

MANUEL MADRID-ARIS, Ph. D.

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MAIN QUALIFICATIONS

Dr. Madrid-Aris has ample experience in teaching and international consulting in matters related to business-economics and public policy. Dr. Madrid is an economist (Ph. D.) but he also holds a civil engineer degree (M. Sc.) with expertise in environmental issues. As an economist, his fields of concentration are macroeconomics, economic development, public utility economics (water&wastewater, telecommunications, energy), industrial organization, and environmental economics. He has been Director or a member of international consulting teams (World Bank, U.N.D.P., Inter-American Development Bank contracts). His consulting experience includes works in topics such as economic developmental programming, finance, public administration, public utility economics, energy studies, sectoral reforms-privatization, regulatory issues, public policy analysis, project appraisal, and feasibility studies. In addition to his international consulting works, he is also an Adjunct Professor in the Department of Economics at Florida International University in Miami.

EDUCATION

Doctorate in Political Economy and Public Policy - University of Southern California-Los Angeles-CA.

Area of Concentration: Economic Development, Applied Macroeconomics, and Industrial Organization.

Dissertation: "International Trade and the Environment," Chair: Jeffrey Nugent

Master in Political Economy and Public Policy- University of Southern California-Los Angeles-CA

Area of Concentration: Public Policy and Environmental Economics

Master of Arts in Economics - University of Southern California-Los Angeles-CA.

Area of Concentration: Economic Development Programming, and International Trade

Civil Engineer (Equivalent to M. Sc.) - Universidad Técnica Federico Santa María - Valparaíso – Chile

Area of Concentration: Water Resources/Hydraulics, and Environmental Planning

ACADEMIC EXPERIENCE

1987-2002: International Courses, Seminars and Presentations

Dr. Madrid-Aris has been and speaker or presenter in a numerous events in the US and other countries in topic related with economics, business, public policy and engineering. He has also taught courses and seminars on topics such as Public Utility Economics, Economics of Regulation and Antitrust, Economic Development and Public Policy. Among some of his international courses taught are the following:

International Course: "Economics of Regulation and Antitrust" (Course Sponsored by Panamanian Antitrust Commission - Funded by Inter-American Development Bank-IDB, March 2000).

International Course: "Public Utility Economics and Sectoral Reforms" (CLICAC/IDB Course, May 2000)

International Course: "Regulation and Privatization of Water and Wastewater Systems."

International Course: "Regulation & Industrial Economics of Telecommunications"

International Course: "Project Appraisal and Business Planning for Telecommunications"

International Course: "Telecommunications Technology and Regulation" (Course: PURC-U. Florida-FCC)

International Course: "Sectoral Reforms (privatization), Regulatory Frameworks and Rate Making"

1998 – 2002: Florida International University – Miami – Florida

Adjunct Professor

Department of Economics: He has taught Microeconomics, Applied Macroeconomics, Economics of Latin America and Economic Development.

Telecommunications and IT Institute: part of the team in of the preparation of the courses for the M.A. and Ph. D. program. Among his courses are: Telecommunications Finance; Regulation, Interconnection-Access and Competition in Telecommunications; Industrial Economics of Telecommunications; Project Appraisal and Business Planning in Telecommunications.

1996: University of Southern California - Los Angeles - California - School of Economics

Assistant to Professor J. Nugent at the graduate level (Ph. D. level) course "Economic Development Programming and Policy Analysis." In charge of teaching macroeconomic modeling, computable general equilibrium models (CGE) and policy planning.

1996-1997: University of California - Los Angeles - California - School of Public Policy and Social Sciences

Associate Researcher in charge of international trade and environmental studies at NAID Center (North American Integration Center). Also in charge of preparing, designing and submitting technical proposals for fund raising for projects related to environmental and trade issues. Among some of the projects developed were:

- Modeling generation of hazardous waste in the US and Mexico.
- Evaluation of the regulatory framework and enforcement practices for hazardous waste in Mexico and in the US.
- A comparison of the hazardous waste characterization (regulation) schemes in the US and Mexico.
- Creation of pollution intensity coefficients for water-wastewater and hazardous for Mexico and the U.S.
- Evaluation of alternative fuels and technologies for air pollution abatement in Mexico.
- In charge of the development of Macroeconomics Computable General Equilibrium Models for macro-policy analysis, trade and environmental issues. Among his models are:
 - a) Development of the North American Free Trade Agreement Environmental Model
 - b) Development of Central America-U.S. Computable General Equilibrium Model (Cost Rica, Nicaragua, Honduras, Salvador, Mexico and the US). The model evaluates international trade policy, money transfers from immigrants and their macroeconomic effect on Central American economies.

