annually to collaborate on solutions to meet the United Nations Sustainable Development Goals. UNLEASH has been held in Denmark, Singapore and in 2019, UNLEASH was held in Shenzhen, China from November 6-13. This year we engaged a new cohort of global top talents, accelerated solutions by former talents at UNLEASH+ and brought on 20 storytellers.

Learn more about UNLEASH 2019



The Flora that Feed Us
Food Plant Genetic Resources

Target 2.5: Maintain the genetic diversity in food production

By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.

SDG Universal Values

Leave No One Behind (LNOB)

Human Rights-Based Approach

Leave No One Behind

Gender Equality and Women's Empowerment

Thank you!

UBC Botanical Garden

Forests & people: the SDGs as a teaching framework

Terry Sunderland
Professor, Tropical Forestry
30th May 2022

terry.sunderland@ubc.ca
https://sunderlandlab.forestry.ubc.ca/

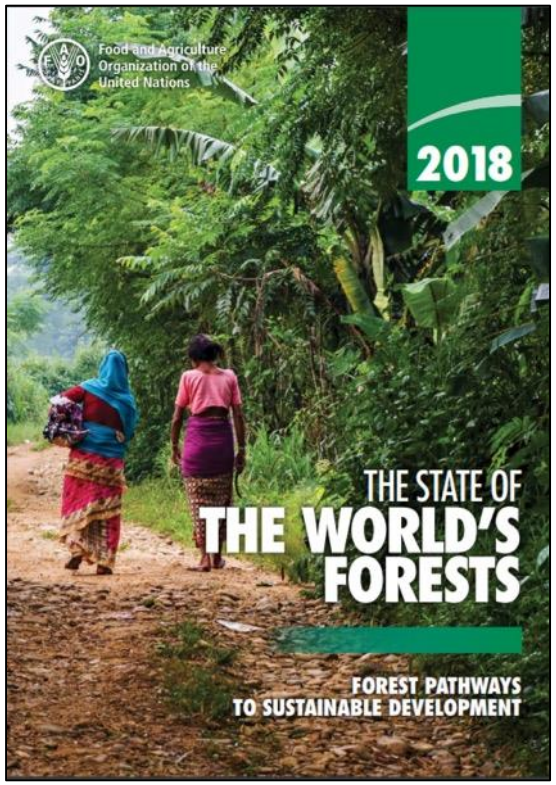
forestry
university of british columbia

Re-defining forestry for the 2030 agenda

- Poverty alleviation (SDG 1)
- Food, nutrition and health (SDG's 2 & 3)
- Water, energy and housing (SDG's 6, 11 & 15)
- Livelihoods and employment (SDG's 8, 9 & 11)
- Climate change adaptation and mitigation (SDG 13)
- Biodiversity conservation (SDG 15)
- Resilience and safety nets (all SDG's)

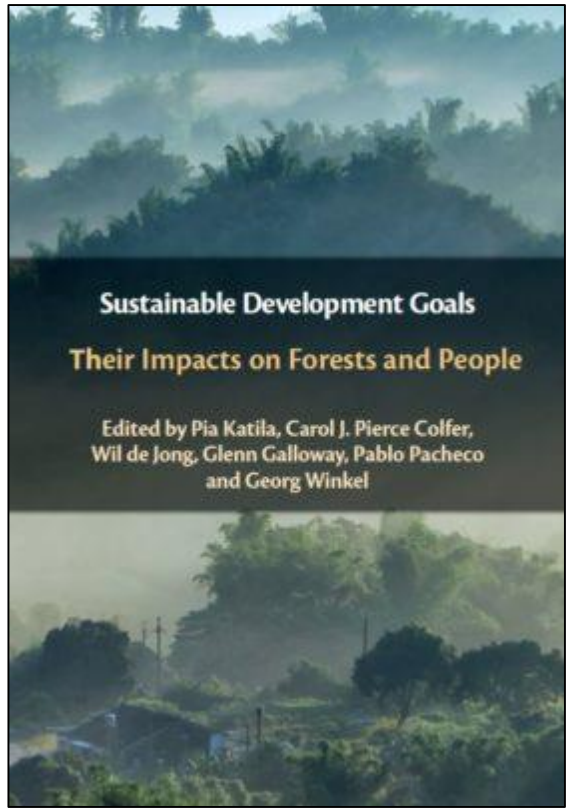
https://sustainabledevelopment.un.org/post2015/transformingourworld

