

The Founding of the Robert B. Daugherty Water for Food Institute at the University of Nebraska

The Question

It began with a question.

Mogens Bay was getting to know JB Milliken, president of the University of Nebraska.

What is the university doing about water issues? Bay wanted to know.

Chairman and CEO of Nebraska-based Valmont Industries, Bay also chaired the board of the Robert B. Daugherty Charitable Foundation, established by the irrigation pioneer who'd founded Valmont. Bob Daugherty had spent his life developing ways to use water more efficiently in agricultural production. Retired and in his mid-80s, he continued to worry about how future generations would deal with water scarcity as the global population ballooned.

Milliken didn't hesitate. The university was doing a great deal, he said. Nebraska was one of the biggest irrigation users in the world, so the state and its land-grant university had long focused on water. With droughts and other pressures mounting, water had become an increasingly important research focus in the past decade.

Just one percent of the Earth's water is available freshwater and, of that, three-quarters is used by agriculture worldwide. By late 2007, when Bay and Milliken met, the United Nations and others had begun to raise the alarm that food production would need to double in the next 35 years as the world population approached 10 billion people and economic prosperity improved diets. Yet the water required to achieve that goal received much less attention.

As the two men talked that fall afternoon, they noted that many water focused institutions existed, but they dealt primarily with water quality or access. Perhaps an opportunity existed for an institute focused on water for food. But did the University of Nebraska (NU), a leader in agriculture, have the water expertise to pull off the kind of global impact that Bay and Daugherty hoped to achieve?

Milliken offered to host a gathering with faculty to prove that it did.

Back home, Milliken asked Prem Paul, University of Nebraska-Lincoln's vice-chancellor of research, to host a meeting that would be informal, yet provide the information Mogens needed.

Paul was already primed. Though he'd been an animal researcher in Iowa, his introduction to his new job in Nebraska seven years earlier had included a water tour of the state. "That was an eye-opener," Paul said. "Right away, I understood that we had a lot of investments in the water research area."

NU had established the Nebraska Water Center in 1964, one of 54 water centers congressionally mandated to facilitate water research, teaching and outreach. NU's water center had emerged as one of the top centers, but faculty were dispersed, working largely independently. In the new century, as climate change, interstate water lawsuits, contamination and other complex water issues became serious challenges for Nebraska and the nation, administrators recognized the key role the university could play in finding solutions. Tackling environmental

issues would require much greater coordination among basic and applied sciences, policy, law and other disciplines.

To create a sense of community and encourage team building, Paul and others created the Water Resources Research Initiative in 2003. With the goal of becoming a national leader in water research, education and outreach, the initiative hired new water faculty, improved infrastructure and held numerous retreats.

Administrators also recognized the benefit of seeking guidance from the state's water experts — its farmers, water managers and natural resources advocates. NU created the Water Resources Advisory Panel, or WRAP, in 2006. The diverse 15-member committee helped the initiative and water center align the university's programs with the state's needs. The relationships and perspectives gained by engaging the state's water stakeholders would prove vital as the university embarked on an even bigger objective to come.

The Idea

Paul looked forward to showcasing the WRAP and Water initiative accomplishments to Valmont's officials, he recalled. His office coordinated a breakfast meeting in spring 2008, gathering faculty to give brief summaries of their water research in agriculture, climate change, the environment, law and related fields. Paul understood the significance of the presentation: the president of the university would be hosting, expecting to engage officials from the world's largest irrigation company.

"After we got done, they were not impressed. It was really kind of a downer," Paul recalled with a laugh. "They kept asking who is number one in the world on water. Where do we stand? We thought we were pretty good, but they questioned whether we were or not."

For Bay, the meeting illustrated the potential to do much more. "The university has at least a hundred years of experience in the relationship between water and production agriculture," Bay said later. "What better institution to address the food and water challenges facing the world than the University of Nebraska?"

The breakfast meeting and Bay's encouragement to "think big" set off a flurry of conversations and meetings, both formal and informal, over the coming months. Joining those conversations were Bob Meaney, Valmont senior vice president, UNL's Chancellor Harvey Perlman with his background in law, Assistant Vice Chancellor of Research Monica Norby, and a number of other staff, faculty and interested partners.

