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Solicited RFP

This project is funded through the Solicited Program, which enables WRF to solve broadly relevant subscriber issues and challenges with a targeted, sustained research effort. The program is developed around research topics that are of high interest and priority to WRF subscribers because of a challenge or opportunity that is present, emerging, or anticipated, and for which research will help subscribers manage and address the challenge or optimize the opportunity.

*This project is funded under the Issue Area "Sustainable Integrated Water Management (SIWM)." **The objective of the Sustainable Integrated Water Management program is to engage partners to advance sustainable integrated water management for communities by:***

- *Transitioning the "integrated water management" approach into practice by taking a holistic view of wastewater, stormwater, drinking water, and reclaimed/reused water*
- *Optimizing stormwater program through lifecycle analysis and green infrastructure implementation to create adaptable and resilient water infrastructure*
- *Transforming comprehensive planning and watershed management through engaging partners in agriculture, forestry and planning community and at the national, state, regional, and local levels*

Leveraging the Role of Pretreatment Programs in One Water Initiatives: Synthesis of Best Practices and Path Forward (RFP #4971)

Project Objectives

- To take a new holistic view of pretreatment programs and their relationship to One Water goals
- To identify regulatory requirements impacting pretreatment programs, including factors that drive (or inhibit) innovation in pretreatment programs
- To look at current, state-of-the-art pretreatment programs, and their relationship with both publicly owned treatment work (POTW) operations and the commercial/industrial user community
- To identify potential opportunities to leverage pretreatment programs in implementing One Water strategies

Budget

Proposals may request WRF funds for \$100,000. WRF funds requested and total project value will be criteria considered in the proposal selection process.

Background

The pressures of population growth, water scarcity, water pollution, climate change, and competition for water among municipal, industrial, agricultural, and ecosystem water uses, has given rise to the concept of "One Water." Achieving a secure One Water future would not be possible without direct business involvement (US Water Alliance, 2016). An essential partner in the development and successful implementation of One Water strategies is the industrial sector, as it represents both a significant opportunity to reduce overall water demand and a potential constraint due to the nature of pollutants present in their discharges.

The Clean Water Act (CWA) made it unlawful to discharge any pollutant from a point source into navigable waters unless a permit was obtained. EPA's National Pollutant Discharge Elimination System (NPDES)

permit program controls discharges. Industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters. Additionally, the CWA directed the EPA's Administrator to establish technology-based standards for direct discharges and indirect discharges through POTWs, covering more than 50 industrial categories. Finally, the CWA required EPA to develop a National Pretreatment Program (40 CFR 403) to address indirect discharges to POTWs through pretreatment programs developed, implemented, and enforced by the POTWs themselves.

The National Pretreatment Program and local pretreatment programs implemented by POTWs are extremely effective at reducing the discharge of toxic chemicals into the nation's waters and into biosolids produced by POTWs for beneficial reuse (EPA, 2003). In addition to EPA's technology-based categorical pretreatment standards (CPS), the National Pretreatment Program requires POTWs to develop local limits that prevent the pass-through of non-conventional pollutants into receiving waters and interference with POTW operations. While CPS are proscriptive, local limits are developed based on the unique characteristics of each individual POTW. EPA has established detailed guidance for development of local limits. Factors that must be considered in establishing local limits include capacity and flow characteristics of the receiving POTW and collection system concerns such as corrosion from industrial wastes and blockage from food processing wastes. POTWs must also consider effluent discharge limitations contained in their own NPDES permits, water quality standards for reuse, biosolids characteristics for beneficial reuse, and even applicable air quality standards.

POTWs, water utilities, and municipalities of all sizes, from the Village of Lake Zurich, Illinois with a population under 20,000 (Metropolitan Planning Council, 2011), to the City of Los Angeles, California with a population of 4 million (City of Los Angeles, 2015) are investigating One Water opportunities and establishing long-term plans to reduce their water footprints through conservation and reuse. By 2025, Los Angeles has a strategic goal of reducing water imports by 50%. They also hope to locally source at least 50% of their water needs by 2035. Nationwide, there is great amount of information from various pretreatment systems that we can learn from.

To date, the role of pretreatment programs in supporting the path toward One Water cities and conversely, the impacts of One Water initiatives on pretreatment programs, have not been well established.

