Water Equipment and Policy Research Center
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1. Why was the Water Equipment and Policy Research Center formed?

Exploding populations in many regions of the world are overwhelming limited freshwater resources, resulting in critical scarcities of potable water and harm to the environment. Badly needed investments in infrastructure would offer some temporary relief, but long-term sustainable solutions will more likely result from scientific breakthroughs that generate new generations of products and processes.

Thousands of scientists around the world are pursuing all facets of freshwater research, but, unfortunately, relatively few are addressing the practical problems facing the water industry.

Traditional businesses remain the most effective vehicle for delivering the products and processes to those threatened with water challenges. But traditional cultural barriers separating university researchers from industry engineers hinder the transfer of scientific discoveries that could lead to innovative products. *The Water Equipment and Policy Research Center (WEP)* was formed to break down the barriers and to facilitate the exchange of ideas necessary to transfer the scientific discoveries to companies where they can be commercialized into innovative products.

Industry members collaborate with WEP scientists to focus pre-competitive research toward outcomes that can be applied to the next generation of products and processes that will advance the water industry and help solve the world's exploding water crisis. Addressing this challenge is becoming an increasingly important priority for the world's limited resources because the return on investment promises to dramatically affect societies in a number of ways:

1) **Improved health and quality of life – Providing access to clean potable water would be transformative for the millions whose very survival depends on it.**

   According to the World Health Organization:

   - 783 million people or about 11% of the world's population in the world have no access to safe water.
   - 2.5 billion people or about 35% of the world's population in the world do not have access to adequate sanitation.

- One child dies every 20 seconds of diseases caused by unclean water and poor sanitation. This amounts to around 4,000 deaths a day or 1.4 million children dying every year.
- And yet the water systems in some low-income countries are so primitive that 50% of the water that is treated is lost to leakage before it can reach their people.

2) **Cleaner, sustainable environments – Innovations will result in fresh water resources being managed more efficiently and cost effectively.**

   Water challenges aren't limited to third world societies. Even advanced countries such as the United States are experiencing their own fresh water challenges.

   - The U.S is suffering from aging infrastructure resulting in 18% of the treated water being lost. EPA found that the nation's 53,000 community water systems and 21,400 not-for-profit non-community water systems will need to invest an estimated $334.8 billion between 2007 and 2027.
   - Compounding the problem are the severe drought conditions affecting several regions of the U.S. that have ignited water wars between competing factions.
   - The water industry is also challenged by the rising cost of energy. Four percent of total U.S energy consumption is used to power the pumps, aerators and other equipment that treats and distributes water to consumers, and then treats their post-use wastewater.

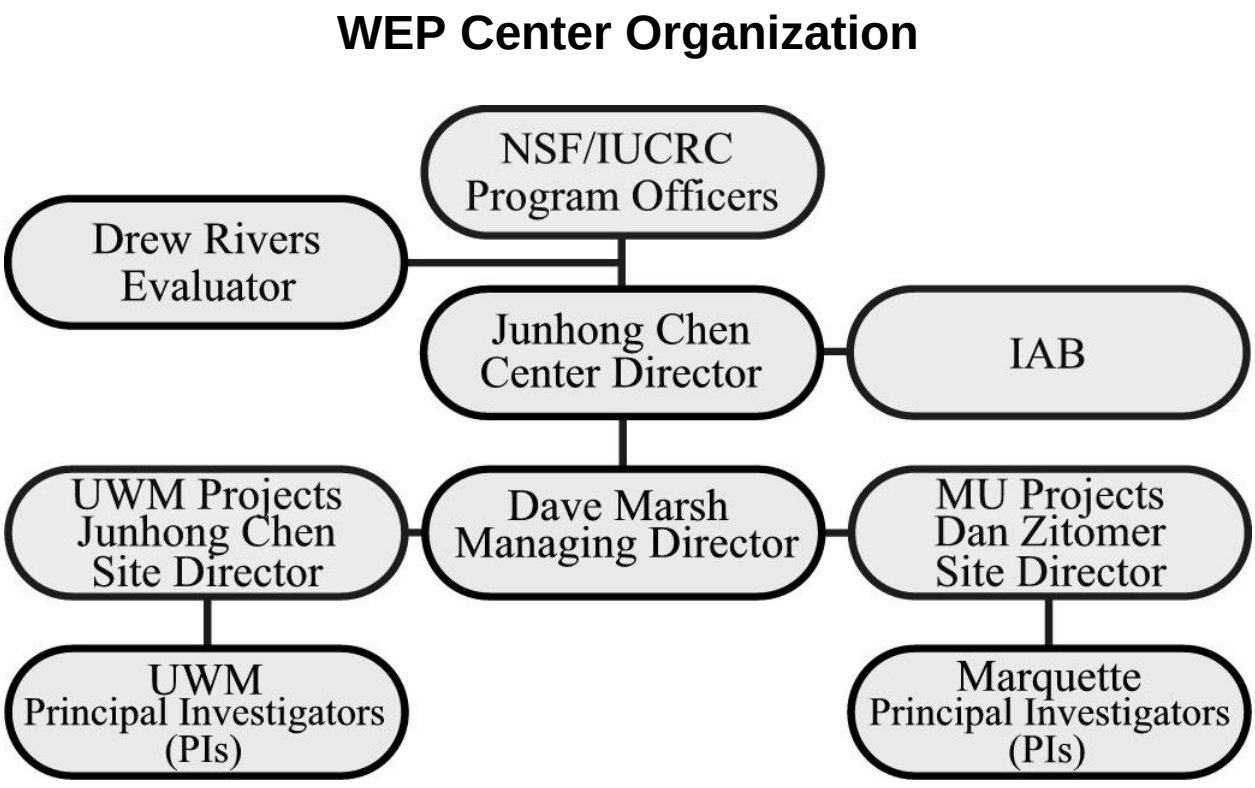
3) **Economic development – A very important side benefit of investing in solving today's water challenges will be economic growth for manufacturers and users of new products and processes.**

   - Companies who invest in commercializing new technologies will profit by serving new customers and markets.
   - Communities that implement new water technologies will attract new businesses and increase property values by driving down the costs of providing reliable water and wastewater services.

