



Science
Societies

SSSA member seeks to make a difference in Congress

By Denice Rackley

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John Selker (fourth from the left) with Oregon State University student engineers in Ghana.

John Selker is on a mission to take science, the foundational lessons taught to him by his parents, and a burning desire to make a difference all the way to Congress.

Selker is an SSSA member, Distinguished Professor of Biological and Ecological Engineering specializing in hydrology at Oregon State University (OSU), and co-director of the Trans-African Hydro-Meteorological Observatory (TAHMO). He feels his wealth of varied experiences would be useful in guiding discussions and analyzing data to uncover practical solutions in Congress.

Selker has worked with multiple volunteer organizations to improve the lives of many in some of the most challenging environments. He has lived on five continents, speaks three languages, runs a high-tech environmental monitoring business, and has lived the last 30 years in Corvallis, OR working with OSU.

His life spent as a man of science might be the edge needed to help him secure a seat in the House of Representatives and become a trusted voice of reason.

Doing Better

“When I see something that isn’t right, I think we can do better.” Not one to point out problems to others and then sit back and wait, Selker is the guy that rolls up his sleeves and gets to work.

He learned early in life that change requires hard work. Selker is one of eight children, born to a father who followed science as an engineer and a mother who was a Holocaust survivor and lifelong supporter of people creating a positive change. He witnessed his parents working daily to better their family and community.

Selker remembers his mother going house to house in their neighborhood encouraging others to become involved in community policies and services. "My mom was central in starting a community food co-op that has grown to 16 stores across Seattle where it meets the needs of many families."



John Selker installs a weather station at the University of Thies in Senegal.

His connection to his food, local farmers, community, and science grew daily in his youth. Lively, intense discussions were regular occurrences around the Selker table. Everything was analyzed. These discussions and the influence of his parents led Selker to ask questions, speak up, and follow science early in life.

He vividly remembers a discussion with classmates and his third-grade teacher about the weight of lunchboxes. "The teacher said a crunched-up lunch box would weigh more than one that wasn't crushed. I spoke up, informing them that is not how weight works." The experiment proved Selker correct, and that day, he was dubbed "Spock," an apt nickname that has followed him ever since.

Selker continued to pursue science as an undergraduate with a degree in physics. He then began working with electronics during summer employment at the Brookhaven National Laboratory developing detectors for high-energy physics. Sitting at a bench and teaching electrical engineering students, Selker felt he wasn't impacting the world like he envisioned. "I thought anyone could do this; I wanted to make a difference."

Volunteer Work Reveals Lifelong Passion

Selker interned at Aprovecho, a research center testing and building experimental cookstoves. Taking his knowledge to those who would benefit the most, he and his wife, Laurie, with backpacks in hand and plane tickets purchased, began volunteering in the poorest parts of the world, including Somalia, Kenya, and Sri Lanka.

Selker was tasked with improving the efficiency of wood and charcoal cookstoves. The three-stone fire stove and double drum design hadn't changed in hundreds of years. These stoves used a lot of wood while exposing mothers and children to toxic fumes. The stoves he and his wife designed are still used in Africa and are estimated to have saved enough wood to equal the weight of all the people on earth.

In Africa, Selker has an "ah-ha" moment that altered his course again. As he traveled, he was struck by how the weather dictated prosperity or mere survival. Each family's food supplies were entirely dependent on rainfall as was the entire agriculture system in Africa. "Without rain, families suffered. Water catchment tanks were just becoming available; the ability to simply store water was changing lives."

Returning home, Selker knew that work in the soil and water realm was where he could devote himself and have a profound impact. He enrolled in Cornell to continue his education with one goal: "I wanted to learn how I could help make farmers, farms, and agriculture systems more secure."

At Cornell, he began his journey to understand the intricate relationship between soil, water, and plant physiology. Soils provided the challenge Selker had been searching for: "Soils hold fundamental truths, are complex, and deeply fascinating. ... I wanted to do something really well, work to the top of my field, and apply the knowledge to real-world problems that would positively impact lives."

Selker studied erosion and precipitation patterns for his master's degree and then aquifer recharge systems, attaining a doctorate in agricultural water engineering.

Selker has studied soils and water around the world and contributed 225 scientific articles. He has served on editorial boards of multiple journals (including the *Soil Science Society of America Journal*) and received numerous awards. He started TAHMO.org with his friend Nick van de Giesen, setting up 620 weather stations across 23 African countries to supply free data to more than 600 scientific teams and government entities. He has spent 31 years at OSU, dividing his time among teaching, research, and assisting farmers in building sustainable operations as an extension educator.

He has enjoyed his time working with students, farmers, and organizations across Oregon and around the world. Now he is ready for the next chapter.

Taking Science to Congress

Selker is excited about bringing his understanding of science, soil and water systems, agriculture, technology, and the obstacles that prevent people from living well to serve on a national stage.

The retirement of U.S. Representative Peter DeFazio in Oregon's 4th Congressional District provides a perfect opening for Selker.

"As a nation, we face critical decisions that require deep understanding of key processes that benefit from a science-based approach." Climate change, soil management, crop productivity, and nutrient loss are some of the agriculture-related areas where Selker sees opportunities to do better. In addition, accessible education, equitable health care, future-proof infrastructure, keeping pace with technological advancements, and building sustainable communities are areas where Selker sees his

experiences and skills coming to bear.

Without in-depth understanding, he feels anecdotal stories and emotions rather than confirmed supported data are used to make decisions. Often those decisions are only band-aids or entirely ineffective. Selker believes its best to uncover the fundamental causes of a problem using science and then determine the best course of action to address it.

Science Identifies Solutions Humbly

“The communication between parties is broken. Few in Congress set aside politics to have a true understanding of processes enabling them to peel away layers that obscure the fundamental issue, interpret complex data, and ask the right questions to discover viable solutions. That’s where I can help.”

Selker plans to be the nonpartisan voice of reason that builds relationships and achieves results. “We all basically want the same things. We want a safe, sustainable world. The question is, ‘How do we get there? Where do we start?’”

Selker believes the way forward is to approach discussions with humility and respect, gain common ground, and then address the 10% of an issue that people see differently.

“The scientific method works well for all decision-making. At its core, science is a humble process. Approaching issues saying we don’t know, acknowledging our lack of knowledge upfront, then by building up the facts together, science provides avenues forward.”

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