



Tribal Advisory Committee member, Percy Deal, speaks during a question and answer period at the 2015 WRRRC Annual Conference. Source: John Polle

Special Issue

Indigenous Perspectives
on Sustainable Water
Practices



Contents

Conference Voices	5
Conference Agenda.....	8
Conference Moments.....	10
Anniversary Celebration.....	12
Student Spotlight.....	13
Public Policy Review	15

Publications

The Water Resources Research Center produces research reports, outreach materials, and regular publications, including the Weekly Wave e-news digest, the quarterly Arizona Water Resource newsletter and the Arroyo, an annual publication focusing on a single water topic of timely concern in Arizona. **Sign up online to receive WRRRC newsletters, event updates and more at: wrrc.arizona.edu/subscribe.**



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Conference Themes Emerge from a Program of Diverse Perspectives

by Marie-Blanche Roudaut, WRRC Graduate Outreach Assistant and Susanna Eden, WRRC

The Water Resources Research Center 2015 conference, *Indigenous Perspectives on Sustainable Water Practices*, brought together a unique diversity of perspectives to share experience and knowledge about indigenous water management and stewardship. More than 330 people attended the conference, representing six states, 49 cities, and 13 tribal nations. Thirty-three speakers with ties to Native American communities across the state presented a variety of viewpoints.

As participants spoke with passion from their different perspectives, several themes emerged. These themes included the importance of equal and respectful collaboration on water rights from the community and grassroots to the tribal government level, the meaning of sustainability for indigenous people, the lack of water for many tribal people, the importance of youth, and passing on traditional knowledge. The example of the struggles and successes of the Gila River Indian Community, or GRIC, was prominent. As hosts of the conference, the GRIC used the opportunity to celebrate the ten-year anniversary of the Arizona Water

Conference continued on page 2

Conference Plants Seeds of Respectful Dialogue

by Governor Stephen Lewis, Gila River Indian Community

The Gila River Indian Community was honored to welcome participants of the conference, *Indigenous Perspectives on Sustainable Water Practices*, to our Community. This conference comes at a critical time for Arizona's Native people. Much has been accomplished, but much more needs to be done. Change has come because of the dedication of our leaders, past and present, and we owe them a debt of thanks. I learned from my mother and my father, Rod Lewis, the life lesson of community service, strength, to give back what you have to your people. We have a legacy to live up to from people like Richard Narcia, governor at the time of the settlement, and John Echohawk, who fought along with my father and took cases to the Supreme Court. We also owe much to our elders, who are the moral and ethical fiber of our community.

A central theme for tribes was unfortunately loss in many areas: loss of land, culture, language, and human capacity. For the GRIC, it was the loss of our

Seeds continued on page 16

Settlements Act, which represented a major victory for collaboration.

Presenters who addressed water rights agreed that this is a critical time for Native American communities. Many tribes have achieved water rights settlements, but many others have not. Every tribe is different, thus each will require a unique solution to its water challenges.

Robyn Interpreter, founding partner of Montgomery & Interpreter, PLC, stated during her talk that indigenous communities are turning to water rights negotiations, since going to court has proven less favorable for securing water. While negotiations offer promise, speakers noted that future settlements face barriers. Jason Hauter, Senior Counsel at Akin Gump Strauss Hauer and Feld LLP, raised the issue of congressional reluctance to adequately fund water settlements. Interpreter asked how settlements can be reached when water is becoming scarcer and Central Arizona Project (CAP) water may not be as reliable a source in the future. Multiple speakers agreed that Native and non-Native communities will need to collaborate to identify creative and innovative solutions that benefit all Arizona residents.

Several speakers noted that discussions between Native American tribes and federal and state government over water rights were historically marred by an “us versus them” mind-set. Conference participants acknowledged that in the past tribes have been at a disadvantage with respect to water development. For example, starting in the 19th century, the upstream diversion of water by settlers devastated agrarian tribal communities whose livelihood depended on the Gila and Salt Rivers. Speakers and audience members shared moving descriptions of how these diversions affected the GRIC, illustrating the great losses in terms of land, water, culture, and human capacity; effects which are still felt today.

Conference participants highlighted how times have changed despite past challenges. As described by Senator Carlyle Begay (Arizona State Legislature, District 7), for the past 20 years relationships have improved, mainly because Native communities have an increased impact in Arizona, both politically and economically. Former GRIC General Counsel Rod Lewis sees his community’s long struggle for a water rights settlement and their long-term plans to access multiple



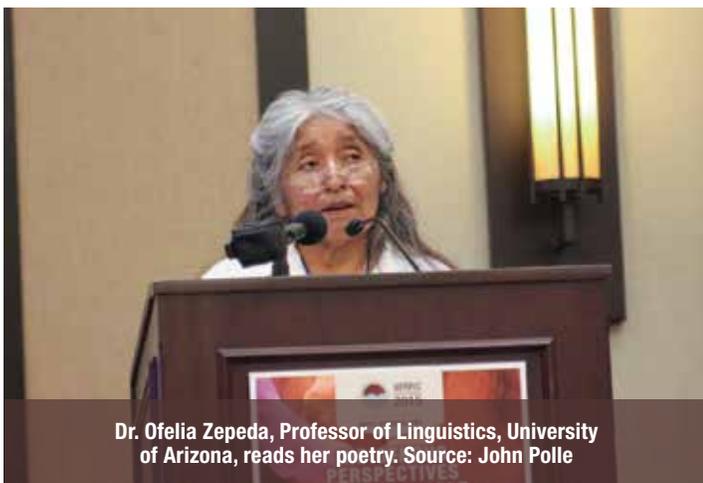
Governor of the Gila River Indian Community, Mr. Stephen Lewis, presents his opening remarks. Source: John Polle

sources of water as a model of sustainable water practices and a way to reestablish their agrarian culture and traditions. “We owe it to our community to bring back our water and restore who we are. Loss is not the end of the story; the story of welcoming back our precious water is healing our community,” Lewis said. David DeJong, author of *Forced to Abandon our Fields*, pointed out that the GRIC has been building upon their legacy to reconstruct, modernize, and diversify their economy for a sustainable future.

John Echohawk, Executive Director of Native American Rights Fund, pointed out that his organization has a history of building strong relationships with federal and state agencies and tribes to negotiate water rights settlements. The Fund’s mission has been to sit at the negotiating table with all concerned parties not only to decide how to divide the water fairly, but also to ensure that water settlements give Native communities flexibility on how to use their water. In addition, Echohawk stated that “water rights settlements offered a chance to do some healing between Indian and non-Indian communities.” As Norm DeWeaver of Inter Tribal Council of Arizona, Inc. put it, “collaboration with tribes is the way of the future.”

