TASK FORCE ON WORKFORCE SUSTAINABILITY

Appointed by the WEF President, Adam Zabinski, May 21, 2008

FINAL REPORT

October 15, 2008

INTRODUCTION AND BACKGROUND

The water industry is facing a significant challenge caused by the changes in our society. Today's workforce is composed of about 145 million workers. The baby boomers (generally defined as those individuals born between 1946 and 1964) comprise the largest contingent of these workers. By 2010, half of these boomers will be between the ages of 54 and 64 with retirements expected to peak between 2010 and 2020.

Coupled with the pending retirements and exodus of employees from the water job sector is the potential labor shortage of skilled employees throughout the industry ranging from operators to engineers. The recent American Water Works Association Research Foundation (AwwaRF) report *A Strategic Assessment of the Future of Water Utilities* noted that:

- The pool of available, technically skilled workers is shrinking and the members of that pool may have different values.

- The water supply and sanitation sector is expected by the Bureau of Labor Statistics to experience an employment growth rate of 45% in coming years due to regulations, infrastructure growth, security, and customer demands.

- Due to the continual escalation of regulations and technological change, the nature of the work to be performed is increasingly complex.

Recognizing that workforce sustainability is of vital importance to members of the Water Environment Federation (WEF), in May 2008 WEF President Adam Zabinski formed the WEF Task Force on Workforce Sustainability. Appointed to this Task Force were the following members:

Raynetta Curry Grant (co-chair)
Eric Dodds (co-chair)
Raj Bhattarai
Dan James
Dr. Nancy Love
Kirk Rowland
Patty Settles
Tekla Taylor
Laura Watson

The Task Force was charged with the following duties:

- Inventory and define all workforce sustainability activities present and planned within the committees of the Federation
- Inventory and define all workforce sustainability activities ongoing with the Member Associations of the Federation
- Propose a priority for the workforce sustainability activities that are ongoing and planned based on the needs of WEF members
- Outline the opportunities WEF has for collaboration with others within the water industry and outside of the water industry in regards to workforce sustainability
- Coordinate the actions of the Task Force with the Planning, Products and Program Development (P3D) Working Group of the Board of Trustees (BOT) so that the P3D Working Group may recommend a strategy to the BOT on Workforce Sustainability.

This report is the result of the work conducted by the Task Force. Included in the report are prioritized observations and opportunities for the WEF Board to consider in formulating a strategy to address the issue of workforce sustainability.

NEEDS DEFINITION

A shortage of workers spurred by the gradual aging and retirement of baby boomers is beginning to affect all organizations across the nation and the water industry is no exception. As more and more baby boomers age and retire, the workforce shortage is projected to be even more acute in the next 10 to 15 years.

Approximately 76 million baby boomers are estimated to retire in large numbers in the next 5 to 10 years. The baby boomers make up about one-third of the total workforce in the U.S. Labor shortages in key industries will force a radical rethinking of recruitment, retention, flexible work schedules and retirement for baby boomers because there aren't enough young workers to replace them. Worker shortages are already apparent in as diverse areas as nursing, long-haul trucking, and engineering.

The water/wastewater sector is especially hard hit. Many of the water and wastewater treatment plants were constructed or expanded/upgraded in the 1970s and 1980s because the two major water regulations – Clean Water Act (1972) and Safe Drinking Water Act (1974)

were promulgated in the 1970s. Additionally, during the 1970s and 1980s, federal grants were available for construction of wastewater infrastructure and also for the training of the workforce, which spurred the expansion of the workforce during those two decades. The workers hired then have reached or are fast approaching retirement age. This will compound the problem in the water industry already burdened by the shortage from the effects of baby boomers retiring.

The number of baby boomers reaching retirement age between 2000 and 2015, as shown in Figure 1, is sobering.

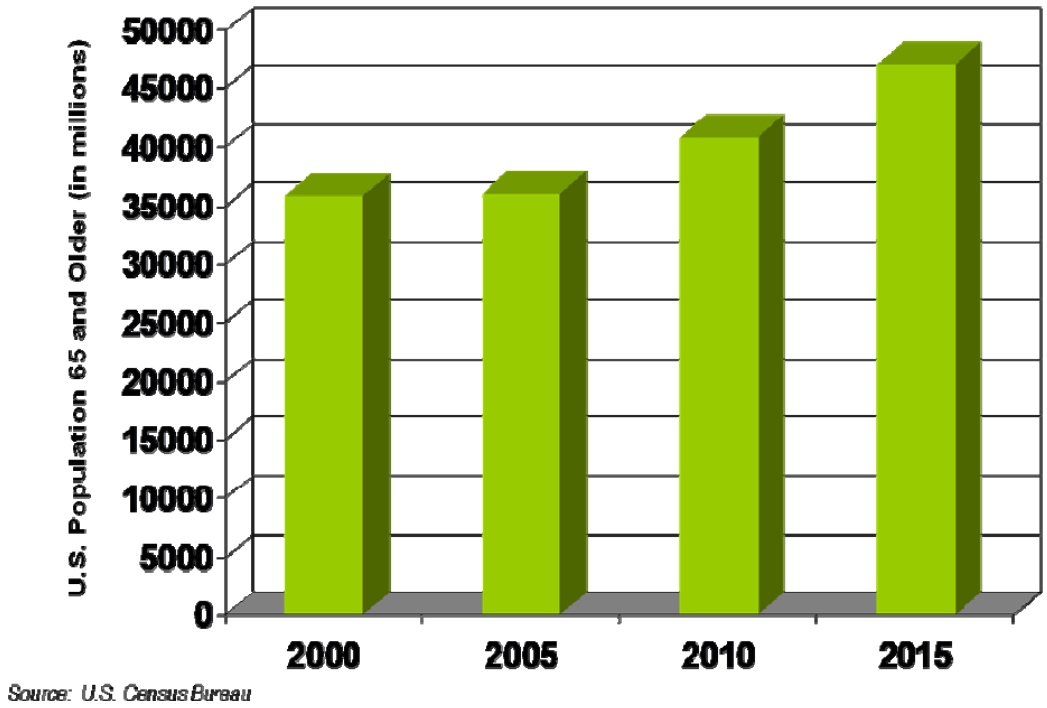

Figure 1 – Baby Boomers Retirement 2000-2015 (Source: U.S. Census Bureau)

According to the recent *Water & Wastes Digest* State of the Industry Report, the average water/wastewater professional has been working in the industry for 22 years. Almost one-third (30%) of 10,000 randomly surveyed subscribers to *Water & Wastes Digest* have been in the industry for 30 years or more. Additionally, 41.5% of respondents said they are between the ages of 50 and 59.