They sought to answer fundamental questions: What are the major water challenges not just in Nebraska, but globally? What were others doing? Was a need going unanswered? Could the university play a role? What must it do to be number one in the world in water for food?

Meaney, Paul and Norby met often to try to answer those questions. One day in January 2009, over coffee in UNL's student union, Paul had an idea. "We need a conference," he announced. Let's bring in the experts and have them help us answer these questions.

That conference, "The Future of Water for Food," would prove a turning point

and was the first of what would become the Water for Food Institute's signature event, helping to put it on the global water map.

Success began inauspiciously, however, when Paul walked into Norby's office a few days later and said, "I want you to find the top 40 water experts in the world and bring them all to campus in May."

Norby nodded, then turned to her computer. "I spent a lot of time Googling to figure out who the top water experts were," she said later. Convincing them to come to Nebraska was another obstacle. "We didn't have an international reputation in water. How do you overcome people's doubts and prove you really have expertise?"

They turned to a powerful ally at the Bill & Melinda Gates Foundation. CEO Jeff Raikes led one of the world's largest, most influential philanthropic organizations. He'd also grown up on a Nebraska farm and was still involved with both the family operation and his University of Nebraska-Lincoln (UNL) alma mater. Not long after Bay and Milliken had returned from Georgia, they'd approached Raikes. Over coffee, Paul and Norby asked the head of the Gates Foundation if he thought a global institute focused on water use in agriculture was a good idea. Was there a need?

As a teenager on the farm, Raikes would listen to his father talk about how fortunate they were in Nebraska, with its rich soils and endless supply of water. The High Plains Aquifer, below their feet, was one of the world's largest and an incredible agricultural resource. Just a few decades later, Raikes was struck by how quickly that rosy conviction had withered. The aquifer in states south of Nebraska, and water resources worldwide, were depleting rapidly under the weight of irrigation. From his work in international development, he understood that addressing water for food was an important component of fighting poverty.

"My passion is in agriculture," Raikes reflected. "I also have a passion for catalytic philanthropy and how it can address key problems and provide social impact." He was convinced a global institute focused on water for food would be a valuable contribution for Nebraska and the world, so he agreed to give the conference's keynote address. His endorsement lent tremendous credibility, enticing the world's leading water experts—people such as Harvard University's Peter Rogers and John Briscoe, future Stockholm Water Prize winner—to travel to Nebraska.

The Daugherty Foundation agreed to invest the funds for a conference, and Paul's staff worked diligently to pull together a conference in just a few months. Though new to international water conferences, they were experienced at hosting retreats and creating momentum. A key, Paul said, is inclusiveness. Uniquely, the conference included not just university representatives and international experts, but practitioners, the often ignored farmers and water managers working on the ground.

The conference was also highly participatory. After a series of speeches laid the foundation, Paul hosted breakout sessions designed to elicit whether the world needed an institute focused on water for food and whether NU was the right place for it.

"Prem masterfully led the discussions," Milliken recalled. "They answered

those critical questions for me and Mogens and the Daugherty Foundation. That was an essential step in the process.”

The answers were resoundingly positive. The need was critical. Others were indeed aware of and working on the water challenge in food production, but a dedicated institute would bring valuable focus and attention to the issue. Located at a university set in the heart of U.S. agriculture would provide the research, education and outreach expertise necessary. As Briscoe later noted during a 2014 World Water Week panel discussion, the water for food challenge would be solved at places like the University of Nebraska, where researchers are pressed by constituents to come up with practical solutions that work for them.

When the conference concluded, it reinforced the idea that the university needed to “think big” and establish a multidisciplinary global water for food institute that engaged faculty, attracted young scholars and developed international collaborations. The conference had also proven that NU could not only convene the world’s water leaders, but also had their enthusiastic support. Because a wide group of people—from Nebraska farmers and university faculty to international water leaders—participated and embraced the idea, buy-in from many sectors was immediate.

President Milliken and Chancellor Perlman attended every session, demonstrating the university’s commitment at the highest level. Milliken had been looking for key areas in which NU could distinguish itself. A water for food institute fit his criteria: it was fundamentally important to the state of Nebraska, it drew on the university’s core strengths, and now he was convinced that if they invested significantly, it was an area in which the university could become a respected global leader.

