

CURRICULUM VITAE

Dr. Mohammad A Rahman

Emil-Ramann-Str. 6, 85354
Freising, Germany

Date of birth November 15, 1980
Place of birth Comilla, Bangladesh
Marital status Married
Child Aareeb Rahman, *03.07.2013
Nationality Bangladeshi



Academic

- 04/2019 – Research Associate, Professorship of Green Technologies in Landscape Architecture, TUM
- 04/2018 - Research Associate, Chair for Strategic Landscape Planning and Management, TUM
- 04/2015 - Alexander von Humboldt Foundation Postdoctoral Research Fellow, TUM
03/2018 Project: Quantifying the effect of trees in reducing air temperature in different urban street canyons
- 04/2014- Postdoctoral Research Associate, University of Hull, UK
01/2015 Project: What we know and do not know about physical benefits of urban trees
- 09/2009- PhD in Plant Sciences (Awarded with A1, The Best Ph.D. in Life Sciences
12/2013 award), University of Manchester, UK

Dissertation title: Effects of Species and Rooting Conditions on the Growth and Cooling Performance of Urban Trees
Dissertation supervisor: Professor Roland Ennos
Dissertation advisor: Dr Keith White, Professor John Handley

Education

- 2007-09 Double Degree MSc in Sustainable Tropical Forestry (SUTROFOR)
- 2008-09 MSc in Agroforestry with distinction (“74%” marks), University of Wales, Bangor UK.
Thesis title: Effects of reduced summer rainfall on *Quercus robur* (L.) and *Fagus sylvatica* (L.)
- 2007-08 MSc in Tropical Forestry and Management (Awarded with grade “1.5”, 1.0 is the maximum)
- 2005-07 MSc in Forestry (Awarded with grade “A”, GPA- 3.78 out of 4, 78% marks), University of Chittagong, Bangladesh
Thesis title: Composting of municipal solid waste and its use as an alternative media for forest tree growth

2000-05 B.Sc (Honours) in Forestry (Awarded with grade “A-”, CGPA-3.71 out of 4, 77% marks), University of Chittagong, Bangladesh

Esteem indicators

Fellowships

2015 Alexander von Humboldt Post-doctoral Fellowship
2009 Sustainable Consumption Institute (SCI), University of Manchester Fellowship

Scholarships and awards

2017 Erasmus+ International Dimension Staff Mobility Grant from the Technical University of Munich, Germany
2016 Best contribution at the 46th Annual meeting of the Ecological Society of Germany, Austria and Switzerland towards broader public interest
2016 *European Young Urban Forester of the Year award*
2015 *Mobility Grants* awarded by the “Bavarian Academic Center for Central, Eastern and Southeastern Europe”
2014 *University Challenge award*, Chartered Institute of Water and Environmental Management, UK and Environment Agency, UK
2013 *Outstanding PhD Award*, University of Manchester, UK
2012 Gross travel grant, Sustainable Consumption Institute (SCI), University of Manchester
2011 British Council *Early Career Researcher award*
2008 Best group leader award at the “Joint Summer Module” at CATIE, Costa Rica
2008 Best project planner award at a conference organized by GTZ held at Technical University of Dresden, Germany
2007 Erasmus Mundus (European Union) Scholarship
2005 *A. B. Temu Award* in Aerial Photogrammetry and GIS, University of Chittagong, Bangladesh
2005 *University Merit Scholarship*, University of Chittagong, Bangladesh, June, 2005

List of publications

(i) Articles in peer-reviewed journals

2019

1. **Rahman, M.A.**, Moser, A., Rötzer, T., Pauleit, S., 2019. Comparing the transpirational and shading effects of two contrasting urban tree species. *Urban Ecosystems*. doi.org/10.1007/s11252-019-00853-x
2. Rötzer, T., **Rahman, M.A.**, Moser-Reischl, A., Pauleit, S., Pretzsch, H., 2019. Process based simulation of tree growth and ecosystem services of urban trees under present and future climate conditions. *Science of the Total Environment*, 676: 651–664

3. Zölch, T., **Rahman, M.A.**, Wagner, G., Pfeleiderer, E. J. Pauleit, S., 2019. Designing public squares with green infrastructure to optimize human thermal comfort. *Building and Environment*, 149: 640–654.