- Countries that invest in water infrastructure to provide their populations with clean, reliable and convenient fresh water resources will grow their economies by freeing their people from the daily struggle of obtaining drinking water to engaging in higher economic pursuits.

Clearly, investing in the infrastructure necessary to provide growing populations with clean drinking water and protecting the environment will inevitably become an important part of government expenditures and a stimulus to economic development. The water and wastewater industry accounted for more than $114 billion in total spending in the United States in 2007, and $463 billion worldwide. Equipment manufacturers have reported annual growth rates of 5-10% in recent years and expect this trend to accelerate over the next decade.

2. How is the WEP Research Center organized?



The WEP Center operates under the auspices of the National Science Foundation's Industry/University Cooperative Research Center (I/UCRC) program. The National Science Foundation (NSF) works closely with universities

and industry members to apply the proven I/UCRC model that has been continually refined since its launch in 1978.

WEP currently has two university members.

1. University of Wisconsin-Milwaukee (UWM) is the lead university.
2. Marquette University

Other universities may be added in the future to expand the center's research capabilities:

WEP currently has six industry members. Each member has a representative on the Industrial Advisory Board (IAB):

1. A.O. Smith
2. Badger Meter
3. Baker Manufacturing
4. Gannett Fleming
5. Milwaukee Metropolitan Sewage District (MMSD)
6. Pentair

WEP has an aggressive growth plan to grow the center by adding new members.

WEP Center Director: Professor Junhong Chen serves as the WEP Center Director. He reports to the Dean of University of Wisconsin-Milwaukee's College of Engineering and Applied Science. Dr. Chen is responsible for managing the center on a day-to-day basis, and provides the primary administrative interface between the center and its industry members.

Marquette Site Director: Professor Dan Zitomer serves as the Site Director for Marquette University. Dr. Zitomer works closely with Dr. Chen and manages all of Marquette's WEP Center activities.

Industrial Advisory Board (IAB): An Industrial Advisory Board advises WEP's Center Director on all aspects of the center's operation. The IAB consists of a representative from each of the center's industry members and serves a role

similar to a board of directors. It is responsible for setting policy, building consensus, and for selecting and approving projects for funding by the center. The IAB meets with WEP staff twice a year in formal day-long meetings to consider new proposals for funding, to assess progress made on previously funded projects, to make decisions on continued funding, and to carry out other center-related activities. Industry members also interact with Principal Investigators (PIs) and WEP staff periodically throughout the year to review projects and address other centers issues.

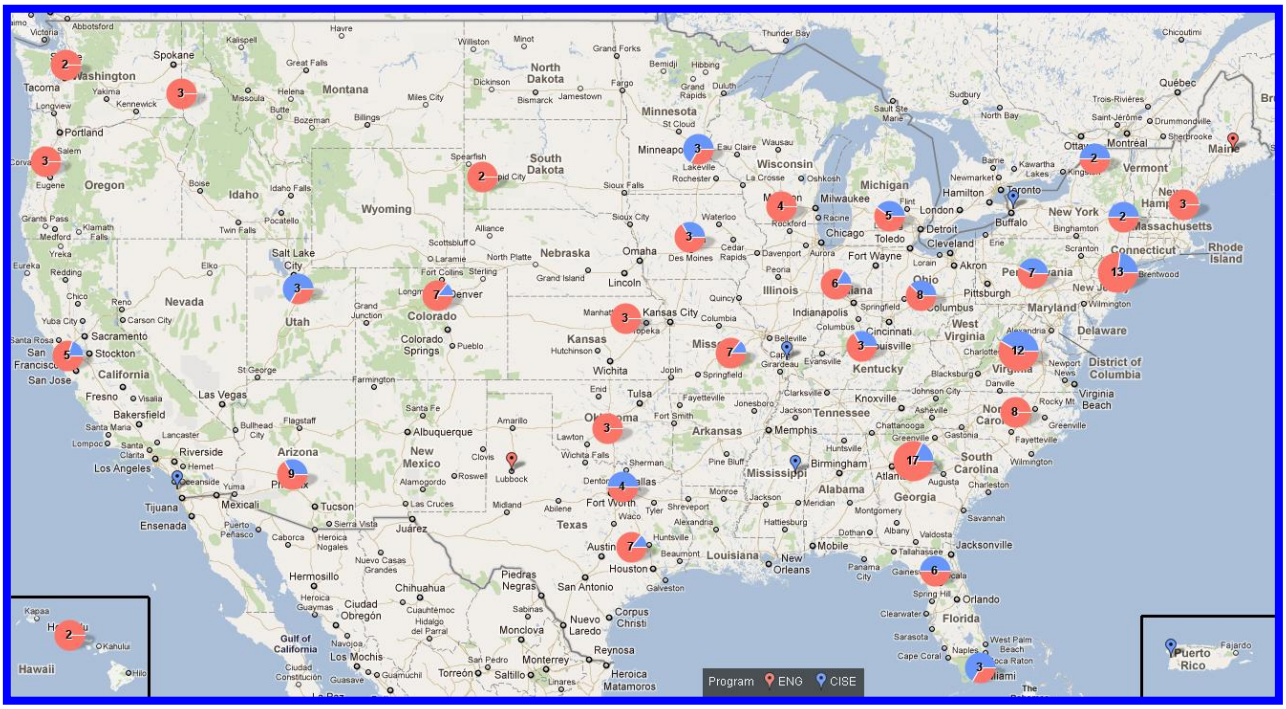
Center Manger: Dave Marsh serves as the Center Manager. He supports all aspects of the center on a day-to-day basis and serves as a primary liaison between the Industry Members, Center and Site Directors and Principal Investigators.

Independent External Evaluator: The center is aided by the counsel of Dr. Drew Rivers, an independent consultant who works closely with WEP staff and the National Science Foundation in conducting an annual assessment of the effectiveness of the center and providing input to improving its quality. Dr. Rivers does not address or assess the quality or technical aspects of research projects --- that is done entirely by the IAB. He is only concerned with an evaluation of the quality and value of the interactions between the industry members and the faculty.

NSF Program Director: The WEP Center operates under the guidance of experienced NSF Program Directors who attend biannual meetings to observe center progress firsthand, to help WEP staff implement I/UCRC best business practices, and to improve value to industry members.

