

School of Environment, Enterprise and Development

ANNUAL REPORT

2022

Faculty of Environment
University of Waterloo

Introduction

This report covers the period from January to December 2022. The School has enjoyed ongoing success, with several highlights:

- SEED’s research funding from all sources remains strong, totaling approximately \$3.974 Million
- SEED welcomed one new faculty member Jessie Ma (0.49 FTE/System Design Engineering 0.51), bringing the total faculty complement to 22 and will welcome Amr ElAlfy and Rosella Care in 2023.
- The Bachelor of Sustainability and Finance (BSFM) welcomed the first cohort in Fall 2022 (joint SEED-SAF program).
- Our students and faculty continue to work closely with a range of stakeholders, locally, nationally, and internationally, ensuring SEED’s continued visibility in research, teaching, and professional service (see Achievements and Impacts).

SEED Enrollment Trends

At the aggregate level, the school’s enrolments have stayed steady over the past year compared to 2021. In the undergraduate programs, International Development and Environment and Business enrolments have together increased by a total of 47 students, plus the addition of new students enrolled in the Bachelor of Sustainability and Financial Management (**BSFM**). Looking ahead, the BSFM is expected to attract approximately an additional 300-400 students in total compliment over the next four years, resulting in enrolments well exceeding 1,000 undergraduate students per annum across all programs.

Year*	Undergraduate			Graduate					
Program	EB	INDEV	BSFM	MEDI	MEB	MDP	MES SUSM	PhD SUSM	Total
2021	494	52		28	71	32	65	79	821
2022	538	55	(46)*	23	73	22	64	82	857
Change	+44	+3		-5	+2	-10	-1	+3	+37

- Joint program with SAF

Graduate enrolments are down slightly from the previous year at 264 across all programs. In the three professional programs, MEDI has declined (-5), MDP has decreased (-10), and MEB has increased (+2). This represents an overall increase in professional program enrolments in 2021 (total 131) compared to 2020 (total 124). The MES in Sustainability Management has declined by one student and the PhD in Sustainability Management has increased enrolment by 3 students.

Degree Completions

Year*	Undergraduate			Graduate				
Program	EB	INDEV	MEDI	MEB	MDP	MES SUSM	PhD SUSM	Total
2022	126	19	14	18	19	18	4	218

Faculty

Dr. Jessie Ma joined SEED in 2022 which is a joint appointment with System Design Engineering. These appointments bring SEED's faculty compliment to 21 members. In addition, SEED has many Adjunct Professors; one Professor Emeritus; three affiliated faculty members who are appointed at St. Paul's University College and who teach in the school; post-doctoral fellows; a visiting scholar, many research associates; and several sessional instructors. Paul Parker retired December 31, 2022 and continues as an adjunct professor. Rosella Care and Amr ElAlfy were hired in 2022 and will both start in 2023 in SEED. Long time faculty member, Olaf Weber was offered the CIBC Chair in Sustainable Finance at the Schulich School of Business at York University and will be joining the faculty at York University in the Fall of 2023. His colleagues at SEED are immensely proud of Olaf's achievements and while we will miss him greatly, we wish him good fortune in his new position.

Staff

At the end of 2022, the school's administration team comprised of Jennifer Nicholson (Administrative Manager), Karen Robertson (U/G Advisor-INDEV/Administrative Assistant), Cheri Oestreich (U/G Admin-ENBUS), Jennifer Doucet (Grad Admin-MEB, MDP, MEDI), Anastasiya Saparaliyeva (Grad Admin-SUSM), John Abraham (Lecturer and INDEV and MDP Field Placement Manager-St. Paul's). Marion Brown retired officially in July with her last day in the office at the end of March. Janine Dietrich (Sept) and Dragana Kostic (Aug) moved to roles in the Student Success Office. Lori McConnell assisted with Graduate Administration over the summer months while we were hiring for the two graduate administrative roles.

