

CURRICULUM VITAE OF ARIF MEHMOOD

PERSONAL AND CONTACT INFORMATION:

Name: Arif Mehmood, Ph.D.
Nationality: Canadian

Security Clearance:

Reference Number	95273061 - 0000272385
Clearance Level	Level II (Secret)
Origin of Clearance	PWGSC PWGSC
Effective Date	18 February, 2005 To 18 February, 2015

WORK EXPERIENCE IN CONSULTING

- **Public Policy Consultant.** Recently developed a preliminary strategic planning tool for the Canadian Air Force. This tool simulates the flow of AF's members from enrollment to their career progression, and replicates the dynamics of various factors that contribute to attrition rate of AF members. The usefulness of this tool is that it helps in assessing the impact of various what if scenarios on retention rate of members. The scenarios tested through model experimentation include salary raise of members, reduction in postings that require relocations, and increase in training equipment.
- **Senior Associate.** Policy Dynamics Inc, Ottawa, Canada. (Nov 2006 to December 2007). Responsible for developing and supervising the development of the decision support tools to analyze complex problems in the area of business management, human resource management, financial management, and project management for public and private organizations based in Canada, USA, and Middle East. Dr. Mehmood has recently developed an Integrated System Dynamics Model for the Naval Reserves (National Defence of Canada). Model provides an assortment of functions that allows management staff of the Naval Reserves to use the model as a powerful strategic planning tool, deepening their insight into the dynamics of the reservists from enrollment to their career progression under a variety of different scenarios. The knowledge gained by using the model to explore different scenarios helps the NAVRES in developing more robust, and effective personnel management strategies. Model was developed using Vensim program and interface of the model was developed in Sable program. Model was calibrated and validated using actual data of five years (2001 to 2006) obtained from Naval Reserves Headquarter in Quebec City.

- **System Dynamics Consultant:** PowerSim Solutions, USA. Developed a dynamic simulation model for the Banking Industry. This model addresses the resource management issues to meet the demands of customers, design of new products, and maintain the service targets. These strategies include training of bank staff subject to their availability based on their work load, and available resources for training.
 - Offered a five-day workshop on developing business simulations using System Thinking approach to the executives of the Qatar Foundation. And developed a preliminary model for the Qatar Foundation.
 - Followed to five-day workshop, supervised the development of a strategic planning tool for Qatar Foundation in Qatar. This tool focuses on the resource management issues related to HR, assets, and financial aspects of the Qatar Foundation.

- **Senior System Dynamics Modeler:** Millennium Institute, USA. (June 2006 to August 2006) Customized a National Planning Model (T21) based on System Dynamics for Jordan, Middle East. T21 is a very complex model that integrates dynamic interaction among components such as Transportation, Economic, Social, and Environment into one model. The model allows design and evaluation of the strategies focused on achieving the national targets.

- **Public Policy Consultant:** Delsys Research Group Inc., Ottawa, Canada. (Jan 2003 to July 2005).
 - Developed a number of Decision-Support tools based on System Dynamics. These tools helped decision makers to evaluate the short as well as long term consequences of their decisions, particularly analyzing policies issues in dynamically complex systems. These tools are developed to analyze complex problems in sectors such as Asset Management, Financial Management, Transportation, Education, Energy, Health, Regulatory Compliance, and Human Resource Management.
 - Successfully developed capacity for designing effective and robust strategies in various organizations by providing training courses, workshops, and seminars to the executives.

- **Transportation Modeling specialist** (May 2002 to Jan 2003) City of Guelph, and Paradigm Transportation Solution Ltd. Ontario, Canada.
 - Developed a transportation planning model to investigate the sustainable traffic management strategies using TransCad.
 - Provided assistance in developing Infrastructure Asset Management System and revising master plan of the Guelph, Ontario, Canada.

- Reviewed technical proposals for Traffic Impact Studies for new developments in the Guelph, Ontario, Canada.
- **System Dynamics Consultant** (April 1997 to July 1997) United Nations Development Program, Thailand and Pakistan. Developed a preliminary System Dynamic simulation model of HIV/AIDS epidemic. Model demonstrates how to identify system elements that can be used as policy levers to apply good Governance measures in reducing the HIV/AIDS infection rate in Thailand.
- **Planning and Management Engineer** (June 1997 to Sept 1999) Engineering Consultant Private Limited, Islamabad, Pakistan.
 - Developed marketing strategies to improve the service sector in Pakistan.
 - Conducted economic and financial analysis of road projects.
 - Established client relationships in private and public sector, and provided direct managerial assistance to the President/CEO of the company in different projects.

EDUCATION & PROFESSIONAL DEVELOPMENT

- University of Waterloo, Ontario, Canada: Ph.D. in Engineering, with primary specialization in developing Decision Support tools for designing robust and effective strategies using System Dynamics Method. **December 2002**.
Developed a dynamic simulation model that replicates the driver behavior in real-time for different traffic conditions and assumptions. Model can be used in the design and evaluation of Intelligent Transportation System strategies for improving the performance and safety of traffic operations.
- Massachusetts Institute of Technology, USA: Audited distance based courses on System Dynamics Methodology offered by Prof. Jim Hines. **2004**.
 - System Dynamics foundations: Managing Complexity.
 - System Dynamics for Insights.
- Asian Institute of Technology, Bangkok, Thailand: Master of Engineering in Infrastructure Planning and Management (Major: System Dynamics and Economic Development). **April 1997**.
Developed a dynamic simulation model to analyze the financial and operational problems of a rail system. Designed a best policy that offers a sustainable solution in the short run as well as in the long run.