3. What are the characteristics of the I/UCRC model?

The I/UCRC model has established a track-record of highly successful partnerships between industry and academia over the past 35 years. More than 60 research centers involving 760 industry members are currently operating across the U.S.



More than 760 members representing over 500 distinct organizations holding 1080 memberships participate in 61 Centers with 178 Sites.

More than 40 centers have graduated from the I/UCRC program and continue to operate true to model.

The NSF has a policy that no two centers can focus their research on exactly the same technology so the many IUCRCs represent a broad range of technologies, such as:

• Berkeley Sensor & Actuator Center	• Center for Dielectric Studies
• Center for Freeform Optics	• Smart Vehicles Concepts
• Center for Metamaterials	• Wood-Based Composites Center
• Center for Surveillance Research	• Center for Fuel Cells
• Next Generation Photovoltaics	• Silicon Solar Consortium
• Cloud and Autonomic Computing	• Safety, Security, Rescue Research
• Visual and Decision Informatics	• Center for e-Design

Increased collaboration between industry members and universities has been fueled by a number of social forces, including shrinking federal support for research, pressure from global competitiveness, and the growing importance of science-based knowledge to the innovative process.

I/UCRCs pursue three objectives:

1. To pursue fundamental engineering and scientific research having industrial relevance.
2. To produce graduates who have a broad, industrially oriented perspective in their research and practice.
3. To accelerate and promote the transfer of knowledge and technology between university and industry.

The prominent role of industry members in all aspects of center management ensures that I/UCRCs operate from a perspective of technology pull (industry's needs) rather than technology push principles (government's or academy's perception of industry's needs).

4. How long has WEP been operating and what has been accomplished?

The Water Equipment and Policy Research Center was founded in 2010, and when compared with other I/UCRCs of comparable age, WEP has had some very noteworthy achievements.

1) An invention discloser was filed for an innovative polymer foam used for removal of lead and other heavy metals.
2) An invention disclosure was filed on remotely read, passive, wireless sensors using acoustic wave devices.
3) Industry members are in the process of migrating superhydrophobic research breakthroughs into the development of member products and the manufacturing of self-cleaning products.
4) Two students have been hired by industry members.
5) NSF awarded WEP with an additional $200,000 fundamental research grant to research a graphene-based sensing platform for chemicals and microorganisms in water.
6) WEP received a $50,000 grant from NSF to collaborate with another I/UCRC to study the efficiency of water and wastewater treatment technologies by using inline sensors.

7) Seven journal papers, two invited talks, six conference presentations, seven graduate theses, have been based on research projects.
8) One of WEP's scientists Dr. Mike Nosonovsky was featured in *Nature,* the prestigious peer reviewed Journal.

5. What are the research priorities of the center?

WEP's research direction is set by the Industrial Advisory Board (IAB), which focuses on the issues most important to member businesses. WEP research addresses four broad areas of fresh water research:

1) Materials
2) Sensors & Devices
3) Systems
4) Policies

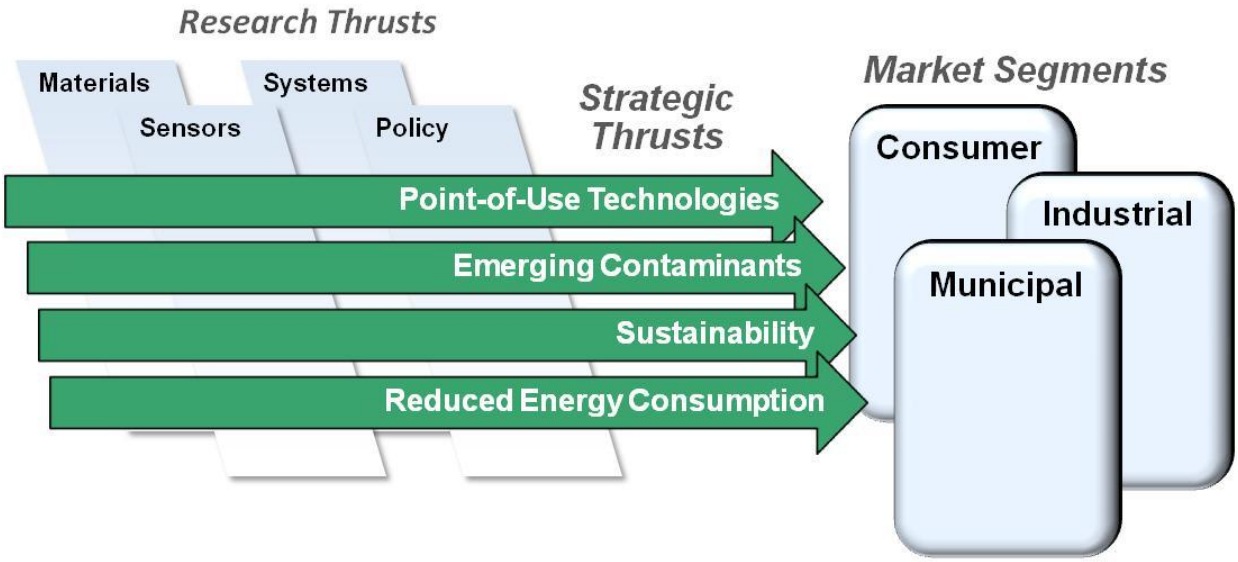
Current members collaborated with WEP staff to create a Technology Roadmap that guides the prioritizing and planning of resources and research projects. The process of creating the roadmap began by defining the research deliverables… those innovations that could be game changers for member businesses. Then the team worked backwards to further define the research projects that would produce those results.

However WEP's Technology Roadmap is a work in progress that continues to evolve to meet the needs of new members joining the center, and to adapt to the emerging needs of current members. WEP scientists are encouraged to collaborate with researchers at other universities to complement their experience and/or resources.