Analyses of the role of forests in regard to SDGs have focused on both…



…the contributions of forests to the SDGs

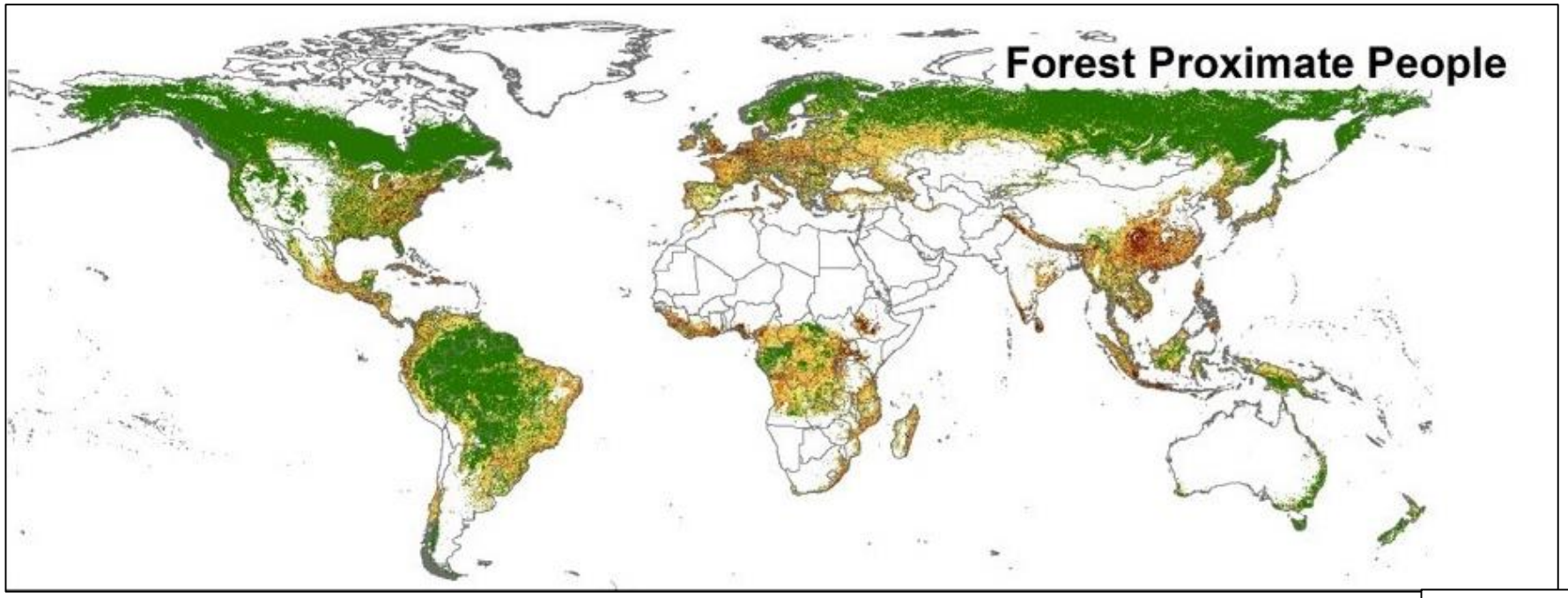
…or the implications of the SDGs (as written) for forests



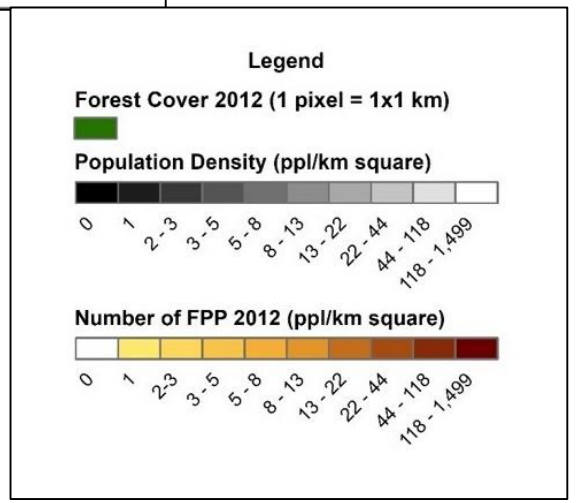
Why forests are important

- Forests provide $250 billion in various forms of income and are essential to the **livelihoods** of 1.6 billion people – a quarter of the world's population
- They contain 80% of the Earth's terrestrial **biodiversity**
- Forests absorb up to a third of all **carbon** emissions

