An Evaluation of a Public Water Education and Technical Assistance Program in Mississippi

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Mississippi State Department of Health

Mississippi State University Extension Service

Introduction

- 1996 Safe Drinking Water Act required capacity assessment in all states
  - Technical
  - Managerial
  - Financial
- Mississippi implemented this requirement through an annual, standardized inspection of ***all*** public water systems through regional engineers

Mississippi State Department of Health

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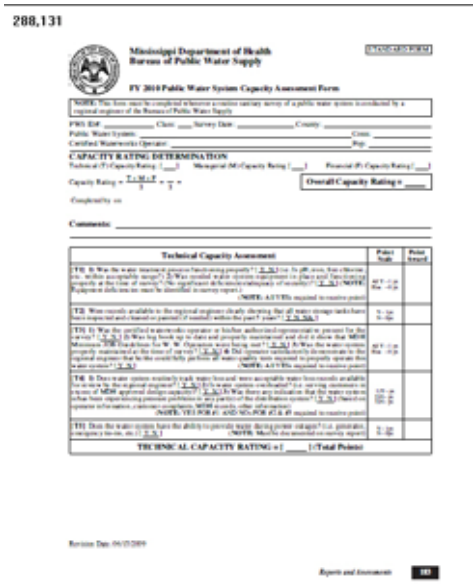
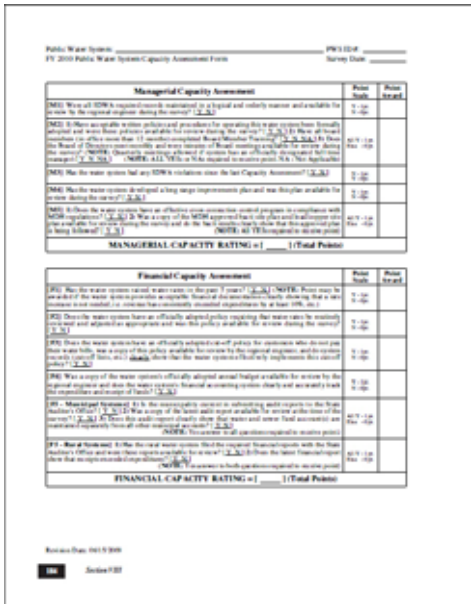
Capacity Assessment Survey Instrument


288,131

Mississippi Department of Health
Bureau of Public Water Supply

FY 2010 Public Water System Capacity Assessment Form



MSDH-BPWS Engineering Regions

Mississippi State Department of Health

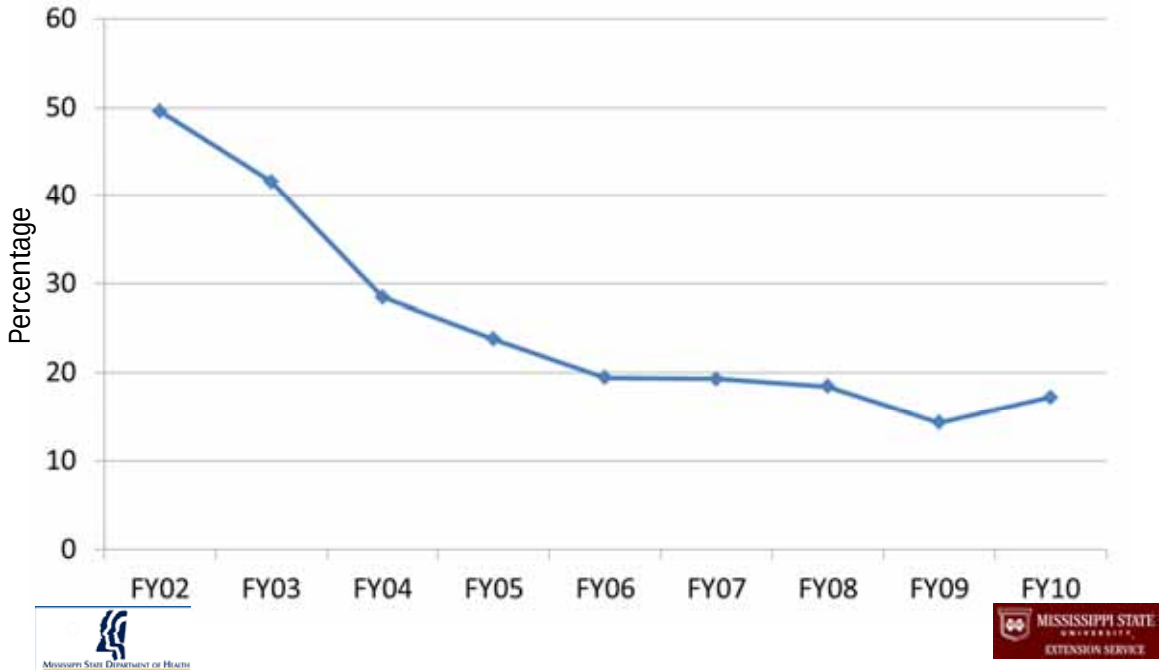
MISSISSIPPI STATE UNIVERSITY EXTENSION SERVICE

MSDH Public Health Districts

Introduction

- Deficiencies were pointed out and expected to be corrected
- Systems were scored on a scale of 0 to 5
- Mainly advisory in nature; but score was public knowledge and source of pride
- Each section worth 5 points; final score was arithmetic average of three sections

