SAE./No.251/January 2024

Studies in Applied Economics

A SYNOPSIS OF PROF. HANKE'S ACTIVITIES IN THE WATER RESOURCE FIELD: SELECTED PUBLICATIONS AND BRIEF COMMENTS

Steve H. Hanke



Johns Hopkins Institute for Applied Economics,
Global Health, and the Study of Business Enterprise

A Synopsis of Prof. Hanke's Activities in the Water Resource Field: Selected Publications and Brief Comments

By Steve H. Hanke

About the Series

The Studies in Applied Economics series is under the general direction of Prof. Steve H. Hanke, co-director of the Institute for Applied Economics, Global Health, and Study of Business Enterprise (hanke@jhu.edu). The authors are mainly students at The Johns Hopkins University in Baltimore. Some performed their work as summer research assistants at the Institute.

About the Author

Steve H. Hake is a Professor of Applied Economics and Founder and Co-Director of the Institute for Applied Economics, Global Health, and the Study of Business Enterprise at The Johns Hopkins University in Baltimore. Hanke taught economics at the Colorado School of Mines and at the University of California, Berkeley; served on President Reagan's Council of Economic Advisers; as an adviser to five foreign heads of state and five foreign cabinet ministers. He was President of Toronto Trust Argentina in Buenos Aires, the world's best-performing emerging market mutual fund, in 1995. Hanke holds seven honorary doctorate degrees and is an honorary professor at four foreign institutions. In 1998, he was named one of the twenty-five most influential people in the world by World Trade Magazine. In 2020, Hanke was named a Knight of the Order of the Flag.

A Synopsis of Prof. Hanke's Activities in the Water Resource Field: Selected Publications and Brief Comments

Steve H. Hanke

Professor of Applied Economics and Founder & Co-Director, Institute for Applied Economics, Global Health and the Study of Business Enterprise
The Johns Hopkins University
Baltimore, Maryland 21218
U.S.A.
hanke@jhu.edu

The purpose of this selected bibliography is to frame my work in the water resource field. It is intended to put some order into a sphere of my activity that has evolved since 1967, the year that I published my first article in the *Journal American Water Works Association*.

Since my days as a graduate student at the University of Colorado, I have operated at the interface between economics and engineering in the water field. Indeed, my Ph.D. dissertation advisers were Morris E. Garnsey, a Professor of Economics, and J. Ernest Flack, a Professor of Civil Engineering. Although my Ph.D. was awarded in economics, my dissertation was published at the University of Colorado's Center for Urban Engineering Studies. After completing my graduate studies, I accepted an invitation to join The Johns Hopkins University's Department of Environmental Health and Engineering in 1969. Over the years, I have been an economic adviser to a number of engineering firms, most notably Binnie & Partners in London and the Snowy Mountain Engineering Corporation in Australia. I have also served as an adviser to many water companies, most notably Lyonnaise des Eaux and Compagnie Générale des Eaux in Paris. These collaborations have afforded me the good fortune of working with some of the world's most important engineers in the water field, including Profs. John C. Geyer and Abel Wolman at Johns Hopkins and Messrs. M.J. Tixeront and M.F. Valiron in Paris. And when I mention Paris, I cannot do so without mentioning my work at the great École Nationale des Ponts et Chaussées. There were also other countries, in addition to the U.S. and France, where I worked on water research and infrastructure projects: Australia, Austria, Israel, and Sweden. To finish this introduction of my work at the interface of economics and engineering, allow me to mention the following interdisciplinary water journals in which I have had editorial responsibilities: *Water Resources Research*, *Water Resources Bulletin*, and *Water Engineering and Management*.

A concise overview of my work in the urban water resources field is contained in an interview I had with David B. Preston, the Executive Director of the American Water Works Association. It was published in "Face to Face", *Journal American Water Works Association*, Vol. 15, May 1983. A more in-depth overview of my work is contained in a monograph I wrote in 1981, *Studies in Water and Wastewater Economics*, which was published by the Department of Water Resource Engineering at the University of Lund in Sweden. Unfortunately, that publication is out of print and hard to find.

For items that are accessible and render a clear picture of my work in water resources, I have selected a few items from some 150 of my publications in water economics and engineering. They are grouped under five headings. I offer brief remarks to introduce each section below.

1. Water Demand

My contributions in water demand include the first sophisticated time-series study of the effect of water meter installation on water use. I also conducted one of the first pooled time-series, cross-section studies in which urban water demand, income, and price elasticities were estimated. Finally, I developed the only sophisticated method that, to my knowledge, has addressed the problem of how to properly design a sample for the collection of water use data.

