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Pollution Management (PM) Research Group
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PERSONAL STATEMENT

My research focuses on exploring synergies and trade-offs between the control of local and regional air pollution and the mitigation of global greenhouse gas emissions.

EXPERTISE

Fluorinated Greenhouse Gas (F-gas) Emissions, Air Pollution Control, Climate Change (Mitigation), Integrated Assessment Modeling, Short Lived Climate Forcers (SLCFs), Energy Economics, Policy & Planning, Renewable Energy Systems/Technologies.

EDUCATION

- 2005 Ph.D. Centre for Energy Studies, Indian Institute of Technology (IIT) Delhi, India
- 1998 M.Sc. Department of Physics, H.N.B. Garhwal Central University Srinagar, India
- 1996 B.Sc. Faculty of Science, H.N.B. Garhwal Central University Srinagar, India

PROFESSIONAL APPOINTMENTS

- 2021 - present Senior Research Scholar (R-3), Pollution Management Research Group, Energy, Climate, and Environment (ECE) Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria.
- 2007-2020 Research Scholar, Air Quality and Greenhouse Gases (AIR) Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria.
- 2019 Visiting Faculty, Department of Built Environment & Energy Technology, Linnaeus University (LNU), Kalmar, Sweden.
- 2015 Visiting Fellow, at the Council on Energy, Environment and Water (CEEW), New Delhi, India.
- 2010 Visiting Fellow, School of International Development, University of East Anglia (UEA), Norwich, UK.
- 2007 Visiting Faculty, Institute of Political Science, University of Zurich, Switzerland.
- 2005-2007 e8 Postdoctoral Research Fellow, Research Program on International Climate Policy, Hamburg Institute of International Economics (HWWI), Hamburg, Germany.
- 2005 Research Manager, Indian School of Petroleum (ISP), New Delhi, India.
- 2005 Senior Lecturer, College of Engineering, University of Petroleum & Energy Studies (UPES), New Delhi, India.

- 2004 Consultant, Integrated Research and Action for Development (IRADe), New Delhi, India.
- 2002-2004 CSIR-Senior Research Fellow, Centre for Energy Studies, Indian Institute of Technology (IIT) Delhi, India (Council of Scientific and Industrial Research (CSIR) fellowship, Govt. of India).
- 1991-2001 ICAR-Senior Research Fellow, Centre for Energy Studies, Indian Institute of Technology (IIT) Delhi, India (funded by the Indian Council for Agricultural Research (ICAR), Govt. of India).

PUBLICATIONS

REFEREED JOURNAL ARTICLES

- 2022 **Purohit, P.**, Borgford-Parnell, N., Klimont, Z., Höglund-Isaksson, L. 2022. Achieving Paris climate goals calls for increasing ambition of the Kigali Amendment. *Nature Climate Change*, 12, 339–342, doi: 10.1038/s41558-022-01310-y
- 2022 Jiang, H., **Purohit, P.**, Dong, K., Liu, L.-J., Liang, Q.-M. 2022. The cost-benefit comparisons of China’s and India’s NDCs based on carbon marginal abatement cost curves. *Energy Economics*, 109, 105946, doi: 10.1016/j.eneco.2022.105946
- 2022 Mir, K.A., **Purohit, P.**, Cail, S., Kim, S. 2022. Co-benefits of addressing climate change and air pollution simultaneously in Pakistan. *Environmental Science & Policy*, 133, 31-43, doi: 10.1016/j.envsci.2022.03.008
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- 2021 David, L. M., Barth, M., Höglund-Isaksson, L., **Purohit, P.**, Velders, G. J. M., Glaser, S., and Ravishankara, A. R. Trifluoroacetic acid deposition from emissions of HFO-1234yf in India, China and the Middle East. *Atmospheric Chemistry & Physics*, 21 (19), 14833–14849, doi: 10.5194/acp-21-14833.
- 2021 Hamilton, I., Kennard, H., McGushin, A., Hoglind-Isaksson, L., Kiesewetter, G., Lott, M., Milner, J., **Purohit, P.**, Rafaj, P., Sharma, R., Springmann, M., Woodcock, J., Watts, N. Responding to climate change for health: the public health implications of the Paris Agreement. *The Lancet Planetary Health*, 5 (2), e74-e83, doi: 10.1016/S2542-5196(20)30249-7
- 2021 Mir, K.A., Park, C., **Purohit, P.**, Kim, S. Comparative analysis of greenhouse gas emission inventory for Pakistan: Part II agriculture, forestry and other land use and waste. *Advances in Climate Change Research*, 12 (1), 132-144, doi: 10.1016/j.accr.2021.01.003
- 2020 Mir, K.A., Park, C., **Purohit, P.**, Kim, S. Comparative analysis of greenhouse gas emission inventory for Pakistan: Part I energy and industrial processes and product use. *Advances in Climate Change Research*, 11 (1), 40-51, doi: 10.1016/j.accr.2020.05.002
- 2020 **Purohit, P.**, Höglund-Isaksson, L., Dulac, J., Shah, N., Wei, M., Rafaj, P., and Schöpp, W. Electricity savings and greenhouse gas emission reductions from global phase-down of hydrofluorocarbons. *Atmospheric Chemistry & Physics*, 20 (19), 11305–11327, doi:10.5194/acp-2020-193.

