TLEF Project – Final Report

Report Completion Date: (2019/09/11)

1. PROJECT OVERVIEW

1.1. General Information

Project Title:	Data Driven Case Studies for Teaching Sustainability Analysis
Principal Investigator:	Navin Ramankutty
Report Submitted By:	Navin Ramankutty
Project Initiation Date:	April 2018

Project Initiation Date:	April 2018	**Project Completion Date:**	Aug 2019
Project Type:	☐ Large Transformation ☒ Small Innovation ☐ Flexible Learning ☐ Other: [please specify]		

1.2. Project Focus Areas – *Please select all the areas that describe your project.*

☒ Resource development (e.g. learning materials, media)

☐ Infrastructure development (e.g. management tools, repositories, learning spaces)

☐ Pedagogies for student learning and/or engagement (e.g. active learning)

☐ Innovative assessments (e.g. two-stage exams, student peer-assessment)

☐ Teaching roles and training (e.g. teaching practice development, TA roles)

☐ Curriculum (e.g. program development/implementation, learning communities)

☐ Student experience outside the classroom (e.g. wellbeing, social inclusion)

☐ Experiential and work-integrated learning (e.g. co-op, community service learning)

☐ Indigenous-focused curricula and ways of knowing

☐ Diversity and inclusion in teaching and learning contexts

☐ Open educational resources

☐ Other: [please specify]

1.3. Project Summary

There has been considerable effort at UBC to enrich student learning of sustainability through the use of case studies (e.g, ENVR 440, CONS 452 and pending courses GEOG 314 and GPP 540). But the development, implementation, and evaluation of such case studies takes considerable time. Our project team of 6 instructors from 3 faculties will develop modular, data-driven, interdisciplinary, real world, case studies for teaching sustainability analysis across multiple 200-500 level courses. The new repository of case studies will allow other instructors to swap them in as required or adapt for their particular courses. Our team will also discuss and design effective teaching approaches for case-study based courses such as concatenated blended learning. The long-term objective of our project is to create an open-source resource (OER) of such case studies to be shared widely across campus, for example through UBC's Open Case Studies site or Canvas Commons Repository.

1.4. Team Members – *Please fill in the following table and include __students__, undergraduate and/or graduate, who participated in your project.*

Name	Title/Affiliation	Responsibilities/Roles
Navin Ramankutty	Professor, IRES	Project PI
Milind Kandlikar	Professor, IRES	Co-applicant
Tara Ivanochko	Director, Environmental Science	Co-applicant
Sally Hermansen	Professor of Teaching, Geography	Co-applicant
Simon Donner	Associate Professor, Geography	Co-applicant
Jeanine Rhemtulla	Assistant Professor, Forest Conservation Sciences	Co-applicant
Phil Austin	Associate Professor, Earth, Ocean and Atmospheric Sciences	Co-applicant
Balsher Singh Sidhu	PhD Student, IRES	Graduate Research Assistant
Seth Wynes	PhD Student, Geography	Graduate Research Assistant

1.5. Courses Reached – *Please fill in the following table with __past__, __current__, and __future__ courses and sections (e.g. HIST 101, 002, 2017/2018, Sep) that have been/will be reached by your project, including courses not included in your original proposal (you may adapt this section to the context of your project as necessary).*

Course	Section	Academic Year	Term (Summer/Fall/Winter)
GEOG 314	201	2018/19	Winter
ENVR 440	201	2019/20	Winter
ENVR 300	201	2019/20	Winter
CONS 452	201	2019/20	Winter

2. OUTPUTS AND/OR PRODUCTS

2.1. *Please __list__ project outputs and/or products (e.g. resources, infrastructure, new courses/programs). Indicate the current location of such products and provide a URL if applicable.*

Product(s)/Achievement(s):	Location:
Developed 4 modules that can be used to teach sustainability analysis in UBC courses	**Canvas Commons**
Developed teaching guides for each case study	Canvas Commons
Test ran one of the modules in GEOG 314, and summarized the lessons learnt from that experience.	Canvas Commons

2.2. Item(s) Not Met – *Please list intended project outputs and/or products that were not attained and the reason(s) for this.*

Item(s) Not Met:	Reason:
We only test ran one module, we had planned on doing two.	The instructor of the course for whom one of the modules was designed chose not to use it.
We did not consult with CTLT on optimizing case studies or open source initiatives.	The honest answer is that the lead PI ran out of energy. He also served as Acting Chair of his unit during the 2018/19 academic year, so there was a lot going on. And when we chose not to apply for continued funding, we focused on content design. But we plan to trial run these case studies in existing courses, and will continue refining them. The value will be in instructors using them in UBC courses.

3. PROJECT IMPACT

3.1. Project Impact Areas – *Please select all the areas where your project made an impact.*

☒ Student learning and knowledge

☒ Student engagement and attitudes

☒ Instructional team teaching practice and satisfaction

☐ Student wellbeing, social inclusion

☐ Awareness and capacity around strategic areas (indigenous, equity and diversity)

☐ Unit operations and processes

☐ Other: [please specify]

3.2. What were you hoping to change or where were you hoping to see an impact with this project? – *Please describe the intended <u>benefits of the project</u> for students, TAs, instructors and/or community members.*

We were hoping to develop easily accessible case study modules that instructors could easily use and adopt in environmental science courses. We were also hoping to improve student learning of key sustainability concepts through the use of these new case studies.

3.3. Were these changes/impacts achieved? How do you know they occurred? – *What evaluation strategies were used? How was data collected and analyzed? You are encouraged to include copies of data collection tools (e.g. surveys and interview protocols) as well as graphical representations of data and/or scenarios or quotes to represent and illustrate key themes.*

We developed four new case study modules that are now available publicly on Canvas Commons. So the initial goal of Year 1 funding to develop the modules was achieved, and the resources are also open source. However, we did not pursue further funding for years 2 and 3 that would have focused on evaluating the potential impacts of the case studies developed on student learning. We do present some insights from having test run one of the modules.

3.4. Dissemination – *Please provide a list of <u>**past**</u> and <u>**upcoming**</u> scholarly activities (e.g. publications, presentations, invited talks, etc.) in which you or anyone from your team have shared information regarding this project.*

None.

4. TEACHING PRACTICES – *Please indicate if <u>**your**</u> teaching practices or those of <u>**others**</u> have changed as a result of your project. If so, in what ways? Do you see these changes as sustainable over time? Why or why not?*

We did not have enough opportunity to evaluate this. But we anticipate that, by the very nature of how these modules are structured, that it will force faculty who adopt them to use more active learning approaches in the classroom.

5. PROJECT SUSTAINMENT – *Please describe the sustainment strategy for the project components. How will this be sustained and potentially expanded (e.g. over the next five years). What challenges do you foresee for achieving the expected long-term impacts listed above?*

We plan to take these modules and turn them into an online open-source text book. Once this is done, we will widely advertise it to colleagues around the world, and invite them to contribute their own modules to the text book. We anticipate that the text book will grow if a few core participants participate actively.