

Dong-Gill Kim

Wondo Genet College of Forestry and Natural Resources, Hawassa University, PO Box 128, Shashemene, Ethiopia E-mail: <u>donggillkim@gmail.com</u> Web page: <u>http://donggillkim.blogspot.com/</u>

LECTURES

Biobased Climate Change Mitigation Rural Livelihood and Climate Change Adaptation Energy Dynamics in Climate Change Climate and Agriculture Research methods and scientific paper writing Seminar

RESEARCH INTERESTS

Carbon sequestration Soil greenhouse gas (CO₂, N₂O, CH₄) emission Climate change Biodiversity Nutrient cycles in terrestrial ecosystem Watershed management

EDUCATION

2003 - 2008 Iowa State University, Iowa, US. Ph.D., August 2008. Environmental Science Advisor: Dr. Richard C. Schultz

2000 - 2002 Seoul National University, Seoul, Korea. M.S., February 2002. Environmental Science Advisor: Dr. Dowon Lee

1992 - 1998 Daejon University, Daejeon, Korea. B.S., February 1998. Environmental Engineering

PROFESSIONAL EXPERIENCE

Technical University Dresden, Germany 2014 June - August Visiting researcher/guest lecturer

Wondo Genet College of Forestry and Natural Resources, Hawassa University, Ethiopia2012 - PresentAssistant Professor

Global Change Processes, Landcare Research, New Zealand

2010 - 2012 Post-doc researcher Greenhouse gas measurements and development of mitigation strategies in managed grassland

Department of Civil & Environmental Engineering, University College Cork, Ireland 2008 - 2009 Post-doc researcher Comparing greenhouse gas nitrous oxide (N_2O) emission measured using chamber systems and eddy covariance systems, N_2O emission modelling, national N_2O emission inventories and scenario analyses for predicting N_2O emission.

Department of Natural Resources Ecology and Management, Iowa State University, USA 2003 - 2008 Research Assistant

2003 - 2008 Research Assistant

1) Emission of the greenhouse gas N_2O from riparian forest buffers, warm-season and cool-season grass filters and crop fields 2) The effect of harvesting trees, shrubs and native grasses on soil carbon sequestration and greenhouse gases CO_2 , N_2O and CH_4 flux in riparian buffers designed to provide biomass for biofuel production.

Institute of Environmental Planning, Graduate School of Environmental Studies, Seoul National University, South-Korea

2002 - 2003 Research Associate.

Participated in the development of terrestrial carbon flux observation technology for the Korean peninsula.

1999 - 2000 Research Assistant.

Environmental impact of the Sae Man Gum Reclamation Project, including evaluation of constructed wetlands.

FUNDED GRANTS

International Atomic Energy Agency. 2014-2015. Minimizing Farming Impacts on Climate Change by Enhancing Carbon and Nitrogen Capture and Storage in Agro-Ecosystems

SSEESS Research Links Programme 2014. 2014-2015. Linking biodiversity, productivity and climate change adaptation & mitigation

SUTROFOR Erasmus Mundus Scholar Scholarship. 2014

Swedish University of Agricultural Sciences, Sweden. 2013-2014. Thematic PhD course for Innovative Doctoral Education for Food Security.

British Ecological Society, UK. 2013. Ecologist in Africa Research Grant.

Landcare Research, Agricultural Greenhouse Gas Mitigation Research. 2012-2013. The effect of nitrification inhibitor, dicyandiamide (DCD) on pasture yields, nitrous oxide emissions and nitrogen leaching losses

Hawassa University, Research and Development Program. 2012-2013. Net gain of soil carbon in indigenous Ethiopian home gardens to maintain sustainability and mitigate global climate change.

Hawassa University, Research and Development Program. 2012-2013. Impact of forest fire on carbon loss in Wondo Genet sub-catchment, Southern Ethiopia.

Hawassa University, Research and Development Program. 2012-2013. The effect of topographic characteristics and vegetation density and biodiversity on soil organic carbon stocks in natural forest, Wondo Genet, Southern Ethiopia.

USDA-SARE Graduate Student Grant Program. 2006-2007. Emission of the greenhouse gas nitrous oxide from riparian forest buffers, warm-season and cool-season grass filters, and crop fields.

University of Iowa, Center for Global and Regional Environmental Research Seed Grant Program. 2007-2008. The effect of harvesting trees, shrubs and native grasses on soil carbon sequestration and greenhouse gases CO_2 , N_2O and CH_4 flux in riparian buffers designed to provide biomass for biofuel production.