- 2020 Peng, W., Dai, H., Guo, H., **Purohit, P.**, Urpelainen, J., Wagner, F., Wu, Y., Zhang, H. The central role of policy enforcement in achieving health, air quality and climate benefits from India's clean electricity transition. *Environmental Science & Technology*, 54 (19), 11720-11731, doi: 10.1021/acs.est.0c01622.
- 2020 Wang, X., **Purohit, P.**, Höglund-Isaksson, L., Zhang, S., Fang, H. Co-benefits of energy efficient air conditioners in the residential building sector of China. *Environmental Science & Technology*, 54 (19), 11720-11731, doi: 10.1021/acs.est.0c01622
- 2020 Amann, M., Kiesewetter, G., Schoepp, W., Klimont, Z., Winiwarter, W., Cofala, J., Rafaj, P., Hoglund-Isaksson, L., Gomez-Sabriana, A., Heyes, C., **Purohit, P.**, Borken-Kleefeld, J., Wagner, F., Sander, R., Fagerli, H., Nyiri, A., Cozzi, L., Pavarini, C. Reducing global air pollution: The scope for further policy interventions. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 378 (2183), 20190331, doi: 10.1098/rsta.2019.0331
- 2020 Majumdar, D., **Purohit, P.**, Bhanarkar, A.D., Rao, P.S., Rafaj, P., Amann, M., Sander, R., Pakrashi, A., Srivastava, A. Managing future air quality in megacities: Emission inventory and scenario analysis for the Kolkata Metropolitan City, India. *Atmospheric Environment*, 222, 117135, doi: 10.1016/j.atmosenv.2019.117135
- 2019 **Purohit, P.**, Amann, M., Kiesewetter, G., Rafaj, P., Chaturvedi, V., Dholakia, H.H., Koti, P.N., Klimont, Z., Borken-Kleefeld, J., Gomez-Sanabria, A., Schöpp, W., Sander, R. Mitigation pathways towards national ambient air quality standards in India. *Environment International*, 133A, 105147, doi: 10.1016/j.envint.2019.105147.
- 2019 Zhang, S., Yi, B.W., Worrell, E., Wagner, F., Crijns-Graus, W., **Purohit, P.**, Wada, Y., Varis, O. Integrated assessment of Resource-Energy-Environment Nexus in China's iron and steel industry. *Journal of Cleaner Production*, 232, 235-249, doi: 10.1016/j.jclepro.2019.05.392.
- 2019 Khatiwada, D., **Purohit, P.**, Ackom, E.K. Mapping Bioenergy Supply and Demand in Selected Least Developed Countries (LDCs): Exploratory Assessment of Modern Bioenergy's Contribution to SDG7. *Sustainability*, 11, 7091, doi: 10.3390/su11247091.
- 2018 **Purohit, P.** Small and bad. *Nature Sustainability*, 1 (1), 17-18, doi: 10.1038/s41893-017-0012-x
- 2018 Bhanarkar, A.D., **Purohit, P.**, Rafaj, P., Amann, M., Bertok, I., Cofala, J., Rao, P.S., Harsha Vardhan, B., Kiesewetter, G., Sander, R., Schöpp, W., Majumdar, D., Srivastava, A., Deshmukh, S., Kawarti, A., Kumar, R. Managing future air quality in megacities: Co-benefit assessment for Delhi. *Atmospheric Environment*, 186, 158-177, doi: 10.1016/j.atmosenv.2018.05.026
- 2018 Purohit, I., **Purohit, P.** Performance assessment of grid-interactive solar photovoltaic projects under India's national solar mission. *Applied Energy*, 222, 25-41, doi: 10.1016/j.apenergy.2018.03.135
- 2018 Rafaj, P., Kiesewetter, G., Gül, T., Schöpp, W., Cofala, J., Heyes, C., **Purohit, P.**, Amann, M., Klimont, Z., Borken-Kleefeld, J., Cozzi, L. Outlook for clean air in the context of sustainable development goals. *Global Environmental Change*, 53, 1-11, doi: 10.1016/j.gloenvcha.2018.08.008
- 2018 **Purohit, P.**, Dhar, S. Lignocellulosic biofuels in India: current perspectives, potential issues and future prospects. *AIMS Energy*, 6 (3), 453-486, doi: 10.3934/energy.2018.3.453