Forests, trees and people overlap



- One quarter of the world's people live within 5km of a forest
- More than a billion people derive direct and indirect benefits from forests and trees



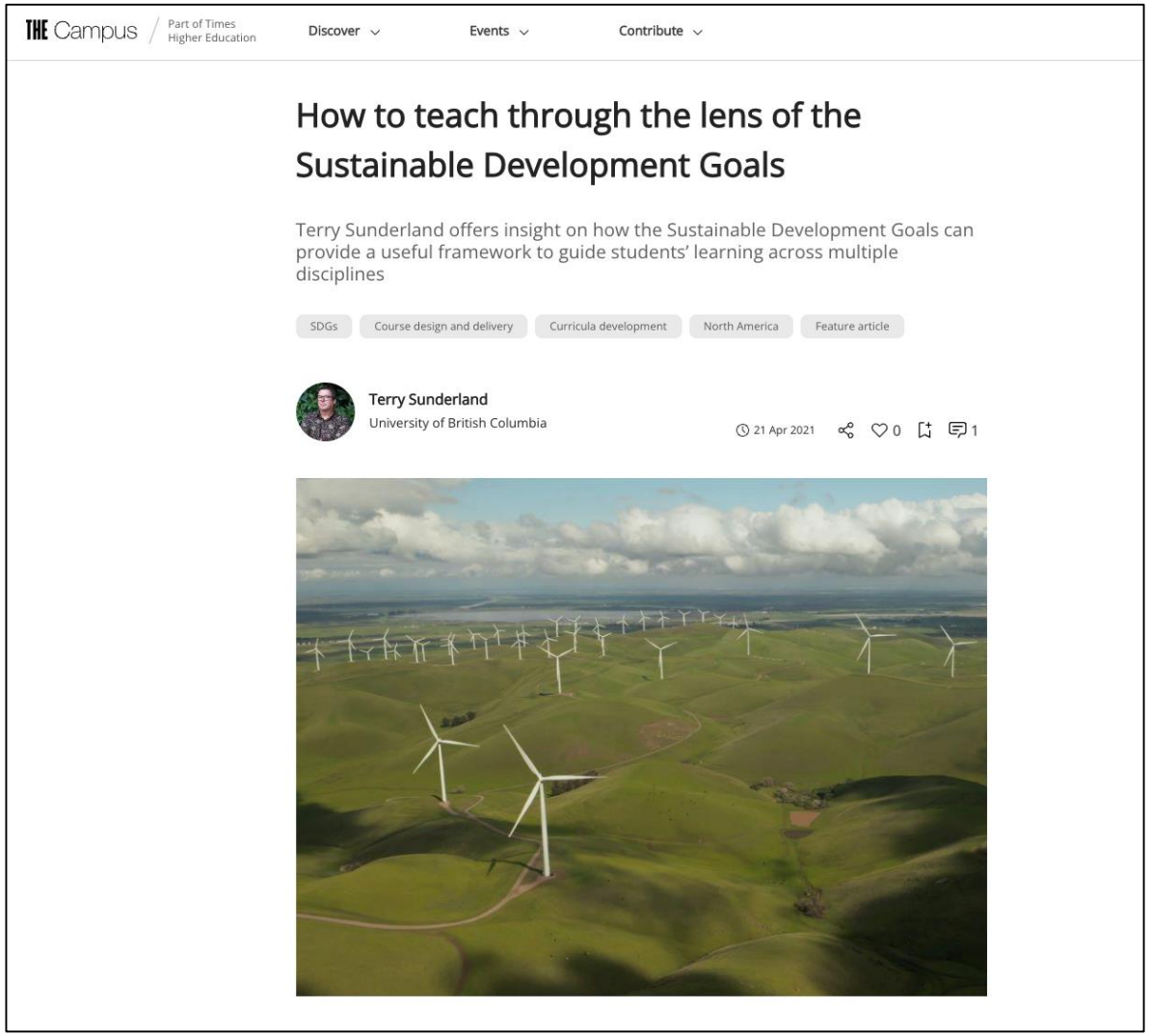
Source: Newton, P., A. Kinzer, D.C. Miller, J.A. Oldekop, A. Agrawal. 2020. The number and spatial distribution of forest-proximate people globally. *One Earth*.