- "The Demand for Water Under Dynamic Conditions", Water Resources Research, Vol. 6, No. 5, October 1970. Reprinted in: D. S. Watson (ed.), Price Theory in Action, 3rd Edition, Boston: Houghton Mifflin Company, 1973.
- "Some Behavioral Characteristics Associated with Residential Water Price Changes", Water Resources Research, Vol. 6, No. 5, October 1970.
- "An Optimal Sampling Procedure for the Collection of Residential Water Use Data", Water Resources Research, Vol. 15, No. 6, December 1979, (with A. Mehrez).
- "The Relationship Between Water Use Restrictions and Water Use", Water Supply and Management, Vol. 3, 1979, (with A. Mehrez).
- "Residential Water Demand: A Pooled, Time-Series, Cross-Section Study of Malmo, Sweden", Water Resources Bulletin, August 1982, (with L. de Maré).
- "Municipal Water Demands", in: J. Kindler and C. S. Russell (eds.), Modeling Water Demands. London: Academic Press, Inc., (London) Limited, 1984, (with L. de Maré)

2. Water Conservation

My work on water conservation represents some of the early quantitative analysis of the effects of various conservation measures on water use. These results were used to design optimal conservation strategies for urban water systems.

- "Potential for Marginal Cost Pricing in Water Resource Management", Water Resources Research, Vol. 9, No. 4, August 1973, (with R. K. Davis).
- "Conventional and Unconventional Alternative for Water Supply Management", Water Resources Research, Vol. 9, No. 4, August 1973, (with R. K. Davis).
- "Water Conservation: A Policy on Stilts", Journal American Water Works Association, Vol. 71, No. 9, September 1979.
- "A Cost-Benefit Analysis of Water Use Restrictions", Water Supply and Management, Vol. 4, No. 4, 1980.
- "Additional Comments on Cost-Benefit Analysis of Water Use Restrictions", Water Supply and Management, Vol. 4 No. 4/5, 1980.

- "Avantages et prix de revient du comptage de l'eau", Techniques et Sciences Municipales, 75^0 Annee, No. 6, Juin 1980.

- "L'Economie Reelle de la lutte contre le gaspillage de l'eau", Techniques et Sciences Municipales, 75^0 Annee, No. 2, Fevrier 1980.

- "Distribution System Leak Detection and Control", Water Engineering and Management - Reference Handbook 1981, April 30, 1981.

- "On Water: A Critique of Global 2000", in: J. Simon and H. Kahn (eds.), The Resourceful Earth. London: Basil Blackwell Publisher Limited, 1984.

- "The Economics of Canadian Municipal Water Supply: Applying the User-Pay Principle", in: C.A. Kent (ed.), Entrepreneurship and the Privatizing of Government. New York: Quorum Books, 1987.

3. Water-Wastewater Costing (System Design)

My work on water and wastewater costing has withstood the test of time. Indeed, some of the design criteria I developed for sizing wastewater interceptors are still in use.

- "Optimal Departures from Marginal Cost Prices for Local Public Services", in: Paul B. Downing (ed.), Local Service Pricing Policies and their Effect on Urban Spatial Structure. Vancouver, BC: University of British Columbia Press, 1977 (with G. E. Mumy).

- "Water Pricing: Backward or Forward-Looking Costs", Journal American Water Works Association, Vol. 707, No. 8, August 1978.

- "A Method of Integrating Engineering and Economic Planning", Journal American Water Works Association, Vol.70, No. 9, September 1978.

- "Etudes statistiques de prix de revient pour les canalisations d'eau usee", Techniques et Sciences Municipales, 75^0Annee, No^{0}10, Octobre 1980, (with R. W. Wentworth).

- "Statistical Cost Function Developed for Sewer Lines", Water and Sewage Works, Vol. 127, No. 12, December 1980, (with R. W. Wentworth).

- "On the Marginal Cost of Water Supply", Water Engineering and Management, Vol. 128, No. 2, February 1981.

- "On the Marginal Cost of Wastewater Services", Land Economics, Vol. 57, No. 4, November 1981.

- Costing and Pricing for Old and New Customers, Public Utilities Fortnightly, Vol. 198, No. 9, April 29,1982, (with J. T. Wenders).

4. Project Evaluation (Benefit-Cost Analysis)

A great deal of my work has focused on the theory and application of benefit-cost analysis. It has left me deeply skeptical about the possibility of implementing theoretically correct investment standards for public water projects. In short, one must proceed with caution.

- "Evaluating Federal Water Projects: A Critique of Proposed Standards", Science, Vol. 181, No. 4101, August 24, 1973, (with C. J. Cicchetti, R. K. Davis and R. H. Haveman). Reprinted in W. Niskanen, A. Harberger, R. Haveman, R. Turvey and R. Zeckhauser (eds.), Benefit-Cost and Policy Analysis 1972, Chicago: Aldine-Atherton, Inc., 1973.