PUBLICATIONS

• Refereed Journal and book

[24] *Kim, D.-G.,* M. U. F. Kirschbaum. 2015. The effect of land-use change on the net exchange rates of greenhouse gases: a compilation of estimates. Agriculture, Ecosystems and Environment. 208: 114-126. <u>http://dx.doi.org/10.1016/j.agee.2015.04.026</u>.

[23] *Kim, D.-G.,* M. U. F. Kirschbaum. 2014. The effect of land-use change on the net exchange rates of greenhouse gases: a meta-analytical approach. Biogeosciences Discuss., 11, 1053–1095. doi:10.5194/bgd-11-1053-2014

[22] Beedy, T.L., G. Nyamadzawo, E. Luedeling, *D.-G. Kim*, F. Place, K. Hadgu. 2014. Agroforestry for Small Landholders of Eastern and Southern Africa. Managing Soils of Smallholder Agriculture, Rattan Lal and B.A. Stewart, editors, Taylor and Francis. pp. 237-275

[21] *Kim, D.-G.,* Giltrap DL, Saggar S, Hanly JA. 2014. Field studies assessing the effect of DCD on pasture yields, N₂O emissions and N-leaching in the Manawatu. New Zealand Journal of Agricultural Research. http://dx.doi.org/10.1080/00288233.2013.855244

[20] *Kim, D.-G.,* Rafique, R., Leahy, P., Cochrane, M., Kiely, G. 2014. Estimating the impact of changing fertilizer application rate, land use, and climate on nitrous oxide emissions in Irish grasslands. Plant and Soil. 374: 55-71. doi:10.1007/s11104-013-1862-2.

[19] *Kim, D.-G.*, Giltrap, D., Hernandez-Ramirez, G.2013. Erratum to: Background nitrous oxide emissions in agricultural and natural lands: a meta-analysis. Plant and Soil. 373: 1007-1008. doi: 10.1007/s11104-11013-11883-x.

[18] *Kim, D.-G.,* Hernandez-Ramirez, G., Donna, G. 2013. Background nitrous oxide emissions in agricultural and natural lands: a meta-analysis. Plant and Soil. 373: 17-30. doi: 10.1007/s11104-013-1762-5.

[17] *Kim, D.-G.,* Hernandez-Ramirez, G., Donna, G. 2013. Linear and nonlinear dependency of direct nitrous oxide emissions on fertilizer nitrogen input: A meta-analysis. Agriculture, Ecosystems and Environment. 168: 53-65, doi:10.1016/j.agee.2012.02.021

[16] Saggar S, N Jha, J Deslippe, NS Bolan, J Luo, DL Giltrap, *D-G Kim*, M Zaman and RW Tillman. 2013. Denitrification and N₂O:N₂ production in temperate grasslands: processes, measurements, modelling and mitigating negative impacts. Science of the Total Environment. <u>http://dx.doi.org/10.1016/j.scitotenv.2012.11.050</u>

[15] Saggar S, Singh J, Giltrap D L, Zaman M, Luo J, Rollo M, *Kim D-G*, Rys G, van der Weerden T J, 2012. Use of urease inhibitors in reducing ammonia emissions from fertiliser urea and animal urine in grazed pastures: an approach to quantifying emission reductions for the New Zealand agriculture inventory. Science of the Total Environment. doi: 10.1016/j.scitotenv.2012.07.088

[14] *Kim, D.-G.,* Giltrap, D. P., Saggar, S., Palmada, T., Berben, P., Drysdale D., 2012. Fate of the nitrification inhibitor, dicyandiamide (DCD) sprayed on a grazed pasture: effect of rate and time of application. Soil Research, 50: 337-347, http://dx.doi.org/10.1071/SR12069.