The subsidy from nature

- Nature is a direct primary source of food, clean water, and energy for many population groups lacking alternatives.
- 1.2-1.7 billion people in tropical countries (30% of their population) are highly dependent on nature for basic human needs.
- Populations highly dependent on nature for their basic needs are most sensitive to environmental changes.
- Nature-based strategies must be carefully designed to promote inclusive human development.

http://peoplefoodandnature.org/wp-content/uploads/2015/12/LPFN_WhitePaper_112415c_lowres.pdf

The SDG's as a teaching tool



THE Campus / Part of Times Higher Education

Discover Events Contribute

How to teach through the lens of the Sustainable Development Goals

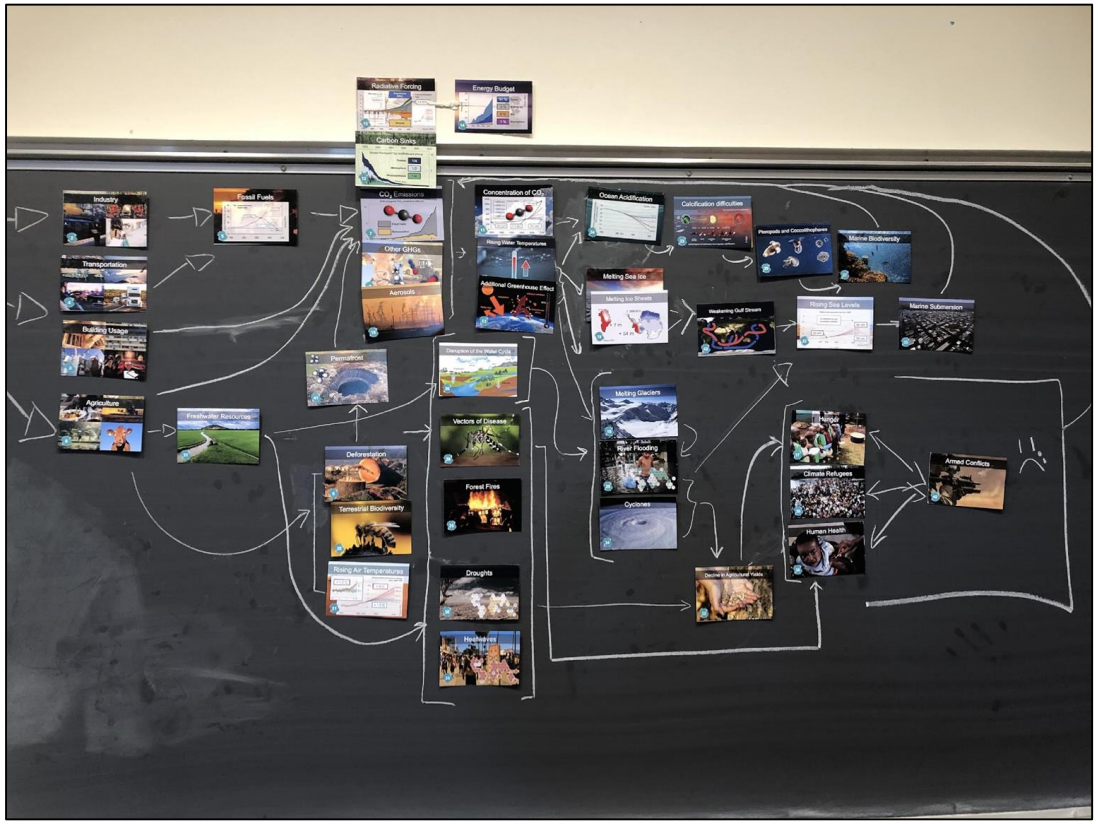
Terry Sunderland offers insight on how the Sustainable Development Goals can provide a useful framework to guide students' learning across multiple disciplines

SDGs | Course design and delivery | Curricula development | North America | Feature article

Terry Sunderland
University of British Columbia

21 Apr 2021 0 1

EXIT
i-clicker
AC



- Focus on forests as part of sustainable development efforts
- How to achieve the balance between economic development and conservation
- Exercise in identifying what additional SDG's are needed

- CONS 452 (12 credit capstone course)
- Each week is a different SDG module
- Links between SDG's explored with forests at the centre
- Try to identify opportunities and constraints to achieving SDG's

