

## Curriculum Vitae

### ZIA WADUD

Department of Civil Engineering, Bangladesh University of Engineering and Technology  
Dhaka 1000, Bangladesh  
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### Education

#### Imperial College London, London

PhD in Civil Engineering (Transport and Environmental Policy), Feb 2008

Thesis title: Personal Tradable Carbon Permits for Road Transport: Heterogeneity of Demand Responses and Distributional Analysis

Supervisors: Prof. RB Noland and Dr. DJ Graham

Examiners: Prof. Stephen Glaister, CBE and Prof. Abigail Bristow

#### The University of Melbourne, Melbourne

Master of Development Technologies, Jun 2003. First class honours (85.6%)

Thesis title: Environmental Sustainability of the Road Transport Sector in Australia

Supervisors: Prof. H Watson, Prof. T Beer and Dr. L Aye

#### Bangladesh University of Engineering and Technology (BUET), Dhaka

MSc in Civil Engineering, Jul 2002. CGPA 3.83/4.00, first position

BSc in Civil Engineering, Sep 1999. CGPA 3.96/4.00, first position

### Experience

#### Bangladesh University of Engineering and Technology, Dhaka

Assistant Professor, Department of Civil Engineering, Jan 2004 - date

Lecturer, Department of Civil Engineering, Nov 1999 - Jan 2004

More than 20 hours of lecture a week with full responsibility of lectures, setting exam papers, grading, curriculum development and administrative duties within the university

Consultant, Bureau of Research, Testing and Consultation, Sep 2000 – date

#### Massachusetts Institute of Technology, Cambridge (MA, USA)

Post Doctoral Associate, 'Comparing Environmental Externalities of Aviation with Other Transport Modes', Department of Aeronautics and Astronautics, Apr 2008 – Oct 2008

#### University of Cambridge, Cambridge (UK)

Research Associate, 'Evaluating environmental externalities of aviation', Department of Architecture, Sep 2007- Mar 2008

#### Imperial College London, London

Research Assistant, Department of Civil and Environmental Engineering, 'Assessing oil demand restraint policies for road freight transport', for International Energy Agency, Feb - Apr 2006

Graduate Teaching Assistant, 2005-2006

#### The University of Melbourne, Melbourne

Research Assistant, Department of Civil and Environmental Engineering, 'Quantifying Transport Sustainability in Australia', UniMelb-CSIRO joint project, Dec 2002 - Jun 2003

Graduate Tutor, 2003

### **Academic and Professional Awards/Scholarships**

The Commonwealth Scholarship, Imperial College London, UK, 2004-2007

The Netherlands Fellowship Program, UNESCO-IHE Institute for Water Education, Netherlands, 2004

Norwegian Agency for Development (NORAD) Fellowship, Centre for Environment and Development (SUM), University of Oslo, Norway, 2003

First prize for poster presentation, National Clean Air Conference, Australia, 2003

Asian Development Bank-Japan Scholarship Program, University of Melbourne, Australia, 2002-2003

MA Hossain Gold Medal, BUET, Bangladesh, 2001 (for securing first position among 200 graduating students in the Dept. of Civil Engg, awarded by the university)

CESA Academic Brilliance Award, BUET, Bangladesh, 2000 (for securing first position among the 200 graduating students in the Dept. of Civil Engg., awarded by the Civil Engg. Stud. Assoc.)

Dean's Awards, BUET, Bangladesh, 1995-1999 (for remaining within the top 5% students every year, awarded by the university)

University Merit Scholarships, BUET, Bangladesh, 1995-1999 (awarded by the university)

FR Khan Scholarship, BUET, Bangladesh, 1998 (for securing first position in 3<sup>rd</sup> year, awarded by the university)

### **Other Awards/Scholarships**

Better Air Quality Conference, Sponsored speaker, Bangkok, 2008

International Association for Energy Economics Conference Grant, 2007

Royal Academy of Engineering (UK) Conference Travel Grant, 2007 and 2006

Global Emission Inventory Activity- Atmospheric Composition Change, The European Network (GEIA-ACCENT) conference grant, GEIA Open Conference, Paris, 2006

Commonwealth Conference Grant, 2006

Massachusetts Institute of Technology Professional Institute half scholarship, Course on Individual Choice Behaviour, Boston, 2006

Future Urban Transport travel grant, Gothenburg, 2006

Asia Pacific Network for Global Change Research (APN)-CAPABLE Scholarship, International Human Dimensions Programme on Global Environmental Change, University of Bonn, Germany, 2005

SARCS (Southeast Asia Regional Committee for START) Scholarship, National Central University, Taiwan, 2004

CESA Special Achievement Award, BUET, Bangladesh, 2000 (in recognition of services to the Civil Engg. Stud. Assoc.)