Enthusiasm was building for a global water for food institute. “It’s one thing to be very excited about it,” Bay said. “But how in the heck are you going to find the money to build such an institute? That’s where Bob Daugherty came in.”

The Gift

The president of the University of Nebraska was nervous. Milliken was going to meet the legendary Robert Daugherty for the first time, and he was intimidated. He was about to ask for \$50 million.

Milliken came to the meeting prepared. The university press had published an elegant encyclopedia of the Great Plains that mentioned Daugherty’s contribution to agricultural irrigation. He planned to present the book, then make his prepared pitch to convince the successful entrepreneur to invest a significant portion of his fortune into what was still just an idea.

Milliken drove to Omaha in to meet Daugherty at his home. In the living room, the elder Daugherty was surrounded by Bay, his three sons and a covey of lawyers. Now 88 years old, the businessman had a reputation for being tough-minded and smart, a man who could intimidate, but also surprise with his ready sense of humor. In his long career, Daugherty had transformed agriculture and the rural landscape into the now familiar polka dot pattern, the signature of the center pivot irrigators Daugherty had popularized in the 1970s. He had started his company from a farm shed in Valley, Nebraska, in 1946 and built it into the

international manufacturing giant, Valmont Industries. By the time he retired in 1996, center pivot irrigation dominated the world's large-holder irrigated agriculture.

After the introductions, Milliken launched into what Bay assumed would be a lengthy proposal. "You know, these academics can make big presentations, and JB was ready," Bay recalled with a laugh.

But Milliken didn't get far. "I started getting peppered with questions from what I'll call 'the lawyers,' asking me details about it."

Two or three questions in, however, Bob unexpectedly held up his hand. "I've heard enough," he said. "It's a great idea. Let's do it."

Bay walked a stunned Milliken out. "Congratulations!" he said. "You've got your gift."

It was one of the largest gifts NU had ever received. The meeting had lasted less than half an hour.

"That was Bob," Bay said later. "When Bob would talk about Valmont, he would say, 'Yes, we make irrigation equipment, but what we really do is help feed the world.' That was Bob's passion. He was convinced the University of Nebraska would be the right place. He was convinced that the need was absolutely there. And he was hoping that his commitment would help establish the institute and make it a real force in global water issues."

"Bob is at the center of this," Bay stressed. "The rest of us did a lot of talking, but we didn't commit \$50 million."

Robert Daugherty passed away at home in November 2010, confident the University of Nebraska would fulfill his vision.

The Institute

With \$50 million, what had been a grand idea could now shift into the difficult work of developing a successful enterprise. "The institute would not have happened without the gift," Milliken said. "It allowed us to take the whole vision for this to the next level and create something for which Nebraska, I think, will always be known."

Fifty million dollars also made the global water community take notice, giving NU instant recognition and a central seat in water discussions before the institute had even officially launched. But it also raised enormous expectations. The institute had promised to be relevant to the entire four-campus NU system, the state of Nebraska and the world, something not everyone was convinced could be achieved.

The Daugherty Water for Food Institute (WFI) was officially inaugurated at the second global Water for Food Conference in May 2010. For the next two years, however, Paul's UNL Office of Research remained responsible for the institute's primary visible activity: annually hosting the global conferences, elaborate 3-day events attended by nearly 500 people from more than 20 countries.

"The conferences were really key to the early support we were able to get," Norby said. "We threw some really good conferences."

One of those interesting novelties turned into an annual crowd pleaser: hosting farmers in a "View from the Field," a panel of large-scale and smallholder farmers

from around the world. “I wanted these water experts to meet some real farmers,” Norby explained. “We really pushed bridging these different communities because water and agriculture were so separated.” They invited farmers, academics and representatives from foundations, companies and governments working in fields as diverse as agriculture, journalism and public health to help pave a better understanding of others’ roles and to encourage unique partnerships. This bridging became a theme that absorbed into the institute’s DNA as it formed. That unique contribution to the global conversation is often cited as a key element to WFI’s success.

Participants singled out Nebraska farmer and member of the Nebraska Water Centers advisory council (known as WRAP) Eugene Glock as a particularly valuable contributor. “He has really been an exceptional advisor, and also challenger,” Paul said with a laugh. “He challenged us all along the way.”