CoP26 Commitments on forests and Indigenous Peoples…

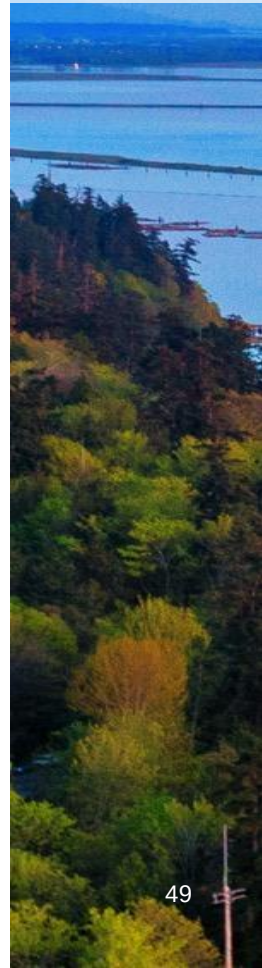
- More than 100 world leaders promised to end and reverse deforestation by 2030. Over $19 billion committed to support this commitment.
- Indigenous Peoples to receive $1.7bn in recognition of role in protecting forests

Integrating SDGs through the competencies framework

SDG 4

By 2030, ensure that all learners acquire knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development

Target 4.7 of the SDGs (United Nations, 2015)



Key Competencies for Achieving SDGs

Systems Thinking

Anticipatory

Normative

Strategic

Collaboration

Critical Thinking

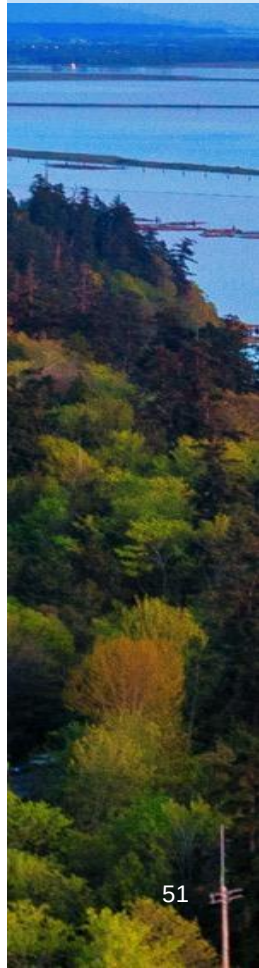
Self-awareness

Integrated problem-solving

UNESCO, 2017

At the course objectives level

Competency Name	Learning Objectives
Self-awareness	Ambassadors are able to identify their personal and cultural value base and make tangible connections to their community and sustainability issues or goals they want to pursue
Systems Awareness	Ambassadors are able to identify and appreciate interconnections of any system and be able to understand their influences and how these interactions may influence their goals
Interdisciplinary Integration	Ambassadors are able to actively engage and participate in interdisciplinary interactions and conversations around key sustainability issues
Interpersonal and Collaborative	Ambassadors are able to work collaboratively with organizations and individuals from various backgrounds and perspectives
Strategic Application	Ambassadors are able to conceptualize and implement ideas by integrating their competencies and working with various stakeholders



UBC SUSTAINABILITY **AMBASSADORS**

Become a leader in sustainability while designing projects that foster human and environmental wellbeing.

THE UNIVERSITY OF BRITISH COLUMBIA sustainability

PARTICIPANT-FOCUSED GOALS

- Develop competencies and skills to foster innovation, equity, and mutual respect
- Facilitate sustainability ideas to action

COMMUNITY-FOCUSED GOALS

- Increase awareness of sustainability issues on and off campus
- Get students involved in sustainability through interdisciplinary programming and enagement with multiple stakeholders

MODULES

KNOW YOURSELF

Identify sustainability goals and reflect on skills and competencies to achieve them.

EXPLORE + MAKE CONNECTIONS

Learn about community and systems and how they relate to sustainability goals.

LEARN, PLAN, REVISE

Develop and plan to achieve sustainability goals.

IMPLEMENT + PRACTICE

Plan project deliverables using skills and competencies.

DOCUMENT + REFLECT

Document outcomes and achievements, as well as personal learning reflections.