### **List of Publications**

#### **Journals**

##### *Transport, Energy and Environment*

- J1. Z Wadud and IA Waitz, 'Air quality related health impacts of US transportation modes', *Transportation Research Part D: Transport and Environment* (under review)
- J2. Z Wadud, 'Personal tradable carbon permits for road transport: Why, why not and who wins?' *Transportation Research Part A: Policy and Practice* (under review)
- J3. Z Wadud, 'CNG conversion of motor vehicles in Dhaka: Valuation of the air quality improvement benefits', *Transportation Research Record* (under review)
- J4. Z Wadud, RB Noland and DJ Graham, 'A Semiparametric Model of Household Gasoline Demand', *Energy Economics* (in press)

- J5. Z Wadud, DJ Graham and RB Noland, 'Gasoline demand with heterogeneity in household responses', *The Energy Journal* (in press)
- J6. Z Wadud, DJ Graham and RB Noland 2009, 'Modeling fuel demand for different socio-economic groups', *Applied Energy*, Vol 86, No. 12, pp. 2740-2749
- J7. DJ Graham, S Glaister, MA Quddus, and Z Wadud 2009, 'Testing for the distributional effects of national road user charging', *International Journal of Sustainable Transportation*, Vol 3, No. 1, pp. 18-38
- J8. RB Noland and Z Wadud 2009, 'Review of oil demand restraint policies for heavy goods vehicles', *Energy Sources, Part B: Economics, Planning, and Policy*, Vol. 4, No. 9, pp. 84-99
- J9. Z Wadud, RB Noland and DJ Graham 2008, 'Equity analysis of tradable carbon permit in personal road transport sector', *Environmental Science and Policy*, Vol. 11, No. 6, pp. 533-544
- J10. Z Wadud, DJ Graham and RB Noland 2007, 'A cointegration analysis of gasoline demand in the USA', *Applied Economics* (doi 10.1080/00036840701477306)
- J11. Z Wadud, L Aye, T Beer and HC Watson 2006, 'Modeling Australian road transport emissions till 2025', *Journal of Civil Engineering (IEB)*, Vol. 34, No. 2, pp. 115-127

#### *Structural Engineering*

- J12. Z Wadud and S Ahmad 2006, 'Design charts for helicoidal stair slabs with landing at mid span', *Journal of Structural Engineering*, American Society of Civil Engineers (ASCE), Vol. 132, No. 2 (February), pp 312-320
- J13. Z Wadud and S Ahmad 2005, 'Simple design charts for helicoidal stair slabs with intermediate landings', *Journal of the Institution of Engineers (India)*, Vol. 85, No. CV 4, February, pp 269-275
- J14. S Ahmad, M Alauddin and Z Wadud 2003, 'A design rationale for circular silos based on finite element analysis', *Journal of Civil Engineering (IEB)*, Vol. CE 31, No. 1, pp. 83-103

#### Book/ Book Chapter

- B1. MH Rahman, ABM Badruzzaman, MJB Alam, MM Rahman, MA Ali, MA Noor and Z Wadud (eds), *Climate Change Impacts and Adaptation Strategies for Bangladesh*, International Training Network-BUET, Dhaka, 2009
- B2. Z Wadud, N Kunderivych, SH Arnoy and TTT Tran, 'Mitigating Carbon: Is Carbon Rationing an Option?' in *Contemporary Environmental Challenges*, M M Rahman, JB Alam, MA Ali, M Ali and K Vairavamorthy (eds.), Centre for Environment and Resource Management, Dhaka, 2004

#### Reports

- R1. Z Wadud and A Greszler, *Road Transportation in 'Modal primer on greenhouse gases and energy issues for the transportation industry'*, prepared for the Transportation Research Board's Special Task Force on Climate Change and Energy, 2009
- R2. Z Wadud, 'A systematic review of literature on the valuation of local environmental externalities of aviation', OMEGA report, University of Cambridge, October 2008
- R3. Z Wadud, 'A comparison of environmental performance of different transport modes', PARTNER report, MIT, October 2008

#### Working papers (for journals)

- W1. Depreciation of Property Prices around Airports: A Meta-Regression of Hedonic Price Studies
- W2. Environmental and climate benefits resulting from conversion of petroleum vehicles to CNG
- W3. Life cycle carbon emissions from a building in Dhaka: The role of burning bricks
- W4. Rationing carbon, rationing freedom?