According to the recent Water Environment Research Foundation/American Water Works Research Foundation Study *Succession Planning for a Vital Workforce in the Information Age:*

- The current average age of water utility workers is 44.7
- The current average age of wastewater utility workers is 45.4

- The average age of all other workers in the nation is four years younger, approximately 41 years of age
- The average retirement age for utility personnel is 56
- It is projected that in the next ten years, 37% of water utility workers and 31% of wastewater utility workers will retire

According to the *AWWA 2007 State of the Industry Report*, the expected retirements of water utility employees over the next five years are quite dramatic as shown below:

- 33% of the Executives
- 30% of Management and Supervisory Employees
- 21% of Operators
- 14% of Engineers
- 13% of Purchasing Employees
- 7% of Scientists

The number of students graduating with a bachelor's degree in engineering dropped 25% between 1985 and 2001. A 2007 National Science Foundation report showed an 8% decline in civil engineering graduate student enrolment from 1992 to 2005. This is particularly disturbing at a time when the increase in population and demand for better quality and larger quantity of water requires engineers and other workers with advanced degrees.

According to the 2003 Congressional Budget Office study *Baby Boomers' Retirement Prospects: An Overview*, some of the baby boomers may not be as prepared for retirement as their parents were and may have to postpone their retirements by a few years. A larger proportion of previous generation workers were covered by guaranteed-benefit pension plans. Most of the baby boomers do not have access to such plans and are invested in private retirement plans. The current economic crisis might slightly delay the retirement prospects of some of the baby boomers. But this few years of delayed retirement by a small number of baby boomers will not offset the greater shortage caused by the coupling of the demand for more qualified workers. This shortage is expected to continue for an entire generation comprising of almost two decades. It is therefore imperative for our industry to immediately start planning for a sustainable workforce.

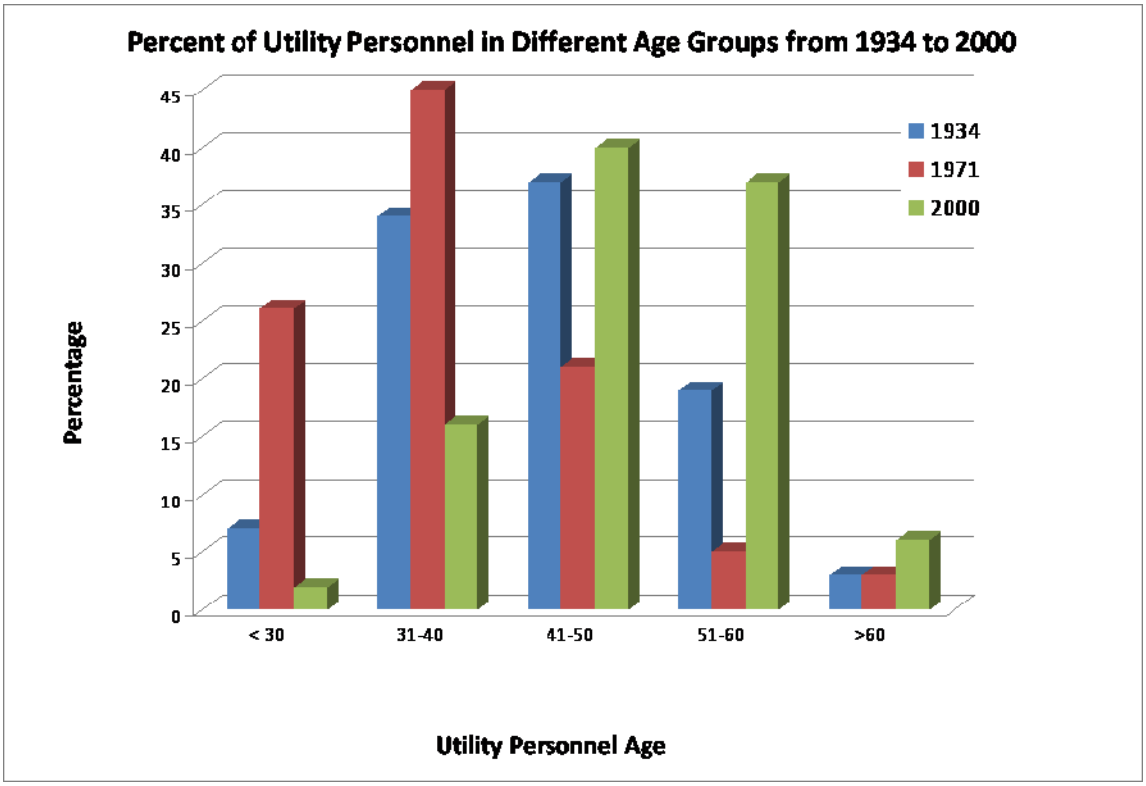

Figure 2 - Percent of Utility Personnel in Different Age Groups in 1934, 1971 and 2000

WEF COMMITTEE INVENTORY

Background

There are 45 identified committees that provide the substantive work of implementing the WEF Vision and Strategic Plan for water quality and reuse. More than 2,500 WEF members participate in WEF committee activities, developing conference programs, writing technical manuals and books, developing training materials and program content, and many other WEF program activities, such as serving on this Task Force.

Findings

For this Task Force, 16 of the committees were targeted for the inventory of WEF Committee activities related to workforce sustainability. The 16 targeted committees include: Academic, Collection Systems, Environmental Management Systems, Government Affairs, Manufacturers and Representatives, Membership, Municipal Wastewater Treatment Design, Operations Challenge, Plant Operations and Maintenance, Professional Development, Public Communications and Outreach, Publications, Small Community, Students and Young Professionals, and Utility Management. Of these, based on our research and inventory

efforts, the following 4 committees are generally the most engaged in the subject of workforce sustainability.

1. Utility Management (UMC)

   Workforce activities of the UMC have been focused in developing technical sessions and workshops at WEFTEC, the AWWA/WEF Joint Management Conference and publishing articles. Many of the technical sessions are joint efforts with the Professional Development Committee. Both the articles and sessions focus on identifying the problem and presenting example solutions implemented by utilities.