[13] *Kim, D.-G.,* Roudier, P., Saggar, S., 2012. The effect of nitrification inhibitor on soil ammonia emission: A meta-analysis. Nutrient Cycling in Agroecosystems. 93: 51-64. doi: 10.1007/s10705-012-9498-9

[12] *Kim, D.-G.,* 2012. Estimation of net gain of soil carbon in a nitrogen-fixing tree and crop intercropping system in sub-Saharan Africa: results from re-examining a study. Agroforestry Systems, 86: 175-184. doi:10.1007/s10457-011-9477-1

[11] *Kim, D.-G.,* Vargas, R., Bond-Lamberty, B., and Turetsky, M. R.2012. Effects of soil rewetting and thawing on soil gas fluxes: a review of current literature and suggestions for future research, Biogeosciences, 9: 2459-2483, doi:10.5194/bg-9-2459-2012

[10] *Kim, D.-G.* 2011. Soil greenhouse gas emissions and global warming. In: Ecological Society of Korea (Eds.), Ecosystems and Climate Change, Geobook, Seoul, Korea. pp. 50-53 (in Korean)

[9] Saggar, S., Luo, J., *Kim, D.-G.*, Jha, N., 2011, Intensification in pastoral farming: impacts on soil attributes and gaseous emissions. In: B. P. Singh, A. Cowie and Y. Chan (Eds.), Soil Health and Climate Change (Soil Biology Series). Springer-Verlag. pp. 207-236.

[8] *Kim, D.-G.,* Mishurov, M., and Kiely, G. 2010. Effect of increased N use and drought on N₂O emission in a fertilized grassland. Nutrient Cycling in Agroecosystems 88: 397-410. doi: 10.1007/s10705-010-9365-5

[7] *Kim, D.-G.,* J. H. Park, H. J. Kang, and D. Lee. 2010. Removal of nitrogen and phosphorus from effluent of a secondary wastewater treatment plant using a pond-marsh wetland system. Water, Air, & Soil Pollution. 214: 37-47. doi: 10.1007/s11270-010-0399-8

[6] *Kim, D.-G.,* S. Mu, S. Kang, and D. Lee. 2010. Factors controlling soil CO₂ effluxes and the effects of rewetting on effluxes in adjacent deciduous, coniferous, and mixed forests in Korea. Soil Biology and Biochemistry 42: 576-585. doi:10.1016/j.soilbio.2009.12.005

[5] *Kim, D.-G.,* Isenhart, T. M., Parkin, T. B., Schultz, R. C., Loynachan, T. E., and Raich, J. W. 2009. Nitrous oxide emissions from riparian forest buffers, warm-season and cool-season grass filters, and crop fields, Biogeosciences Discuss., *6*, 607-650, 2009. doi:10.5194/bgd-6-607-2009

[4] *Kim, D.-G.,* Isenhart, T. M., Parkin, T. B., Schultz, R. C., and Loynachan, T. E. 2009. Nitrate and dissolved nitrous oxide in groundwater within cropped fields and riparian buffers, Biogeosciences Discuss., 6, 651-685, 2009. doi:10.5194/bgd-6-651-2009

[3] *Kim, D.-G.*, Schultz, R.C., Isenhart, T.M., Parkin, T.B., Loynachan, T.E. 2009. Methane Flux in Cropland and Adjacent Riparian Buffers with Different Vegetation Covers, Journal of Environmental Quality 39, 97-105. doi: 10.2134/jeq2008.0408

[2] *Kim, D.-G.* 2008. Can South-Korea's canal project reduce greenhouse gas emission?. Frontiers in Ecology and the Environment. Vol. 6, No. 7, pp. 355-355. doi: 10.1890/1540-9295(2008)6[355a:CSKCPR]2.0.CO;2

[1] Chae, N., J. *Kim, D.-G*. Lee, R.-H. Kim, J. Ban, and Y. Son. 2003. Measurement of soil CO₂ efflux using a closed dynamic chamber system. Korean J. Agric. For. Meteor. 5(2):94-100.

• Manuscripts in review/revision

[3] Kim, D.-G., M. U. F. Kirschbaum. 2014. The effect of land-use change on the net exchange rates of greenhouse gases: a meta-analytical approach. Biogeosciences Discuss., 11, 1053–1095.

[2] Kim, D.-G., H. Taddese, A. Belay, R. Kolka. 2015. The impact of traditional fire management on soil carbon and nitrogen pools in a montane forest, Southern Ethiopia

[1] Kim, D.-G., B. Terefe, S. Girma, H. Kedir, N. Morkie, T. M. Woldie. 2015. The effect of conversion of indigenous agroforestry home gardens to mono-crop fields on soil organic carbon and nitrogen stocks in Southern Ethiopia

• Manuscripts in final stages of preparation

[2] Kim, D.-G., M.U.F. Kirschbaumb, Tracy L. Beedy. Carbon sequestration and greenhouse gas emissions in agroforestry: summary of available data and suggestion for future studies