Glock, the self-appointed “Grampa,” has been conservation minded since building his first agricultural terraces as a teenager in the late 1940s. Long involved in state agriculture politics, Glock believed the institute could be important to Nebraska and the world, if it could effectively harness the state’s and university’s strengths. “I’m a strong believer that Nebraska’s ahead of most places when it comes to dealing with water,” he said, adding that truly listening to the state’s rural communities contributed to WFI’s success.

Ronnie Green arrived just after the second Water for Food Conference. As the new vice chancellor leading UNL’s Institute for Agriculture and Natural Resources, Green assumed a large role in establishing the new institute. “I’m a cattle geneticist,” he said later. “I fell into the water world the day I arrived here. For me personally, it’s been a wake-up call. It’s clear this is the most important thing we should be working on.”

Because the early founders had developed such strong credibility and pressed the global urgency so effectively, Green faced a surprising task: holding back NU faculty and global entities wanted to work with the young institute before it had the capacity to do so.

They first needed to develop the institute’s structure within the university. WFI was unconventional for a university institute because it focused on solving a specific problem, rather than around a general topic with multiple challenges, Green said. The institute needed to pull together diverse faculty from all four NU campuses that traditionally operated autonomously.

Some people were also nervous about what the institute, with an admittedly ambitious global agenda, would mean for the Nebraska water community and especially the long-standing Nebraska Water Resources Center. It didn’t help that the water center had already spent several years without a permanent director and several popular outreach programs had slipped away. “People were concerned that we would focus all of our attention outside of Nebraska when we have this huge water issue and lots of work to do here,” Green recalled. The administrators knew it was critical that the Water for Food Institute would benefit Nebraska and the Nebraska Water Resources Center. The center became part of the institute in 2012 and was renamed the Nebraska Water Center.

“It was clear to everyone that we are going to be part of addressing a global

challenge, but also a challenge that was equally present in Nebraska,” Milliken said. “We had to demonstrate both these things: that we were relevant and contributing at a global level, but that we were also providing some fundamental value to the state of Nebraska and the citizens who support the public university.”

Valmont’s Bay and Bob Meaney had their own concerns. They worried the university-based institute wouldn’t be practical enough and wanted to ensure research had applications outside the university. “We made it clear that we didn’t want it to sit somewhere in the bowels of the University of Nebraska. We wanted a commitment from the very top of the university to this initiative,” Bay said, adding, “I could not have asked for more.”

Milliken agreed to be one of just three board members, alongside Raikes and Bay. The small board, which Milliken chaired, provided nimbleness in the early years.

The most urgent and pivotal task in those early days was finding the right founding executive director. The new director would play a significant role in setting the tone and demonstrating that the institute would indeed contribute globally without losing its Nebraska focus; that it would provide practical solutions; and that it could unite the water researchers and extension educators throughout the entire university system.

The Founding Director

The email came out of the blue. Roberto Lenton was at his desk at the World Bank in Washington, DC, in early 2010, when a hiring firm suggested he consider a job at the University of Nebraska.

Lenton didn’t think he was the right person, though the thought of founding an institute was appealing. He’d done it before, helping to first establish then direct the prestigious International Water Management Institute in Sri Lanka during its initial 10 years. “Being in at the beginning, turning an idea into reality, is one of the most exciting things to be involved in professionally,” Lenton said. But he didn’t think his background focusing on water and agricultural issues in the developing world qualified him to run an institute located in the heart of the well-financed, high-tech U.S. agricultural zone. He suggested others with far more U.S. credentials.

The firm persisted. NU had numerous experts in U.S. agriculture. What they needed was someone with a global reputation and expertise, someone who could connect the institute with a global community of researchers and practitioners working on water and food. Lenton’s background would complement the university’s own expertise.

The pitch was convincing. For Lenton, it was also an opportunity to work at a land-grant university, a system he’d long admired for its emphasis on practical solutions, dedication to service and close ties to farmers, water managers and governments. He felt sure that land-grant universities were better suited for finding real-world solutions than the Ivy League.

When Lenton arrived in the winter of 2012, he found that, even with only one dedicated staff member, much was already happening. The Office of Research staff were now well-versed in hosting large global water for food conferences, seed

grants were going out, and partnership agreements with FAO, U.S. Agency for International Development and the water educational institute UNESCO-IHE were all but signed.