- "Benefit-Cost Analysis Reconsidered: An Evaluation of the Mid-State Project", Water Resources Research, Vol. 10, No. 5, October 1974, (with R. A. Walker). Reprinted in: R. Zeckhauser, A. Harberger, R.H. Haveman, L. Lynn, W. Niskanen and A. Williams (eds.), Benefit-Cost and Policy Analysis 1974. Chicago: Aldine- Atherton, Inc., 1977 and R. H. Haveman and J. Margolis (eds.), Public Expenditure and Policy Analysis, 2nd Edition. Chicago: Rand McNally College Publishing Co., 1977.

- "Appraising Proposed Federal Standards for Water Resources Investment: Comment", Science, Vol. 187, No. 4171, January 10, 1975, (with C. J. Cicchetti, Robert K. Davis and R. H. Haveman).

- "Project Evaluation During Inflation", Water Resources Research, Vol. 11, No. 4, August 1975, (with P. H. Carver and P. Bugg). Reprinted in: R. Zeckhauser, A. Harberger, R. Haveman, L. Lynn, W. Niskanen, and A. Williams (eds.), Benefit-Cost and Policy Analysis 1974. Chicago, Illinois: Aldine Atherton, Inc., 1975.

- "Public Investment Criteria for Under-Priced Projects", American Economic Review, Vol. 65, No. 4, September 1975, (with G. E. Mumy)

- "Project Evaluation During Inflation, Revisited: A Solution to Turvey's Relative Price Change Problem", Water Resources Research, Vol. 17, No. 6, December 1981, (with R. Wentworth).

- "On the Feasibility of Benefit-Cost Analysis," Public Policy Vol. XXXIX, No. 2, Spring 1981.

- "'On Turvey's Benefit-Cost 'Short-Cut': A Study of Water Meters", Land Economics, Vol. 58, No. 1, February 1982.

5. White House Water Policy

I served as a Senior Economist on President Reagan's Council of Economic Advisers. In that capacity, I had an opportunity to put my scholarly work on water into practice. I was a member of what were, in those days, called White House cabinet councils, where I was responsible for the water resources and privatization portfolios. For an overview of how President Reagan and I were working on these matters, see my article in the August 2007 issue of *Globe Asia*, "Reagan the Intellectual".

One of my early initiatives on water was the advocacy of the private provision of urban water. Many of the Reagan administration's initiatives in this sphere were based on my work which dealt with the French methods for organizing the provision of water. The initial public announcement of our program was a piece I wrote for *The Wall Street Journal*. It launched a revival of the private provision of water in the U.S. and elsewhere.

My other White House activities in the water field revolved around benefit-cost analysis. President Reagan knew my research showed that the so-called "Federal Principles and Standards", which are used to evaluate water projects, were flawed and biased towards overinvestment. In consequence, I represented the White House in its effort to revise the "Federal Principles and Standards". In addition, and at a more operational level, the President tasked me with a reevaluation of all the water resource projects proposed by the Department of the Interior. Those projects needed to follow normal valuation and budgeting guidelines, and they also had to be examined by me, prior to approval. On my watch, no projects were approved.

- "Crisis-Ridden Water Systems Should Go Private", *The Wall Street Journal* (op-ed), September 3, 1981. Reprinted in: National Association of Water Companies Quarterly Vol. 22, No. 3, Fall, 1981, Water Engineering and Management, Vol. 129, No. 1, 1982, Journal American Water Works Association, Vol. 74, No. 2, February 1982, and Competition, Vol. 3, No. 8, July 1982.

- "The Privatization Debate: An Insider's View, Cato Journal, Vol. 2, No. 3, Winter 1982.

- "Face to Face", Journal of American Water Works Associations, Vol. 15, May 1983. Reprinted in: JHU Global Water Magazine. Baltimore: The Johns Hopkins University, October 18, 2010.

- "Privatization", in: J. Eatwell, M. Milgate and Peter Newman (eds.), The New Palgrave: A Dictionary of Economics, Vol. 3. London: The Macmillan Press Limited, 1987.

- "Privatizing Water Works", in: S.H. Hanke (ed.), Prospects for Privatization. New York, New York: The Academy of Political Science, 1987, (with S. J. K. Walters). Reprinted in: JHU Global Water Magazine, January 17, 2011, and Journal of Applied Corporate Finance, Vol. 23, No. 3, Summer 2011.

- "Reflections on Private Water Supply: Agency and Equity Issues", Journal of Applied Corporate Finance, Vol. 23, No. 3, Summer 2011 (with Stephen J.K. Walters).

- "Policy Note: Water Affordability and Accessibility in Baltimore, Maryland", Water Economics and Policy, Vol. 8, No. 2, 2022 (with Christopher Arena).

Prof. Steve H. Hanke
Baltimore
21 September 2022