Below is a simplified version of the Technology Roadmap. You can download the comprehensive version of the Technology Roadmap from our website at:

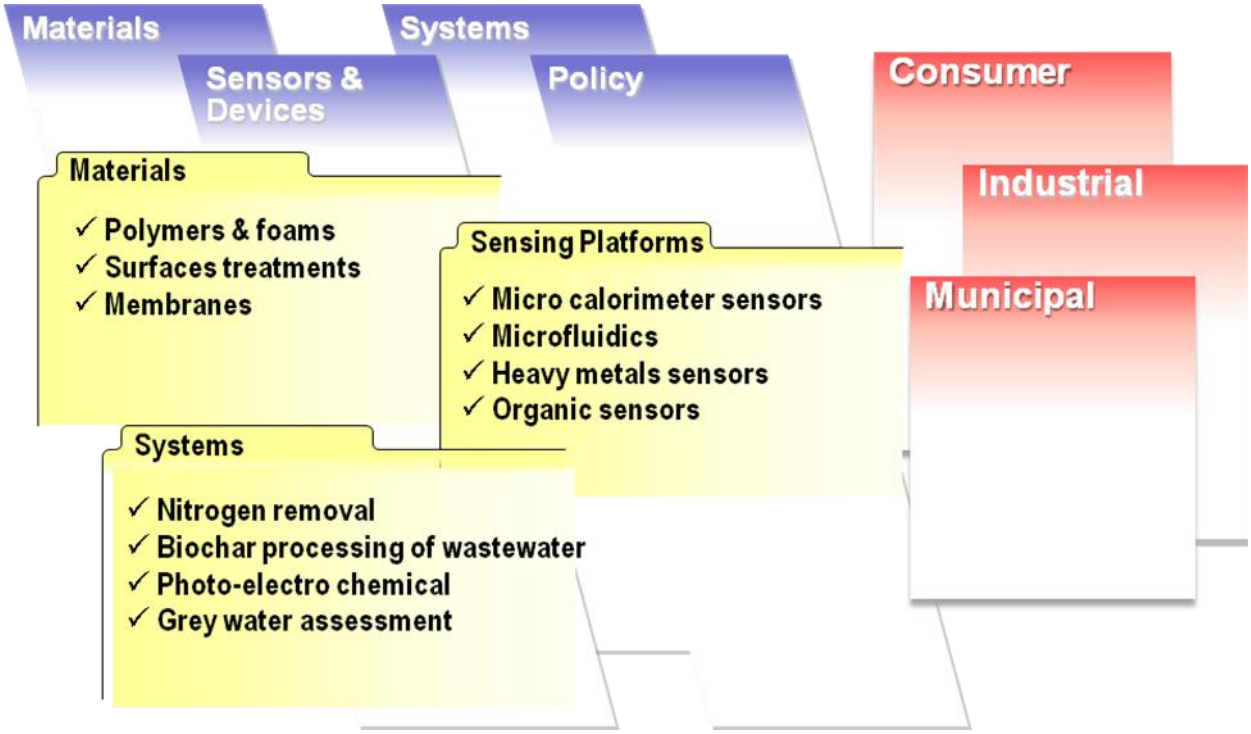
http://www4.uwm.edu/wep/research/research_areas/

WEP TECHNOLOGY ROADMAP



The IAB voted to fund a broad range of projects focused on materials, sensing platforms and systems that can be applied in the consumer, industrial and municipal markets. Members have routinely demonstrated a high degree of mutual respect and collaboration that has resulted in every WEP member receiving the votes necessary to fund at least one of their highest priority projects.

TECHNOLOGY FOCUS OF FUNDED PROJECTS



6. What are the areas of research expertise of the member universities?

One of the strengths of the Water Equipment Policy I/UCRC is the multiple discipline approach the faculty brings to researching water issues. In addition to extensive experience in water, wastewater and environmental science, WEP scientists are leading the advancement of understanding of nanomaterials, metallurgy, superhydrophobic surfaces, self-healing materials, polymers, sensors, microbial fuel cells, to name just a few. Across these areas, WEP faculty publish dozens of papers each year in some of the most prestigious professional forums.

Below are some of the labs where they conduct their research.

UWM RESEARCH FACILITIES AND LABORATORIES

Environmental Engineering Laboratory: Facilities include gas chromatographs with autosampler and ECD, FID, and MSD detectors, HP 5890, Agilent 6890N, ion chromatograph Dionex 320 and centrifuges, autoclave, incubator, EG&G Ortec alpha and gamma spectrometers.

Hydraulics Laboratory: The laboratory facilities include approximately 1650 square feet of laboratory space, housed in the Department of Civil Engineering and Mechanics.

Nanotechnology for Sustainable Energy and Environment Laboratory (NSEE): The lab is equipped with facilities to perform basic aerosol nanoparticle and plasma experiments as well as numerical computations.

Melting, Casting and Equipment for Pressure and Squeeze Infiltration of Composite Materials

Advanced Analysis Facility

- Optical Spectroscopy
- Surface Analysis
- Structure Analysis

- Thermal Analysis
- Gas and Liquid Analysis
- Mechanical Analysis
- Nanoparticle Characterization

Department of Physics High Resolution Transmission Electron Microscopy Laboratory

MARQUETTE UNIVERSITY RESEARCH FACILITIES AND LABORATORIES

Nano-Scale Devices Laboratory: The Nano-Scale Devices Laboratory is a facility for research on micro/nano-scale devices

Microsensor Research Laboratory: The Microsensor Research Laboratory performs both theoretical and experimental work in acoustic wave, solid-state devices and optical waveguides gas- and liquid-phase chemical and bio-sensors. The laboratory has state-of-the-art equipment for the design, characterization, and evaluation of these sensors and extensive computation facilities for theoretical modeling, analysis, and data processing.

Energy Laboratory

Water Quality Center Laboratory: The facilities include laboratories, computing resources, and offices. The center laboratories, located in the Olin Engineering Building, include more than 3,700 square feet of space and are equipped to perform physical, chemical, and biological analyses of water, wastewater, soil, and sludge.

7. How are research projects selected?

Projects are selected for funding by the IAB members. The IAB members review proposals from center faculty, as well as hear short presentations relating to each proposal. Then they vote for the projects that are of most interest to them. The number of votes for each company is directly proportional to the membership dollars paid by that company. An iterative voting process is used to ensure that

the available dollars are matched with the costs of each proposal selected for funding, and that the most deserving projects get funded.

Center members can (and typically do) influence the nature of projects long before the IAB meeting. Successful projects are often those proposed by faculty based on prior discussions with members to identify problems deemed important by the members. Each company may choose to participate in one or more of these discussions to ensure that a desirable set of proposals get submitted to the IAB.