Hauter stressed the fact that water rights settlements have to be approved by Congress and that many in Congress do not understand the issues faced by tribal communities. Settlements must take water costs, including infrastructure and delivery costs, into consideration, as tribes are responsible for maintaining and replacing infrastructure. This requires that settlements have flexibility, such as allowing off-reservation water leasing, exchanges and transfers, and storage that monetize water settlement rights, in order to supplement federal funding, he added.

Janene Yazzie of the Little Colorado River Watershed Chapters Association reflected on the fact that tribal communities are active agents of change, working to build a future that reflects their values. A number of speakers shared her view that looking toward the future, tribes need to be fully involved in finding a solution to Arizona’s water management challenges, not only because they are already implementing solutions on their reservations, but also because their perspectives offer alternative ways of approaching water management. “Problems are not going to be solved by a simple



Dr. Ofelia Zepeda, Professor of Linguistics, University of Arizona, reads her poetry. Source: John Polle

seat at the table,” Yazzie said.

Rod Lewis stressed that there is an increasing awareness of tribes’ unique situations, their history of water use, their present water needs, and their traditional beliefs regarding water. Similarly, Senator Begay emphasized that discussions about water should be founded on an awareness of the sacredness of water for Native communities. He noted that collaborative, balanced problem solving will require that tribal perspectives are understood by non-Native participants.

The conference brought to the forefront how tribes are honoring traditional values as they work to secure water sustainability for current needs and future generations. Sustainability, as defined by Yazzie, means to “take only what you need and give back to the next generation.” Tony Skrelunas, Program Director at the Grand Canyon Trust, included “use water in a meaningful way” in his definition of sustainability. Yazzie noted a clash of values “because water rights settlements tell us to maximize beneficial use of water, while our traditional ways tell us to conserve and protect our water for the well-being and prosperity for all. We need to respect all life and elements, where everything is connected and sacred.” Herman (T.J.) Laffoon, council member for the Colorado River Indian Tribes, or CRIT, pointed out “there is a current passing through Native land to strengthen our spirituality, our traditional beliefs and ceremonies, to protect our sacred water.”

Taking a spiritual viewpoint, Vincent Randall of the Yavapai Apache Tribe explained that to his people everything on Earth is alive; water is alive. Water was blessed with special spiritual powers to cleanse and protect. It is sacred. Several speakers indicated that as a spiritual entity, water is intimately intertwined with tribal cultural identity. The importance of natural waters to the tribes was evidenced by the environmental restoration projects described in the conference. Highlighted projects included the Pee Posh Wetland on the GRIC reservation, Natural Corral Creek on the San Carlos Apache reservation, and riparian restoration



Panelists Herman Laffoon, Tribal Council Member, Colorado River Indian Tribes and Vincent Randall, Cultural Preservationist and Former Yavapai Apache Tribal Chairman. Source: John Polle

efforts by the Ak Chin Indian Community and the Hualapai reservation. By clearing debris, replanting native trees, and removing salt cedar and noxious weeds, such projects restore culturally significant natural areas.

Native American panelists and keynote speakers stressed the importance of respecting tradition and knowledge and honoring past leaders. “Learning from the past is very important because our ancestors had a sustainable way of life and we need to regain that knowledge to better take care of our land and our natural resources,” said Skrelunas. “Tribes were resilient because of their traditional knowledge of the land.” A number of speakers described how Native communities have developed strategies to conserve water, by using traditional agricultural techniques that are



Keynote speaker John Echohawk, Native American Rights Fund, converses with members of the audience. Source: John Polle

environmentally sustainable, such as earthen dams, diversion dikes, and contour agriculture. As former General Counsel Rod Lewis put it, “we stand on the shoulders of our ancestors, our elders. We would not be the people we are today without them and their struggles.”

The conference also included voices from Native Nations where tribal water managers are seeking partnerships to bring investment for infrastructure. Alex Cabillo of the Hualapai Water Resources Department highlighted the need for tribes to control their own water management and to work in partnership with other programs for integrated water resource management. Cheryl Pailzote of the White Mountain Apache Department of Water Resources described their partnership with the U.S. Bureau of Reclamation in a cooperative agreement for the construction of water treatment and distribution projects to serve communities on the reservation. Ardeth Barnhart, director of the University of Arizona Renewable Energy Network, described another promising source of water on the Navajo reservation: brackish water desalination. The U.S. Bureau of Reclamation, in partnership with the University of Arizona, is working with the Tribe to develop desalination



Panelist Tony Skrelunas, Grand Canyon Trust, Native American Program. Source: John Polle

technology powered by solar energy. The goal of this system is to provide safe, low cost drinking water that can be paid for and maintained by local residents.

Speakers affirmed that tribal communities, with or without water settlements, face a range of critical challenges. For example, financial challenges limit funding for building or maintaining water infrastructure. Jason John of the Navajo Department of Water

Resources pointed out that on the Navajo Reservation existing infrastructure is not adequate for current municipal demands and more than \$1 billion is needed for water projects. Environmental justice issues were also noted, such as water contamination as a result of human activities and the uneven distribution of access to water. Both Nicole Horseherder, co-founder of To' Nizhoni Ani, an indigenous environmental group, and Bucky Preston, a Hopi farmer and traditionalist, raised the concern of groundwater contamination on Navajo and Hopi lands from mining activities. Horseherder emphasized the problem of unsustainable groundwater use and drawdown of aquifers for mining purposes. Regarding unequal access, Barnhart stated that on the Navajo and Hopi reservations, residents have to travel an average of 24 miles each way to haul potable water. She explained that there are more than 8,000 homes on the Navajo reservation that do not have access to potable water and that 30 to 40 percent of the population has no connection to power grid or water piping infrastructure. Horseherder compared what Navajo on Black Mesa pay on average for water: \$3,258 per acre-foot, with what Glendale residents pay: \$551 per acre-foot. She added that a CAP farmer will only pay \$41 per acre-foot to take water for irrigation. Participants from other indigenous communities also named the high water cost, including the rising price of CAP water, as a challenge.

Dennis Patch, Chairman of CRIT, reminded the audience that "water is always going to be part of our history. We will always be fighting for our water. We will always have to be on guard because there will always be people who will want to take our water, even tribes with water rights settlements. Native people have to be educated about water issues." His message was echoed by others, such as Laffoon, who said, "We



Duran Andrews, Richanda Miles, and Teresa Vavages, students at the Tohono O'odham Community College. Source: John Polle

as Native Americans need to stand together to protect our land and our water rights and to conserve our water for future generations."