## Conferences

### Peer Reviewed Conference Proceedings

#### *Transport, Energy and Environment*

- C1. Z Wadud and IA Waitz, 'Air quality related health impacts of US transportation modes', 89<sup>th</sup> Annual Meeting of the TRB (under review)
- C2. Z Wadud, 'CNG conversion of motor vehicles in Dhaka: Valuation of the air quality improvement benefits', 89<sup>th</sup> Annual Meeting of the TRB (under review)
- C3. Z Wadud, 'Depreciation of Property Prices around Airports: A Meta-Regression of Hedonic Price Studies', 88<sup>th</sup> Annual Meeting of the TRB, Jan 2009, Washington DC
- C4. Z Wadud, 'Personal tradable carbon permits for road transport: Why, why not and who wins?' 88<sup>th</sup> Annual Meeting of the TRB, Jan 2009, Washington DC
- C5. Z Wadud, DJ Graham and RB Noland, 'Gasoline demand with heterogeneity in household responses', 87<sup>th</sup> Annual Meeting of the Transportation Research Board (TRB), Washington DC, Jan 2008
- C6. JB Alam, Z Wadud, JB Alam and J Polak, 'Implication of transport policy on energy demand and economy in Bangladesh', 87<sup>th</sup> Annual Meeting of the TRB, Washington DC, Jan 2008
- C7. TG Reynolds, S Barrett, LM Dray, AD Evans, MO Köhler, MV Morales, A Schäfer, Z Wadud, R Britter, H Hallam and R Hunsley, 'Modelling environmental & economic impact of aviation: Introducing the Aviation Integrated Modelling project', 7<sup>th</sup> Aviation Technology, Integration and Operations Conference of American Institute of Aeronautics and Astronautics (AIAA), Belfast, Sep 2007
- C8. Z Wadud, DJ Graham and RB Noland, 'Heterogeneity in demand responses in modelling the distributional consequences of tradable carbon permits in the road transport sector', European Council for Energy Efficient Economy (ECEEE) Summer Study, Cote d'Azur, Jun 2007
- C9. Z Wadud, 'The distributional consequences of tradable carbon permits in the road transport sector: heterogeneity of demand responses', 39<sup>th</sup> Annual Universities' Transport Studies Group Conference, Leeds, Jan 2007
- C10. Z Wadud, DJ Graham and RB Noland, 'Modelling gasoline demand for different socio-economic groups', 86<sup>th</sup> Annual Meeting of the Transportation Research Board (TRB), Washington DC, Jan 2007
- C11. Z Wadud, DJ Graham and RB Noland, 'Equity implications of tradable carbon permits for the personal transport sector', 86<sup>th</sup> Annual Meeting of the TRB, Washington DC, Jan 2007
- C12. RB Noland and Z Wadud, 'Review of oil demand restraint policies for heavy goods vehicles', 86<sup>th</sup> Annual Meeting of the TRB, Washington DC, Jan 2007
- C13. Z Wadud, L Aye, T Beer, P Graham, D Olaru, M van der Schoot and HC Watson, 'Modelling Exhaust Emissions from the Australian Road Transport Sector up to 2025', National Clean Air Conference: Linking Air Pollution Science, Policy and Management, 23-27 Nov 2003, Newcastle, Australia (*won first prize for best poster presentation*)

#### *Structural Engineering*

- C14. Z Wadud and S Ahmad, 'Deflection Behaviour of Helicoidal Stair Slab and Its Effect on Design', 8<sup>th</sup> East Asia-Pacific Conference on Structural Engineering & Construction, 5-7 Dec 2001, Singapore
- C15. Z Wadud and S Ahmad, 'ACI Method of Concrete Mix Design: A Parametric Study', 8<sup>th</sup> East Asia-Pacific Conference on Structural Engineering & Construction, 5-7 Dec 2001, Singapore
- C16. F Atique and Z Wadud, 'A Comparison of BNBC-93 with other Building Codes with respect to Earthquake and Wind Analysis', 8<sup>th</sup> East Asia-Pacific Conference on Structural Engineering & Construction, 5-7 Dec 2001, Singapore