[1] *Kim, D.-G.*, Greenhouse gas emissions in natural and agricultural lands in Africa: summary of available data and suggestions for future studies

• Research Blogs and web based open databases

Effects of soil rewetting and thawing on soil gas fluxes: a review of current literature (http://rewettingandthawing.blogspot.com/)

Dependency of direct nitrous oxide emissions on fertilizer nitrogen input (http://ninputn2oemission.blogspot.com/)

Soil greenhouse gas emissions in Africa: study lists and database (http://ghginafrica.blogspot.com/)

The effect of nitrification inhibitors on soil ammonia emissions in nitrogen managed soils (http://niandnh3.blogspot.co.nz/)

Wondo Genet home garden carbon sequestration research (<u>http://hgcsr.blogspot.com/</u>)

• Proceedings and abstracts

Kim, D.-G. 2015. The impact of wildfire on soil carbon. The biannual newsletter of the Streams-2-SUPPRESS-Fires (S2SF). Issue 5, March 2015. http://suppressfires.eu/nn4o.pdf

Kim, D.-G. 2014. Introducing Wondo Genet College biodiversity projects: Investigating the relationship between biodiversity, carbon stocks, and greenhouse gas fluxes. Borchardt, P. and Schickhoff, U. (Eds.), ARBOPRO- The Wondo Genet College Arboretum Project. University of Hamburg, Germany.

Kim, D.-G., Giltrap, D., Saggar, S., Palmada, T., Berben, P., Drysdale, D., 2012. Factors controlling disappearance of nitrification inhibitor, dicyandiamide (DCD) in a grazed pasture soil in Manawatu. In: Currie, L.D., Christensen, C.L. (Eds.), Advanced Nutrient Management: Gains from the Past-Goals for the Future. Massey University, Palmerston North, New Zealand.

http://www.massey.ac.nz/~flrc/workshops/12/Manuscripts/Kim 2012.pdf

Kim, D.-G., T.Palmada, P. Berben, D. Giltrap and S. Saggar, 2011. Seasonal variations in the degradation of a nitrification inhibitor, dicyandiamide (DCD), in a Manawatu grazed pasture soil. In: Adding to the knowledge base for the nutrient manager. (Eds. L.D. Currie and C L. Christensen).http://flrc.massey.ac.nz/publications.html. Occasional Report No. 24.Fertilizer and Lime Research Centre, Massey University, Palmerston North, New Zealand. http://www.massey.ac.nz/~flrc/workshops/11/Manuscripts/Kim_2011.pdf

Saggar, S., J. Luo, J. Singh, N. Bolan, M. Zaman, *D.-G. Kim* and N. Jha. 2010. Technologies to Mitigate Nitrous Oxide Emissions From GrazedPastoral Agriculture. ASA, CSSA, and SSSA 2010 International Annual Meetings.October 31- November 4, 2010, Long Beach, LA USA.

Kim, D.-G., Hernandez-Ramirez G (2010) Dependency of nitrous oxide emission factors on nitrogen input rates: a meta-analysis. 19th World Congress of Soil Science, Soil Solutions for a Changing World. 1 - 6 August 2010. Brisbane, Australia. http://www.iuss.org/19th%20WCSS/Symposium/pdf/0386.pdf

Isenhart, T.M., *Kim, D.-G.*, Schultz, R.C. 2009. Emission of the greenhouse gas nitrous oxide from riparian forest buffers, warm-season and cool-season grass filters, and crop fields. In M.A. Gold and M.M. Hall (eds.). Agroforestry Comes of Age: Putting Science into Practice. Proceedings, 11th North American Agroforestry Conference. 143-153.

Kim, D.-G., Schultz, R.C., Isenhart, T.M., Simpkins, W., Parkin, T.B., Raich, J.W., Loynachan, T.E. 2007. Emission of the Greenhouse Gas Nitrous Oxide (N_2O) from Riparian Forest Buffers, Warm-Season and Cool-Season Grass Filters and Crop Fields. In: ASA-CSSA-SSSA Annual Meeting, Nov. 4-8, 2007, New Orleans, LA.

Kim, D.-G., Schultz, R.C., Isenhart, T.M., Parkin, T.B., Raich, J.W., Loynachan, T.E. 2007. Emission of the Greenhouse Gas Nitrous Oxide (N₂O) from Riparian Forest Buffers, Warm-Season and Cool-Season Grass Filters and Crop Fields. In: 4th USDA Greenhouse Conference, Feb. 5-8, 2007, Baltimore, MD.