With Lenton's arrival, Paul's office could step back. Staff describe those years as intense and challenging, but exhilarating and a bonding experience. "It was hugely exciting because we had such a great group of people working together," Norby recalled. "Everyone who worked on it was really dedicated. I think that was one of the reasons it was so successful, and it was definitely the reason it was fun to do."

Paul, a tireless advocate for UNL research and WFI in the early years, had a personal perspective on the issue's importance. Growing up in a rural village in northern India, he had witnessed water as both the elixir that transformed Indian agriculture during the 1960s Green Revolution and as a trigger for violence as his physician father tended to patients injured and killed from fights over limited water. "It was easy to be enthusiastic about [the institute] because of my exposure to the major water challenges growing up and because I could see this was going to build into a very visible center and make an impact. From my perspective, this is one of the most exciting initiatives that this university has launched."

With limited staff, however, the institute's capacity was severely limited. Hiring staff was one of Lenton's primary objectives. To help get the institute on its feet, Monica Norby agreed to join the institute as associate director for a year. "There were all kinds of expectations," he recalled. "There was a worry about not being able to deliver on those expectations until we had the team fully on board."

Lenton also used his considerable connections in the global community to raise the institute's profile through numerous speaking engagements and networking trips to develop additional partnerships.

And, not least, he began developing a strategy and an institutional framework within which WFI would operate. It was an inclusive process, meeting regularly with upwards of 30 faculty members, the board and university leadership to gather ideas and incorporate feedback. Some general strategies had already been sketched out. The institute would solicit faculty membership in an affiliation program that would both support faculty to conduct water for food related research not possible otherwise and leverage their research and expertise to further WFI-driven programs and partnerships.

The institute's mission encompassing high-tech and smallholder agriculture is its strength, but also presented a challenge to define the overall direction. "When you're dealing with a global institute that has both a Nebraska and a global focus, how do you bridge those two different worlds?" Lenton asked. "How do you come up with language and objectives that resonate both locally among producers as well as globally?" Nebraska agriculture, for example, focuses on production. Globally, however, the goal is food security, which includes production but also access to food, nutrition and other related concerns. The initial WFI Strategic Plan needed to navigate both worlds and provide a strong rationale for bridging the two.

The plan also needed to identify specific goals and activities in research and education that could be accomplished quickly and demonstrate the ability to meet

expectations. The Global Yield Gap and Water Productivity Atlas was an excellent example of the kind of projects the institute could help fast-track with its support. WFI provided seed funding to advance the atlas, an analytical tool to estimate exploitable yield gaps created by an international collaboration and headed by UNL agronomist Ken Cassman. That initial support led to additional funding from the Gates Foundation and USAID, and today the project has developed into a fully global initiative.

Building Capacity

Over the next four years, Lenton hired staff and a full complement of directors. Chittaranjan Ray, a civil engineer from the University of Hawaii, became director of the Nebraska Water Center. Irrigation engineering professor Christopher Neale arrived in 2013 as director of research and began to engage faculty and develop collaborative projects worldwide. Director of Policy Nicholas Brozovic, an economist with extensive experience in water policy and management worldwide, joined in 2014. And Molly Nance arrived later that year as director of communications and public relations.

“This year has been a sea change,” Lenton said in the summer of 2015. “We finally have a full team on board and now we can begin to deliver.” Relationships have matured, programs launched and directions clarified. The transition was highlighted by a move to new headquarters on Nebraska Innovation Campus, UNL’s research grounds promoting public-private partnerships. The more spacious quarters were quickly filled with staff, students and visiting faculty.

The initial excitement of founding an institute that puts NU in the center of one of the most pressing challenges in the new century has transitioned to the steady energy of a dedicated team working together on research, policy and education fronts designed to make a real and measurable difference on the ground and in people’s lives.

“The test is not research and policy papers that end up in archives in educational institutions,” Bay said. “We’ll know this has been a success if 5 years from now, or 10 years from now, you go somewhere in the world, and they say, ‘We had a problem with water; we contacted the Daugherty Water for Food Institute; they helped us out; and we solved our problems.’ That will be success.”