- 2018 **Purohit, P.**, Chaturvedi, V. Biomass pellets for power generation in India: a techno-economic evaluation. *Environmental Science & Pollution Research*, 25 (29), 29614-29632, doi: 10.1007/s11356-018-2960-8.
- 2017 **Purohit, P.**, Höglund-Isaksson, L. Global emissions of F-gases until 2050: technical mitigation potentials and costs. *Atmospheric Chemistry & Physics*, Vol. 17, pp. 2795-2816, doi:10.5194/acp-17-2795-2017
- 2017 Klimont, Z., Kupiainen, K., Heyes, C., **Purohit, P.**, Cofala, J., Rafaj, P., Borken-Kleefeld, J., and Schöpp, W. Global anthropogenic emissions of particulate matter including black carbon. *Atmospheric Chemistry & Physics*, 17, 8681-8723, doi: 10.5194/acp-17-8681-2017
- 2017 Höglund-Isaksson, L., **Purohit, P.**, Amann, M., Bertok, I., Rafaj, P., Schöpp, W., Borken-Kleefeld, J. Cost estimates of the Kigali Amendment to phase-down hydrofluorocarbons. *Environmental Science & Policy*, 75, 138-147, doi: 10.1016/j.envsci.2017.05.006
- 2017 Purohit, I., **Purohit, P.** Technical and economic potential of solar thermal power generation in India. *Renewable & Sustainable Energy Reviews*, 78, 648-667, doi: 10.1016/j.rser.2017.04.059
- 2017 Amann, M., **Purohit, P.**, Bhanarkar, A.D., Bertok, I., Borken-Kleefeld, J., Cofala, J., Heyes, C., Kiesewetter, G., Klimont, Z., Liu, J., Majumdar, D., Nguyen, B., Rafaj, P., Rao, P.S., Sander, R., Schöpp, W., Srivastava, A., Harshvardhan, B. Managing future air quality in megacities: A case study for Delhi. *Atmospheric Environment*, 161, 99–111, doi: 10.1016/j.atmosenv.2017.04.041
- 2017 Gambhir, A., Napp, T., Hawkes, A., Höglund-Isaksson, L., Winiwarter, W., **Purohit, P.**, Wagner, F., Bernie, D., Lowe, J. The contribution of non-CO₂ greenhouse gas mitigation to achieving long-term temperature goals. *Energies*, 10 (5), 602, doi: 10.3390/en10050602
- 2017 Sharma, M., Chaturvedi, V., **Purohit, P.** Long-term carbon dioxide and hydrofluorocarbon emissions from commercial space cooling and refrigeration in India: A detailed analysis within an integrated assessment modelling framework. *Climatic Change*, 143 (3-4), 503-517, doi: 10.1007/s10584-017-2002-4
- 2017 Mir, K.A., **Purohit, P.**, Mehmood, S. Sectoral assessment of greenhouse gas emissions in Pakistan. *Environmental Science & Pollution Research*, 24 (35), 27345–27355, doi: 10.1007/s11356-017-0354-y
- 2016 Lam, N., Pachauri, S., **Purohit, P.**, Yu, N., Colin, C., Michael, N., Smith, K.R. Kerosene subsidies for household lighting in India: what are the impacts? *Environmental Research Letters*, 11 (4), 044014, doi: 10.1088/1748-9326/11/4/044014
- 2016 Mir, K.A., **Purohit, P.**, Goldstein, G.A., Balasubramanian, R., 2016. Analysis of baseline and alternative air quality scenarios for Pakistan: an integrated approach. *Environmental Science & Pollution Research*, 23 (21), 21780-21793, doi: 10.1007/s11356-016-7358-x
- 2015 Purohit, I., **Purohit, P.** Inter-comparability of solar radiation databases in Indian context. *Renewable & Sustainable Energy Reviews*, 50, 735-747, doi: 10.1016/j.rser.2015.05.020
- 2013 Gupta, S.K., **Purohit, P.** Renewable energy certificate mechanism in India: A preliminary assessment. *Renewable & Sustainable Energy Reviews*, 22, 380-392, doi: 10.1016/j.rser.2013.01.044