8. What access do members have to the IP created at the center?

All members of the center get a *royalty-free, non-exclusive access* to all the IP developed at the center, for which they agree to share patent costs. This is particularly beneficial in a multi-university center such as WEP, where the members have access to all the IP developed within the center at all of the university sites.

If a member wishes to obtain exclusive licensing, this can be arranged with the specific university where the IP was created. The licensing process in this case will follow the normal process used by that university for IP resulting from sponsored research carried out in that university.

9. Will all the research results be shared in public forums?

Public dissemination of results is an important goal of university research. Graduate students and faculty depend on publications for their livelihood. Thus, it is expected that important research results produced at the center will be published. However, the members have the ability to request a delay in publication due to proprietary concerns. These requests are honored as long as a reasonable and timely justification for delay is provided by a member.

10. Can members have proprietary research carried out at the center?

The basic function of the center, and the one they excel at, is that of performing longer-term, precompetitive research that is of interest to multiple center members. In this case, by pooling resources, the members are able to invest in solving problems that are too large or too complex to be investigated by a single member.

At the same time, interactions with the faculty often lead to identification of proprietary research projects. The center provides a framework in which such projects can be carried out. Proprietary projects are typically funded by a single member, and are outside the purview of the IAB. Results of such projects are made available only to the specific member(s) that funded the project.

11. What are the quality control mechanisms in place?

All I/UCRCs have an independent evaluator that directly reports to the National Science Foundation. Dr. Drew Rivers, the independent evaluator plays a major role in WEP, interacting frequently with the members to obtain their feedback on the operation of the center and how it can be improved. The evaluator advises the Center Director on ways to improve the center in terms of the value that it provides to its members, and how responsive it is to their needs.

Dr. Rivers does not address or assess the quality or technical aspects of research projects --- that is done entirely by the IAB. He is only concerned with an evaluation of the quality and value of the interactions between the industry members and the faculty.

12. Who are eligible to become members?

Any company, federal research and development organization, or any government-owned contractor-operated laboratory may become a sponsor of the center.

13. What are the provisions of membership?

The rights and responsibilities of members are delineated in two documents:

- WEP By-Laws
- I/UCRC Membership Agreement

Below are copies of both documents.

INDUSTRY/UNIVERSITY COOPERATIVE

RESEARCH CENTER FOR WATER EQUIPMENT

AND POLICY BY-LAWS

WHEREAS, fresh water, from groundwater aquifers, Lake Michigan, and the Great Lakes, is a priceless natural resource that is both valuable and abundant in Milwaukee and southeastern Wisconsin; and

WHEREAS, proper management and use of this priceless natural fresh water resource, together with funding from the National Science Foundation, has induced educational institutions, companies, and governmental agencies to create and develop a cooperative research center for water equipment and policy to be known as the Industry/University Cooperative Research Center; and

WHEREAS, these entities have committed financial or research facilities necessary to participate in programs of such a cooperative research center for water equipment and policy; and

WHEREAS, these entities believe that by-laws are necessary and desirable to guide their future actions; and

WHEREAS, the National Science Foundation recommends that such a center enact by-laws to direct further activity;

NOW, THEREFORE, THE FOUNDING ENTITIES hereby subscribe to and enact the following by-laws as the operating guidelines for this cooperative effort:

1. GOALS.

(A) The Industry/University Cooperative Research Center, hereafter "I/UCRC," partner universities and educational institutions, in collaboration with local water-oriented industry, desire to develop Milwaukee and southeastern Wisconsin, into a world hub for water research, fresh water compatible economic development and education.

(B) The I/UCRC's primary goal is to encourage research and development of water-oriented projects in an academic environment so that environmentally

friendly and sustainable equipment and policy are devised for groundwater, Lake Michigan, the Great Lakes, and international water bodies. Projects shall be selected by the Industrial Advisory Board, hereafter “IAB.”

(C) The I/UCRC desires to develop industrial and government funding sources that will provide at least $300,000 annually from membership fees or in-kind contributions for use of such funds and grant funds awarded by the National Science Foundation, hereafter “NSF,” to perform projects selected by the IAB.

2. MISSION.

(A) I/UCRC partner universities and educational institutions, with their state-of-the-art water-related academic research facilities, will develop industrial partnerships that will create the next generation of products and processes for I/UCRC members. The Center will serve as a catalyst to develop synergy among the region’s intellectual and physical assets, thereby allowing the Center to become a world leader in water technology, leveraging resources to develop fundamentally new technology and policy, and enhancing the Center’s ability to compete for other funding opportunities.

(B) An important aspect of I/UCRC’s mission is engaging students into project development as researchers. Each participating graduate student should undertake and complete research tasks assigned by the faculty advisor of the project to which they are assigned; leverage their activities for success in publications, theses, and dissertations all towards graduation; collaborate and work effectively with other students on the same project; and interact with others at the site and across sites with related interests and activities. Although projects are defined, undertaken, and completed on a yearly basis, it is anticipated that a majority of projects will contain sufficient breadth and depth so as to merit possible continuation for a second or third year with the addition of expanded tasks and deliverables. In this manner, doctoral and thesis-option masters students may leverage key scholarly research components of the project should the work span beyond the first year, all for their individual benefit and the advancement of the Center.

3. MEMBERSHIP.

(A) Full Membership. A membership year begins on July 1 and concludes 12 months later on June 30. There are three categories of full membership: (1) contributing private industry that agrees to provide $50,000 annually; (2) contributing private industry that agrees to provide a pro rata portion of the $50,000 membership, determined by the number of months remaining in a membership year, together with its agreement to provide $50,000 in successive years; and (3) government agencies that provide an initial $50,000 for the first year with the understanding that such agencies will annually seek to have like amounts included in budget requests for ensuing years.

(B) Full Membership. Full membership has associated with it the rights and privileges to place one member on the IAB and the opportunity to obtain royalty-free license rights to patented products, processes, and procedures as set forth in the membership agreement.

(C) New Member Access to Existing Intellectual Property. New full member's access to intellectual property resulting from research efforts funded prior to membership shall be at the sole discretion of the IAB, which may request financial compensation in exchange for access to such information. New (full) memberships have equal access to intellectual property resulting from research efforts that start after joining the I/UCRC.