- C17. S Ahmad, M Alauddin and Z Wadud, 'Finite Element Analysis of Circular Silos under Wind Load', 1<sup>st</sup> International Conference and Annual Paper Meet on Civil Engineering, 2-3 Nov 2001, Chittagong, Bangladesh
- C18. Z Wadud, AFMS Amin and S Ahmad, 'Void in Coarse Aggregates: An Aspect Overlooked in the ACI Method of Concrete Mix Design', 1<sup>st</sup> International Structural Engineering and Construction Conference, 24-26 Jan 2001, Honolulu
- C19. AFMS Amin, S Ahmad and Z Wadud, 'Effect of ACI Concrete Mix Design Parameters on Mix Proportion and Strength Attainment', Civil and Environmental Engineering Conference: New Frontiers & Challenges, 8-12 Nov 1999, AIT, Bangkok, Vol III, pp 97-106

#### Conference Posters (peer reviewed)

- P1. Z Wadud, 'Distributional Impact of a Carbon Rationing Policy in Road Transport', Future Urban Transport, Apr 2006, Gothenburg
- P2. Z Wadud, L Aye, T Beer, P Graham, D Olaru, M van der Schoot and HC Watson, 'Modelling Australian Road Transport Emissions till 2025', GEIA Open Conference, Nov-Dec, 2006, Paris

#### Other Conference Presentations (peer reviewed)

- O1. Z Wadud, 'Air Pollution Co-benefits from Petroleum to CNG Conversion in Motor Vehicles in Dhaka', Better Air Quality 2008, Nov 2008, Bangkok
- O2. SRH Barrett, TG Reynolds, M Vera-Morales, Z Wadud, RE Britter, R Tam and IA Waitz, 'Interdependencies in Local Air Quality and Noise Impacts for Landing and Takeoff Operations', 8<sup>th</sup> Aviation Technology, Integration and Operations Conference of American Institute of Aeronautics and Astronautics (AIAA), Sep 2008, Anchorage
- O3. Z Wadud and RB Noland, 'Equity Implications of Carbon Rationing in the Personal Road Transport Sector', 6th Open Meeting of the Human Dimensions of Global Environmental Change Research Community, Oct 2005, Bonn

#### Conference Session Organization

- SC1. Co-organised a session on 'Carbon Cycle, Greenhouse Gases' at the 6th Open Meeting of the Human Dimensions of Global Change Research Community, 2005, Bonn

#### Invited Talks

- T1. Symposium on Aviation Environmental Trade-offs and Interdependencies in the framework of 'Aviation in the XXI century', National Aviation University (Kiev), Oct 2008
- T2. Department of Civil Engineering, University of Queensland, Sept 2008
- T3. John Muir Institute of the Environment, University of California at Davis, Sept 2008
- T4. OMEGA Workshop on Aviation Sustainability, Cranfield University, Jun 2008
- T5. X3 Noise- UK National Focal Point Meeting, Manchester Metropolitan University, Apr 2008
- T6. Oxford University Centre for the Environment, University of Oxford, Feb 2008
- T7. Department of Civil Engineering, Trinity College Dublin, Apr 2007
- T8. Future Directions of Dhaka Urban Transport, joint workshop by BUET and JICA, 2009

#### Current Research Projects

- CR1. Developing a policy analysis tool for air quality in Dhaka city (2 masters students)
- CR2. Forecasting Sector-wise Energy demand in Bangladesh (3 undergraduate students)
- CR3. Structural change in gasoline demand in the USA: A revisit
- CR4. Economic benefits due to regional transport networks through Bangladesh (1 PhD student)

### **Reviewing Responsibilities**

1. Transportation Research Part A: Policy and Practice
2. The Energy Journal
3. Annual Meetings of the TRB, Washington DC
4. European Council for Energy Efficient Economy (ECEEE) Summer Study
5. World Conference on Transportation Research
6. East-Asia Society for Transportation Studies

### **Workshops and Advanced Trainings**

BAQ Pre-events workshop, Sim-AIR Air Quality Modelling, Nov 2008, Bangkok, Thailand