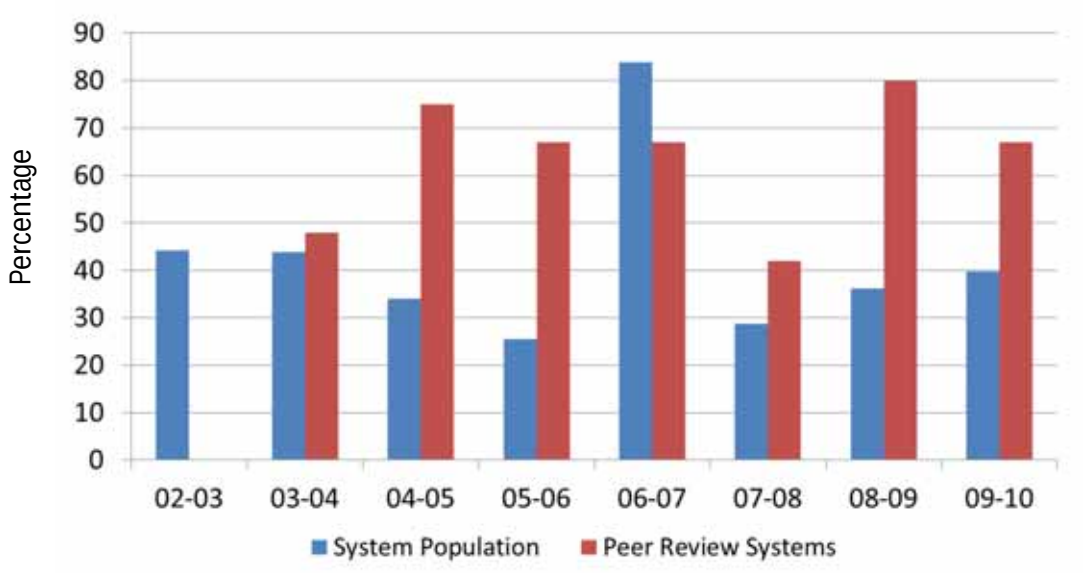
Pct of Systems Scoring 3.0 or Below



Introduction

- Peer Review program established in FY2003
- Brought team of high performing operators to consult with low performing systems
- Targeted systems scored 3.0 or below on capacity assessment inspection survey
- Anonymous for regulatory agencies; completely voluntary
- Funded by State Drinking Water Revolving Fund

Pct of Systems Scoring 3.0 or Below In Year t and Achieving Success in t+1



Introduction

- Peer Review program became more important in December 2009
- Implementation of Groundwater Rule required regulatory Sanitary Surveys
- Regulatory audit to be performed at least every 3 years
- Systems scoring 3.0 or below were considered to be “of concern” by MSDH

Objective

- Develop an evaluation of performance of Peer Review program to be used for future funding and marketing efforts
- Made possible with the availability of data contained in the Safe Drinking Water Information System (SDWIS) database
- Comprehensive database of capacity assessment inspection reports

Question

- What are the factors that comprise a "success"
- Success is defined as a system that scores a 3.0 or below in year t and then scores above a 3.0 in year t+1
- Failure is scoring 3.0 or below in t and t+1

Model

- Linear probability model was formulated
- Binary dependent variable
  - 1 if success
  - 0 if failure
- Analysis performed on 2,646 observations
  - 32.4 percent of systems achieved success
  - 2.8 percent of systems underwent peer review

Model

SUCCESS=f(PR, OPCHG, OWNER, REG*i*, CLASS*j*, POPCHG, WEALTHCHG, HHYCHG) where

- SUCCESS=Capacity Assessment Success
- PR=Did system undergo Peer Review?
- OPCHG=Was the operator replaced?
- OWNER=Type of system "owner": Association, Private, Municipality, Other (Association was the base)
- REG*i*=MSDH Public Health District (9 was the base)
- CLASS*j*=System class based on treatment procedure (Class D was the base; A, B, C and E system classes combined)
- SYSPOP=Proportion of county population change

Results

	Marginal Effect	t-ratio/ P>|t|	Robust Std Error
Intercept	0.3553	11.15, 0.000	0.0319
PR	0.1973	2.38, 0.044	0.0829
OPCHG	-0.0343	-2.32, 0.045	0.0268
MUNI	0.0216	0.60, 0.565	0.0360
PRIVATE	-0.2043	-5.64, 0.000	0.0362
SYSOTHER	-0.1251	-2.07, 0.072	0.0605
CLASSNOD	0.0486	3.05, 0.016	0.0159
POPCHG	1.1505	1.89, 0.095	0.6082

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Results

	Marginal Effect	t-ratio/ P>|t|	Robust Std Error
PHREG1	-0.1228	-4.03, 0.004	0.3045
PHREG2	-0.0193	-0.75, 0.473	0.0257
PHREG3	-0.0051	-0.16, 0.880	0.0327
PHREG4	0.0789	2.46, 0.039	0.0321
PHREG5	0.1184	4.29, 0.003	0.0276
PHREG6	0.2797	7.00, 0.000	0.0340
PHREG7	0.0652	1.97, 0.084	0.0330
PHREG8	0.1233	3.92, 0.004	0.0315

Conclusions

- PR is positive, significant, large marginal effect – should be satisfactory to funder
- Peer Review program could be successfully applied to other utility sectors (wastewater)
- Delta regions have mostly negative, significant coefficients – most disturbing policy result
- Socioeconomic variables have no significance under robustness; finer data needs to be obtained (census tract level?)
- Change in the operator has negative effect – unexpected

Future Research

- Sustainability issues – success in t+2,3,4
- Significance of managerial issues – examine composition of governing board (municipal and association)?