Kim, D.-G., Schultz, R.C., Isenhart, T.M., Simpkins, W., Parkin, T.B., Raich, J.W., Loynachan, T.E. 2006. Emission of the Greenhouse Gas Nitrous Oxide (N₂O) from Riparian Forest Buffers, Warm-Season and Cool-Season Grass Filters and Crop Fields. In: ASA-CSSA-SSSA Annual Meeting, Nov. 12-16, 2006, Indianapolis, IN.

Kim, D.-G., Schultz, R.C., Isenhart, T.M., Parkin, T.B., Raich, J.W., Loynachan, T.E. 2006. Flux of dissolved N₂O in groundwater from crop field to riparian buffers. In: Soil and Water Conservation Society workshop, Managing Agricultural Landscapes for Environmental Quality: Strengthening the Science Base, October 11-13, 2006. Kansas City, MO.

Kim, D.-G., Chae, J. Kim, S. Kang, and D. Lee. 2003. Pulse of soil CO₂ efflux caused by rainfall at the deciduous, coniferous, and mixed forests near Kwangneung flux tower, Korea. Poster presentation, 58th Meeting of the Ecological Society of America, Georgia. U.S, August 7-12.

Kim, D.-G., J. H. Park, H. J. Kang, C. W .Ahn, and D. Lee. 2002. Removal of nitrogen and phosphorus in a constructed wetlands system. Oral presentation, 8th Meeting of the international Congress of Ecology, Seoul, Korea, August 11-18.

Kim, D.-G., S. Mu, N. Chae, J. Kim, S. Kang, and D. Lee. 2002. Comparison of soil respiration at the deciduous, coniferous, and mixed forests near Kwangneung flux tower, Korea. Poster presentation, 8th Meeting of the International Congress of Ecology, Seoul, Korea, August 11-18.

Kim, D.-G. and W. Jang. 1998. A study of soil contamination in heaped soil dredged from storage ponds in the Pohang Industrial Complex. Oral presentation, Annual Meeting of Korea Society of Soil Environment, Cheju University, Korea, October 11-13.

• Invited lectures, presentations and contributions

Kim, D.-G. 2015. Carbon sequestration and greenhouse gas emissions in agroforestry: summary of global data and implications for Ethiopia. In Road to Paris, What Kind of Agreement Do We Need?, HoA-REC&N Headquarters, Gullele Botanic Gardens, Ethiopia. April 8, 2015.

Kim, D.-G. 2015. Climate Change in Ethiopia: impact, adaptation & mitigation. Department of Forest Ecology and Management, Swedish University of Agricultural Sciences, Sweden, March 26, 2015

Kim, D.-G. 2015. Climate Change in Ethiopia: impact, adaptation & mitigation. Kookmin University, South-Korea. March 5, 2015

Kim, D.-G. 2015. Climate Change in Ethiopia: impact, adaptation & mitigation. Seoul National University, South-Korea. February 25, 2015

Kim, D.-G. 2014. Climate Change in Ethiopia: impact, adaptation & mitigation. Biozentrum Klein Flottbek, Universität Hamburg, Germany. July 9, 2014

Kim, D.-G. 2014. Climate Change in Ethiopia: impact, adaptation & mitigation. Dresden University of Technology, Institut für Geographie, Germany. July 2, 2014

Kim, D.-G. 2013. Climate change in Ethiopia: impact, adaptation & mitigation. In Peace Corps Ethiopia Midterm Service Conference, Red Cross training centre, Addis Ababa, Ethiopia, November 23, 2013.

Kim, D.-G. 2012. Mitigation of greenhouse gas emissions and carbon sequestration in agriculture and natural resources: current understanding and opportunities for Ethiopia. In Rangeland Management Training Workshop, Oromia Agricultural Research Institute Yabello Pastoral and Dryland Agricultural Research Center. Ethiopia. December 11-12, 2012.

Kim, D.-G. 2012. Mitigation of greenhouse gas emissions and carbon sequestration in agriculture and natural resources: global aspects and opportunities for Ethiopia. Invited presentation at KEAA seminar: Lesson to be learned from the Korean experience for the Growth and Transformation Plan of Ethiopia. July 28, 2012. Addis Ababa. Ethiopia.

Kim, D.-G. Past, Present, and Future of the Bear Creek Riparian Buffer Projects. Invited presentation at Syngenta, Inc. Greensboro, NC. October 30, 2007.