In addition, he was in charge of the preparation, design and submission of technical proposals for fund raising.

1984-1986: Universidad Técnica Federico Santa Maria - Valparaíso - Chile – School of Civil Engineering

Professor Assistant in the courses of Soil Mechanics, Geology and Environmental Planning.

INTERNATIONAL CONSULTING EXPERIENCE IN PUBLIC PROJECTS

1987-2002: International Consultant in Economics-Finance Issues for Public Projects

During this period, Dr. Madrid-Aris has been member of various international consulting teams for the development of economic-public policy and environmental projects for the public sector. His international consulting experience includes works in more than 15 countries worldwide. In Latin America and Caribbean region, his consulting experience includes works in Argentina, Chile, Brazil, Peru, Mexico, Ecuador, Panama, Nicaragua, Guatemala, Puerto Rico, Uruguay, and Costa Rica.

Worked as independent consultant, and/or as Senior Advisor of different international consulting firms (or Joint Ventures) for the development of different "**public policy studies**" in the field of economic-public policy and environmental projects mainly in less developed countries. Most of the "public projects" in which he has been involved lately are in the field of: development policies, regulation (deregulation), privatization of state companies (mainly public utilities), public finance, institutional reforms, modernization of the state, and environmental regulations as well economic policy analysis.

For example, some of the studies, he has been in direct charge (Project Director) of, in Panama during 1997-2001 are:

1. Advisor for the Preparation of the Agenda, Consulting Studies and Budget needed for carrying out the sectoral reforms and modernization of the State, which was conducted during President Balladares Period (For Ministry of Planning and Public Policies, MIPPE).
2. Reference Term for Project (Rfp) "Risk Analysis for Placing IDAAN (state water utility) Shares in the International Financial Markets" (1997). (For Ministry of Planning and Public Policies, MIPPE)
3. Master Plan and Evaluation of the Alternatives for Private Sector Participation (Privatization) in Hazardous and Solid Waste sectors in Panama (for The Ministry of Finance, MEF);
4. Definition of the Basis for the Master Plan for the Development of Rural Water Systems (for The Ministry of Planning and Ministry of Health, MINSA)

5. In charge of the Reference Terms for Proposal (RFP) of the Law and Final Regulation for Private Sector Participation in the Privatization of State Owned Water-Wastewater Utilities (Ministry of Planning and Public Policies, MIPPE)
6. Hazardous Waste Regulation and its Technical Norms for Panama (Ministry of Finance and Ministry of Health)
7. Development of Different Panamanian Environmental Norms and Regulations. Among those norms are the National Norm for Industrial Effluents, Norm for Regulating Discharge of Effluents to Natural Bodies of Water, National Norm for Reclaimed Water, Review of the National Drinking Water Norm. Ministry of Health).
8. Conceptual Regulatory Framework and Rates Studies for the Three New Water Utilities (Prepared for National Regulatory Agency, ERSP)
9. Poverty and Subsidy Study (Ministry of Finance, MEF);
10. Design of the Institutional and Regulatory Framework for the Privatization of Solid Waste Companies. (Ministry of Finance, MEF, year 2000)
11. Design of National Strategy for Natural Basin Management and Basin Conservation (Ministry of Health and Ministry of Environment).
12. Conceptual Regulatory Framework and Rates Study for the Privatization of the State Solid Waste Management Company (for the Ministry of Finance and Ministry of Health).
13. Advanced Training Courses for in Regulation, Access, Competition Issues for the Telecommunications Regulatory Agency (ERSP)
14. Technical bases and recommendations for designing a National Economic Plan for Panama (prepared for the Ministry of Finance, March 2000).

1997: Served as Advisor of the Minister of Planning and Economic Policy of Panama

In this period advised the Ministry in defining all the technical-economic studies needed for the Modernization of the State Plan (sectoral reform-privatization). I advised in the design and implementation of structural adjustment process which included the privatization (and/or regulation) of the state owned natural monopolies, and state institutional sectoral reforms (e.g. Ministry of Health)

1987-1992 Consultant on Engineering and Planning Projects-CHILE

During this period Dr. Madrid worked as a consultant in the fields of Engineering and Infrastructure Planning. His works includes works for Ministry of Public Works, National Irrigation Commission, Ministry of Housing and Urban Planning and for private sector as well. Some of the relevant research are: (a) Creation and calibration of a model for extrapolation of discharge curve for high gradient rivers (research was funded by the Chilean Ministry of Public Works-Department of Water Resources), (b) Development and calibration of 4 mathematical models for river basins management in Chile.

