



GEORGE ASON Institute for a VERSITY Sustainable Earth

As an innovative and inclusive academic community, the aim of George Mason University is not to be the best university in the world, but the best university for the world. We are committed to producing not only research of quality, but also of consequence, and to translating research into solutions to help solve some of the most complex problems of our time at all scales locally to globally.

With these commitments in mind, Mason launched the Institute for a Sustainable Earth (ISE) on February 25, 2019. This institute was no accident; it was years in the making. Throughout the last several decades Mason's Colleges and Schools have hired top scholars focused on various elements of sustainability and resilience. The institute was shaped by these scholars with the intention of coming together across disciplines to put research and scholarship into action to support a just, prosperous and sustainable world.

The mission of the Institute for a Sustainable Earth is to connect members of the Mason community with others across the Mason community – and with other communities, policymakers, businesses and organizations – so that, together we can more effectively address the world's pressing sustainability and resilience challenges.

This plan intends to set the roadmap for the first phase of the work done by ISE. The ideas contained in this plan were generated through numerous discussions, events, and activities but specifically honed into a strategic frame by the ISE Advisory Council during a retreat in September 2019. The plan is organized into four key goals for the institute with specified initial plans. These four key goals are: (i) ensure that we practice and apply what we teach locally, regionally and globally (ii) deep engagement of ISE faculty in collaborations and the further development of the institute; (iii) complete building the foundation for an enduring and impactful institute; ; and (iv) catalyzing curricular integration of sustainability and resilience.

#### **Research Strengths**

The ISE community consists of over 500 faculty who conduct research within all areas of the 17 Sustainable Development Goals (SDGs) outlined in the 2030 Agenda for Sustainable Development. The following infographics, based on fiscal year 2019 expenditures represent the efforts of approximately 250 faculty and their teams with over 350 projects. While all SDGs are represented, the university has particular strength in SDGs 3, 11, 4, 13 and 10.







## **Research Themes**

In addition to understanding the strengths of the ISE community, it is important to connect our strategy with that of the global sustainability community so that our work benefits from and influences further progress toward the SDGs. The international community has undertaken efforts to group the SDGs into meaningful categories in order to take advantage of overlap and synergies that may be realized in addressing multiple SDGs simultaneously (see Appendix for examples).

Drawing inspiration from this approach and Mason's strengths related to the various SDGs, the ISE community is best represented by the following six Research Themes:

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Increasing human health, wellbeing, and human capabilities

2

Addressing urban and peri-urban sustainability and resilience challenges including those that impact life on land and in water

3

The digital revolution for sustainable development with a special focus on educational access for all

Clean energy, decarbonization, and action to address climate change

5

Enhancing equity and reducing inequality including access to healthy food, decent work and clean water and sanitation

6

Supporting peace, justice and strong institutions to support thriving economies

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Lead by example

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Goal 1: Ensure that we practice what we teach. Lead by example and promote a sustainable campus and sustainable region. Work with campus and local/regional constituencies to develop a broad set of sustainability goals for Mason and the localities of the greater Washington DC region and Commonwealth with measurable targets with an eventual goal of: supporting communities that promote healthy strong citizenry; utilize sustainable and resilient design to enhance quality of life; develop and adopt the latest digital technologies that enable sustainability innovation; become net zero carbon; and promote strong institutions and equity for all citizens.

### Expected Accomplishment (EA) 1: Deeply engage with the Sustainability Council and Office of Sustainability to enact change.

#### **Initial Activities:**

Activity 1.1: Utilize faculty expertise to understand all technological options available to Mason. Link faculty into campus sustainability initiatives where mutually beneficial partnerships may be formed.

Activity 1.2: Participate in the Sustainability Council including developing an updated Climate Action Plan and Sustainability Plan for the university.

Activity 1.3: Collaborate with Mason's Office of Sustainability in engaging student organizations and in idea generation for campus sustainability activities.

Activity 1.4: Ensure appropriate publicity – "do good things, be seen doing good things."

EA2: Engage local, regional and state governmental, commercial, civil society and science/research/educational partners to first make the Washington DC region a model of sustainable development for the world.

#### **Initial Activities:**

Activity 2.1: Utilize faculty expertise to understand technological innovations from other universities, communities, and regions around the world that are available to Mason and local/regional governments.

Activity 2.2: Facilitate the transfer and application of innovative policies and technologies from other universities, communities and regions to the greater metropolitan Washington region that will result in ecological, economic and social outcomes. Share local innovations with communities around the world through publications, presentations and other forms of outreach.

Activity 2.3: Work to support international exchanges and partnerships for all ISE faculty, to support the university strategic goal #1 of delivering a transformative Mason learning experience that is experiential, global and technology rich and strategic goal #8 a diverse academic community.

Deeply engage ISE faculty

Sara Cobb

Goal 2: Deep engagement of ISE faculty in collaborations and the further development of the institute. Maximize faculty participation in ISE through faculty engagement and support. The mission, vision and activities of ISE must be driven by Mason's faculty; therefore, faculty engagement is central to the work of the institute.

EA1: Create a well-defined faculty affiliation program for ISE in order to strengthen collaboration in sustainability and resilience research.

#### **Initial Activities:**

Activity 1.1: All faculty who are considered part of the ISE community receive formal notice of their affiliation and the meaning of such affiliation.

Activity 1.2: An online faculty directory with faculty fact sheets is populated for all affiliated faculty.

Activity 1.3: Faculty affiliation with ISE will be designated in the Faculty-180 system.