(D) Associate Membership.

(See the IAB resolution below that addresses Associate Membership)

4. ORGANIZATION.

(A) Industrial Advisory Board. (1) Members; Voting. Each member of the I/UCRC, either full or associate, shall assign a representative to the IAB. The IAB shall elect a chairperson and vice chairperson for renewable one (1) year terms. On policy decisions and on proposed amendments to or deletions from the by-laws, a quorum of the IAB is two-thirds of the authorized voting members. In general, a simple majority outcome to a vote will approve actions such as setting the date for meetings, selection of projects to be researched or developed by the Center and like administrative matters. Additionally, the IAB shall accept projects by a simple majority vote.

(2) Annual Establishment of Approved Projects. The IAB shall conduct an annual spring meeting at which it will review and select new projects proposed for funding. In addition to the annual spring and autumn meeting, the chair of the IAB may at his or her discretion call for decisions at other times as needed to secure additional funding or to preserve the research.

(3) Annual Workshops. The I/UCRC shall conduct two workshops annually - one in the spring and one in the autumn. The autumn workshop is the meeting at which only I/UCRC members will receive both oral presentations and written reports submitted by each Site Director on progress being made on previously approved projects. These workshops shall be open to NSF personnel and NSF evaluators; university/educational institution professors and researchers and other invited guests. Proposed new projects shall be identified at the annual spring workshop. The spring workshop shall be the meeting at which new projects will be selected as provided in paragraph 4.(A)(2), above.

(B) Center Director. The Center Director shall lead, organize, and manage activities between sites and serve as the contact point on issues that span the entire Center.

(C) Site Director. Each educational institution shall nominate a Site Director to oversee, lead, organize, and manage activities within the research site(s) of their respective institution. The Site Director shall serve as the contact person on issues that span the entire university site.

(D) NSF Relations. The NSF evaluator assigned to the I/UCRC shall be provided notice of and be an invited guest of the I/UCRC at all I/UCRC meetings. The NSF evaluator shall be afforded time and opportunity to make a report to the IAB on any matter the evaluator sees fit concerning the operations, funding, or structure of the I/UCRC. The NSF evaluator shall be permitted to gather data by observation and survey of the IAB. The NSF evaluator may be accompanied by other NSF project managers and staff.

5. RESEARCH PROTOCOL AND ETHICS.

(A) Disclosure of Proprietary Information from I/UCRC members is done with the full knowledge that such information may be used by other I/UCRC members. The universities/educational institutions will not be able to accept or employ

proprietary information in the conduct of projects because the results of IAB-approved research projects is to be equally available to all full members, faculty, students, and staff conducting the research, regardless of which site produces the results; provided, however, that the IAB may approve use of proprietary information of one or more of the I/UCRC members in very special and controlled circumstances only and only with prior written approval of the IAB.

(B) Related Research Contracts and Grants. As the need for proprietary research or unique applications develops, a separate contract or grant may be negotiated between a member and one or more of the university/educational institution sites. Such contracts and grants are handled outside the Center membership agreement. Accordingly, such contracts or grants may, and probably will, have materially different provisions with regard to confidentiality, patent rights, licensing and royalties, copyright, and financial considerations from Center programs.

(C) Equipment for Research Acquired at Each Site. Equipment donations from vendors should be and are encouraged and will be visibly supported on the website and in various other materials. Some members may choose to donate or loan equipment to support the mission of the Center independent of their membership fee or, in very special cases, propose to do so in lieu of a portion of the costs of membership as determined by the Center's Director in consultation with the IAB.

(D) Publication Review Policy is subject to the terms and conditions as written in each individual member's signed Membership Agreement.

(E) Publication Review Procedure is subject to the terms and conditions as written in each individual member's signed Membership Agreement.

6. PATENTS; COPYRIGHTS; AND LICENSING/ROYALTY AGREEMENTS.

(A) Patents are subject to the terms and conditions as written in each individual member's signed Membership Agreement.

(B) Copyrights are subject to the terms and conditions as written in each individual member's signed Membership Agreement.

(C) Royalties are subject to the terms and conditions as written in each individual member's signed Membership Agreement.

RESOLUTION

WATER EQUIPMENT AND POLICY CENTER

Industrial Advisory Board

The following resolution was proposed and adopted by the Industrial Advisory Board (IAB) of Water Equipment and Policy Center – Industrial/University Cooperative Research Center at its IAB meeting held on _____, 2012.

WHEREAS, Section 3 (D) of the Center's Bylaws makes provisions for Associate Memberships;

WHEREAS, Section 4 (A) of the Center's Bylaws makes provisions for the voting rights of members;

WHEREAS, the IAB desires to modify the provisions of Associate Memberships to encourage more membership and accommodate different provisions for Associate memberships;

BE IT RESOLVED, that by action of the Industrial Advisory Board, Section 3 (D) shall be amended and restated its entirety as follows:

> (D) Associate Membership. Industry and government agencies can become associate members of the I/UCRC upon the annual payment of $10,000. Associate membership for industry members shall be limited to small businesses as defined by the federal government for purposes of small business innovative research (SBIR) grants. Associate members have the rights of full members, except in all voting matters, and the amount of any royalty for licensed use of products, practices, or procedures is subject to negotiation at the time of application for such use with the University's Intellectual Property Management Organization (IPMO).

AND, that by action of the Industrial Advisory Board, Section 4 (a) shall be amended and restated its entirety as follows:

(A) Industrial Advisory Board. (1) Members; Voting. Each member of the I/UCRC, either full or associate, shall assign a representative to the IAB. The IAB voting members shall elect a chairperson and vice chairperson for renewable one (1) year terms. On policy decisions and on proposed amendments to or deletions from the by-laws, a quorum of the IAB is two-thirds of the authorized voting members. In general, a simple majority outcome to a vote will approve actions such as setting the date for meetings, selection of projects to be researched or developed by the Center and like administrative matters. Additionally, the IAB shall accept projects by a simple majority vote.

AND, that the I/UCRC membership agreement shall be modified consistent with these changes to the bylaws for Associate Members.

Adopted by the Industrial Advisory Board as of _____, 2012.

WATER EQUIPMENT AND POLICY CENTER.