INTERNATIONAL CONSULTING EXPERIENCE IN PRIVATE PROJECTS

1995-2003: Independent Consultant in Economics and Finance for Private Sector

Also, Dr. Madrid-Aris, has been in charge of different international economic studies for the private sector (e.g. market characterization, risk analysis, project appraisal, strategic planning, financial studies, etc.). Most of his consulting works has been developed in the field of public utilities, manufacturing, services, and infrastructure.

For example, his consulting experience in the telecommunication for private sector includes the development of many technical studies, market assessment, business plan preparation, regulatory analysis, pricing policies and strategic planning. His projects includes works for international carrier services, spectrum planning and bidding, broadband services, wireless networks, international telephony, value added services, ISPs, rural telephony, satellite networks, etc. His consulting work in telecommunications includes works in 7 Latin American countries, the US and two European countries.

1996-2002: CIPAG International - Senior Advisor of Investment Fund

In this period served as Senior advisor for defining investment strategies of a private fund. His works included defining investment strategies in stocks, bonds, forex (foreign exchange currencies) and futures. His works also included time series analysis specifically for forex (volatility estimation, intraday and long-term correlation analysis, seasonal pattern analysis, currency risk hedging, dependency and timing analysis among markets, etc).

1995–1996: IFE Research - Managing Editor of Latin American Markets Publication - Los Angeles - USA

During this period, Dr. Madrid-Aris served as head of a research team conducting macroeconomics and financial research focused on Latin America economies and stock markets. Work included country risk analyses, reports on business environments, macroeconomic forecasting, foreign investment effect in macro indicators, exchange rate forecasting, monetary policy valuation, and financial (stock market) analysis.

OTHER PROFESSIONAL EXPERIENCE

1985-1992– ICMAS Ltd. – CHILE - Position: CEO & President

Responsible for overall company management including the firm's Engineering/Economic Consulting Division. In charge of directing many private and public projects developed in Chile and Argentina.

Responsible for the coordination of the teams involved in technical studies of projects such as mining plants, dams, freeways, bridges, industrial-residential buildings, public subsidized housing, public buildings (schools, hospitals, libraries among others), and hydraulic-environmental projects (irrigation systems, dams, fluvial works, rural and urban water supply/sewage systems, water wells, intakes, among others). Most of the projects were developed for agencies such as: (i) Chilean Ministry of Housing and Development - MINVU), (ii) freeways and public infrastructure (e.g. roads and bridges) developed for the Ministry of Public Works; (iii) irrigation and agricultural economics projects developed for the Chilean National Irrigation Commission; (iv) water and wastewater infrastructure projects developed for the Department of Sanitary Engineering-Ministry of Public Works of Chile.

PUBLICATIONS AND RELEVANT RESEARCH

ECONOMIC AND PUBLIC POLICY RESEARCH:

1. Madrid-Aris, Manuel. Educational Investment and Human Capital Creation in Cuba: where is the economic variable?, *Paper Presented at the Annual Conference of ASCE*, Miami, August 2002.
2. Madrid-Aris, Manuel, Education's Contribution to Economic Growth in Cuba. Paper published in the book *Cuba in Transition 11*, ASCE, Washington D.C., 2000.
3. Madrid-Aris, Manuel. The Tyranny of Numbers, Growth Models or Investment Planning: Confronting Cuban and Singaporean Factor Accumulation and Technological Change. *Previous version published in Cuba in Transition 8*, ASCE, Washington D.C., 2000.
4. Madrid-Aris, Manuel (with Victor Hugo Herrera). Earning Profiles and Return to Education in Panama. *Paper prepared for the Annual Conference of Latin American and Caribbean Economic Association (LACEA)*, Sponsored by Catholic University, Rio de Janeiro, Brazil, 2000.
5. Madrid-Aris, Manuel (con Victor Hugo Herrera). Perfiles de Ingresos y Retorno de la Educación en Panamá. *Research Paper No 22 (in Spanish) in CLICAC* (Panamanian Antitrust Commission), 2000.
6. Madrid-Aris, Manuel. Growth and Technological Change in Cuba. Published in the book *Cuba in Transition 7*, ASCE, Washington D.C., 1998.
7. Madrid-Aris, M, and Juan P. Montero. Regulación de Empresas Sanitarias: Implicaciones para Chile. *Published in the Quinta Jornadas de Hidráulica (in Spanish)*, Catholic University of Chile, Santiago, Nov. 1998.
8. Madrid-Aris, Manuel. Regulación y Privatización de Empresas Sanitarias: Teoría, evidencia empírica, e implicancias para Chile. *Quintas Jornada de Hidráulica (in Spanish)*, Catholic University of Chile, Nov. 1998.
9. Madrid-Aris, Manuel. Modeling Hazardous Waste (HW) Pollution under Free-Trade: Evidence from the North American Free Trade Agreement (NAFTA). *World Conference of Natural Resource and Environmental Economists*, Venice, Italy, June 25-27, 1998.