4. Moser, A., **Rahman, M.A.**, Pretzsch, H., Pauleit, S., Rötzer, T., 2019. Growth patterns and climate relationships of two contrasting urban tree species. *Landscape and Urban Planning*, 183: 88-99.

5. **Rahman, M.A.**, Moser, A., Anderson, M., Zhang, C., Rötzer, T., Pauleit, S., 2019. Comparing the infiltration potentials of soils beneath the canopies of two contrasting urban tree species. *Urban Forestry & Urban Greening*, 38: 22-32.

2018

6. **Rahman, M.A.**, Moser, A., Gold, A., Rötzer, T., Pauleit, S., 2018. Vertical air temperature gradients under the shade of two contrasting urban tree species during different types of summer days. *Science of the Total Environment*, 633: 100-111.

2017

7. **Rahman, M.A.**, Moser, A., Rötzer, T., Pauleit, S., 2017. Microclimatic differences and their influence on transpirational cooling of *Tilia cordata* in two contrasting street canyons in Munich, Germany. *Agricultural and Forest Meteorology*, 232: 443–456.

8. **Rahman, M.A.**, Moser, A., Rötzer, T., Pauleit, S., 2017. Within canopy temperature differences and cooling ability of *Tilia cordata* trees grown in urban conditions. *Building and Environment*, 114: 118-128.

9. Moser, A., **Rahman, M.A.**, Pretzsch, H., Pauleit, S., Rötzer, T., 2017. Inter- and intraannual growth patterns of urban small-leaved lime (*Tilia cordata* Mill.) at two public squares with contrasting microclimatic conditions. *International Journal of Biometeorology*, DOI: 10.1007/s00484-016-1290-0.

2015

10. **Rahman, M.A.**, Armson, D., Ennos, A.R, 2015. A comparison of the growth and cooling effectiveness of five commonly planted urban tree species. *Urban Ecosystems*, 18: 371–389.

2014

11. Bolton, C., **Rahman, M.A.**, Armson, D., Ennos, A.R, 2014. Effectiveness of an Ivy Covering at Insulating a Building against the Cold in Manchester, U.K: A Preliminary Investigation. *Building and Environment*, 80: 32-35.

12. **Rahman, M.A.**, Armson, D., Ennos, A.R, 2014. Effect of urbanization and climate change in the rooting zone on the growth and physiology of *Pyrus calleryana*. *Urban Forestry & Urban Greening*, 13: 325–335.

2013

13. **Rahman, M.A.**, Stringer, P., Ennos, A.R., 2013. Effect of pit design and soil composition on performance of *Pyrus calleryana* street trees in the establishment period. *Arboriculture & Urban Forestry*, 39: 256–266.
14. Gill, S.E., **Rahman, M.A.**, Handley, J. F., Ennos, A.R., 2013. Modelling water stress to urban amenity grass in Manchester UK under climate change and its potential impacts in reducing urban cooling. *Urban Forestry & Urban Greening*, 12: 350-358.
15. Armson, D., **Rahman, M.A.**, Ennos, A.R., 2013. A Comparison of the Shading Effectiveness of Five Different Street Tree Species in Manchester, UK. *Arboriculture & Urban Forestry*, 39: 157-164.

2011

16. **Rahman, M.A.**, Smith, J.G., Stringer, P., Ennos, A.R., 2011. Effect of rooting conditions on the growth and cooling ability of *Pyrus calleryana*. *Urban Forestry & Urban Greening*, 10: 185-192.

2007

17. Al-Amin, M., Akter, S., **Rahman, M. A.**, 2007. Diversity of forest undergrowth of North Eastern region of Bangladesh. *Research Journal of Agriculture and Biological Sciences*, 3: 143-148.

