

# Water Resources, PWMP and Pracademic Research

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Interdisciplinary and Diverse Research in Sustainable  
Water Infrastructures

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## Background in Water Resource

- Thanks for the invite, while I was at TUT attending another conference: IFKAD – my “Process Knowledge”
- Known Tapio Katko for over 10 years; he recently visited Northern California for a water history tour – “water wars”
- I have a legitimate water resource background:
  - BSCE, UC Berkeley – Water Resources/Construction
  - Practiced WR as a Flood Control Engineer in California
  - MPW – PW Admin., PhD, U. Pittsburgh – MS/OR and IE
  - 35 years of Public Works and Seaport research
  - Vice Chair, SJ County Advisory Water Commission
- Founding Co-Editor of PWMP, with Claire Felbinger

## History of PWMP

- Founded in 1996 by Claire and me, it has continued to the present, now under editorship of Rich Little, USC
- I remain active in the Journal as Development Editor, constantly searching for authors and manuscripts
- PWMP serves the wide public works/infrastructure arena, but I also advocate for WR research:
  - Water Supply/Treatment, Wastewater Treatment/Water Quality, Flood Protection and Water Governance/Privatization/Finance
  - Water Policy and WR/Engineering Management

## PWMP – Mission

- Since day one of the life of PWMP, the mission was to provide a research outlet for articles readable by both academics and practitioners
  - PWMP Subtitle: “Research and Practice in Infrastructure and the Environment”
  - Still a “double-blind” referred journal, seeking practitioner and academics as authors, joint authors and reviewers
  - PWMP accepts traditional theory and empirical research as well as cases about engineering/technology choices, decision models for micro-IF development and macro-economic/policy impacts of IF investment
  - WR deserves its share in the spectrum of IF systems, e.g. transportation, energy, waste/recycling, buildings/equip, etc

## PWMP's Water Resource History

- The 15 volume history of PWMP contains 33 articles from the WR discipline, yet contributing only 9% of about 350 articles published from 1996-2011
- A separate file lists those 33 articles - with date, author, affiliation and short title
- The distribution of these articles within WR umbrella:
  - Water Supply/Treatment = 6.5 articles
  - Wastewater Treatment/Water Quality = 8.5 articles
  - Flood Protection = 5 articles
  - Water Governance/Privatization/Finance = 13 articles

## An Agenda for WR in PWMP

- Editor Little's suggestion: Focus Issues on a number of possible topics, e.g.
  - How to implement the human right to water
  - Impacts of climate change on the hydrologic regime (supply, flooding, sea level rise, etc.) and adaptation strategies
  - Equitable pricing policies
  - Funding, finance, and asset management

## Price's Flood Protection Agenda

- My own suggestions focus on Flood Protection, where the following topics will be in a Commentary on "Transitions in Flood Protection" planned for PWMP
  - Flood flows and water supply
  - Bypass structures, conjunctive use and GW Recharge
  - Reducing/removing development in flood plains
  - Flood insurance vs. prevention investment
  - Paying for FP: Deep pockets, contributors to runoff or those potentially inundated – maybe all three

## Price's FP (continued)

- Reservoir operations and climate change
- Hydrology/hydraulics and sea level rise
- Levee embankments, seepage and vertical walls
- Trees/vegetation/encroachments within the channel/levee right of way and maintenance access/visibility
- Prevention and improvement under risk analysis
- Runoff frequency: 100 → 200 → 500+ year occurrence
- Natural estuaries and flood channel restoration
- Dam removal and flood fights

## Pursuing Pracademic Research

- Call it “applied research” if you wish, for me it involves academics and practitioners participating together in research activity – like other disciplines
- Do I get away with calling myself a “pracademic”?
- “Pracademic” research means cooperation:
  - Faculty involve practice in teaching, service, pubs
  - Practitioners provide data/insight for scholarly research
  - Academics design research to serve needs of practice
- Joint authorship is so valuable for the discipline

## Micro Research Design

- Seems the disciplines I touch can justify micro designs vs. macro designs
- Micro or case study research design certainly serves practice and provides useful evidence for students
- Macro studies, involving a large set of field or recorded data, may serve knowledge about an industry or collective practice but not benefit an individual practitioner directly
- Researchers must be aware of colleagues or journal who shy away from micro-analysis

## Water Wars across the Globe

- “Whiskey is for drinking, water is for fighting”, an adage we know well in California
- California’s water crises include:
  - Protecting and using the SAC-SJ Delta, the only major estuary on the West Coast of the Americas
  - Transporting “where water is to where people are”
  - More people than water, who knows what climate will bring, what impact of scarcity on economic growth
- Global battles over water supply, quality, ownership, delivery and pricing – plus cross national water wars

## Interdisciplinary Academics: Design Schools

- From a WDSI 2011 Presentation to the Engineering Systems Management Track, “D-Schools: Integrating B-Schools and E-Schools”, April 2011 (See PPT file)
- Key concepts:
  - Design is everywhere in the society
  - Common meaning – “Design Thinking”
  - Business-Engineering interface: Curriculum design, faculty sharing, field experiences, joint design projects
  - Many universities making the effort at integrating

## PWMP Contacts

- Richard Little, Editor, and Deirdre Flanagan, Managing Editor, Public Works Management and Policy, University of Southern California, 650 Childs Way, Room 236, Los Angeles, California, 90089; pwmp@usc.edu
- Submit manuscripts in a Word document to Manuscript Central: <http://mc.manuscriptcentral.com/pwmp>
- If needed, contact Will Price, Professor of Operations and Engineering Management, University of the Pacific, 209-946-2638; wprice@pacific.edu

## Selected References

- Articles by Will Price in PWMP:
  - “Dialogue: PWMP and Privatization”, V3, N2, October 1998
  - “Reporting on the IF Report Card”, V4, N1, July 1999
  - “Pracademic Research Agenda”, V5, N4, April 2001
  - “An Odyssey of Privatizing Highways”, V5, N4, April 2001
  - “Review: Innovation in Public Finance, V7, N1, July 2002
  - “Review: Catastrophe in the Making: The Engineering of Katrina and Disasters of Tomorrow” by Freudenburg, et al, V15, N1, July 2010
- Another article in PWMP on Katrina by Laurie Lichter-Heath, “Re: Katrina Canal Breaches Consolidation Litigation”, V15, N2, October 2010