_____

Robert Heideman, Chair IAB

Industry/University Cooperative Research Center

Membership Agreement

This agreement is made this _____ of _____, XXXX by and between The Board of Regents of the University of Wisconsin on behalf of the University of Wisconsin-Milwaukee (hereinafter called "UNIVERSITY") and

Name of University

_____ (hereinafter called "COMPANY").

Name of Company

WHEREAS, the parties to this Agreement intend to join together in a cooperative effort to support an Industry/University cooperative research center for Water Equipment and Policy (hereinafter called "CENTER") at the UNIVERSITY to maintain a mechanism whereby the UNIVERSITY environment can be used to perform research to determine Name of Research Project. The parties hereby agree to the following terms and conditions:

A. CENTER will be operated by certain faculty, staff and students at the UNIVERSITY. For the first five years, the CENTER will be supported jointly by industrial firms, federal laboratories, the National Science Foundation (NSF), the state, and the UNIVERSITY. It is possible that the UNIVERSITY may receive support from NSF for an additional five years.

B. Any COMPANY, Federal Research and Development organization, or any Government-owned Contractor Operated laboratory may become a sponsor of the CENTER, consistent with applicable state and federal laws and statutes. Federal Research and Development organizations and Government-owned Contractor Operated laboratories may become sponsors of the CENTER on terms and conditions other than those in this agreement upon approval by UNIVERSITY and two-thirds of the Industrial Advisory Board.

C. COMPANY agrees to contribute $50,000 annually in support of the CENTER and thereby becomes a member. Payment of these membership fees

shall be made to UNIVERSITY as a lump sum effective X/XX/XXXX; or in four equal quarterly installments on X/X/XXX, X/X/XXXX, X/X/XXXX and X/X/XXXX of each year of sponsorship. Payee and mailing address can be found in Attachment 1. Invoices can be sent upon request as instructed in Attachment 1. Because research of the type to be done by the CENTER takes time and research results may not be obvious immediately, COMPANY should joint CENTER with the intention of remaining a fee paying member for at least two years. However, COMPANY may terminate this Agreement by giving UNIVERSITY 90 days' written notice prior to the termination date. Check payment option below:

☐ Upfront Lump Sum or ☐ Quarterly Installments

D. The CENTER will begin to develop research projects that are recommended at the first Industrial Advisory Board meeting. There will be an Industrial Advisory Board composed of one representative from each member. This board makes recommendations on (a) the research projects to be carried out by CENTER; (b) the apportionment of resources to these research projects; and (c) agrees to operational procedures.

E. There will be an Industrial Advisory board composed of one representative from each member. This board makes recommendations on (1) the research projects to be carried out by CENTER; (b) the apportionment of resources to these research projects; and (c) changes in the bylaws. The operation of this board is specified in the bylaws.

F. UNIVERSITY reserves the right to publish in scientific or engineering journals the results of any research performed by CENTER. COMPANY, however, shall have the opportunity to review any paper or presentation containing results of the research program of CENTER prior to publication of the paper, and shall have the right to request a delay in publication for a period not to exceed ninety (90) days from the date of submission to COMPANY, for proprietary reasons, provided that COMPANY makes a written request and justification for such delay within sixty (60) days from the date the proposed publication is submitted by certified mail to COMPANY.

G. All patents derived from inventions conceived or first actually reduced to practice in the course of research conducted by the CENTER shall belong to

UNIVERSITY. UNIVERSITY, pursuant to chapter 18 of title 35 of the United States Code, commonly called the Bayh-Dole Act, will have ownership of all patents developed from this work, subject to “march-in” rights as set forth in this Act. COMPANIES that wish to exercise rights to a royalty-free license agree to pay for the costs of patent application. UNIVERSITY agrees that all such CENTER sponsors are entitled to a nonexclusive royalty-free license. COMPANY will have the right to sublicense its subsidiaries and affiliates. If only one COMPANY seeks a license, that COMPANY may obtain an exclusive fee-bearing license through one of its agents. COMPANY has the right to sublicense its subsidiaries and affiliates.

H. Copyright registration shall be obtained for software developed by CENTER. COMPANY shall be entitled to a nonexclusive, royalty-free license to all software developed by CENTER. COMPANY will have the right to enhance and to re-market enhanced or unenhanced software with royalties due to CENTER to be negotiated.

I. Any royalties and fees received by UNIVERSITY under this Agreement, over and above expenses incurred, will be distributed according to UNIVERSITY’s Intellectual Property Policy; however, UNIVERSITY agrees to reinvest twenty percent (20%) of all such royalties and fees into the CENTER operating account for as long as the CENTER remains in operation. In the event the CENTER is no longer in operation, all unused amounts and any future royalties and fees received will be returned to or retained by the UNIVERSITY.

J. Neither party is assuming any liability for the actions or omissions of the other party. To the extent authorized by applicable law, each party will indemnify and hold the other party harmless against all claims, liability, injury, damage or cost based upon injury or death to persons, or loss of, damage to, or loss of use of property that arises out of the performance of this Agreement to the extent that such claims, liability, damage, cost or expense results from the negligence of a party’s agents or employees.

By an Authorized Official of Company:

_____ _____

Printed Name Date

Title:

By an Authorized Official of University:

_____ _____

Printed Name: Peggy Vanco Date

Title: Assistant Director, Office of Sponsored Programs

14. How would I benefit by becoming a member of WEP?

- The Water Equipment and Policy I/UCRC provides a cost-effective way to leverage research investments: the typical investment by a company in an I/UCRC buys access to a research enterprise that is about 20 times larger. By pooling resources together, members can undertake precompetitive research that none of them may be able to afford individually. Membership dollars go farther than usual since the universities match 35% of the membership fees, and since NSF provides additional funds as well.
- Members shape the research agenda of the research center so that it can produce results that are of direct value to the members.
- Members get early access to the research results and other technology being developed by the center faculty, including the results of most federally sponsored research projects being pursued outside the center. Based on past experience with other I/UCRCs, it's not uncommon for outside funding to at least quadruple the total size of the research program whose results are accessible to the members.
- Interactions with the center faculty provide an ideal mechanism for knowledge transfer. Industry participants can learn about the latest research and technological advances that are being made in the field, while the faculty members learn about important practical problems being faced by the industry.
- In addition to research projects directly funded by industry members, other opportunities exist for the center to obtain additional NSF research grants.
- Members get access to trained professionals and experts in water and wastewater technologies relevant to their companies. A typical membership fee supports a single graduate student for an entire year. When these students graduate, member companies have an edge over businesses outside of the center in recruiting them.
- Membership in a leading university-based research center can bring prestige to companies, credibility to their initiatives carried out though the center, and enhance their corporate image.