Many speakers shared the goal of engaging youth in water stewardship. Several programs were described that focused on transferring knowledge to the next generation and educating them on sustainable water use. Karen Francis-Begay, Assistant Vice-President of Tribal

Relations at the University of Arizona, discussed how the University offers a number of programs and scholarships for Native Americans students, particularly in the fields of science, technology, and math. Ann Marie Chischilly, Director of the Institute for Tribal Environmental Professionals at Northern Arizona University, described how the Institute is training

students to become environmental specialists and

offers free online classes in environmental studies for Native Americans. Clifford

Pablo, Agriculture Extension Agent at the Tohono O'odham Community

College, highlighted the youth programs offered at the college, and Stetson Mendoza from

the Gila Crossing Community School Garden Program at

GRIC stressed the importance of programs that engage

youth in traditional agriculture, where children are taught "our

history, who we are, what we do." Harry Walters, Navajo

historian, added that there is a "need to teach traditional

knowledge and how to relate to the natural world in a spiritual way."

Rod Lewis concluded, "We still have a lot of issues around water but a lot of

space for new talents."

Finally, this 2015 conference ended with a call for non-Natives to become aware of the reality of the

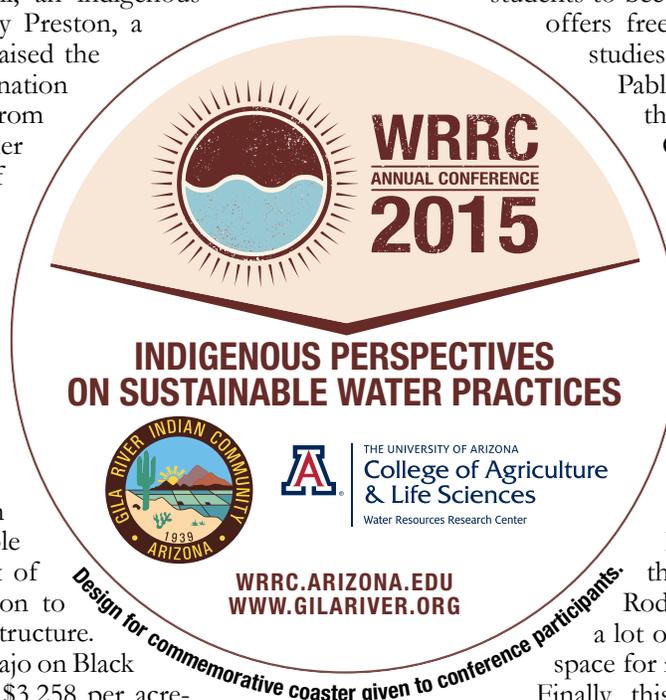
situation on reservations and to focus on understanding the needs and challenges facing Native communities. There was

a call for non-Natives, especially those at universities, to work with tribal communities in a participatory way to understand

their perspectives on water and their community context. Many participants agreed to continue the dialogue into the future

and to collaborate in a deeper way with mutual respect. As Norm DeWeaver expressed it, "all parties need to understand

each other's perspective; this process builds the trust needed for true collaboration and equal representation." 



Shane C. Burgess

Dean, College of Agriculture and Life Sciences and
Vice President for Veterinary Sciences and Cooperative
Extension, University of Arizona



As Dean of the University of Arizona College of Agriculture and Life Sciences, it was my honor to deliver an opening welcome at the Water Resources Research Center Annual Conference on June 9. As I was presenting my remarks, the conference center staff was carrying additional chairs into the already-filled room, to accommodate a large number of people who had registered on site. It is extremely clear there is wide interest across Arizona in *Indigenous Perspectives on Sustainable Water Practices*. The WRRC's goal of initiating dialogue between water managers and policy makers on Native as well as non-Native lands is well-timed.

The College of Agriculture and Life Sciences, with our vast diversity of research, teaching, and Extension programs related to water, is a strong choice for hosting a dialogue on sustainable water management. Our research extends into agriculture, rangeland, and climate science, with a statewide network of knowledgeable Cooperative Extension faculty and staff providing educational programs – all of which have taken on added importance in this time of impending surface water shortage. The 2015 WRRC Conference would not have been a success, however, without our many partners. We were pleased to receive the support and cooperation of the Gila River Indian Community, the Colorado River Indian Tribes, and other tribal partners. Additional support came from government agencies, environmental consultants and lawyers, and agricultural professionals, representing a range of interest in tribal water here in Arizona.

Finally, I wish to extend my thanks to our many speakers, who delivered current and eloquent messages focused on tribal water management. We hope the WRRC Conference was only the beginning of what will prove to be fruitful dialogue.

John Echohawk

Executive Director, Native American Rights Fund



I was honored to be asked to provide the keynote address for the Conference. As the national Indian legal defense fund, the Native American Rights Fund has been providing legal assistance to tribes across the country on their most important issues and one of those issues has been tribal reserved water rights claims. Under federal law, tribes are entitled to water rights for their present and future uses with a priority date going back to when their reservations were established, which gives them senior water rights ahead of most water rights that were established later under state law. We have been involved in tribal water rights litigation, including nine of the 29 cases that have resulted in Congressionally-approved water rights settlements, since 1978. This has included legal assistance

to two tribes in Arizona: Tohono O'odham and Fort McDowell Yavapai. In our view, any discussion on tribes and water must begin with an assessment of their water rights. Most tribes in Arizona have litigated or settled their tribal water rights claims or are in the process of litigating or negotiating to determine what their water rights are.

Jason Hauer

Senior Counsel, Akin Gump Strauss Hauer & Feld LLP.



This year's WRRC Annual Conference addressing *Indigenous Perspectives on Sustainable Water Practices* was very timely and hopefully helped Arizona's larger water community and others better understand Arizona tribes' and their members' wide range of concerns and desires. Given the current drought conditions in Arizona and elsewhere in the west, collaboration among tribes, the State of Arizona, local governments, NGOs, and industry is necessary to ensure that the water demands in Arizona are met.

The water needs of tribes in particular can only be met through pragmatic solutions to problems that help achieve clearly identified goals. The Gila River Indian Community, which hosted this year's conference, is an example of a tribal community that has adopted sustainable water management policies to tackle its water cost and supply issues. The Community's creative program involving water storage and on-reservation recharge not only helps restore the Gila River on its reservation, but does so in a cost-effective manner that ensures a healthy groundwater system. Governor Stephen Lewis and the rest of the elected leadership should be commended for their leadership in finding pragmatic solutions to manage the Community's water supply in a sustainable manner.

Norm DeWeaver

Inter Tribal Council of Arizona, Inc. (Retired)



The 2015 WRRC Conference was unique, unique in several ways. For the first time in a decade the theme was tribal water, *Indigenous Perspectives on Sustainable Water Practices*. Even though tribes hold or have unquantified claims to a very significant amount of the water resources within the boundaries of Arizona, tribal water has never before been front and center in the numerous water forums held year in and year out. This time it was.

Tribal people were successfully managing water resources in an arid environment for millennia before non-Indian settlers arrived. They were the first. "First in time, first in right," the mantra of Western water law, should give tribes prominence in every water conference. Until now that hasn't been the case.