Kim, D.-G. The effect of harvesting trees, shrubs and native grasses on soil carbon sequestration and greenhouse gases CO₂, N₂O and CH₄ flux in riparian buffers designed to provide biomass for biofuel production. Invited presentation at Soil and Water Conservation Club, Iowa State University. March 10, 2008

Kim, D.-G. Riparian buffer projects in Iowa and potential applications in South-Korea. Invited presentation at KSEA Central Iowa Chapter Seminar, Iowa State University. April 5, 2008

Kim, D.-G. Biofuel is only 1 of many alternative energies. Iowa State Daily. April 30, 2007

Interviewed by Nature News for an article "Korean waterway project gathers opposition". published online 19 March 2008 (<u>http://www.nature.com/news/2008/080319/full/news.2008.679.html</u>)

STUDENT SUPVERSION

Berhanu Terefe: Ph.D student (2013-), Wondo Genet College of Forestry and Natural Resources, Hawassa University Wainkwa Chia Rogers: MSc student (2014-), Wondo Genet College of Forestry and Natural Resources, Hawassa University Wondimagegn Amanuel: MSc student (2014-), Wondo Genet College of Forestry and Natural Resources, Hawassa University

THESIS/DISSEREATATION/SCHOLARSHIP EXAMINATION

Pre-selection committee for DAAD Ph.D scholarship, Ethiopia. 2014

Addisu Melka. 2014. Woody species diversity, soil carbon and total nitrogen stocks under area exclosure and adjacent open grazing land: the case of Gango-micro catchment, Ada'a district, Central Rift Valley of Ethiopia. MSc thesis, Hawassa University

Firehywot Assefa Tofu. 2014. Farmers' perception and adaptation strategies to climate change and variability: the case of Mareka Wareda of Dawuro zone, South Ethiopia. MSc thesis, Hawassa University

Fikru Muda Gumi. 2014. Farmers' perception and adaptation of compost: the case of a soil fertility improvement practice in Arsi Nagele. Central Rift Valley of Ethiopia. MSc thesis, Hawassa University

Biniam Tesfaye Chumbala. 2014. Indigenous knowledge and factors related to practice of forest conservation among forest dependent community: the case of Manhja and other community, Tocha Woderda, Dawuro zone, Ethiopia. MSc thesis, Hawassa University

Dagmawi Loulseged. 2013. The impact of forest land conversion into cultivated and grazing land on soil carbon stock: the case of Goshine Kebele, South Western Ethiopia. MSc thesis, Hawassa University

Million Sahlu Tessema. 2013. Climate change adaptation and mitigation strategies for synergy: the case of Harenna forest dependent community, Delo Mena district, Bale zone, Ethiopia. MSc thesis, Hawassa University

Abebe Negash Horsa. 2013. Impact of Lake Abijata recession on organic carbon stock of soil. MSc thesis, Hawassa University

JOURNAL REVIEW

Proceedings of the International Conference 'FRONTIERS IN ENVIRONMENTAL AND WATER MANAGEMENT', 19-21 March 2015, Kavala, Greece Science of the Total Environment Journal of Contaminant Hydrology Agriculture, Ecosystems and Environment Biogeosciences Agroforestry Systems Journal of Environmental Quality Soil Biology and Biochemistry New Zealand Journal of Agricultural Research

HONORS AND AWARDS

2000 Graduate School Scholarship. Graduate School of Environmental Studies, Seoul National University.

1998 Trustees' Award. Daejon University.

1997 Best Student Oral Presentation award. National Environmental Studies Presentation Competition. Ministry of Education, Korea.

1997 Third prize. National Competition in Environmental Conservation Studies. Korea Environmental Conservation Institute, Korea.

1994 -1997 Collegiate Scholarship. Ministry of Education, Korea. 1992 University-wide scholarship. Daejon University.

PUBLIC SERVICE/ACTIVITIES

2006-2007 Team manager (Volunteer). Relay for Life of Iowa State University for American Cancer Society. Ames, IA.

2006 Ceremony manager (Volunteer). Special Olympics: USA National Games, Ames, IA. 2004 - 2005 Department seminar committee, Department of Natural Resource Ecology and Management, Iowa State University.

2000 - 2002 Research Team Chief (Volunteer). Earth Charter Korea, Seoul, Korea.

1995 - 1999 Research assistant (Volunteer). Institute of Baedal Environment, Daejon, Korea.