2. Professional Development Committee (PDC)

   As with the UMC, much of the work of the PDC has been in developing technical sessions for WEFTEC and the Joint Management Conference. They've also worked with the Public Communications and Outreach Committee and the Students and Young Professionals Committee to develop material for career and guidance counselors. PDC members have also been involved in development of career related material on the WEF website, including the Career Paths information.

3. Students and Young Professionals Committee (SYPC)

   The workforce related activity by the SYPC has been diverse in the form of content delivery on workforce planning issues. They've written articles for the WEF website, WE&T and the YP Newsletter, developed WEFTEC sessions, and sponsored webcasts. One of the most notable of these is the "Pipeline to the Future" webcast in November 2007 and the subsequent follow-up articles posted on the WEF website.

4. Public Communication and Outreach Committee (PCOC)

   Workforce related activities by the PCOC focus on providing information to students and other prospective recruits on the particulars of careers in the water/wastewater industry. This includes typical job descriptions in the "Job Resources" link on the website, brochures and posters to educate and generate interest, and working with high school career counselors to educate the public.

Other committees are beginning to look at how they can also become involved. For example, the Plant Operations and Maintenance Committee (POMC) is generating a series of articles on "What Works", to be published in the WE&Ts Operations Forum. These are written by utility operations and management personnel who have implemented workforce related programs, and the outcomes thereof. Also, members of the Collection Systems Committee (CSC) are gearing up to join other WEF committees in order to determine how they may assist.

MEMBER ASSOCIATION ACTIVITIES

Background

There are currently 81 WEF member associations (MAs) representing approximately 50,000 water quality professionals around the world. MAs are local (State or Regional) on-the-ground organizations that have the opportunity to interact closely with local operators, public and private sector professionals, and student and young professional organizations. In many cases, the MAs provide the only opportunity for training and education to those members that are unable to travel to WEF conferences or workshops.

MAs are diverse, with approximately 1/3 of the MAs employing professional staff and the remainder relying on support from volunteers. The activities in which the MAs are engaged also vary, depending on the size of the organization and available resources. For example, smaller MAs with limited funding are typically more focused on addressing singular priorities identified during their annual planning process. This focus is often driven by federal or state regulations affecting the water industry. On the other hand, some of the larger MAs, which are well funded and staffed, may distribute regular journals or magazines keeping members informed of relevant issues. Many of them support young professional organizations and may have active regional member sections. Larger MAs typically conduct more frequent meetings and educational workshops throughout the year and are able to address a broader spectrum of issues facing their members.

A representative cross-section of North American MAs was selected and interviews were conducted to evaluate how much emphasis each MA placed on the issue of work force sustainability, what activities the MAs were undertaking, if any, to address the issue, and what needs they may have in assisting their members with recruiting, retention, and succession planning.

Findings

The results of the MA interviews are provided in Attachment X. Several of the organizations acknowledged recruiting, retention, and succession planning as a significant issue facing their members. However, for the majority of the MAs interviewed regardless of their size, plans for addressing work force sustainability are either in their infancy, or have not yet been developed. There was an equal split between the organizations that had implemented some type of program to address work force sustainability issues, those that had begun discussions and are in the early stages of planning to address the issue, and those that had not addressed the issue at all. For many of the MAs that had not yet implemented programs, they expressed a desire to receive some form of assistance or guidance from WEF in developing strategies for their members, especially in cases where they do not have sufficient funding to dedicate to the issue at this time.

Challenges

There is a consensus among the MAs interviewed regarding challenges facing recruiting and retaining staff in the water and wastewater industries, including:

- Non-competitive wages and diminished benefits
- Poor image of the industry or working conditions
- Competing for staff against more attractive industries in most States
- Not a priority for some public officials
- Inability to attract good leadership within the utilities and lack of leadership training
- Fundamental competencies needed to operate current technology
- Technical fields not encouraged in the high schools by career counselors
- Lack of technical staff in smaller communities where technologies are evolving beyond their level of training
- Lack of technical training for existing employees
- Viewed as a "job" and not a career
- Lack of trade school and junior college programs specific to this industry

Identified Needs

Many of the MAs interviewed, especially those with limited funding had similar requests or ideas when asked what WEF could do to support them on this issue. These included:

- A collaborative effort between WEF, AWWA and MAs to engage in discussions with educational leaders to address core competencies for field staff/operators and to encourage those individuals demonstrating an aptitude to enter the water and wastewater industries.
- Develop educational programs at the trade school and junior college levels for all levels of water and wastewater professionals.
- Form a group to study and address the issue of low pay and benefits in the industry
- Host seminars for educators to increase their awareness of the opportunities for students in water and wastewater
- Provide educational support and/or develop course curricula for technical training, especially for those staff that have not been trained on current technologies, to allow them to advance in their positions.
- Prepare PR tools for recruiting
- Tools to help the MAs and their members learn how to recruit, mentor, and train staff (templates or written guides)
- Development of leadership training programs
- Information/guidance on how to obtain grants or other forms of financial assistance for addressing work force issues and implementing proven programs

Successes

The Georgia Association of Water Professionals, a large MA with over 6,000 members, identified this issue as a top priority and in 2008, launched their website H2Opportunity. This program focuses on educational aspects associated with recruiting, retaining, and advancing water professionals and highlights career path opportunities in the water and wastewater industries. Mr. Jack Dozier, Executive Director acknowledged that the program has been highly successful, well beyond their original expectations.

The West Virginia Water Environment Association used Environmental Protection Agency (EPA) and Rural Utilities Service (RUS) funding to develop a fully staffed environmental training center which provides various classes, including advanced training. They also provide 2 and 3 day training courses during scheduled trade shows. Mr. Bill Cunningham, Secretary/Treasurer, stated that this has been very positive with respect to retaining staff and ensuring that the positions vacated by retiring professionals can be filled.

The Florida Water Environment Federation co-sponsored an initiative called *Florida Water Futures 2007*. Workforce issues were identified as a priority area in this report. As a result of this effort the Florida legislature approved funding to open a Banner Center that would be focused on providing training for water sector needs. Banner Centers were started in Florida in 2006 with the primary purpose of providing training for entry-level and experienced workers in certain high-value job sectors. The newest Banner Center addressing the water utility industry is expected to receive funding of at least $500,000.