2006

18. **Rahman, M. A.**, Alam, M. S., Al-Amin, M., 2006. Segregation of Biodegradable Solid Wastes of Chittagong Metropolitan Area Based on Specific Physical and Chemical Properties. *Pakistan Journal of Biological Sciences*, 9: 460-464.

In preparation

In preparation

1. **Rahman, M.A.**, Hartmann, C., Moser, A., Strachwitz, M., Paeth, H., Pretzsch, H., Pauleit, S., Rötzer, T. Tree cooling effects and human thermal comfort under contrasting species and sites.
2. Xu, C., **Rahman, M.A.**, Pauleit, S. Influence of growth forms in regulating ecosystem services – a case study in Munich, Germany.
3. Pace, R., Rötzer, T., De Fino, F., **Rahman, M. A.**, Pauleit, S., Nowak, D., Pretzsch, H., Grote, R. Temperature mitigation by urban trees: Modelling the cooling effect of transpiration and shading on a singletree basis.
4. **Rahman, M.A.**, Speck, T., Ludwig, F. A long-term tree inoculation study to form BauBotanic structures for living cities.

(ii) Reviews

1. **Rahman, M.A.**, Stratopoulos, L., Moser-Reischl, A., Zölch, T., Häberle, Karl-H., Rötzer, T., Pretzsch, H., Pauleit, S. (under review). Choosing the best species' characteristics for micro-climatic thermal regulation - a meta-analysis.
2. Rötzer, T., Moser-Reischl, **Rahman, M.A.**, Pauleit, S., Grote, R., Pretzsch, H. (in preparation). Modelling urban tree growth – review and perspectives.

(iii) Books and chapters in books

1. von Duthweiler, S., Pauleit, S., Rötzer, T., Moser, A., **Rahman, M.**, Stratopoulos, L., Zölch, T., 2017. Studies on the drought resistance of urban Trees. Jahrbuch der Baumpflege , Augsburg: 137–154
2. Ennos, A.R., Armson, D., **Rahman, M.A.**, 2015. How useful are urban trees? The lessons of the Manchester Research Project. Johnston, M. and Percival, G. (eds.), Trees, people and the built environment II. Institute of Chartered Foresters, Edinburgh: 62-70.

(iv) Other publications (proceedings etc.)

Technical reports:

1. **Rahman, M.A.**, 2018. Bäume – Luftkühlung ohne Lärm. Transforming Cities, 2018(3): 66-69
2. **Rahman, M.A.**, Ennos, A.R., 2016. What we know and don't know about the cooling benefits of urban trees. Technical Report, Trees & Design Action Group, DOI: 10.13140/RG.2.1.5122.2645
3. **Rahman, M.A.**, Ennos, A.R., 2016. What we know and don't know about the carbon storage and sequestration of urban trees. Technical Report, Trees & Design Action Group, DOI: 10.13140/RG.2.1.3221.7200
4. **Rahman, M.A.**, Ennos, A.R., 2016. What we know and don't know about the surface runoff reduction potential of urban trees. Technical Report, Trees & Design Action Group, DOI: 10.13140/RG.2.1.1124.5680

Popular articles

- Rahman, M.A.** 2008. Time to check salinity intrusion in the Sundarbans. The Daily Star (Environment). Available at: <http://www.thedailystar.net/news-detail-31819>
- Rahman, M.A.** 2007. Colonial influences on our forests. The Daily Star (Environment). Available at: <http://www.thedailystar.net/news-detail-15365>
- Rahman, M.A.** 2007. Recycling and composting should be preferred processes. The Daily Star (Environment). Available at: <http://www.thedailystar.net/news-detail-1337>
- Rahman, M.A.** 2007. Promoting eco-tourism in the Sundarbans. The Daily Star (Environment). Available at: <http://www.thedailystar.net/news-detail-322>