Books Drafts

1. Madrid-Aris, Manuel (with Ernesto Hernandez-Cata). The Cuban Economy: Past and challenges. Book draft, 2003.
2. Madrid-Aris, Manuel. "Economía de Empresas de Servicios Públicos: teoría y aplicaciones" (Public Utility Economics and Sectoral Reforms: theory and applications), Book draft, 2003.

Unpublished Economic Research and Policy Papers.

1. Madrid-Aris, Manuel. "Efficiency and Incentive Regulation: implications for LDCs" Working Paper from his international course taught on Regulation and Antitrust Economics, May 2000.
2. Madrid-Aris, Manuel. "Cross Subsidy Prices in Public Utilities: Theory and applications," May 2000.
3. Madrid-Aris, Manuel. Regulation, Property Rights, and Institutional Environment in the Chilean Energy Sector: a critical analysis," Working paper, 1996.
4. Madrid-Aris, Manuel. "Privatization of Social Security System in Chile: a rent-seeking and transaction cost analysis", 1995.
5. Madrid-Aris, Manuel. "Computable General Equilibrium Models of Environmental Issues: A Survey". 1996.
6. Madrid-Aris, M. , "Privatization and Structural adjustment in Chile (1974-1988): Ideologies, Policies and Lessons," USC, 1995.
7. Madrid-Aris, Manuel, "Private Sector Participation (privatization) and Competition in Solid Waste Management" Working paper prepared for his international course taught on Public Utility Economics, Panama, 2001.
8. Madrid-Aris, Manuel, "Cost Structure, Economies of Scales and Optimal Market Segmentation in Solid Waste Management," Working paper part of his international course taught on Public Utility Economics, 2000
9. Madrid-Aris, M, M. Nussbaum and J. Hewitt. Privatization and Rates Structures in Water-Wastewater Utilities in Latin America. Research Paper (project funded by UNDP/IDB), Los Angeles, 1998.

Research Papers in Progress:

1. Madrid-Aris, Manuel, "Institutions: The Missing Issue in the Pollution Heaven Hypotheses"
2. Madrid-Aris, Manuel, "Direct or Cross Subsidies as an Alternative for Public Utilities Privatization in LCD's? "
3. Madrid-Aris, Manuel, "Optimal Environmental Enforcement and Fines in LDCs"
4. Madrid-Aris, Manuel, "Public Utilities Management, Poverty and Subsidies Policies: theory and practice"

SOME OF HIS RELEVANT RESEARCH IN THE FIELD OF ENGINEERING

1. Madrid, M. and A. Ugarte. Estimación de Coeficientes de Rugosidad en Ríos de Alta Montaña. *Published in Hidráulica Chilena*, Santiago, 1993.
2. Madrid, M. and A. Ugarte. Estimación de Velocidades y Coeficientes de Rugosidad en Ríos de Gran Pendiente. *Published in Hidráulica Chilena*, Santiago, Chile, 1994.
3. Madrid, M. and A. Ugarte. Roughness Coefficients in Mountain Rivers. *Published in American Society of Civil Engineering*. Hydraulics Engineering, Buffalo, New York, August, 1994.

MEMBERSHIP OF PROFESSIONAL ASSOCIATIONS

- Association for the Study of the Cuban Economy (ASCE), Washington D.C.-USA
- The European Association of Environmental and Resource Economists (EAERE) -EUROPE
- American Economic Association (AEA) - USA
- The Latin American Research Association (LASA) – USA
- Latin American and Caribbean Economic Association (LACEA) - USA

COMPUTER EXPERIENCE

Knowledge in computer languages: GAMS, Fortran and Pascal.

Knowledge in statistical packages: TSP, and SAS.

LANGUAGES

Spanish (native), English (fluent).