

R-305 Water Utilities Productivity and Efficiency



Course Description

For developing economies, productive and efficient utilities continue to be key factors for economic growth. This course develops both a conceptual framework for productivity and efficiency and a comprehensive revision of current methodologies for assessing productivity and efficiency, with a focus on water utilities.

The analyses focus on the presentation of firm/industry performance measures that are of practical relevance to policy makers and/or regulators (e.g., output per employee, profitability, technical efficiency). Through presentations, analysis of real case studies, and simulated exercises, participants will gain knowledge and skills that will be used to develop real-world action plans that can be used by water utility managers and regulators in their own countries.

Become a Certified Regulation and Utility Specialist

IP3's Regulation and Utility Management Specialist Certification programs provide core bodies of knowledge in regulation and utility management, creating a world-class standard in regulation and utility management.

Certification requirements include 24 CEUs and successful completion of a Specialist exam.

IP3 is an accredited provider of Continuing Education Units (CEUs) as sponsored by the International Association for Continuing Education and Training (IACET).



Learning Objectives

Through successful completion of this course, participants will be able to:

- Employ methods to improve efficiency and boost productivity
- Explain the circumstances under which different firm managers may choose to maximize output, minimize input, maximize revenue, minimize cost, maximize profit and/or maximize total factor productivity (TFP)
- Define various measures of technical, scale, mix, allocative, revenue, cost and profit efficiency
- Understand the risks and opportunities of water utilities as a business
- Construct the framework to measure productivity and efficiency methodology, data collection and processing
- Comprehend performance-based contracts and legal framework for water utility regulation

Who Will Benefit

- Directors and key managers of water utilities
- Officials of ministries with responsibility for regulated services
- Commissioners, directors and key staff of regulatory authorities, agencies, and commissions
- Staff of bilateral and multilateral international organizations

Course Offering

Dates November 7-18, 2022

Location Washington, DC Metro Area

Reg. Code R305-221107-I1

CEUs 6.0 | **Tuition** \$5,500

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Economic Fundamentals of Productivity and Efficiency (P&E)

- Economic fundamentals of P&E
- P&E measurements, concepts and issues
- How to boost productivity and improve efficiency

Methods to Assess Productivity and Efficiency

- KLEMS models and variants
- Index numbers
- Efficiency measures
- Price, quantity and TFP indexes
- Decomposing TFP indexes

Firm Efficiency & Natural Monopolies

- Understanding monopolies
- Monopoly and pricing with market power
- Total, marginal and average revenue
- Sources and social costs of monopoly power
- Price discrimination

Firm P&E: Production Function and Total Factors Productivity

- The three steps in production
- Technology of production
- Production with one and two variable inputs
- Total factor productivity
- Production possibilities and opportunity cost
- Using resources efficiently
- Economic growth

Framework to Measure P&E

KLEMS Models

- Y models, revenue and cost components
- Alternatives to KLEMS models

Index Numbers

- Price and quantity index axioms
- Main price indices
- Transitivity

TFP and TFP Decomposition

- Production technology
- Optimizing behavior
- Total factor productivity
- Profitability and productivity

Economic Methods to Assess P&E: DEA, SFA

- Choosing the methodology
- Data envelopment analysis (DEA)
- Stochastic frontier analysis (SFA)
- Data collection
- Data processing
- Assessing robustness

Legal Framework for Water Utilities Regulation

- Intro to legal frameworks
- Traditional approach: No relationship between P&E and regulated activity
- Performance and efficiency requirements to justify deregulation
- Relationship between P&E and the development of regulations
- Water and wastewater industries

Performance-Based Contracts: Issues with Contracting P&E

- What is performance based contracting (PBC)?
- Developing PBC
- Performance work statements (PWS)
- Statement of Objectives
- Identifying incentives and disincentives
- Monitoring performance
- How can utilities move to performance-based rate-making?
- Monitoring KPIs
- PBCs for improving utility efficiency

Performance Assessment for Water Utilities

- Introduction to performance assessment
- Systems of performance indicators
- From performance assessment to improvement
- From performance assessment to infrastructure asset management

Performance Indicators for Water Utilities

- Water resources indicators
- Personnel indicators
- Physical indicators
- Operational indicators
- Quality of service indicators
- Economic and financial indicators

Water Risk Management

- Water as a business risk and opportunity
- Measuring and mapping water risks
- Collective action for the private sector
- Investing in watershed solutions
- Influence diagrams for decision-making

Special Issues with Tariff Setting in Water Utilities

- Bundled vs. unbundled pricing
- ROR regulation challenges
- Price-cap regulation
- ROR vs. price-cap
- Distinctions between regulatory economic cost modeling