List of academic lectures (incl. guest lectures)

- 2019 Oral Presentation "Optimizing ecosystem services provision using suitable tree species and open space design". European Forum on Urban Forestry 2019, Cologne, Germany, 22.5 - 24.5.2019
- 2018
[Invited] Oral Presentation "Green infrastructure and ecosystem services for climate-resilient cities". LMU seminar series, BioZentrum der LMU, Martinsried, 19.12.2018
- 2018 Oral Presentation "Ecosystem services from urban green spaces - a quantitative study to compare the species differences at micro-scale". First World Forum on Urban Forests, Mantova, Italy, 28.11.- 01.12.2018
- 2018 Oral Presentation "Comparing the cooling and runoff reduction potential of two contrasting urban tree species in Munich, Germany" European Forum on Urban Forestry 2018, Helsinki and Vantaa 15.5 - 19.5.2018
- 2017
[Invited] Oral Presentation "How useful are our urban trees in mitigating urban heat?" Weihenstephaner Kolloquium zur Angewandten Ökologie und Planung, Oct. 30, 2017
- 2017
[Invited] Oral Presentation "Quantifying the Thermal Benefits of Urban Trees in Our Cities". Department of Urban Engineering, The University of Tokyo, Aug. 10, 2017.
- 2017 Oral Presentation "How useful are our urban trees in mitigating urban heat?" Green infrastructure: nature based solutions for sustainable and resilient cities, Orvieto, Italy, 4-7 April.
- 2016
[Invited] Oral Presentation "How cool are our urban trees to make our cities cool?" Urban Trees Seminar, Department of Geosciences and Natural Resource Management, University of Copenhagen, Nov 17, 2016.
- 2016 Oral Presentation "Comparing the cooling benefits of different urban tree species at contrasting growth conditions". 46th Annual meeting of the Ecological Society of Germany, Austria and Switzerland, Marburg, Germany, 05-09 Sept.
- 2016 Oral Presentation "Quantifying the cooling effect of trees in relation to their growth conditions, species differences and growth rates". 2nd International Conference on Urban Tree Diversity, Melbourne, Australia, 22-24, Feb., 2016
- 2015
[Invited] Oral Presentation "Upscaling the cooling benefits from street trees to street canyons". Department of Meteorology and Climatology seminar series, the Lomonosov Moscow State University, Russia, 26-30 Oct. 2015.
- 2014
[Invited] Oral Presentation "Trees and Climate Mitigation – Manchester Research". Arboricultural Association Amenity Conference, Royal Holloway, University of London, 14-17, Sept. 2014.

- 2013
[Invited] Oral Presentation “Trees for sustainable eco-cities”. Green & Blue Infrastructure Working Group for Manchester: A Certain Future, Manchester Metropolitan University, UK, Sept. 11, 2013.
- 2012 Oral Presentation “Trees in Cities: Growth Conditions and Cooling”. 4th International Eco summit at Columbus, OH, USA, Sept. 30 to Oct. 5, 2012.
- 2012 Oral Presentation “Effects of urban trees: growth conditions and urban cooling”. Urban Environmental Pollution Conference in Amsterdam, The Netherlands, 17- 20 June 2012.
- 2011 Oral Presentation “Effect of Growth Conditions on the Performance and Cooling Ability of Street Trees”. 17th Annual international Sustainable Development Research Conference at Columbia University, New York, NY, USA, 8-10 May 2011.
- 2011
[Invited] Oral Presentation “Effect of trees on urban cooling”. KORANET – Entrepreneurship Seminar for Early Career Researchers, Daejeon, Korea, 20-21 Oct. 2011.
- 2011 Poster Presentation “Effects of Species and Rooting Conditions on the Growth and Cooling Performance of Urban Trees”. Ecocity World Summit, Montreal, Canada, 22- 26 Aug. 2011.
- 2011 Poster Presentation “Effect of Growth Conditions on the Performance and Cooling Ability of Street Trees”. Trees, People and the Built Environment Research Conference, Birmingham, UK, 13-14 April 2011.