15. How can I become a member?

Visit the WEP website for more information on becoming a member.

http://www4.uwm.edu/wep/

Access the "About" link to download copies of membership documents.

- IAB By-Laws that detail member rights and responsibilities
- Sample Membership Agreement

For additional information, please contact any of our WEP Center staff members:

- Center Director: Dr. Junhong Chen - (414-229-2615) jhchen@uwm.edu
- Marquette Site Director: Dr. Daniel Zitomer – (414) 288-5733 daniel.zitomer@marquette.edu
- Center Manager - Dave Marsh - (262-227-2277) marshd@uwm.edu

16. How much does it cost to become a member of WEP?

Membership fees are $50,000 annually for large companies. Companies are allowed a maximum of two memberships, which grants them two votes in the IAB.

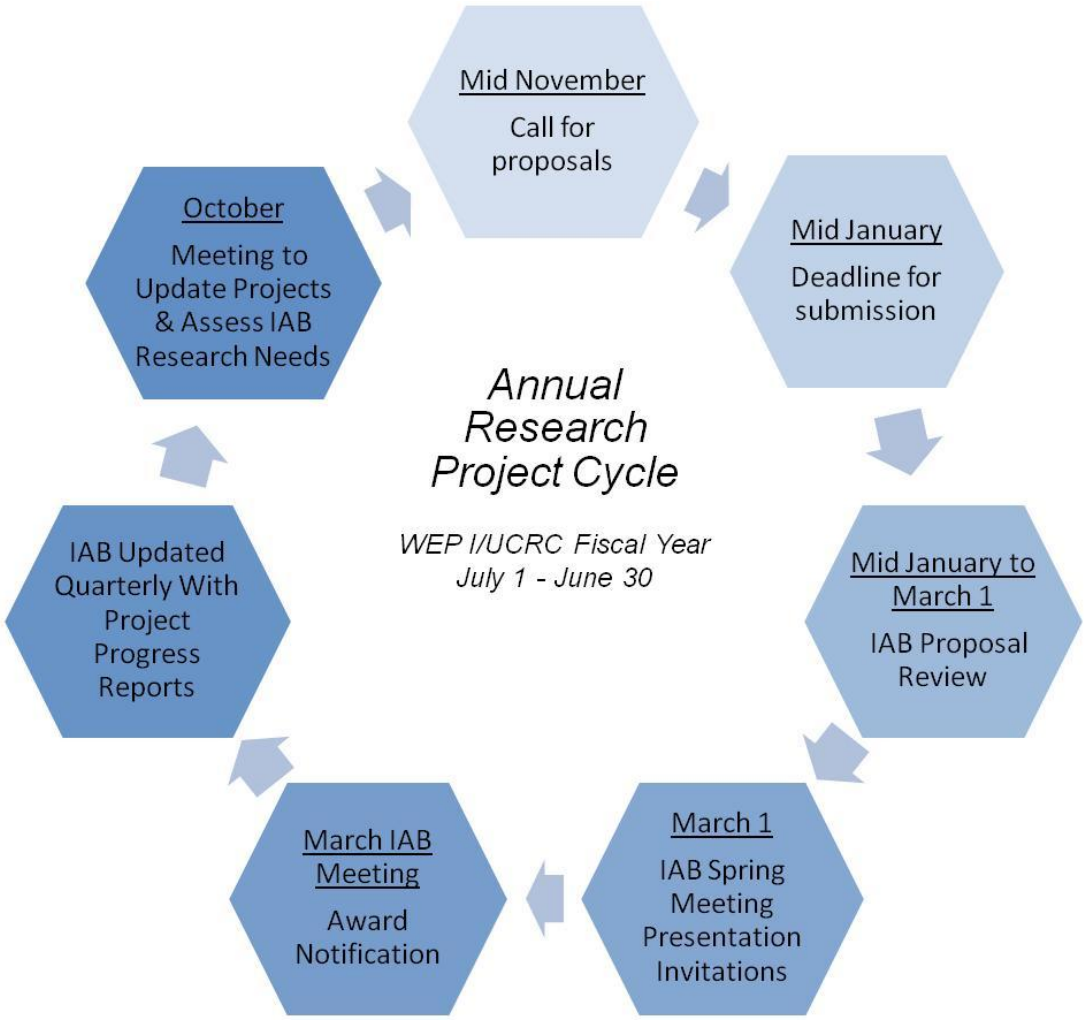
Small companies, as defined by the federal government for purposes of SBIR grants, are allowed to join as associate members for an annual membership fee of $10,000. Associate members will have the rights of full members except in all voting matters, and the amount of any royalty for licensed use of products, practices or procedures will be subject to negotiation.

17. How long do I have to commit to be a member?

Members should join the center with the understanding that the center intends to work on medium to long-term projects, with a time horizon of 18 months to a few years. Therefore, the members should join with the intention of remaining a member for three years. However, if a member is unhappy with the center, they can terminate the membership agreement at any time by giving the center 90 days written notice. For legal purposes, this provision means that the minimum membership period is one year.

18. <u>Is there an optimal time of year to join WEP?</u>?

Fiscal years and budgeting cycles vary between organizations, which is why WEP accepts new members at any time throughout the year. However, because WEP research projects are selected on an annual basis, prospective members may want to join the center at the beginning of the calendar year in January when they can fully participate in reviewing and selecting new projects for WEP's new fiscal year that begins in July. Below is the WEP research project selection and review process.



19. What steps should I take if I am interested in becoming a member?

Please send an email or call any WEP Staff members or other UWM or Marquette faculty that you may be interested in working with.

- Center Director: Dr. Junhong Chen - (414-229-2615) jhchen@uwm.edu
- Marquette Site Director: Dr. Dan Zitomer – ((414) 288-5733) daniel.zitomer@marquette.edu
- Center Manager - Dave Marsh - (262-227-2277) marshd@uwm.edu