Because of both National Pretreatment Program requirements and state and local regulatory oversight, local pretreatment programs differ markedly from POTW to POTW, in program elements as diverse as local limits, permit administration, industrial user self-monitoring and POTW monitoring, enforcement mechanisms and compliance assistance, pollution prevention assistance, and incentives.

While historically, the predominant mechanisms by which pretreatment programs have elicited improved environmental performance and compliance with both CPS and local limits have been enforcement actions (administrative orders, civil litigation, and penalties), such enforcement actions lose their effectiveness once compliance has been achieved. The EPA has considered the benefits and potential impediments to implementing pollution prevention through local pretreatment programs as a means of encouraging "beyond compliance" behavior (EPA, 2011). Independent of National Pretreatment Program requirements, a number of POTWs have developed and implemented POTW-specific mechanisms to encourage "beyond compliance" behavior, including triple bottom line elements: public recognition,

pollution prevention assistance, and reduced costs. The City of Los Angeles, for example, has implemented its “LA Industry” initiative that identifies a variety of mechanisms including water incentives, energy incentives, rebates, loans, and provision of technical assistance for personnel training, etc. (City of Los Angeles, 2017).

This project will identify pretreatment program elements that encourage or impede implementation of One Water strategies in their communities. The project will also develop a synthesis of best practices for pretreatment program and resources in the areas of compliance assistance, pollution prevention technical assistance and incentives for use by WRF subscribers and others.

Research Approach

- Step 1: Conduct a national survey of POTWs across the country to determine if they are actively participating in the planning and implementation of a One Water initiative along with pretreatment program. At a minimum, the following research questions should be included in the survey:
 - Does your POTW consider the intersection of One Water and pre-treatment? Do you have plans for collaboration on these two systems?
 - How many POTWs are participating in One Water initiatives and who are they?

For participating pretreatment programs:

- At what point was the pretreatment program included in the planning process and what was the rationale?
- How has the pretreatment program been incorporated into the One Water initiative and what components are it expected to deliver? These may include enhanced and/or innovative monitoring of POTW and industrial user performance, compliance and pollution prevention assistance, public recognition, financial incentives, etc.
- How were external stakeholders, e.g., NGOs, engaged in developing the pretreatment program components of the One Water initiative? What impacts did/does the One Water initiative have on the pretreatment program? Were there any significant program changes that had to be made? These may include local limits reevaluation and revision because of changes in water use, pollutant discharges, inspection, and monitoring procedures.
- As cities approach One Water goals, what impact does water recycling have on your pretreatment program and POTW purification processes?
- How have the pretreatment program components of the One Water initiative been implemented for industrial users? What incentives have been established for industrial users to participate in the initiative? These may include permit revisions, supplemental agreements, reduced or rebated utility charges or fees, etc.
- What interactions with federal and state pretreatment programs were necessary to implement the pretreatment program components of the One Water initiative? These may include NPDES permit amendments, supplemental agreements, etc.
- What exit provisions have been made for the industrial user if it falls into noncompliance with its discharge permit, or for the POTW if it falls into noncompliance with NPDES permit limits or other code requirements because of participation in the One Water initiative? Is there a “soft landing?”

- How has the pretreatment program's contributions to the One Water initiative been evaluated? What criteria were established? What information was used? Did evaluation require any new or previously unevaluated information? Has the pre-treatment program curbed growth and do you think one water initiatives may not be advantageous to industry growth?
- Are there other One Water initiative components impacting the industrial sector independent of the pretreatment program? If so, how do they relate to and interact with the pretreatment program? How are potential conflicts addressed?
- Step 2: Develop and populate a searchable database with detailed program information from the POTWs surveyed.
- Step 3: Develop case studies of select POTWs in the survey group to identify and highlight the varied relationships of their respective pretreatment programs to One Water initiatives.
 - Establish a peer-to-peer network of pretreatment managers for WRF subscribing organizations, including hosting for webinar and meeting from participating utilities and municipalities
- Step 4: Prepare a synthesis of best practices and case studies through literature search and develop guidance for POTWs and their pretreatment programs in planning and participating in One Water initiatives in the area
 - Make a recommendation for path forward and future research needs.
 - Engage EPA Office of Water in developing the guidance to ensure it is consistent with CWA requirements and applicable Federal Regulations.
- Step 5: Publish the guidance through WRF website, WEF website and set up links on EPA OW, Regions, and NACWA websites