List of courses taught to date

Courses taught

Technical University of Munich, Germany

Green Technologies in Landscape Architecture (Course no. 0958)

Urban Forestry (Course no. 2146)

University of Manchester, UK

Environmental Challenges (EART10350)

Organismal Biology (BIOL 21051)

Introduction to Laboratory Science (BIOL 10401)

Introduction to Experimental Biology (BIOL 10402)

Supervision

Technical University of Munich, Germany

MSc: Anna Brähler; Thesis: Comparing the cooling effectiveness of two contrasting urban street tree species in Munich, Germany

MSc: Zoltán Szöke; Thesis: Effects of urban street trees and structure in reducing urban heat island

MSc: Marshal Anderson; Thesis: Comparing the performance of *R. pseudoacacia* and *T. cordata* in regard to improving urban soil infiltration in Munich, Germany

MSc: Elisabeth Pfeiderer; Thesis: Analysis of common public square design upon the outdoor thermal comfort (PET)

MSc: Georg Wagner; Thesis: Designing urban climate! Analysing two different square types in the centre of Munich and deriving general planning rules to reduce Urban Heat Island effect by using Envi-met simulations

University of Manchester, UK

BSc: Callum Bolton; Thesis: Thermal evaluation of a vegetation-covered wall in a temperate climate

BSc: Jonathan Smith; Thesis: Urban street trees in mitigating urban heat island effect

List of third-party funds raised

(i) Competitive research projects

1. Principal investigator; project *Quantifying the effect of trees in reducing air temperature in different urban street canyons* (funded by Alexander von Humboldt Foundation)

2. Principal investigator; project *Quantifying the cooling effectiveness of urban street trees in relation to their growth* [funded by the International Society of Arboriculture as an awardee of the “Jack Kimmel International Grant” (2016; Grant #: 15-JK-01)]

3. Co-Principal investigator; project *Reviewing the physical benefits of urban trees* (funded by Fund4Trees, UK)

4. Co-Principal investigator; project *Effects of Species and Rooting Conditions on the Growth and Cooling Performance of Urban Trees* [European Union INTERREG IVB fund as part of the VALUE project (Awarded by Red Rose Forest)]

Named researcher

1. *Impact of trees on the urban microclimate under climate change: Mechanisms and ecosystem services of urban tree species in temperate, Mediterranean and arid major cities* funded by the German Research Foundation (DFG) (PA 262673-1| PR 292/21-1)

2. *Klimaerlebnis Würzburg* (funded by the Bavarian Ministry of the Environment and Consumer Protection), April 2017 – March 2020

Public relations

- Interviews for the TV show *Abendschau* (BR24, 05.05.2017), for local radio *Kortex: Bäume und ihre Bewohner* (afk M94.5, 29.07.2018)
- Interviews for national and international News Papers, Magazine (Süddeutsche Zeitung, Gebäude Energieberater, Naturschutz und Landschaftsplanung, TREE Fund Monthly)

Outreach activities

- 2019 Public awareness building campaign at Köschinger Forest (Talking trees, <https://talkingtrees.de/>)
- 2009-13 Organized and participated in various public outreach activities carried out by *Sustainable Consumption Institute (SCI)*, University of Manchester, UK; Red Rose Forest, Manchester, UK

Additional work experiences and training

Research

“Climate Proof Cities Spring School: the Science-Policy Interface” in Manchester (April 1 to 5, 2012).

Participated in the compressed course on “Sustainable Development and Climate Change: October 2009”.

University of Chittagong, Bangladesh, Research Assistant (2004-05)

Teaching

IT Representative, University of Manchester, UK (2011-13)

Sustainable Consumption Institute Centre for Doctoral Training (SCI CDT) (2009-13): *undergraduate teaching*

Postgraduate Demonstrator: Secondary and Post-16 Science programme, Manchester Museum Life Lab (2010-11)