Even more unique, the major message from the 2015 WRRC Conference was that water has value -- value in human, cultural, and spiritual terms, not just in economic terms. From

Voices continued on page 6

Voices continued from page 5

Mr. Bucky Preston of the Hopi Tribe in an opening session to Ms. Janene Yazzie of the Navajo Nation during a closing session, tribal speaker after speaker stressed the special place of water in their individual tribal cultures. “Water is life” they emphasized over and over again.

The experience over the last century-and-a-half of the host Gila River Indian Community dramatically demonstrated what water means to the lives of not just tribal people, but all people.

It was a valuable message almost never heard in the many discussions of water in Arizona. It is an even more vital message in this time of shortage.

The 2015 WRRC Conference set a precedent, hopefully one that will be followed in the many conferences to come, as Arizona deals with its water future.

David H. DeJong, Ph.D.

Director, Pima-Maricopa Irrigation Project, Gila River Indian Community



The story of water in Indian Country can be unpleasant. For the Gila River Indian Community (Community), this story is tragic, but with a promising future. Since time immemorial, the people were successful agriculturalists, with the river the epicenter of their economic and spiritual well-being and supporting an economy of 15,000 acres on the eve of the Civil War, an event that unleashed a national industrial

boom unparalleled in human history. While the Community was not passive in responding to these events, it was no more able to stop this juggernaut than the average American.

This national transformation initiated upstream diversions and ushered in a forty-year period of poverty and deprivation at Gila River. Upstream settlement was encouraged by federal Desert Land policies, the Reclamation Act, and the federal Indian General Allotment Act. While Congress funded a series of irrigation projects designed to protect for the Community what limited water remained in the river, an inadequate conveyance system and an over-appropriated river doomed these efforts.

When Congress approved of the San Carlos Act in 1924 and funded the construction of Coolidge Dam, it appeared that the Community might receive the water to which it had a legal and moral right. In 1925, the Justice Department filed suit on behalf of the Community against upstream users. Ten years later, the district court rendered its decision dividing the waters of the Gila River between the Community and its upstream neighbors. Insufficient water, however, precluded the Community from irrigating more than two-thirds of its decreed land.

Over the next 40 years federal attorneys litigated Community claims. After decades of lobbying by Senator Carl Hayden and others, Congress authorized the Central Arizona Project as a means of bringing Colorado River water into central Arizona, in part to address Community water claims. Tribal leaders recognized that, while they had valid claims to central Arizona’s water, they would have to establish a water budget and demonstrate they could put this water to use. In 1992,

the Community signed a repayment contract for the annual delivery of 173,100 acre-feet of CAP water. Twelve years later, the Community agreed to a comprehensive water settlement with Title II of the Arizona Water Settlements Act restoring an average annual water budget of 653,500 acre-feet. Today, the Community is poised to restore its agricultural economy by nearly tripling its irrigated lands.

History is filled with ironies. The Consolidated Canal and the Florence Canal were constructed more than a century ago to deprive the Community of its land and water resources. Today, both canals are conveying settlement water to the Community, enabling it to position itself as the breadbasket of Arizona, a role it has not enjoyed since the Civil War.

The “Indigenous Perspectives” conference enabled the Community to share this story of water deprivation and restoration. After centuries of being denied a voice at the table, the Community today is not only sharing its unique history, but it is also lending an autochthonous perspective of water management and stewardship, lending a fuller perspective of the Arizona water story.

Alex Cabillo

Hualapai Water Resources Department



I have presented at past Water Resources Research Center Conferences and in retrospect, the past conferences were heavy in western science presenters with a few tribes present and participatory. This year a large majority of the presenters were tribal members or non-Indian employees of tribes. A constant theme resonated from many of the presenters; that emphasized the precious importance of water, with a strong

emphasis by many that water was a living entity, that needed respect, and that indigenous people have a personal spiritual relationship with water.

In the audience were many non-Indians representing western science, federal, state, county, and city governments, utilities, environmentalists, community advocacy groups, and private industry. As the conference progressed and presentations were made, I felt that there was a spiritual presence emanating from the non-Indian audience as the indigenous perspectives were shared and expressed regarding their spiritual personal relationship with water.

Reflecting on the conference, I heard from tribes their need for a water right to the Colorado River, that they are entitled to. I heard the audience’s acknowledgment of tribes’ Federal Reserve Rights to water allocations of the Colorado River and the audience’s concerns about their rights to access to water. The audience agreed that tribes were not fairly treated, but that was not the audience’s fault, but people of the past. Tribes and the audience expressed their interest in looking at water allocations of tribes that are not fully utilized. Tribes and the audience expressed their concerns about Central Arizona Project (CAP) water as paper water, junior in right to main stem allocations, and the lack of infrastructure to utilize CAP water.

My take away message from this tribal member’s perspective is that I would express to all that the Hualapai Tribe has 108

Voices continued on page 7

Voices continued from page 6

miles of the Grand Canyon, to the middle of the Colorado River as our northern boundary. I would ask the assistance of all in attendance to assist us in securing a water right to the Colorado River. I would acknowledge the right of all people to have access to safe and clean drinking water and I will manage the surface and ground water resources of the Hualapai Tribe in a manner that is protective of down gradient water users. I see a potential for tribes to work together on ensuring that tribes without water rights could be assisted with tribes having senior main stem Colorado River allocations. Finally, I would ask everyone in attendance to once again have a personal spiritual respectful relationship with all of our water resources.

Karen Francis-Begay

Assistant Vice-President, Tribal Relations,
University of Arizona



The tribal water conference was a success in bringing water resource experts together with tribal leaders and communities to address water management. I appreciate the record turn out, which demonstrates how important this issue is to Arizonans. I moderated a panel on “The Next Generation of Tribal Water Use: Our Youth Represent the Future,” and was impressed with the work of the panelists, Stetson Mendoza, a

K-12 teacher at Gila River Indian Community; Clifford Pablo, a teacher at Tohono O’odham Community College (TOCC); and Janene Yazzie, a consultant with the Little Colorado River Watershed Chapters Association. They demonstrated a passion and devotion to working with youth and tribal communities on water conservation and management. I was most moved by Ms. Yazzie pointing out how much water is wasted daily, using an example of the conference pre-set luncheon tables being pre-set with glasses of water and that many of the glasses of water weren’t consumed. Where does that water go? Mr. Mendoza shared how he engages youth in aquaponics, a system of that blends aquaculture and hydroponics. Mr. Pablo brought students from TOCC to the conference to talk about their interest and research on water conservation. It was promising to learn about these best practices where youth are actively involved in promoting sustainable water practices.

Janene Yazzie

Little Colorado River Watershed Chapters Association



First, I must start off by expressing my heartfelt gratitude to the organizers of the 2015 WRRRC Annual Conference, *Indigenous Perspectives on Sustainable Water Practices*. It is not easy to champion a paradigm shift, but that’s exactly what was initiated with this conference; a shift in the dialogue, values, and basis of collaboration among Arizona’s Indigenous and non-Indigenous water users. We are all, presenters and attendees

alike, indebted to the dedication of the planning team to honor our collective voices.