Faculty Administrative Roles

In 2022, the following faculty members held administrative appointments within the School and the Faculty:

- SEED Director - Bruce Frayne (Jan-June)
- SEED Director (Interim) – Neil Craik (July to current)
- Associate Director Undergraduate Studies - Mike Wood (Jan-Aug)
- Associate Director Undergraduate Studies, - Dan Murray (Sept-current)
- Associate Directors Graduate Studies - Prateep Nayak (Jan-June) and Steven Young (Jan -Aug)
- Associate Directors Graduate Studies - Jason Thistlethwaite and Heather Hall (Sept-current).
- Associate Dean, Research - Amelia Clarke
- Associate Director, WISA - Paul Parker
- Director, Waterloo Institute for Complexity & Innovation – Sean Geobey
- Co-Director, BSFM, SEED - Jennifer Lynes
- Program Academic Directors:
 - MEDI: Heather Hall (Jan-Aug) and Sean Geobey (Sept-current)
 - MEB: Dan Murray (Jan-Aug) and Goretty Dias (Sept-current)
 - MDP: Cameron McCordic

Program Updates

SEED houses 8 programs, comprising three undergraduate programs (International Development, Environment and Business, and the new Bachelor of Sustainability and Financial Management); three professional graduate programs (Master of Development Practice, Master of Economic Development

and Innovation, and Master of Environment and Business); and two graduate research programs in Sustainability Management (MES and PhD). The PhD in Sustainability Management accepted its fifth cohort of students in September 2022 and had its first-degree completion in the program in 2022. The school started the cyclical review process for all of its programs (except the BSFM) in 2022.

Undergraduate Programs

Environment and Business Program

Now in its 21st year, the Environment and Business Honours co-op program currently has more than 500 students, including students from Nanjing University of Finance and Economics (NUFE) who complete the final two years of their degree at UW through our 2+2 program. With a program-wide focus on advancing sustainability in practice, the highlight of the program for many students is the eight-month capstone project that they complete in their final year. Students work in teams with a 'real-world' client to address a specific sustainability issue related to the organization.

International Development Program

The INDEV Program continues to place students on eight-month field placements with World University Service of Canada partner organizations in the Global South as part of their Practice Specialization. Students also continue to opt to undertake their thesis research under the INDEV Research Specialization. The Program continues to successfully host the International Development Speakers Series, providing weekly guest lectures in the Winter Term that are open to students, the broader university community, and the public. Since 2012, the program has successfully placed some 250 INDEV students with organizations abroad.

An ongoing challenge is the downward trend in INDEV enrollments, and the program is currently reviewing future pathways for the program. Consultations are underway with students, alumni, professionals in the field, cognate programs at other universities, affected faculty and staff. This review will occur within the context of the cyclical review and other discussions regarding the direction of undergraduate directions in the School and Faculty. The school has closed the program to new admissions (commencing in 2024) pending the outcome of these discussions.

Sustainability and Financial Management

The BSFM program was approved in 2021 and is jointly run with the School of Accounting and Finance. The program provides students interested in the fields of accounting and financial management with a program that balancing environment courses with standard accounting and financial management courses, with the core of the program focusing on the emerging practices in the sustainable finance and accounting field. This program responds to the demand within these field for sustainability literacy and knowledge of the new tools that expand the assessment and management of financial assets to include natural capital, climate and biodiversity risks and the incorporation of social inclusion and equity in the day-to-day operations of businesses. The first intake was above target. The School expects to reach steady state enrollment (80) in the next few years.

Professional Graduate Programs

Master of Development Practice Program

The Master of Development Practice (MDP), a 16-month professional course-based program, is part of the Global Association of MDP Programs that currently has 35 programs in 25 countries. Experiential learning and field placements are an integral component of the MDP program with an ever-growing network of partners available at grass-roots organizations to international institutions. Since 2013, more than 100 MDP students have been placed with partner organizations overseas. As a member of the Global MDP Association, students enrolled in the University of Waterloo MDP program have had the chance to participate in discussions with experts on the future of sustainable development. The MDP cohort for the 2021-2022 year has secured placements with a diverse set of organizations in Canada and abroad. 2022 also saw the publication of an edited book led by Professor Larry Swatuk that included contributions from 15 master's students being published for the first time (13 MDP, 1 MCC, 1 MPCS) with a major publisher. This is the third edited collection resulting from this class, meaning 48 master's students have garnered publications as a result of INDEV 608. The number triples when conference proceedings are included.