COMPETENCIES

- Self-awareness
- Systems awareness
- Interdisciplinary Integration
- Interpersonal and Collaborative
- Strategic Application

As an evaluation framework

Systems thinking

Systems thinking, working with complex problems, promoting resilience, understanding tipping points and feedback loops

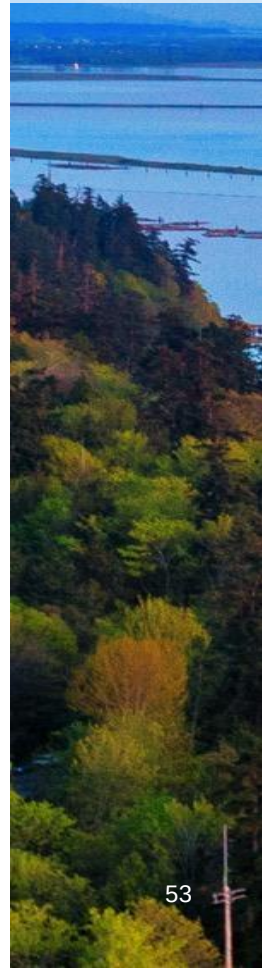
- Are learners able to work with interconnectedness and complexity in a systemic context?
- Do learners have a functional knowledge of tipping points, resilience and feedback loops?
- Can learners understand how to work with socio-ecological systems?
- Do learners have a working concept of resilience?

Interpersonal

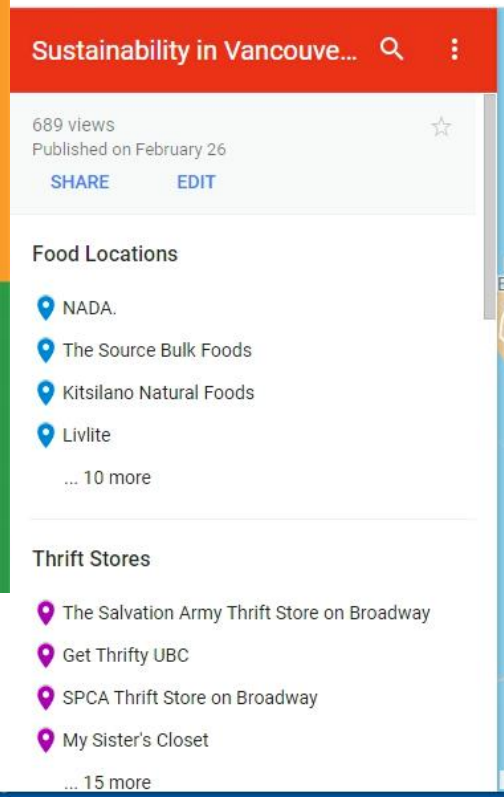
Communication skills, empathy, compassion, leadership, teamwork, mediation, cooperation, collaboration, participation

- Are communication skills taught?
- Are learners facilitated to work well with others?
- Can learners assist each other in peer to peer learning?
- Are learners, across gender, ethnicity and other groupings, able to explore their leadership skills? Is empathy valued and encouraged?
- Are learners able to address conflict and develop mediation skills? Are their barriers to full participation in learning projects?

Naresh Giangrande, Rehema M. White, May East, Ross Jackson, Tim Clarke, Michel Salo Coste and Gil Penha-Lopes, 2019