Second, I have to extend my gratitude to the other presenters and the attendees who came to share, in the spirit of humanity, their wisdom, knowledge, compassion, and hope. I walked away inspired, having learned something from every one of you.

The dynamic nature of this conference was no small thing. It was the first time, to my knowledge, that Indigenous perspectives on water and sustainability were encouraged to serve as the framework to understand the issues surrounding water, energy, development, and our shared future in the state of Arizona. Legal and scientific experts sat alongside tribal government and grassroots professionals to provide engaging and informative presentations that addressed, in an accessible way, important complexities as well as possible solutions regarding water security in the Southwest. This groundbreaking conference is just a starting point for more inclusive consultation and partnership development with tribal and non-tribal stakeholders across the state. The biggest takeaway was that it is incumbent upon us to work together towards a truly sustainable future that benefits the residents, land, and ecosystems that make up our unique and precious homeland. I’m honored to have been one of the many voices invited to present.

I called my presentation “Our Shared Struggle and Our Shared Future: Creating a New Legacy” because so often in the Southwest, the practice has been to look at the issues facing Indigenous Nations as unique to the conditions of our “reservations”. In reality, due to the patterns of environmental and economic injustice, we are merely at the frontlines of the legacy that is being created by unsustainable development. It was my intention to convey that the issue of water security knows no boundaries, but its modern roots can be traced back to the history of development in the Southwest. The stark reality is that our situation is not even a significant piece of the global water crisis, where more people die daily from lack of access to clean water than there are Navajo, and entire countries with populations much larger than the Southwest, are forced to emigrate from their homelands due to the conditions created by water insecurity.

Our fates are intertwined and we must work to create a new legacy for our children. We must resist, in every capacity, the monopolization of the discussion regarding our water security by those who profit off the scarcity, exploitation, and unsustainable use of our water. It is not our job to save these corporations, it’s our responsibility to save ourselves, and work with one another to do it. Let’s keep going. 🌍

Conference Videos Available Online

If you were unable to attend the conference or would just like to review the presentations, visit our online video gallery.

<https://wrrc.arizona.edu/video-gallery>

**University of Arizona
Water Resources Research Center
2015 Annual Conference**
June 9-10, 2015
Wild Horse Pass Hotel and Casino, Chandler, Arizona

Tuesday, June 9

Traditional Prayer and Blessing

Robert Stone, *District Five Council Representative, Gila River Indian Community*

Opening Remarks

Sharon Megdal, *Director, University of Arizona Water Resources Research Center*
Shane Burgess, *Vice President, University of Arizona / Dean, College of Agriculture and Life Sciences*
Stephen Lewis, *Governor, Gila River Indian Community*

Keynote Speaker

John Echohawk, *Executive Director, Native American Rights Fund*
Arizona water issues from a tribal perspective

The Nature of Tribal Water Rights. Tribal representatives will discuss the history and future of negotiating Native American water rights in Arizona.

Moderator:

Rod Lewis, *Former General Counsel, Gila River Indian Community*

Panelists:

Margaret Vick, *Water Attorney (Havasupai and Colorado River Indian Tribes)*
Robyn Interpreter, *Water Attorney (Yavapai-Apache Nation and Pascua Yaqui Tribe)*
Jason Hauter, *Senior Counsel, Akin Gump*
Katherine Verburg, *Attorney, Office of the Solicitor, U.S. Dept. of Interior*

Tribal Water Successes and Challenges. Highlights of tribal water successes and challenges will be discussed by a panel of Arizona tribal water management leaders.

Moderator:

Dennis Patch, *Chairman, Colorado River Indian Tribes*

Panelists:

Norm DeWeaver, *Inter Tribal Council of Arizona, Inc.*
Jason John, *Navajo Department of Water Resources*
Cheryl Pailzote, *White Mountain Apache Department of Water Resources*
Bucky Preston, *Hopi Water Issues Expert*

Tara Jackson, *President, Arizona Town Hall, Engaging in the Arizona Town Hall*

Keynote Speaker:

Ofelia Zepeda, *Professor of Linguistics, University of Arizona. Native American poetry reading.*

Wednesday, June 10

Traditional Prayer and Blessing

Tim Terry, *Gila River Indian Community*

Senator Carlyle Begay, *Arizona State Legislature, District 7*

Spiritual and Ceremonial Views of Water. Panelists will reflect on how tribes relate to water in songs and offerings, and how water is respected in indigenous communities.

Speakers:

Herman T.J. Laffoon, *Colorado River Indian Tribes*
Vincent Randall, *Yavapai Apache Tribe*

Keynote Speaker:

David DeJong, *Director of the Pima-Maricopa Irrigation Project and author of "Forced to Abandon our Fields, the Agricultural History of the Gila River Indian Community"*
An Indigenous History of Agriculture at Gila River: A Look to the Past.

Tribal Riparian Restoration In Arizona. Arizona tribes have a long history of restoring native riparian areas. Tribal representatives will discuss current efforts in riparian restoration.

Moderator:

Delia Carlyle, *Vice-Chairman, Ak-Chin Indian Community Council*

Panelists:

Pete Bungart, *Hualapai Tribe*
Charles Enos, *Department of Environmental Quality, Gila River Indian Community*
Paul J. Buck, *San Carlos Apache Tribe*

Luncheon, Recognizing 10th Anniversary of Arizona Water Settlements Act, Public Law 108-451

Arizona Groundwater, A Precious Resource. Tribal water professionals will discuss management decisions related to groundwater, diversifying water portfolios with groundwater recharge.

Moderator:

Karletta Chief, *University of Arizona*

Panelists:

Nicole Horseherder, *Navajo Activist and To' Nizhoni Ani'*
Ardeth Barnhart, *Director, UA Renewable Energy Network*
Alex Cabillo, *Hualapai Water Resources Department*

The Next Generation of Tribal Water Use: Our Youth Represent the Future. Panelists will discuss current tribal programs developed to engage youth in traditional agricultural practices.

Moderator:

Karen Francis Begay, *University of Arizona*

Panelists:

Janene Yazzie, *Little Colorado River Watershed Chapters Association*
Stetson Mendoza, *Gila River Indian Community*
Clifford Pablo, *Tohono O'odham Community College*

Keynote Speaker

Harry Walters, *Navajo Historian*
Water Culture of Indigenous Communities in the Arid Southwest: A Look Forward

Learning from the Past, Looking to the Future. Panelists will discuss how past lessons can be applied to successfully manage water supplies within and beyond Arizona.