The deliverables in this project shall include:

- A synthesis document (e.g., white paper) from the national survey
- A searchable database (e.g., in Microsoft Access) with detailed program information from the national survey and literature search
- A guide for pre-treatment program around best practices and case studies for compliance assistance, technical assistance and incentives for pollution prevention, including connecting with the National Pollution Prevention Roundtable
- Draft and final report, including a summary of knowledge gaps and recommendation of future research needs
- Webinars, conference presentations and other forms of publications that can be readily used by utilities and municipalities (e.g., the proposal should include a task with communications/marketing plan for the final products)

Selection Process and Criteria

Selection of proposals is a very competitive process. Proposals will be reviewed by WRF and the Project Advisory Committee (PAC) and/or Issue Area Team (IAT) for the Sustainable Integrated Water Management (SIWM) challenge. This external review team may be complemented as needed by subject matter experts. As part of the evaluation process, WRF reserves the right to request interviews, either via conference call or in person, with qualified proposers if necessary.

Proposers are encouraged to develop and submit their intended research plan that meets the research goals of this RFP, provide sufficient details of their budget, as well as schedules and milestones that can successfully deliver on the stated research goals, objectives, and tasks that are proposed.

WRF will evaluate proposals on the following components:

- **Understanding the Problem and Responsiveness to RFP (20%)**
Does the proposal adequately explain the problem? Does it reflect knowledge of the issue and how solving the problem will benefit the water industry? Have the RFP objectives been adequately addressed? If proposed objectives differ from the RFP, do stated objectives address current or future needs of the water industry? Are data quality objectives specified?
- **Technical Approach and Scientific Merit (40%)**
Is the proposal prepared with supportive information and is it self-explanatory and clearly understandable? Is the proposed effort technically defensible? Is the approach practical? Can the project objectives be achieved in the stated time period with the allotted personnel and budget?
- **Management and Communication Plans (10%)**
Are the roles, responsibilities, and assignments clear? Do the supporting organizations on the team have complementary skills? Does the lead organization have adequate resources to provide the appropriate level of management, oversight, and project implementation? Is the Quality Assurance/Quality Plan acceptable? Are schedules and deliverables clearly defined?
- **Budget and Schedule (10%)**
Is the budget within the advertised budget for the project? Has the applicant provided appropriate (at least 25%) and significant in-kind contributions to the project? Is the level of effort allocated to each task logical? Is the Indirect Cost Rate reasonable (35% or less is competitive) and has it been detailed in the proposal? Is the schedule realistic? Do the proposed budget and schedule match funding needs to milestones and demonstrate the value of the research relative to the proposed cost?
- **Qualifications of Organization and Key Personnel (10%)**
Does the lead organization have demonstrated experience and expertise in the issues and objectives discussed in the RFP? Do the key project personnel have experience in the proposed area of research? Have key personnel committed an appropriate amount of time to the project? Are water and wastewater agencies involved?
- **Staff Evaluation and Input Based on Past Performance (10%)**

Proposal Preparation Instructions

Proposals submitted in response to this RFP must be prepared in accordance with The Water Research Foundation's document *Guidelines for Focus Area Program Proposals*. These Guidelines are applied to the Solicited program as well. The most current version of these guidelines is available at: <http://www.waterrf.org/funding/ProposalDocuments/GuidelinesForFocusAreaProgramProposals.pdf>. The guidelines contain instructions for the technical aspects, financial statements, and administrative requirements that the applicant must follow when preparing a proposal.

Please note that the selection criteria listed here are different from those listed in the Guidelines for Focus Area Program Proposals document. The selection criteria in this RFP will be used to evaluate the proposal.

Eligibility to Submit Proposals

This RFP solicits proposals from all technically qualified applicants, including educational institutions, research organizations, federal or state agencies, municipalities, and consultants or other for-profit entities.

WRF's Board of Directors has established a Timeliness Policy that addresses researcher adherence to the project schedule. The policy can be reviewed at <http://www.waterrf.org/funding/Pages/policies.aspx>. Researchers who are late on any ongoing WRF-sponsored studies without an approved no-cost extension are not eligible to be a named participant in any proposal. If you have any questions about your eligibility for WRF projects, please contact the WRF research staff listed at the bottom of this RFP.