Importantly, while the MDP remains an in-person course, the school (with agreement from the GSPA) has made provision to offer a hybrid version of the program to accommodate international and other distance learners under the pandemic. The program will be returning to in person learning. In 2022, the field course returned to being held in Chilika, India.

Master of Environment and Business Program

The MEB program continues to offer a high-quality online professional course-based master's degree that can be completed part-time in three years or full-time in one year. With sustainability fully integrated into all courses, the program empowers current professionals to integrate sustainability into their own organization to take advantage of strategic opportunities in the space, or to apply business tools and strategies to advance sustainability across broader community contexts. The online MEB program has high flexibility, smaller class sizes and high instructor student ratios, and offers an accessible opportunity to advance the sustainability knowledge and careers of our students.

The MEB program continues to see an evolution in terms of the students coming into the program and what each hope to achieve from it. This year the program saw a shift from students with a financial management background, to students with a traditional business background, but also to a large number of students with environment and geography backgrounds. These shifts mirror the greater global concern from the business community and the environmental field on the need to integrate these two areas and reinforces the significant role the program plays in facilitating the emergence of future leaders in the field of sustainability management.

Master of Development and Innovation

MEDI is a three-term program with a strong focus on experiential learning and using the Kitchener-Waterloo region as a living laboratory to understand the innovation ecosystem and the underlying economic development processes that support it. As part of their course work, students worked with community partners to find solutions to economic development challenges faced by those partners.

The MEDI program was one of the few programs that was back in-person in the Fall. We attended and had a booth at the annual Economic Developers Council of Ontario Conference in Toronto where we connected with many of our alumni. Our students also have exciting capstone opportunities

including internships with the Ontario Public Service, and municipal governments as well as applied research projects exploring research parks and best practices for service delivery in the Rural and Northern Immigration Pilot (RNIP) program.

Research Graduate Programs

Master of Sustainability Management Program

The Masters in Environmental Studies in Sustainability Management continues to attract strong students that gain an applied research education while supporting the school's research. Student experiences have included research placements with municipalities and companies and provided opportunities for overseas and local field research. The program is supported with scholarships from the University of Waterloo's Water Institute, SSHRC (Social Sciences and Humanities Research Council) graduate awards, Mitacs, and with funds provided under professor research grants. Students in the program have published in the popular press, crafted policy papers, delivered conference papers, and some have authored in peer reviewed journals. Many graduates are continuing Ph.D. studies.

Ph.D. in Sustainability Management

The school welcomed the fourth cohort of students to the new and innovative doctoral program (established in 2018). There remains strong interest in the program, which indicates the strong demand for a doctoral program in this newly emerging field, which trains students for the professional and academic markets in sustainability management.

Research Activities

SEED faculty have continued to successfully attract research funding (~\$3.1 million in 2022) from major granting agencies, government agencies and private funders, including foundations, NGOs, and industry. SEED professors and students (often in teams) continue to publish in a variety of high impact outlets, both academic and professional outlets, as well as contributing to industry and other forms of knowledge dissemination.

Achievements and Impact

While it is not possible to summarize all the outstanding impacts made by our students, staff, and faculty over the past year, below is a small selection of highlights as an indication of the local, national, and international reach of our School.