OTHER ORGANIZATIONS ACTIVITIES

Background

Ongoing workforce sustainability activities within other national organizations that are active or involved in some way in the water and wastewater industry were investigated. The organizations selected were the American Water Works Association (AWWA), the American Water Works Research Foundation (AwwaRF), the National Association of Clean Water Agencies (NACWA), the Association of Metropolitan Water Associations (AMWA), Environmental Engineers for the Future (E^2F), the American Society of Civil Engineers (ASCE), the Association of Environmental Engineering and Science Professors (AEESP), and the National Academy of Engineering (NAE).

Findings

The bibliography makes it clear that there has been increasing attention among non-WEF organizations on understanding the workforce challenges of the water industry. Here, we summarize key recommendations from a variety of sources by outside organizations.

AwwaRF

AwwaRF has been quite active in identifying workforce challenges today and actions that can be taken to overcome those challenges. The AwwaRF report entitled *Strategies to Help Drinking Water Utilities Ensure Effective Retention of Knowledge* (Summer 2008, report No. 91220) focused on defining steps and concrete (rapidly deployable) strategies that would lead to knowledge retention in the water industry. Collaboration between utilities on these efforts is emphasized. A second report entitled *Workforce Planning for Water Utilities—Successful Recruiting, Training, and Retaining of Operators and Engineers* will be published Fall 2008 (report No. 91237). This report lists effective tools that are designed to jumpstart workforce planning efforts by identifying both the short and long term needs of the utility and the demographic of people available to fill those needs. The report identifies best practices for recruitment, training and retention in 9 key areas, and many of the successful practices are borrowed from other industries. They emphasize that recruitment tools must be adaptive so as to grab the attention of targeted populations (especially young people). Finally, the report draws attention to the need to shift organizational culture to accommodate (and retain) employees from more diverse groups.

Recently, AwwaRF signed a contract to fund the *Water Sector Workforce Sustainability Initiative*. This initiative is primarily focused on understanding a host of workforce-related challenges by identifying those factors that put the industry most at risk, understanding current organizational practices, and developing strategies that can be deployed at the utility, regional and national levels to counteract ineffective and risky (i.e., unsustainable) practices currently used in workforce management. A summit is being planned for November 2008 as part of this project.

NACWA/AMWA

Two handbooks were recently produced by NACWA and AMWA. The first handbook was entitled *The Changing Workforce – Crisis and Opportunity.* The second was entitled *The Changing Workforce – Seizing the Opportunity* (2006). The second handbook featured case studies from various utilities and information on best practices to address the workforce issue.

E^2F

E2F is a program designed to encourage students to obtain a Masters Degree in a field of relevance to the water industry, and to increase the number of talented professionals with advanced degrees to be applied in the water, wastewater or solid waste management fields. Students who are selected can choose to attend one of the partner environmental engineering programs across the nation, in return for a 3-year employment commitment. Although this program was started in the Southwestern US, members now come from larger public agencies and utilities as well as the larger consulting firms across the nation. The group is currently considering how to broaden the program to encourage internships at utilities as part of an effort to expand the program.

ASCE
ASCE was contacted and admitted to not having any major effort underway that addresses workforce sustainability challenges in the water industry. A survey of their website, however, does show that ASCE is heavily engaged in acting upon the NAE report highlighted below.

AEESP
In 2007, AEESP hosted a workshop as part of its biannual conference entitled Addressing the Shortage of Environmental Engineers in the Professional Pipeline. The workshop was attended by consultants, utility personnel and academics. This workshop reflected on the conclusion in the March 21, 2005 issue of *Fortune* magazine that suggested that there will be a 54% increase in the number of environmental engineering jobs over the next 10 years, the highest of all the listed professions. This demand will likely far outpace the pipeline of students being educated as environmental engineers. There is currently a tremendous demand for entry-level environmental engineers, although most are actively seeking employees who have obtained a masters degree in this field. At the same time, however, it is clear that fellowship/assistantship funding particularly at the Masters level is becoming quite limited. Indeed, MS enrollment today is less than half of what it was in the 1990's. The E2F program mentioned above was developed to directly address this shortage. Sadly, this year EPA eliminated its long standing EPA STAR fellowship program, reducing even further the amount of funding available to educate people at the graduate level in the water sector.

Several challenges were identified at this workshop that pertains to filling the pipeline in the water sector. Key items that have not been identified elsewhere in this report include:

- There is a rising conflict between the number of international students wanting to get green cards in the US and the number of H1B visa slots available. In 2006, the US could only complete about 50% of applications; those who didn't get in and ran out of time had to leave the country. As AwwaRF has shown that an important demographic for the future water industry will be from this international pool, loss of this potential workforce exacerbates the workforce shortage problem.
- The Millennial Generation (born between 1982 and 2000) is a group who: want to collaborate; must know big picture and their role; want to hear opportunity; crave positive feedback; and are dedicated to a larger overarching purpose. Those attending the workshop predicted that the Millenials will leap over Generation X (born between 1965 and 1981) and take over most of the leadership jobs currently handled by the Baby Boomers. This will very much change the workplace dynamic.
- The funding pipeline lags the demand. Federal fellowship funding is, at best, used to support 15% of the students graduating from environmental engineering programs. Research funding is decreasing. Teaching assistantship funding is decreasing as states reduce their support of higher education.

- Universities are trying to increase their Ph.D. productivity to meet ranking criteria while industry needs more MS students. These conflicts are exacerbated by the traditional practice by both communities (academics and practicing water professionals) to approach the problem from their own perspective with limited opportunities for input from the other side.

NAE

The NAE recently (2008) published a study entitled *Changing the Conversation – Messages for Improving Public Understanding of Engineering*. This report was based on a study that focused on the public's perceptions of engineering and included surveys and interviews of youths (9 – 11 year olds), teens and adults. The report found that most respondents had a positive impression of engineering but not a good understanding of what one did as an engineer. Respondents tended to focus their impressions on the notion that math and science were the focus and did not consider the creativity, teamwork and communication aspects that are so vital to engineering. This aspect of the report holds special importance for the water industry, which has a heavy focus on interfacing with the public sector and which is facing an infrastructure crisis for which creative solutions are needed. The report authors suggested changing the tone of the message about engineering to one of being a career path that demands innovation and produces outcomes that positively impact the lives of others, embraces creativity and involves bold new thinking.