SDG WEEK
UN SUSTAINABLE DEVELOPMENT GOALS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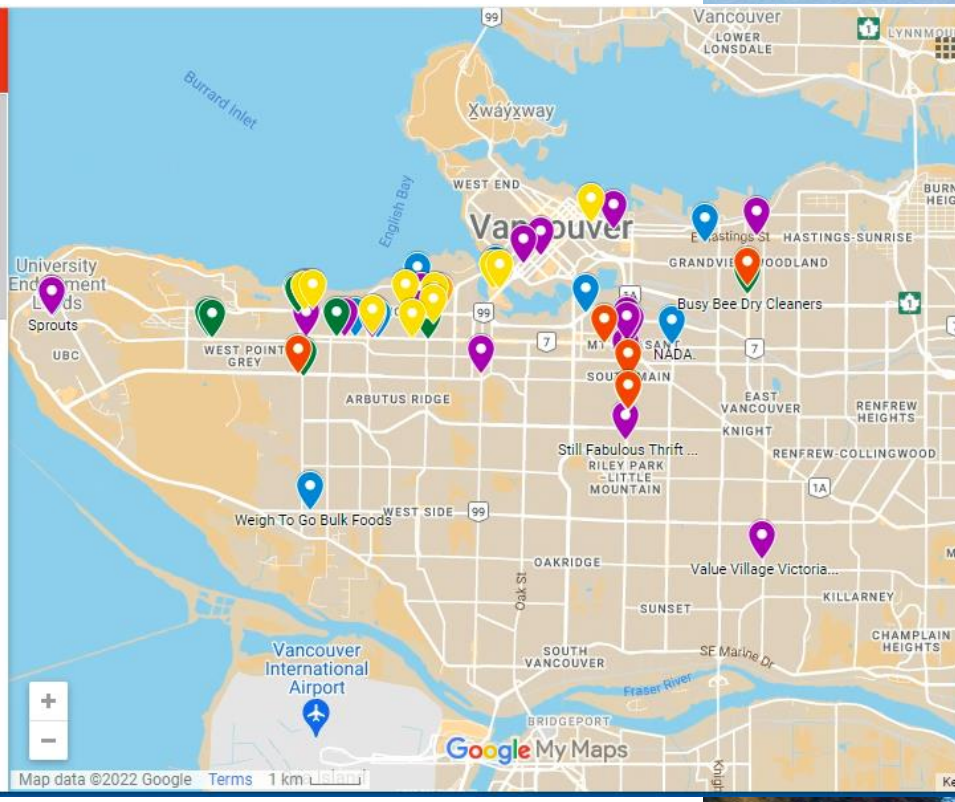
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Xwáýxway
WEST END
English Bay
HASTINGS-SUNRISE
Busy Bee Dry Cleaners
NADA.
Sprouts
UBC
WEST POINT GREY
ARBUTUS RIDGE
EAST VANCOUVER
KNIGHT
RENFREW HEIGHTS
Still Fabulous Thrift ...
RILEY PARK
LITTLE MOUNTAIN
RENFREW-COLLINGWOOD
Weigh To Go Bulk Foods
WEST SIDE
OAKRIDGE
Value Village Victoria...
SUNSET
KILLARNEY
Vancouver International Airport
SOUTH VANCOUVER
SE Marine Dr
Fraser River
BRIDGEPORT
CHAMPLAIN HEIGHTS
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Terms
1 km

DATA VISUALIZATION COMPETITION
March 4th: 3-6 PM
@ the BC Hydro Theathre
600$ in Prizes
Sign up with Your Friends!

Climate & Collective Liberation Project
ABOUT
DISABILITY JUSTICE
GENDER EQUITY
RACIAL JUSTICE
INDIGENOUS SOVEREIGNTY
ANTI-CAPITALISM
COMMUNITY CALENDAR
CONNECT WITH US
We're all in this together!
POWERED BY weebly

Transformative Teaching Approaches to support SDGs

Prioritize student choice and self-selection
Design reflective practices
Place-based learning
Community connections

- Case studies
- Role play
- Storytelling
- Jig-saw
- Group work
- Project-based learning

Example SDG Assignments

- Students were asked to find local companies in their community for each of the SDGs and make a case study to create awareness on the impact local economies have on the SDGs.
- Tackling a target related to the SDGs, explore it and understand in more detail and then identify entrepreneurial solutions to the target.
- Students formed tag teams, decided on a jurisdiction and were asked to find out how to implement at least two targets of two SDGs in their projects. This way, students can see and think about how the SDGs can be implemented in practice.
- Identify policies and practices that either advance or hinder our progress towards the SDGs.
- Students can be encouraged to develop new partnership and pitch new ideas to a panel of university decision makers. This helped students harness their ability to influence sustainable change, get creative with their ideas and pitch it to those who are able to bring their ideas to life.
- Undertake hands-on experience in their community and devise a social change strategy.
- Students were asked to find a low performing agriculture company rated with a low score on their sustainability and do a full strategic analysis on where these companies are at with their SDGs using the natural step framework for sustainability and then using backcasting to find out what their future state should be and how the company can strategically create change in order to create more meaningful impact across the SDGs.
- Develop lesson plans or case study on your choice of SDG with clear connections to course objectives

CANADA'S NATIONAL STRATEGY CONSULTATION

CHALLENGES AND NEEDS

FOUR KEY AREAS NEEDING ATTENTION

- **Fostering robust intergenerational relationships and justice**
- **Taking action to combat climate change**
- **Improving decision-making systems**
- **Developing a new understanding of prosperity**

Jamboard Activity

How can we use the SDGs for education, teaching and learning at UBC?

https://jamboard.google.com/d/1xL3JyJIGcXn9wkKcKh8aIs8huZkgdURaCfnP5LXihC8/edit?usp=sharing

SDG THE Rankings Report

UBC ranking: THE rankings (out of 1400 universities)

Sixth in SDG 10 (reduce inequality)

Seventh in SDG 13 (climate action)

11th in SDG 14 (conserve and sustainably use the oceans, seas and marine resources for sustainable development)