- University of Engineering and Technology Lahore (Taxila) Pakistan: Bachelor of Civil and Environmental Engineering (Gold Medalist). **December 1994.**

ACADEMIC AWARDS AND ACHIEVEMENTS

- Graduate UW scholarship (Seven times) for the best academic performance at the University of Waterloo, Ontario, Canada.
- Won first prize for best poster session presentation in the first graduate conference at the University of Waterloo, 2002.
- Government of Japan scholarship for Master of Engineering.
- Two Gold medals for best academic performance in Bachelor of Engineering.

COMPUTER SKILLS

- System Dynamics programs: Vensim DSS, Sable, Venapp, ithink, and PowerSim.
- Transportation Programs: Cube, TransCad, TSIS, Transyst. Integration, and Synchro
- Office automation: Mac OS, Windows, MS-Office.
- Others: Visual Basic, SPSS, FrontPage.

MEMBERSHIPS OF SCIENTIFIC AND PROFESSIONAL SOCIETIES

- Member of the System Dynamics Society, New York, USA
- Associate member of Institute of Transportation Engineering, USA.
- Member of the Canadian Conference Board, Ottawa, Canada
- Member of System Dynamics Sustainable Group, USA.

PEER REVIEWED PUBLICATIONS AND PROCEEDINGS

- **Mehmood, Arif**, “Evaluating Strategies for Controlling Attrition Rate of Canadian Air Force Members” In Proceedings of the annual conference of International System Dynamics Conference held in Athens, Greece, on July 21 to July 24, 2008.
- **Mehmood, Arif**, “Development of Excessive Speeding Choice Model: Factorial Experimental Design Approach” Accepted for presentation in the 87th Annual meeting of the Transportation Research Board, Washington D.C. USA. January 13 to 17, 2008.
- **Mehmood, Arif**, “Application of System Dynamics to Human Resource Management of Canadian Naval Reserves” In Proceedings of the annual conference of International System Dynamics Conference held in Boston, New York on July 29 to Aug 02, 2007.

- **Mehmood, Arif**, “Understanding the Dynamics of Causal Factors related to Excessive Speeding Behavior of the Drivers” In Proceedings of the annual conference of International System Dynamics Conference held in Boston, New York on July 29 to Aug 02, 2007.
- **Mehmood, Arif**, Frank Saccomanno and Bruce Hellinga, "Simulation of road crashes using System Dynamics", Transportation Research Record 1746, Journal of Transportation Research Board, Washington, D.C. 2001. 37-46pp
- **Mehmood, Arif**, Frank Saccomanno and Bruce Hellinga, "Application of System Dynamics in Car-Following Models", In the Journal of Transportation Engineering, American Society of Civil Engineering, Volume 129, Issue 6, pp.625-634, 2003.
- Frank Saccomanno, R.Grossi, **Arif Mehmood** and D.Greco, "Identifying Black Spots along Highway SS107 in Southern Italy Using Two Models", Journal of Transportation Engineering, American Society of Civil Engineering, 2001.
- **Mehmood, Arif**, "An Integrated Modeling Framework to Understand the Dynamics of Road Crash Causes in the United Arab Emirates”, Presented at the 1st Middle East Conference and Exhibition on Intelligent Transportation Systems, organized by ITS-Arab, December 4-5, 2006. Paper published in the conference proceeding.
- **Mehmood, Arif**, “A strategic model for evaluating investment strategies to establish operational and financial sustainability of the rail transportation system”. Presented at the annual meeting of the International System Dynamics Conference held in The Netherlands, July 23 to 27, 2006. Paper published in the conference proceeding.
- **Mehmood, Arif**, “Modeling Framework for Understanding the Dynamics of Learning Performance in Education Systems” In Proceedings of the annual conference of International System Dynamics Conference held in Boston, New York on July 18 to 21, 2005.
- **Mehmood, Arif**, “A Prototype Model to Understand the Implications of Interventions to Reduce Deceptive Advertising in a Marketplace” In Proceedings of the annual conference of International System Dynamics Society Conference held in Boston, New York on July 18 to 21, 2005.
- **Mehmood, Arif**, Frank Saccomanno and Bruce Hellinga, " Application of System Dynamics in Car-Following Models", Proceedings of 20th International System Dynamics conference held in Palermo, Italy, July-Aug 2002.
- **Mehmood, Arif**, Frank Saccomanno and Bruce Hellinga, "Evaluation of a car-following model using System Dynamics", Proceedings of 19th International System Dynamics conference held in Atlanta, USA, July 2001.
- **Mehmood, Arif**, Frank Saccomanno and Bruce Hellinga, "Modelling Driver Behaviour Using System Dynamics", In proceedings of the Third International Conference on Transportation and Traffic Studies, ICTTS 2002, held at Guilin in Guangxi province, China, from July 23 to 25, 2002.

- **Mehmood, Arif** and Sauwakon Ratanawijitrasin, AIDS epidemic and commercial sex industry: AIDS System Dynamics model for simulation AIDS policy: Published in United Nations Development Program AIDS report.

CONTACT INFORMATION OF REFEREES: UPON REQUEST