OMEGA Workshop on Economic Costs and Benefits of Aviation, 10 Oct 2008, University of Cambridge

'University of Cambridge/MIT/PARTNER: 2<sup>nd</sup> Workshop on Aviation and the Environment', 28-30 Jul 2008, University of Cambridge. Presented final findings on Environmental Costs of Aviation

'Transforming Transportation', 13-18 Jan 2008, World Bank, World Resources Institute, EMBARQ, Washington DC, USA

'University of Cambridge/MIT/PARTNER Aviation and the Environment Research Workshop', 8-10 Jan 2008, Massachusetts Institute of Technology. Presented paper on 'Environmental Costs of Aviation: A Systematic Analysis of the Literature'

'Human Dimensions of Global Environmental Change Postgraduate Workshop', 29-30 Mar 2007, University of Leeds. Presented paper on 'Equity implications of tradable carbon permits for the personal transport sector'

'Consumer Expenditure Survey microdata users' workshop', 17-18 Jul 2006, Bureau of Labour Statistics, Washington DC

'Individual Choice Behaviour: Theory and Application of Discrete Choice Analysis', 19-23 Jun, 2006, Massachusetts Institute of Technology

'The Economics of Global Environmental Change', 6-8 Oct, 2005, IHDP, Bonn

'Climate Change: Science, Impacts & Responses', Imperial College London, Tyndall Centre for Climate Change, Environment Change Institute, Oxford University, The Carbon Trust, 11-15 Apr, 2005, Imperial College London

'Advanced Training Workshop on Regional GHG Measurement and Modelling', 20 Nov-2 Dec, 2004, Southeast Asia Regional Committee of START (SARCS), National Central University (Taiwan)

'Environmental Planning', 9-26 Mar, 2004, UNESCO-IHE, Delft

International Summer School on 'Energy Planning and Sustainable Development', 28 Jun- 8 Aug, 2003, University of Oslo

'Planning, Management and Control of Construction Projects: Techniques and Tools' conducted in joint collaboration of BUET, Bangladesh and Florida International University, USA, 27-28 Mar, 2001, BUET, Dhaka

### **Computing skills**

Programming: Fortran, C, AMPL, GAMS, Matlab

Econometrics/Statistics: STATA, SAS, SPSS, LIMDEP, WinGIVE, MiniTAB, BIOGEME, R

Engineering: VISSIM, ArcGIS, AutoCAD, GRASP, STAAD, MSProject

### **Professional Affiliations**

Member, Asiatic Society, Bangladesh

Member, Institution of Engineers, Bangladesh

Member, European Association of Environmental and Resource Economists

Student Member, International Association for Energy Economics

Student Affiliate Member, Transportation Research Board, USA

### **Professional Activities of National Importance**

Member, Seminar Committee, Institution of Engineers, Bangladesh-Dhaka Centre; responsible for organising seminars on nationally important issues (2 recent ones: fire hazards in tall buildings, CDM awareness and carbon market potential), often graced by the Ministers of the Government of Bangladesh as the Chief Guest

Sat on various Government level meetings on air pollution and transportation

Member, Liaison Committee, Climate Change Study Cell (CCSC), BUET; actively involved in setting up CCSC, which aims to be national focal point on climate change related research and education

### **Extra Academic Activities**

Subwarden, Piccadilly Court Hall, Imperial College London (responsible for maintaining discipline, organizing events, providing pastoral care to 200 students in a residential hall)

PhD representative, Centre for Transport Studies, Imperial College London

Co-author of 'An unofficial guide to being a successful PhD student at the Centre for Transport Studies', Imperial College London

Graduate representative to the Department Library Committee, Imperial College London

President, IDTC Students Association, The University of Melbourne

Executive Member, Civil Engg. Students Association, BUET

Director, BUET Debating Club, BUET

Screening Secretary, BUET Film Society, BUET

Co-editor, Graduation Souvenir, BUET

### **Travel**

Australia, Austria, Belgium, Czech Republic, Denmark, Germany, Hong Kong, Hungary, India, Ireland, Malaysia, Nepal, Norway, Portugal, Singapore, Slovakia, Spain, Sweden, Switzerland, Taiwan, Thailand, The Netherlands, The United Kingdom, The United States, Ukraine