19th in SDG 12 (sustainable consumption and production patterns)

19th in SDG 17 (improved and more equitable trade)

23rd in SDG 11 (inclusive, safe, resilient and sustainable cities)

SDG RESOURCES

THE ranking

The 2020 Times Higher Education University Impact Ratings:

BCCIC Movement map

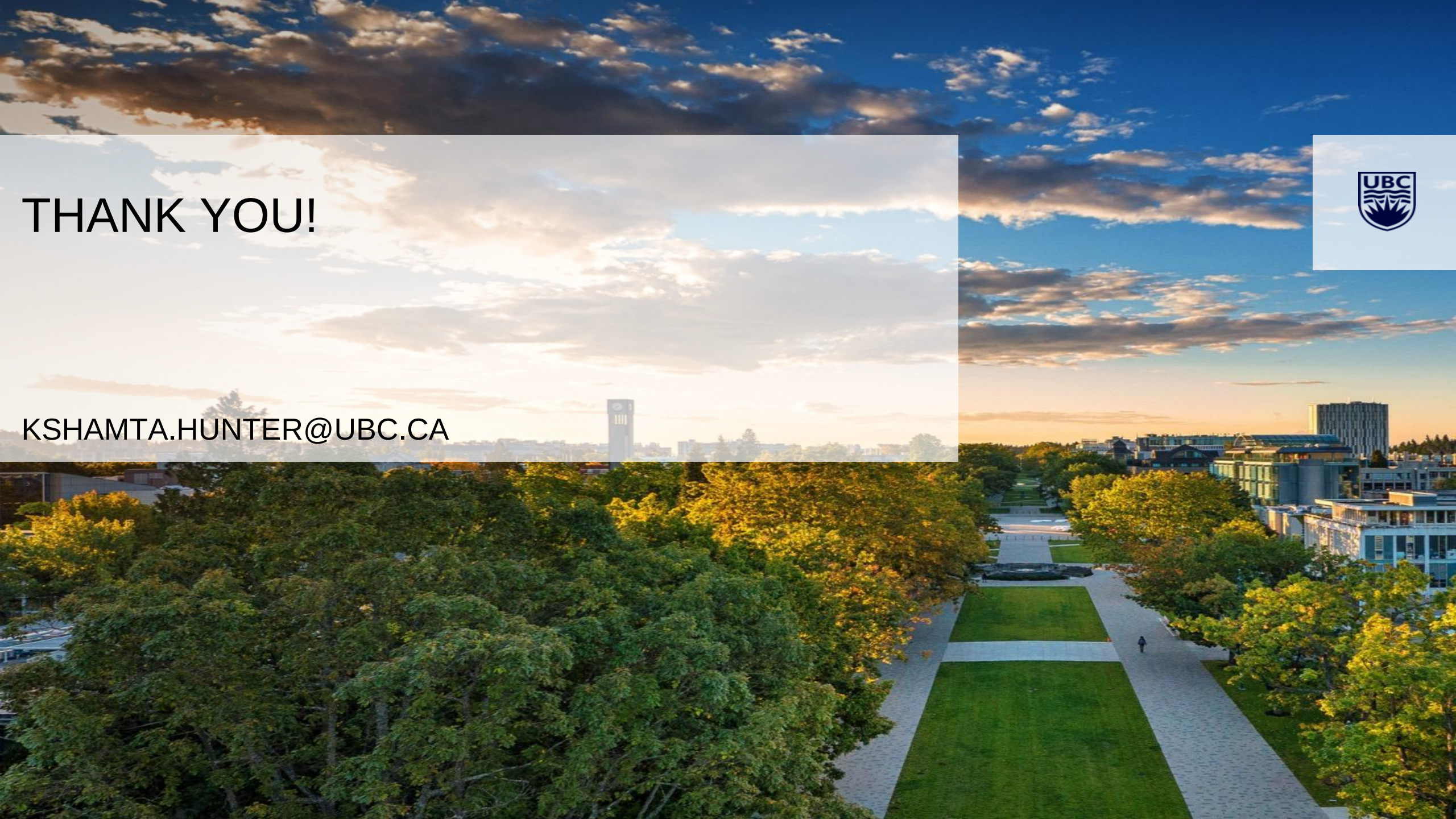
https://map.bccic.ca/

SDG Academy

https://sdgacademy.org/

Worlds Largest Lesson

http://worldslargestlesson.globalgoals.org/



THANK YOU!

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