Students

Awards and Achievements

- Outstanding Paper Award in the 2022 Emerald Literati Awards for ElAlfy, A., Weber, O., & Geobey, S. (2021). The Sustainable Development Goals (SDGs): a rising tide lifts all boats? Global reporting implications in a post SDGs world. *Journal of Applied Accounting Research*.
- Brady Reid, SUSM PhD was the first SEED recipient of a SSHRC Canada Graduate Scholarship – Michael Smith Foreign Study Supplement. He will be spending a semester in Tasmania working with Dr. Emma Lee, a trawlulwuy woman of

tebrakunna country (northeast Tasmania) and Professor, National Centre for Reconciliation, Truth, and Justice, Global and Engagement, Berwick Campus, Federation University Australia.

- SUSM PhD student, Carolina Romero Pereira, received a \$12,000 (over two years, held from 2022 to 2024) **CAPRI Doctoral Fellowship Program – The Intersection of Trade, Environment, and Food Security**, from the Canadian Agri-Food Policy Institute. The fellowship is awarded to four outstanding doctoral students, to work in a transdisciplinary research network, to address economic, social, legal, or environmental aspects of trade in agriculture and agri-food products, with respect to concerns around high prices, climate change, and global food security. Her research is on whether there is a role of vertical farms to meet sustainability goals in terms of the environment and nutrition.
- Tansuri Sarker and Melanie Issett were awarded the McCall McBain fellowship
- Bhabishya Kaniya (Winter 2022) and Navya Vikraman Nair (Fall 2022) received the Davis Memorial Scholarship in Ecology
- Laura Blanco Murcia received the Emily Ruston Mann Memorial Graduate Scholarship in Winter 2022
- Vansundhara Saravade, Pankaj Tewari, Leah Feor, McKenzie Huneke received Ontario Graduate Scholarships and Donna Jones received the QEII-GSST Scholarship in Spring 2022.
- Cassandra Sherlock received the NSERC Alexander Graham Bell – CGS master's Scholarship
- Francisco Felix Martin del Camp received the GGSF- Graduate Research Studentship
- Tracelyn Cornelius received the University of Waterloo Staff Association Graduate Award
- Kayleanna Giesinger, Cameron McGlade-Bouchard, Stephanie Cortinovic, Melanie Issett received SSHRC Doctoral Fellowships
- Naimi Samuel received the VPRI (Vice President, Research and International) Graduate Student Award
- Julie Cook, Tara Atleo and Sisir Pradhan received the Doctoral Thesis Completion Award.

Staff

- Our administrators – for the heroic achievement of surviving a year of many changes and staffing shortages. THANK YOU.

Faculty

- Dr. Amelia Clarke, Dr. Jeffrey Wilson, Dr. Amr ElAlfy and team were granted \$4,055,916 in funding from the Government of Canada (specifically, Environment and Climate Change Canada) for the [Municipal Net-Zero Action Research Partnership](#) (N-ZAP). This is complemented by another ~\$4.5 million in in-kind and cash contributions from other partners. It is a five-year project that aims to support Canadian municipalities in monitoring, measuring, and achieving their climate mitigation goals. This research project will study and create improved measurement, analysis, monitoring, and reporting systems for reducing both municipal and community wide GHG emissions. N-ZAP is a partnership between the University of Waterloo, the Federation of Canadian Municipalities, ICLEI Canada, 11 other Canadian universities, nine other national organizations and 13 municipal governments.

- Professors Juan Moreno Cruz and Neil Craik, along with their colleague Vanessa Schweizer were granted \$480,000 from Environment and Climate Change Canada to lead a project on [Robust Decision Making Using Dynamic Adaptive Policy Pathways for Direct Air Capture Deployment in Canada](#).
- The faculty contributed to publications in the top journals in their fields, including publications in *Science* (Moreno Cruz) and *Nature Sustainability* (Swatuk).
- Dr. Amelia Clarke and two of her former PhD students (both ENV alumni) won an Emerald Literati Award for Outstanding Paper for the article Business Contributions to the Sustainable Development Goals through Community Sustainability Partnerships, which was published in the *Sustainability Accounting, Management and Policy Journal*.
- Heather Hall was awarded the Ministers Award of Excellence for her work on the role of Northern and rural communities in responding to the challenges of COVID19.

Prof. Neil Craik, Director