Administrative, Cost, and Audit Standards

WRF's Solicited Research Program standards for administrative, cost, and audit compliance are based upon, and comply with, Office of Management and Budget Uniform Grants Guidance, 2 CFR Part 200 Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, and 48 CFR 31.2 Contracts with Commercial Organizations. These standards are referenced in the WRF's *Guidelines for Focus Area Program Proposals*, and include specific guidelines outlining the requirements for indirect cost negotiation agreements; financial statements; and the Statement of Direct Labor, Fringe Benefits and General Overhead. Inclusion of indirect costs must be substantiated by a negotiated agreement or appropriate Statement of Direct Labor, Fringe Benefits and General Overhead. Well in advance of preparing the proposal, your financial staff should review the detailed instructions included in WRF's annually released *Guidelines for Focus Area Program Proposals*.

Budget and Funding Information

The funding available from WRF for this project is \$100,000. A minimum 25 percent of the total project value must be contributed by the applicant (i.e. the applicant's minimum contribution must equal one-third of WRF funds requested). Acceptable forms of applicant contribution include cost-share, applicant in-kind or third-party in-kind that comply with 2 CFR Part 200.306 Cost sharing or matching. The applicant may elect to contribute more than 25 percent to the project but the maximum WRF funding available remains fixed at \$100,000. **Proposals that do not meet the minimum 25 percent of the total project value will not be accepted.**

Period of Performance

The proposed project schedule should be realistic, allowing ample time for the preparation of final reports and for review of project results. It is WRF's policy to negotiate a reasonable schedule for each research project. Once this schedule is established, WRF and its sub-recipients have a contractual obligation to adhere to the agreed-upon schedule. Under WRF's No-Cost Extension Policy, a project schedule cannot be extended more than nine months beyond the original contracted schedule, regardless of the number of extensions granted. The policy can be reviewed at <http://www.waterrf.org/funding/Pages/policies.aspx>.

Utility and Organization Participation

WRF is especially interested in receiving proposals that include both participation and contribution of resources from water utilities and organizations in the research effort. Information on utilities and/or organizations that have indicated an interest in participating in this research project are listed on the last page of this RFP. While WRF makes utility and organization participation volunteers known to applicants, it is the applicant's responsibility to negotiate utility and organization participation in their particular proposal, and the utilities and/or organizations are under no obligation to participate.

Application Procedure and Deadline

Proposals are now being accepted exclusively online in PDF only format and must be fully submitted before 2:00 PM Mountain Time, Tuesday, November 27, 2018. All the forms and components of the proposal are available online in the "Proposal Component Packet" zip file. A login is required to download this packet and use the proposal website. This information is available at <https://proposals.waterrf.org/Pages/RFPs.aspx>

The online proposal system allows submission of your documents until the date and time stated in the RFP. To avoid the risk of the system closing before you press the submit button, do not wait until the last minute to complete your submission.

Questions to clarify the intent of this Request for Proposals and WRF's administrative, cost and financial requirements may be addressed to the Program Director, Dr. Harry Zhang, at (571) 384-2098 or by e-mail at h Zhang@waterrf.org.

UTILITY AND ORGANIZATION PARTICIPANTS

The following utilities have indicated an interest in possible participation in this research. This information is updated within 24 business hours of when a utility submits a volunteer form and this RFP will be re-posted with the new information.

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References

City of Los Angeles (2015). 2015 Sustainability City Plan for Los Angeles. <http://plan.lamayor.org/>

City of Los Angeles (2017). City of Los Angeles (LA Sanitation) Strategic Plan 2017-2018: Zero Waste, One Water.

EPA Office of Water (2003). EPA's National Pretreatment Program, 1973-2003: Thirty Years of Protecting the Environment, Washington, D.C.

EPA Office of Wastewater Management (2011). Introduction to the National Pretreatment Program, Washington, D.C. (<http://uswateralliance.org/one-water/roadmap>)

Metropolitan Planning Council of Chicago. 2011. (<http://www.metroplanning.org/>)

US Water Alliance (2016). One Water Roadmap. (<http://uswateralliance.org/sites/uswateralliance.org/files/publications/Roadmap%20FINAL.pdf>)