Identified Needs

Among these reports, several themes were identified:

- We need to improve the public understanding of engineering and the water sector
- There is a need to provide incentives and other forms of funding for student education and faculty research in the water sector
- Many organizations are taking on similar tasks in establishing improved workforce principles and practices. To enhance the impact, it will be best if these organizations collaborate and share information.

OBSERVATIONS AND OPPORTUNITIES

Based on the inventory of activities, it was recognized that the workforce sustainability challenges can be categorized into three key categories.

1. ***Recruiting*** – Recruiting qualified workers into the water quality industry is essential to long-term workforce sustainability. Recruiting strategies focus on those areas that attract people into our industry.

2. ***Retaining*** – Once part of the workforce, it is imperative that employees are provided with the necessary mentoring, training, tools and incentives that will create an environment that promotes long-term sustainability. Retaining strategies focus on those areas that keep people in our industry.
3. ***Remembering*** – The aging workforce of the water quality industry represents a serious threat of vanishing institutional knowledge. Remembering strategies are aimed at maintaining the institutional knowledge in an organization after seasoned employees leave.

It became obvious from the inventory of activities that much has already been done to begin addressing workforce sustainability issues in the water industry. However, if the WEF Board of Trustees decides to more formally address the workforce sustainability issue, this Task Force believes that there is a need to capitalize on what has already been done, and to strategically move forward to address the many layers of this complex issue. To this end, the Task Force identified the following seven prioritized observations and suggested opportunities geared to showcase success stories, provide benchmarks and guidance for developing programs, empower the MA's to effectively recruit and develop water professionals in their own geographic region and to partner with academia, public agencies and other entities to maximize our very finite resources.

1. ***Organizational Structure*** – Create an organizational structure within WEF to support workforce sustainability issues. The focus of this structure is to align and coordinate activities related to workforce sustainability with the appropriate WEF committees.

2. ***Continue Existing Programs*** – Continue development and promotion of Technical Sessions, Specialty Conferences, webcasts, articles, etc. related to workforce sustainability. These are all excellent resources for those already in the industry. Having an organizational structure to coordinate such activities will help capitalize the results of such efforts.

3. ***Information Access*** – Develop an online portal/website dedicated to workforce sustainability topics. This should be a very robust, interactive online site that can be utilized as a means for showcasing workforce sustainability best practices. It can also be utilized to provide templates, ideas, training tools, guides, and list resources which organizations can use to build on. WEF's new website may facilitate implementation of this opportunity.

4. ***Public Recognition/Education*** – Develop a collaborative public relations campaign to improve public perception of the water industry. The perception potential employees have of our industry is key to being not only an employer of choice, but also an industry of choice. The goal should be to bring sexy to the water industry, just as the television show "CSI" merged sexy with forensics.

5. ***Training and Education Support*** – We need to fundamentally shift the way we train people for this industry to meet the more complex, broader challenges the industry

faces. Working together with other professional organizations to seek funding to support training and education needs is key.

6. ***Organizational Collaboration*** – Collaborate with other professional organizations within the industry such as AWWA, NACWA, ASCE, AEESP, etc. in order to maximize resources and benefits.

7. ***Professional Recognition*** – Develop an award or other form of recognition for educators and utilities that collaborate in developing programs that lead to increasing the number of students who pursue a future career in the water quality profession.

Additional Considerations

It should be noted that while the Task Force believes that workforce sustainability is a serious challenge facing the water industry, there are several additional considerations that warrant mentioning in this document.

- The workforce shortage challenge stems from the large population of baby boomers leaving the workforce and a smaller pool of workers ready to take their place. Some demographic studies indicate that future generations may be larger and thus there is a potential that the workforce shortages may be temporary.

- There is a growing interest towards water sustainability in the world. This interest may result in a paradigm shift that provides much more focus on water issues worldwide than recent history has provided. This potential emphasis on water issues may impact the workforce sustainability issues – potentially negatively and positively.

Appendix A

WEF TASK FORCE ON WORKFORCE SUSTAINABILITY

Appointed by the WEF President, Adam Zabinski, May 21, 2008

BACKGROUND

Our industry is facing a significant challenge caused by the changes in our society. The Baby Boomer Generation is generally defined as those individuals born between 1946 and 1964. During this period, 76 million Americans were born. Today's workforce is composed of about 145 million workers. Boomers comprise the largest percentage of these workers. Due to the large number of boomers in the workforce, the Bureau of Labor Statistics projects that by 2008 there will be 16 million more older workers than there were in 1998 – a 37 percent increase. By 2010, half of these boomers will be between the ages of 54 and 64. As a result, retirements from the workforce are projected to peak between 2010 and 2020.

Over the years, the age distribution of the United States population has undergone significant changes. Twenty years after the baby boomer generation was born, there was a significant increase in the number of skilled workers that actively participated in the workforce. This generation has been responsible for much of the growth in the nation's economy over the past 30 years. Today, there is concern that as this generation of workers begins to retire there will not be enough new workers to replace them.

Consider these facts from a recent Water Environment Research Foundation study:

- The current average age of water utility workers is 44.7
- The current average age of wastewater utility workers is 45.4
- The average age of all other workers in the nation is four years younger, approximately 41 years of age
- The average retirement age for utility personnel is 56

It is projected that in the next ten years, 37% of water utility workers and 31% of wastewater utility workers will retire.

The members and committees of WEF have been engaged in the issue of workforce sustainability during the past 3-4 years. This is evidenced by the program tracks developed during WEFTEC and our Utility Management Specialty Conference as well as Webcasts and subcommittees throughout the Federation that have focused on topics such as "Brain Drain", "Developing Mentoring Programs", "Managing Knowledge Transfer", "Recruiting Professionals to Our Industry" and the list goes on and on.

Presently, the following WEF Committees are engaged in at least one aspect of workforce sustainability and include: Utility Management, Student & Young Professionals, Professional Development, Plant Operations & Maintenance, Public Communication and Outreach, Small Systems and Collection Systems.

THE OPPORTUNITY

Workforce Sustainability is a "Hot Topic" for the Federation and is important to our members. Given that several activities are presently ongoing throughout the Federation on this issue, we should take the opportunity to inventory these activities and prioritize the work being done in the most effective and efficient manner. Furthermore, the issue of workforce sustainability is not unique to the water industry – it is a national phenomenon facing all industry sectors. Therefore, WEF should explore if and how we should collaborate with others on this issue to enhance the service and products for our members concerned with workforce sustainability.