Moderator:

Katosha Nakai, *Central Arizona Project*

Panelists:

Rod Lewis, *Gila River Indian Community*
Ann Marie Chischilly, *Northern Arizona University*
Tony Skrelunas, *Grand Canyon Trust*

Closing Comments, Traditional Prayer and Blessing

Barnaby Lewis, *Gila River Indian Community*

Platinum Level



Silver Level

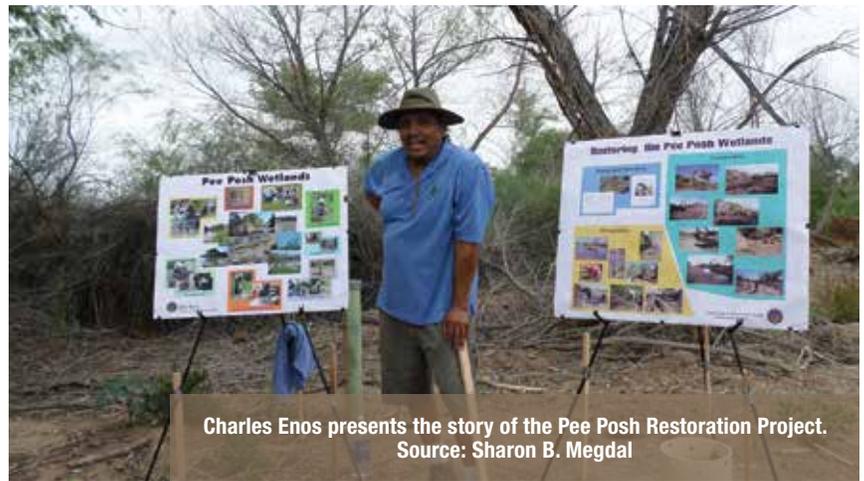


Bronze Level



Field Trips Engaged Conference Participants

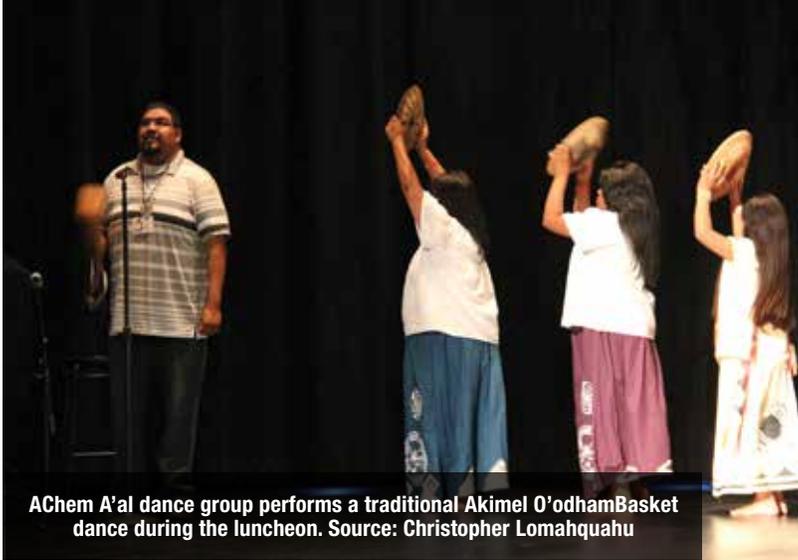
Two field trips were organized by the Gila River Indian Community on the morning of Tuesday June 9th, 2015. One provided participants a tour of the Pee Posh Wetland Restoration Project lead by Charles Enos of the GRIC Department of Environmental Quality. The other guided tour was of the Pima-Maricopa Irrigation Project led by David DeJong, the project Director.



AChem A'al Performed Traditional Dances at Luncheon

At the luncheon recognizing the 10th Anniversary of Arizona Water Settlements Act, the AChem A'al (We Children) dance group performed traditional songs and dances. While performing a dance about water, the dancers invited members of the audience to join them and many did.

The members of AChem A'al are from the Gila River Indian Community and perform traditional songs and traditional Akimel O'odham Basket Dances to keep their culture alive. Young dancers learn to appreciate their culture by practicing it through songs and dances. AChem A'al was founded in 1999, and since then many of the dancers have participated in cultural events throughout the U.S., including the Grand Opening of the Smithsonian National Museum of the American Indian in 2004. 🌈



AChem A'al dance group performs a traditional Akimel O'odham Basket dance during the luncheon. Source: Christopher Lomahquahu



GRIC Governor Lewis speaks to luncheon audience. Source: Christopher Lomahquahu



AChem A'al dance group performs a traditional Akimel O'odham Basket dance during the luncheon. Source: Christopher Lomahquahu



Members of the audience are encouraged to join in the dance. Source: Kelly Mott Lacroix



GRIC Governor Lewis and members of the audience on stage with AChem A'al dancers. Source: Kelly Mott Lacroix



Former General Counsel Rod Lewis Commemorated the 10th Anniversary of Arizona Water Settlements Act

Gila River Indian Community former General Counsel Rod Lewis recognized the 10th Anniversary of the Arizona Water Settlements Act during the conference luncheon. He thanked the elders for helping make GRIC the community it is today and encouraged youth to become the next generation of water managers.



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Special thanks to Mikhail Sundust of the Gila River Indian News for providing material for this issue

Calendar Stick

This calendar stick was made to commemorate the Arizona Water Settlements Act that settled Gila River Indian Community water rights claims and returned water to the community. It is made out of saguaro cactus rib by the artist Aaron Sabori who is a member of GRIC from the village of Santa Cruz District 6.

GRIC Governor Stephen Lewis presented this calendar stick to the WRRC Director Dr. Sharon B. Megdal and conference Co-chairs, Dr. Karletta Chief and Dr. Jean McLain, at the close of the conference.



Hopi Ph.D. Student Brings University of Arizona Research Back to Her Community

by Mary Ann Capehart, Former WRRC Graduate Outreach Assistant



Carrie Nuya Joseph is a Ph.D. student in the Soil, Water, and Environmental Sciences Department of the College of Agriculture and Life Sciences at the University of Arizona. She is the rare researcher whose efforts directly benefit the place she calls home and the people who raised her. Joseph studies inactive uranium mill sites across the country, specifically targeting those located in Native American communities. Her studies are

