

The 21st century's mounting social, economic and ecological problems are pressuring universities worldwide to do more civically-engaged and solutions-oriented research. As a result there is rising demand for scholarship of engagement including action research. Action Research is a method for creating, sharing, and using new knowledge through equitable partnerships and collaboration. Action research is use-inspired, problem-solving, and solutions-oriented; it brings together diverse people and organizations with common cause to improve quality of life and place—especially where harsh realities of poverty, environmental degradation, unemployment and social injustice loom large.

Storytelling is a powerful way to integrate and share knowledge, and to help link knowledge to action for the common good. This can be seen in the use of multimedia, including TV video documentaries, to promote interdisciplinary knowledge sharing and action research.

The Community Engagement Core (CEC) of UC San Diego's Superfund Research Center mobilized a diverse group to create a TV video documentary as part of an ongoing action research program. The CEC is promoting participatory-based approaches to collaborative watershed management, ecological sustainability and environmental public health in the San Diego-Tijuana city-region along the U.S.-Mexico border. The haphazard nature of urban growth along the border creates unhealthy living conditions and serious concerns about environmental justice.

Since 2005, the CEC has been identifying, prioritizing and addressing Superfund-related environmental health hazards and issues in the border region. The CEC concentrates its efforts on Los Laureles Canyon, a 4.6 square mile sub-watershed of the Tijuana River Watershed, located on the Mexican side of the U.S.-Mexico border. Los Laureles Canyon is rapidly urbanizing under conditions of poverty, haphazard settlement and inadequate infrastructure. An estimated 75,000 people now live in the canyon. Due to the canyon's steep grade and unstable hillsides, erosion is a major problem. Seasonal heavy rain storms send mega-tons of eroded soil mixed with untreated sewage, hazardous substances, and solid wastes from factories, hospitals, and households thru Los Laureles Canyon's seven mile stretch into the U.S. where it impacts farmland, the Tijuana River Estuary and the binational coastal zone.

Governments on both sides of the border recognize the gravity of the environmental problems and are acting jointly to address them, for instance, through the EPA's U.S.-Mexico Border 2020 Program, and the California Border Health Collaborative. At the same time a growing number of community-based organizations are working together across the border to jointly address socio-ecological problems and promote sustainable development. The CEC is leveraging this momentum to help minimize exposure to toxicants, enhance ecosystem resilience and improve environmental public health.

To draw attention to the social and ecological problems in Los Laureles canyon, and to highlight solutions coming from both the grassroots and research universities, the leaders of the CEC decided to create a TV video documentary. It was produced by the University of California, San Diego (UCSD-TV). The documentary, titled: "Los Laureles Canyon: Research in Action" is 28 minutes long with English and Spanish versions. [http://www.theglobalarc.org/index.php/programs/solution/ucsd\\_tv\\_documentary/](http://www.theglobalarc.org/index.php/programs/solution/ucsd_tv_documentary/)

The "Los Laureles Canyon: Research in Action" documentary, viewed over 100,000 times, has been featured on a wide-range of media outlets including: Cable TV, UCSD TV, The NSF Research Channel "Emerging Frontiers" Program, 2009 AAAS Annual Meeting, and the 2010 APHA Film and Media Festival. It provides decision makers with information about detecting toxicants and reducing the exposure of

vulnerable border communities to Superfund chemicals and other environmental hazards. The video, along with study guides and webinars tailored for the purpose, has proven to be a useful teaching tool at UCSD and San Diego State University. The video's production and broadcast drew attention to the problems in Los Laureles Canyon; this has made it easier to get solutions-oriented projects funded.

The Los Laureles documentary and the process model by which it was created depended on authentic collaboration across boundaries (academic, professional-community, national). Many organizations came together to produce the documentary including the Global Action Research Center (aka The Global ARC) in partnership with the following organizations from UCSD: the Superfund Research Program, Urban Studies and Planning Program, Scripps Institution of Oceanography, Sustainability Solutions Institute, Center for Iberian and Latin American Studies, and Office of International Affairs. A binational team of scientists, educators, multimedia experts, and government partners collaborated with community-based organizations to create the documentary's story-line. It is a notable case of science communication focused on action research dealing with the water/climate/poverty nexus and transboundary environmental risks along the U.S./Mexico Border. It is a good tool for teaching about the power of use-inspired, problem-solving and solutions-oriented action research.

People came together during two days of intensive, professionally facilitated workshops to merge their respective stories in a script for the documentary. Participants wanted their contributions to add to something that is larger than the sum of the parts. This is appealing, necessary and enriching. It allowed those involved to address a range of scientific, technical and cultural challenges --in this case the challenge to integrate environmental health science (ecotoxicology and biomolecular technologies) with climate change science and participatory watershed-based planning from a community perspective.

When creating a narrative to tell the Los Laureles Canyon story, it quickly becomes apparent that privileged scientific and technical ways of knowing have their limits. Storytelling that weaves perspectives across academic disciplines, but also across community-university divides, underscores the value of other ways of knowing. As Leonie Sandercock points out in her work analyzing the power of storytelling in urban planning and community mobilization, other ways of knowing include "experiential, intuitive and somatic knowledges; local knowledges; knowledges based on practices of talking and listening, seeing, contemplating and sharing; and knowledges expressed in visual, symbolic, ritual and other artistic ways." One of the major challenges facing those who aim to do authentic community-based action research is to get clever about integrating traditional forms of scientific and technical reasoning with these other forms of knowing. There is humility in this understanding: there are no magic technological solutions to the complicated problems we now face as a human species; it will take all of us working together joining intellectual knowledge with know-how and wisdom thru solutions-oriented collaborative efforts.