TASK FORCE ON WORKFORCE SUSTAINABILITY

WEF has developed a Task Force on Workforce Sustainability, whose charge is to:

(1) Inventory and define all workforce sustainability activities present and planned within the committees of the Federation.
(2) Inventory and define all workforce sustainability activities ongoing within the Member Associations of the Federation.
(3) Propose a priority for the workforce sustainability activities that are ongoing and planned based on the needs of WEF members.
(4) Outline the opportunities WEF has for collaboration with others within the water industry and outside of the water industry in regards to workforce sustainability.
(5) Coordinate the actions of the Task Force with the Planning, Products and Program Development (P3D) Working Group of the Board of Trustees (BOT) so that the P3D Working Group may recommend a strategy forward to the BOT on Workforce Sustainability.
(6) The Workforce Sustainability Task Force will sunset following the BOT Meeting at WEFTEC 2008.

<u>Members of the Task Force of Workforce Sustainability:</u>

Co-Chair: Raye Grant (Utility Management Committee)
Co-Chair: Eric Dodds (S&YP and Public Communication & Outreach Committees)

Patty Settles (Professional Development Committee)
Kirk Rowland (Collection Systems Committee, HOD delegate)
Laura Watson (Plant Operations & Maintenance Committee)

Tekla Taylor (WEF member very passionate about this issue)
Dr. Nancy Love (Academic Committee)
Raj Bhattarai (WEAT Past-President)
Dan James (WEF House of Delegates)

Appendix B

Inventory of Workforce Sustainability Activities

WEF Committee Inventory

Activity/Article	Committee/Owner	Delivery Mechanism	Audience	Date of Develop/Pub.
	Academic			
No reported activities	Collection Systems			
Work with Utility Management Committee to address workforce sustainability topic	Environmental Management Systems			
	Government Affairs			
No reported activities	Long Range Planning			
	Manufacturers and Representatives			
No reported activities	Membership			
No reported activities	Municipal Wastewater Treatment Design			
	Operations Challenge			
Articles series submitted to Ops Forum starting September 2008	Plant Operations and Maintenance	Operations Forum	WEF Members	Fall 2008/Sring 2009
In progress	Professional Development			
Career Paths resource on WEF website	Public Communication and Outreach	WEF website	Public	Current
Making Waves	Public Communication and Outreach	Brochure/Poster	Public/High School	2005/Current
Career Development Occupational Briefs for High School Counselors	PDC/PCOC	Career Counselor	High School Students	Nov-07
No reported activities	Publications			
No reported activities	Small Communities			
Generational Differences in the	Students & Young Professionals	YP Summit	YPs	May-08

Workforce				
Unleashing Your Inner Hendrix (mentoring can help YPs)	Students & Young Professionals	WE&T Column	WEF Members	Sep-08
Pipeline to the Future: Critical Success Factors in Attracting, Developing, and Retaining Your Future Water Quality Leaders	Students & Young Professionals	WEBCAST	YPs and HR Depts.	Nov-07
Article Series follow-up to Pipeline Webcast - http://www.wef.org/MembershipCareers/MembershipInformation/MAResourceCtr/Pipeline+to+the+Future.htm	Students & Young Professionals	Web	WEF Members	Nov 07 to current date
Book Review - quarterly a book is reviewed to help YPs in the workforce - "So You're New Again: How to Succeed When you Change Jobs	Students & Young Professionals	YP Connections - Newsletter	YPs	Apr-07
Bridging the Generational Divide	Students & Young Professionals	WE&T Column	WEF Members	Sep-04
Meet Your Way to Success	Students & Young Professionals	WE&T Column	WEF Members	Aug-05
"Pipeline to the Future"	Students & Young Professionals/CH2M HILL	Webcast	Public	Nov-07
An Integrated Philosophy for the use of Technology to Attract, Develop, and Retain Technical Talent: Perspectives of a Young Professional and Senior Consultants	Students & Young Professionals/CH2M HILL	WEFTEC Session	WEFTEC Attendees	Oct-06
Recruiting and Retaining Young Professionals: A Viewpoint from Young Professionals in North Carolina and Alabama	Students & Young Professionals/CH2M HILL	WEFTEC Session	WEFTEC Attendees	Oct-07
Recruiting and Retaining Young Professionals: Part II - A Viewpoint from Our National Young Professionals	Students & Young Professionals/CH2M HILL	WEFTEC Session	WEFTEC Attendees	Oct-08
	Utility Management			

Committees NOT inventoried for the Workforce Sustainability Task Force
Air Quality and Odor Control
Automation and Information Technology
Awards
Conference Local Arrangements
Conference Site
Constitution and Bylaws
Disinfection
Ecology and Aquatic Resources
Groundwater
Industrial Wastes
International Coordination
International Program Committee
Laboratory Practices
Literature Review

Other Organizations Workforce Transition Activities

Activity/Article	Committee/Owner	Delivery Mechanism	Audience	Date of Develop./Pub.
AWWA				
AWWA's 2007 State of the Industry Report	AWWA	Report	Wide	2007
Succession Planning for a Vital Workforce in the Information Age	AWWA	Article	AWWA members	2005
The Shrinking Workforce: Hype or Crisis?	AWWA	Article	AWWA members	2005
Mapping Your Course to a Successful Workforce Plan Seminar	AWWA	Seminar	Seminar attendees	
Succession Planning is Success Planning	AWWA	AWWA Annual Conference	Conference attendees	
Succession Planning for Leadership: New Mgmt Challenges Ahead	AWWA	AWWA Annual Conference	Conference attendees	2008
NACWA				
NACWA 2008 Winter Conference to Feature Innovative Workforce Programs as Keys to Success	NACWA	Clean Water Advocate Article	Utilities	2008
The Changing Workforce…Seizing the Opportunity: An AMWA/NACWA Handbook	AMWA/NACWA	NACWA Publication	Utilities	2006
AWWARF				
Workforce Planning for Successful Organizational Change	AWWARF	Manual	Utilities	