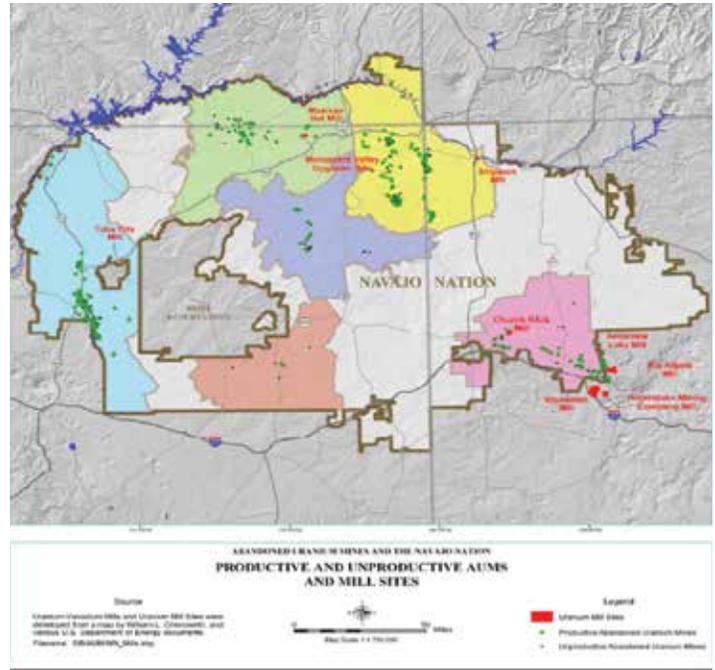
part of a uranium mill site remediation project funded by the Department of Energy (DOE). The DOE manages former mill sites, four of which are located in tribal communities in the Four Corners region, where Arizona, Utah, Colorado, and New Mexico meet. More than five hundred abandoned uranium mines remain within the Four Corners region.

Joseph grew up and remains closely tied to her village



Hopi village of Moenkopi with agricultural fields. Source: Carrie Joseph

community, Moenkopi, on Hopi lands in northeast Arizona. Her personal connection to the area has made her aware of its history. “During the Cold War era, in the mid-1900’s, acid and mechanical leaching processes left behind uranium tailings and a legacy of contaminated regions located in native communities,” Joseph explains. “Uranium tailings were left uncovered and unregulated until the early 1990s in many locations. Tailings were not defined as a source of radioactive waste, according to the Atomic Energy Commission. They didn’t fall under a legal definition of a source material. The



Mill sites located in the four-corners near respective tribal lands. Source: EPA

Energy Commission insisted that they didn’t have jurisdiction over these tailings.”

Joseph’s village of Moenkopi is seven miles downstream from the Tuba City Arizona Disposal Site. Managed by the DOE’s Office of Legacy Management, the engineered 50-acre disposal cell confines low-level radioactive tailings accumulated from uranium milling between 1956 and 1966. Uranium ore extracted at the site was used exclusively for atomic energy defense activities of the United States. Active ground water remediation is also part of the strategy to remove the uranium (the primary site contaminant) and other site-related contaminants in compliance with the Uranium Mill Tailings Radiation Control Act of 1978. Within the contaminated region of the aquifer, 37 extraction wells and a network of monitoring wells operate daily. Surface water seeps, associated with the Tuba City site, are present along the cliffs that border the Moenkopi Wash, about 4,000 feet south of the site. The wash continues southeast from there to where it enters the village of Moenkopi.

The Navajo and Hopi residents residing near the site use water from the Moenkopi wash for stock watering and agricultural diversions. “Every year we irrigate corn plots,” Joseph said. “During the planting season direct precipitation, runoff, and water gained from the subsurface flows contribute to the Moenkopi Wash (an intermittent stream) that runs directly through the village. Pumps and man-made canals take the water from the wash into our corn fields.”

“As Hopi people – everything revolves around corn,” Joseph added. “To maintain our responsibilities as Hopi, our cornfields should never be neglected—our survival and cultural and religious practices depend on this life way. Hopi

Spotlight continued on page 14

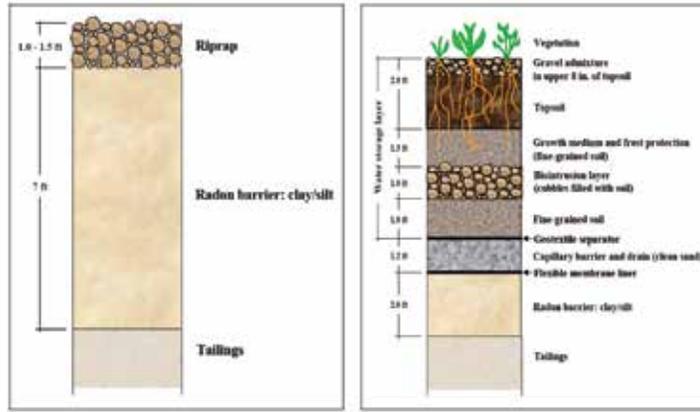
people will continue to rely on the resources the natural world provides us, for many generations.”

Of most concern in sites of uranium milling waste, is Radon-222, produced from the radioactive decay of radium-226. Disposal sites are required to be operational for the long-term—from 200 to 1,000 years—and to limit the flux of radon to below 20 picocuries per meter squared per second. This limit is designed to prevent any kind of environmental or human health effects.

Heaps of tailings are confined by a 3-layer cap or cover, two layers of rock riprap to guard the tailings from water and wind erosion and a clayey soil layer that creates a barrier to limit the escape of radon gas into the atmosphere and the seepage of rainwater into the waste below.

Early caps were not designed for vegetation growth. Today, disposal cell covers located in semi-arid regions are integrating vegetation into designs. Desert shrubs, like four-wing salt bush or rubber rabbit brush, help take up rainwater through transpiration, preventing both water seepage into the tailings and the erosion of the top layer of riprap rock.

Joseph’s research will help answer questions that the DOE has on how disposal cell covers located in the semi-arid regions of the Southwest will adapt to short- and long-term climate change while maintaining long-term performance standards for uranium mill tailings. “Environmental impacts to the disposal cell cover, such as wind and water erosion, can mobilize contaminants in the tailings pile,” says Joseph.



Early Cell Cover Design vs. Water-Balance/ Ecological Design. Source: IAEA

“Climate-related changes in temperature and precipitation, and the magnitude of infrequent storm events will impact vegetation cover and how vegetation will change over time. The environment is changing and we need to identify how these projected changes will impact cell cover performance.”

Some plants have the potential to send roots deep into the cover system in search of water and to take up contaminants if roots reach the tailings. Plant roots can

also leave fine cracks in the clayey soil layer potentially allowing radon gas to escape above regulation limits and water to seep into tailings waste underground. Joseph’s Master of Science thesis work found evidence of plant uptake of contaminants at some sites with early cover designs.

“There is an urgent need to figure out these environmental challenges,” Joseph reflects, “because we can’t relocate to another area—these are our ancestral lands. We are permanently fixed within the reservation boundary areas.”

Joseph plans to extend her research further into understanding the perception of risk on the part of her Hopi village community, as regards the tailings waste storage. Many members of Hopi communities naturally fear the effects of contamination and its possible connection to higher-than-average cancer rates in the area. She aims to bridge the communication between community members and DOE, with the goal of protecting human health, water resources, and the surrounding environment.