#### EA2: Create faculty affinity groups within ISE.

#### **Initial Activities:**

Activity 2.1: Develop programing around the ISE research themes.

Activity 2.2: Issue a call for faculty fellows for each research theme. Provide a two-year long stipend for each fellow to build community around each Research Theme.

Activity 2.3: Develop a mechanism (meetings, events, social gatherings) for faculty to engage regularly in order to facilitate collaboration on research and academic curriculum and share experiences and best practices.

Activity 2.4: Align seed funding programs with faculty affinity groups.

Endurance & Impact





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Goal 3: Complete building the foundation for an enduring and impactful institute. Develop and strengthen ISE infrastructure to support research growth for ISE faculty. Infrastructure includes the staff and communication mechanisms to ensure the ISE faculty benefit from affiliation with the institute and also feel that they are part of the ISE community.

#### EA1: Obtain external support for ISE.

#### **Initial Activities:**

Activity 1.1: Develop a sustainability brand for the region with priorities and indicators for outcomes benefitting the ecologies, economies and communities of the region and Commonwealth of Virginia, the United States and internationally

Activity 1.2: Conduct an assessment of the sustainability initiatives of other universities in the region.

Activity 1.3: Collect requisite data to illustrate the benefits that accrue to the Washington DC region and the Commonwealth of Virginia.

Activity 1.4: Work directly with the University Advancement and Alumni Relations Team to fundraise for ISE.

### EA2: Invest in research development support and strategic communications to increase wins and grant funding.

#### **Initial Activities:**

Activity 2.1: Leverage research development services team to provide support for major, strategically important multidisciplinary research proposals.

Activity 2.2: Identify individual(s) to focus on communicating about the work of ISE faculty.

Activity 2.3: Build a strategic presence at local, regional, state, national and international meetings.

Activity 2.4: Build new strategic partnerships at the local, regional, state and national level that ensure the work of ISE has the greatest possible impact.

Catalyze curricular integration and student opportunities

Goal 4: Catalyzing curricular integration of sustainability and resilience. ISE faculty are committed to translational activities including mentoring students in curricular and experimental learning opportunities.

EA1: Deeply engage in Mason's curriculum development process to ensure sustainability and resilience are taught to every student attending the university.

#### **Initial Activities:**

Activity 1.1: Ensure there are required courses at the undergraduate and graduate level that include participatory action research.

Activity 1.2: Develop certificate program in sustainability.

Activity 1.3: Ensure participation by ISE leadership in the smart cities graduate degree program.

EA2: Engage community, local governmental, nonprofit, and industry partners in identifying opportunities for Mason students to engage in capstone and Impact projects.

#### **Initial Activities:**

Activity 2.1: Work with local community, governmental, nonprofit, and industry partners engaged in sustainable development to host Mason students for internships.

Activity 2.2: Seek active internships and exchanges abroad in sustainable development for Mason students

## About ISE

Mission: To connect members of the Mason community with others across the Mason community-and with other communities, policy-makers, businesses and organizations-so that, together, we can more effectively address the world's pressing sustainability and resilience challenges.

The world is at a turning point—we either develop vastly more sustainable ways for people and other living things to prosper on Earth, or we risk truly catastrophic consequences. The ISE community conducts integrative research in the natural sciences, social sciences, computational and data sciences, engineering, and humanities, bridging disciplinary gaps to realize innovative advances in an era of rapid global change.

Considerations about ultimate end-use are central to the development of our research and scholarship agenda. Our faculty, staff, and students work with academic, governmental, community, NGO, and corporate entities to realize transdisciplinary solutions that mitigate risks, reduce inequities, support climate change adaptation, and promote a free, just, and prosperous society.

Institute faculty, staff, and students engage with communities of practice on Mason's campus, in the region, nationally and globally, to ensure a deep understanding of the challenges that enable or constrain the development and adoption of sustainable solutions. ISE focuses not only on natural and engineered systems but also the socio-economic-legal systems that impact community sustainability and resilience and enable the development of holistic solutions. Our approach incorporates culture, beliefs, and values.

Our community of researchers and scholars also engage the policy process in novel ways, leveraging Mason's strengths in policy, law, and proximity to the nation's capital while creating spaces where civil discourse and dialogue engender enduring solutions. ISE serves as an honest broker of ideas, a convener, and a source for consensus building through conflict resolution, creative works, and effective communication.

Finally, Mason's faculty integrate state-of-the-art research outcomes into contemporary education programs to prepare ta new generation of effectual leaders, innovators, and entrepreneurs who respect and value our social and environmental interdependencies.

Our faculty, staff, students, and partners continuously reflect upon and improve efforts to enhance diversity, equity, and inclusion in all endeavors. Diversity includes not only differences in individual backgrounds, personal identities, intellectual approaches, and demographics, but also the removal of barriers and the creation of space to shape a just, flourishing future.

The ISE community is committed to ethical and responsible conduct in all research, scholarship, and creative work, both within Mason and in engagement with external partners and stakeholders.

George Mason University Institute for a Sustainable Earth: Putting research and scholarship into action to support a just, prosperous, and sustainable world.



## ISE Leadership

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## Appendix

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Sachs et. al (2019) describes transformations necessary to achieve the 2030 agenda developed by the United Nations Sustainable Development Solutions Network, an international network of thousands of sustainability experts.



Messerli et. al (2019) described transitions necessary to achieve the 2030 agenda contained in the Global Sustainable Development Report, a consensus document presented to the United Nations High-level Political Forum on Sustainable Development.



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