Succession Planning for a Vital Workforce in the Information Age	AWWARF	Article	Utilities	2005
Workforce Planning for Water Utilities - Successful Recruiting, Training, and Retaining Operators and Engineers to Meet Future Challenges	AWWARF	Article	Utilities	
Strategies to Help Drinking Water Utilities Ensure Effective Retention of Knowledge	AWWARF	Article	Utilities	
Organizational Development Needed to Implement a Knowledge Management Strategy at Water Utilities	AWWARF	Article	Utilities	
AMWA				
The Changing Workforce - Crisis & Opportunity	AMWA	AMWA Publication	Utilities	
EPA				
EPA investigation of possible national task force for workforce issues.	EPA	Association of Boards of Certification Conference Workshop	Industry Professionals	Jan-08

WEF Workforce Transitions Activities

Activity/Article	Committee/Owner	Delivery Mechanism	Audience	Date of Develop./Pub.
WEF Committee Work				
Career Paths resource on WEF website	PCOC	WEF website	Public	Current
Making Waves	PCOC	Brochure/Poster	Public/High School	2005/Current
Career Development Occupational Briefs for High School Counselors	PDC/PCOC	Career Counselor	High School Students	Nov-07
Generational Differences in the Workforce	SYPC	YP Summit	YPs	May-08
Unleashing Your Inner Hendrix (mentoring can help YPs)	SYPC	WE&T Column	WEF Members	Sep-08
Pipeline to the Future: Critical Success Factors in Attracting, Developing, and Retaining Your Future Water Quality Leaders	SYPC	WEBCAST	YPs and HR Depts.	Nov-07

Article Series follow-up to Pipeline Webcast - http://www.wef.org/MembershipCareers/MembershipInformation/MAResourceCtr/Pipeline+to+the+Future.htm	SYPC	Web	WEF Members	Nov 2007 to current date
Book Review - quarterly a book is reviewed to help YPs in the workforce - "So You're New Again: How to Succeed When you Change Jobs	SYPC	YP Connections - Newsletter	YPs	Apr-07
Bridging the Generational Divide	SYPC	WE&T Column	WEF Members	Sep-04
Meet Your Way to Success	S&YPC	WE&T Column	WEF Members	Aug-05
"Pipeline to the Future"	WEF S&YPC/CH2M HILL	Webcast	Public	Nov-07
WEF Magazines and Newsletters				
What Are You Doing Now To Ensure Knowledge Retention?	WEF Publications	Utility Executive	Subscribers	July/August 2007
Listening, the Doorway to Employee Commitment	WEF Publications	Utility Executive	Subscribers	January/ February 2006
Leading the Change: One Utility's perspective on the changing work force and how to deal with it	WEF Publications	Utility Executive	Subscribers	May/June 2005
Succession Planning and Leadership Development: Your Utility's Bridge to the Future	WEF Publications	Utility Executive	Subscribers	November/ December 2005
Work Force Planning for the Early Millennium	WEF Publications	Utility Executive	Subscribers	March/April 2004
Recruiting Tomorrow's Work Force Today	WEF Publications	Utility Executive	Subscribers	July/August 2004
Creating Your Own Pool of Certified Plant Operators	WEF Publications	Utility Executive	Subscribers	November/ December 2004
Nurturing Future O&M Leaders: A utility's effort to groom operations and maintenance staff for leadership positions offers an example for other organizations	WEF Publications	WE&T	WEF Members/Others	Aug-06
Filling the Employment Gap: Utilities need to master the art of hiring and retaining employees who fit	WEF Publications	WE&T	WEF Members/Others	Feb-05

Is Distance Learning a Good Fit for Your Organization?	WEF Publications	WE&T	WEF Members/Others	Feb-05
Trading Places and Transferring Knowledge: As older workers begin to retire in large numbers, water and wastewater utilities must encourage mentoring to retain "institutional memory"	WEF Publications	WE&T	WEF Members/Others	Oct-05
Operator Certification: How State Limits on Reciprocity Limit Career Choices	WEF Publications	WE&T	WEF Members/Others	Oct-05
An Engineering Mind is a Terrible Thing to Waste	WEF Publications	WE&T	WEF Members/Others	Nov-05
Outsourcing Affects Civil Engineers, Too	WEF Publications	WE&T	WEF Members/Others	Jul-04
Educating Tomorrow's Water Professionals	WEF Publications	WE&T	WEF Members/Others	Sep-04
Joint Management Conference Sessions				
**For the past five years, Joint Management Conference has included numerous sessions on workforce transition issues. Information on the sessions is provided here as examples.*				
Session TUE4: Success with Succession Planning	WEF/AWWA	Joint Management Conference Session	Conference Attendees	Feb-06
Session WED2: Success with Succession Planning II	WEF/AWWA	Joint Management Conference Session	Conference Attendees	Feb-06
Session MON2: Be a Change Agent!	AWWA/WEF	Joint Management Conference Session	Conference Attendees	Feb-05
Session WED1: Standards of Excellence: vision, Values, and Ethics	AWWA/WEF	Joint Management Conference Session	Conference Attendees	Feb-05
Session 5: Emerging Issues	WEF/AWWA	Joint Management Conference Session	Conference Attendees	Mar-04
Session 23: Human Resources	WEF/AWWA	Joint Management Conference Session	Conference Attendees	Mar-04
WEFTEC Technical Sessions				
**For the past five years, WEFTEC has included numerous sessions and workshops on workforce transition issues. Information on the sessions is provided here as examples.*				
Session 30: Knowledge Management: Tools Others Are Using to Stay Smart	WEFTEC 2007	WEFTEC Session	WEFTEC Attendees	Oct-07
Session 90: Getting 'Em and Keeping 'Em - Best Practices in Recruitment and Retention	WEFTEC 2007	WEFTEC Session	WEFTEC Attendees	Oct-07