Members of the WRRC 2015 Annual Conference Advisory Committee

Stephen Lewis, Governor, Gila River Indian Community

Percy Deal, Navajo Community Member

Norm DeWeaver, Intertribal Council of Arizona (retired)

Katosha Nakai, Central Arizona Project Tribal Liaison

Cheryl Pailzote, Department of Water Resources, White Mountain Apache Tribe

Tony Skrelunas, Grand Canyon Trust, Colorado Plateau

Ronald Trospen, Professor of American Indian Studies, University of Arizona

Gerry Walker, Arizona Department of Water Resources Tribal Liaison



Production of this issue of the Arizona Water Resource was made possible by a grant from the **Agnese Nelms Haury Program in Environment and Social Justice**, which supports university and community partnerships to find socially just solutions to environmental challenges.

Collaborative Conference Planning and Continuing the Dialogue

by Sharon B. Megdal¹, Karletta Chief², and Jean E. McLain³



GRIC Governor Stephen Roe Lewis presents calendar stick to WRRRC Director Dr. Sharon B. Megdal and conference co-chairs Dr. Karletta Chief and Dr. Jean McLain. Source: Melanie Lenart

The University of Arizona Water Resources Research Center conference, *Indigenous Perspectives on Sustainable Water Practices*, was held on June 9-10, 2015. Since our first conference, *Local Approaches to Resolving Water Resource Issues*, in 2003, the WRRC has organized annual conferences on topics of statewide importance, with the goal of engaging speakers and audiences in thought-provoking and informative dialogue. Recent conferences have focused on water issues faced by Arizonans, including potential water shortages in the Colorado River, groundwater security, and growing urbanization. Although sessions at previous conferences included speakers on tribal water issues, we realized that an Arizona-based conference focused solely on indigenous perspectives and practices related to sustainable water management was lacking.

Active planning of the 2015 Conference actually began in March 2014, when the WRRC Conference, *Closing the Gap Between Water Supply and Demand*, included the unique insights of individuals from several Native communities. The message of these individual indigenous voices was that water is life. Not only does it sustain livelihoods, including ranching, farming, fishing, hunting, and gathering of medicinal plants, but it is revered as sacred and used in cultural practices. They taught their listeners that water is the foundation of the identity of many indigenous peoples, as it acknowledges the connection to Mother Earth and Father Sky, and is an integrating component that connects the land, five fingered people, four legged animals, and plants through a continuous cycle. Much of this message was new to the audience, confirming the need for a conference on water in Arizona from indigenous perspectives – a conference covering a wide informational range, from the legal intricacies of water rights to the spiritual and ceremonial views of water.

And so it was that nine months before the 2015 Conference, co-chairs Dr. Karletta Chief and Dr. Jean McLain formed a Tribal Advisory Committee that represented tribal water management, leadership, and grassroots. The Committee worked tirelessly, surveying tribal and non-tribal stakeholders to identify conference

topics and speakers. The conference title was developed using an online questionnaire, and *Indigenous Perspectives on Sustainable Water Practices* resulted from blending several title ideas. The 10th anniversary of the 2004 Arizona Water Settlements Act stimulated a partnership with the Gila River Indian Community, which hosted the conference, providing generous support and assisting in conference planning, logistics, and tours.

It is not an overstatement to report that the 330 conference attendees were fully engaged throughout. Starting with two pre-conference tours on the morning of June 9, and ending with an expert panel late in the afternoon on June 10, two days were filled with education, energy, and exchange of viewpoints. GRIC Governor Stephen Roe Lewis welcomed participants, remembering family lessons on giving back to the community to effect change. In his opening comments on day two, Arizona State Senator Carlyle Begay noted that the event represented "...a very much needed conference, generating a lot of great discussion, a lot of great insight, and most importantly great ideas in moving our community forward in discussions about the future of our water resources." From the opening keynote delivered by John Echohawk, founder of the Native American Rights Fund, an active conversation ensued, promoted by the positioning of open microphones for audience dialogue. Speakers on the podium and at the microphone were often passionate, at times moved to anger and to tears as they discussed the history of indigenous water rights, current efforts to restore cultural heritage, and paths forward to sustainable water management. The spirituality of the gathering was celebrated with multiple prayers and panelist comments.

In addition to incorporating multiple perspectives in the agenda of invited speakers, an equally important goal was to attract a diverse audience. From the early planning, WRRC staff met with representatives of tribal and non-tribal lands throughout Arizona. Press releases sent to news outlets statewide increased interest in rural areas. A conference invitation was sent to top tribal officials and disseminated through various Native American networks. We are pleased to report that the conference attracted registrants from 49 municipalities and 13 tribal nations throughout Arizona.

Elected officials at the federal, state, municipal, and tribal levels also attended. We received generous support from various sponsors whose contribution we greatly appreciate and are acknowledged in this newsletter. For more information and links to speaker presentations, go to: <http://wrrc.arizona.edu/WRRC-conference-2015/home>.

We close with a hope and a request. Our hope is that this newsletter extends the exchange of information and perspectives on sustainable water practices beyond the two-day conference experience. Our request is for feedback on what else we can do together. Should there be an effort to organize a similar conference on a broader regional scale, such as the Four Corners? We would like to hear from you. Please email your thoughts to us at smegdal@email.arizona.edu, kchief@email.arizona.edu, and mclainj@email.arizona.edu. 

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river and its water and the need to bring back the importance of water to our community. Elders remember the sound and smell of water. Bringing this back to our young people was vital because it is our destiny. We will never get flow of the Gila River back, but our planning and projects will set in motion many positive things that will increase the flow of the river and reestablish our culture and traditions. This year, 2015, is the year to honor our water resources, ten years after the Arizona Water Settlements Act that culminated our fight to bring back our water.

Fights of the past against the State, Federal Government, Salt River Project, Arizona Public Service Company, mining companies represented a commitment to getting our water back. Now we have partnership with these entities and we are building on this foundation and partnerships.

The settlement right to water allowed the GRIC to chart a course to the future. The Council is developing plans for long-term access to multiple sources. Two sources are pumping groundwater in balance with surface water and increasing Gila River water through our Central Arizona Project allocation. We will move CAP water directly to the Gila River for ecological

restoration to bring back our agrarian culture. We will also be increasing our groundwater storage on the reservation for future use. We know we must have a plan for the future and be vigilant to protect our water for the future in a sustainable way.

It was an important time for this gathering to have Tribal leaders here, Tribal government, and to have the next generation of tribal hydrologists, tribal engineers, and tribal environmentalists, those who will be doing policy work in the future. To have those tribal activists as well, who separate themselves from the Tribal governments, who are the watchdogs, who keep those Tribal governments honest, as well. And as well to have those institutions of higher learning that have that responsibility, the public trust to work with Tribes, especially in Arizona where over a fourth of the land base is Tribal land. So moving forward, there are such opportunities to work together for public, private, Tribal partnerships, and so with this gathering, hopefully these seeds have been respectfully planted here and we'll see the fruits coming from it. Where it goes from here, I think this opens a dialogue. 🌍