Session 107: Preparing for Tomorrow's Workforce: Integrating Succession Planning, Employee Development and Knowledge Management	WEFTEC 2007	WEFTEC Session	WEFTEC Attendees	Oct-07
Session 31: Organizations of the Future: From Succession Planning to Distance Learning	WEFTEC 2006	WEFTEC Session	WEFTEC Attendees	Oct-06
Session 52: Education: Where Are and Where We're Going	WEFTEC 2006	WEFTEC Session	WEFTEC Attendees	Oct-06
Session 10: Baby Boomer Bust - Succession Is a Must	WEFTEC 2005	WEFTEC Session	WEFTEC Attendees	Oct-05
WEFTEC Workshops				
**For the past five years, WEFTEC has included numerous sessions and workshops on workforce transition issues. Information on the sessions is provided here as examples.*				
Workshop 107: Strategic Workforce Planning for Leaders at all Levels: Integrating Succession Planning and Knowledge Retention	WEFTEC 2007	WEFTEC Workshop	WEFTEC Attendees	Oct-07
Workshop 108: Manage Your Organization's Knowledge Assets Before They Walk Out of the Door	WEFTEC 2006	WEFTEC Workshop	WEFTEC Attendees	Oct-06
Workshop 206: Your Workforce - Coming, Staying, Changing, Going, Gone!	WEFTEC 2005	WEFTEC Workshop	WEFTEC Attendees	Oct-05
Workshop 118: Sustaining Your Utility's Future: Say 'Hello' to Your New Workforce	WEFTEC 2004	WEFTEC Workshop	WEFTEC Attendees	Oct-04
Coming in 2008				
Using the Water Is Life, and Infrastructure Makes It Happen™ program to get out positive messages about water-related professions	WEF-Public Communications	Variety of campaign materials	Public	Jun-08
Web focus/information center on workforce transition challenges and information	WEF - Public Communications	WEF Website	WEF members and others	Jun-08

Appendix C

Member Association Interview Results

Member Association	Current Activities	Priorities	Needs	Additional Comments
Atlantic Canada Water Works Association	Nothing formally	Important but not a priority. Their goals currently are to best serve members focus on education courses - 1 major annual conference various workshops and seminars.	NA	
Florida Water Environment Association	No formal plans laid out. Informally calling on older members to mentor	Urgent level, but too overloaded to address this. They are focusing on conservation and reuse now.	Not sure how WEF can help	
Georgia Association of Water Professionals	Developed a website : H2Opportunity. Also developed engineering science labs; developed brochures, present at WEF and AWWA conferences. Use Water for People as a draw for YPs. Hard to benchmark, but in the last year they have had student chapters form at the various colleges and Universities.	This was identified as their #1 priority in 2007. They dedicated funds and also used volunteers to set up the website. Their priority for the coming year is leadership training - how to develop their people for leadership and transferring knowledge. They are looking at this on a state level.	How do they address the challenge of lower wages? Getting people certified would be a good retention approach. They would be willing to help in developing a "tool box" that WEF members could use to assist in leadership training, retention, recruiting, etc.	They are interested in sharing this concepts with other organizations so that they can cost effectively build on this. They feel it is very successful, and went beyond their expectations. Their concern is that they want to ensure the WEF and AWWA coordinate this effort jointly.
Iowa Water Pollution Control Association	Training programs - specialty conferences - training courses - Science teachers competition held annually - Distributed Water Resource	This is a priority to them, but they feel that many public officials don't see this as a problem.	WW is not fascinating to students, not seen as a "sexy" career. They need help with messaging/PR.	They are losing people to other states, not seeing many YPs and YPs are not helping to recruit. Viewed as a job, not a career.

	textbooks to high schools.			
Mississippi Water Environment Association	Not doing a lot, but started a student chapter last year to bring young people into the association	This is a priority, however, they only have 135 members and one annual conference.	Need help with training materials, guidance, support, grant money guidance, grant money	They would like to see communication among state organizations improve so that there could be more emphasis placed on this and their resources pooled to make it more successful.
Missouri Water Environment Association	Targeted this issue in their recent visioning session and will be reviewing and implementing a plan in the near future.	YP Committee is a priority and they plan to reach out to more colleges and trade schools.		
North Carolina Water Environment Association	Their public education committee stepped up to get into schools and science fairs. They have seminars, conferences, and forums.	Their priority is to assist members on education needs, tied to public education to get kids into the field. They feel that the kids need to be excited about it and see it as a "sexy" career.	They need tools and templates to capture knowledge : including how to recruit, how to train, promote and retain. Anything WEF can do to show them how to mentor staff. They would like written guidance.	Most of this is done at the utilities, i.e., recruiting and mentoring, but they would like to support their members. They indicated that pay and benefits need to be better.
Oklahoma Water Environment Association	Have not addressed this issue yet.	They are a small group and don't see it as a priority, nor do they have the manpower to address it.	They are trying to get online operator training, but they need help with educational materials.	

Texas Water Environment Association	This will be a priority issue for their discussion in their upcoming Annual Meeting in December.	Recruiting, avoiding burnout, low pay/low benefits	Would like to see a collaborative effort with AWWA where they can look at the recruiting, educational and training needs for field staff.	issues/challenges/opportunities they see are (1) low pay and lower benefit structure not attractive to recruits (2) high school students are not prepared or appropriately educated to be able to operate modern day equipment and to be able to pass the operators exams (3) need to get more technical programs promoted in the high schools, technical trade schools and junior colleges. (4) work with HS and college counselors to be able to assess student aptitude for water industry
Water Environment Association of Ontario	2 years ago, started youth student chapters at the Universities and Colleges. There are 5 full chapters, and 3 in the works. They are trying to get YPs out there in the field before the senior staff retire.	This is a big priority for them. They will base upcoming conference on topics that address this issue.	They would like WEF to "Canadianize" the WEF source books.	
Water Environment Association of Utah	Created the "Brain Drain" presentation for outreach to local universities and presented to Young Professionals at the 2008 annual conference.	This is a priority and they are tracking tools available for addressing work force retention and generational issues		They are tracking the trends and statistics with the professional staff, but have not seen as much information available on the affect on operations staff.
Virginia Water Environment Association	They are not too involved with this issue.	They have not focused on this issue.		
West Virginia Water Environment Association	Used EPA and RUS funding to develop a fully staffed environmental training center which provides various classes, including advanced training. They also provide 2 and 3 day training courses during their trade shows.	The key priority is continuing education for maintaining licenses. This encourages certification advancement and is key for retention. This fills the ranks of the people that are retiring.	Some of the smaller communities are having challenges getting staff that are technically competent with respect to new technologies. They would like to begin conducting technical training sessions in these areas. It would be helpful if WEF could provide	Another big challenge is the fact that their wages are non-competitive. That is where the training and career growth potential need to be provided.

			some course outlines or guidance on what should be covered in the training (for example, operating auto samplers, operating electrical equipment, etc.). They also would like some help with PR materials for the industry that takes focus off of the non=competitive wages.	