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- 2013 Purohit, I., **Purohit, P.**, Shekhar, S. Evaluating the potential of concentrating solar power generation in Northwestern India. *Energy Policy*, 62, 157-175, doi: 10.1016/j.enpol.2013.06.069
- 2013 Dholakia, H.H., **Purohit, P.**, Rao, S., Garg, A. Impact of current policies on future air quality and health outcomes in Delhi, India. *Atmospheric Environment*, 75, 241-248, doi: 10.1016/j.atmosenv.2013.04.052
- 2012 Wagner, F., Amann, M., Borken-Kleefeld, J., Cofala, J., Höglund-Isaksson, L., **Purohit, P.**, Rafaj, P., Schöpp, W., Winiwarter, W. Sectoral marginal abatement cost curves: implications for mitigation pledges and air pollution co-benefits for Annex-I countries. *Sustainability Science*, 7 (2), 169-184, doi: 10.1007/s11625-012-0167-3
- 2012 Rao, S., Chirkov, V., Dentener, F., Van Dingenen, R., Pachauri, S., **Purohit, P.**, Amann, M., Heyes, C., Kinney, P., Kolp, P., Klimont, Z., Riahi, K., Schoep, W. Environmental Modeling and Methods for Estimation of the Global Health Impacts of Air Pollution. *Environmental Modeling & Assessment*, 17 (6), 613-622, doi: 10.1007/s10666-012-9317-3
- 2012 Höglund-Isaksson, L., Winiwarter, W., **Purohit, P.**, Rafaj, P., Schöpp, W., Klimont, Z. EU Low Carbon Roadmap 2050: Potentials and costs for mitigation of non-CO₂ greenhouse gases. *Energy Strategy Reviews*, 1 (2), 97-108, doi: 10.1016/j.esr.2012.05.004
- 2011 Newell, P., Phillips, J., **Purohit, P.** The political economy of clean development in India: CDM and beyond. *IDS Bulletin (Special Issue: Political Economy of Climate Change)*, 42 (3), 89-96, doi: 10.1111/j.1759-5436.2011.00226.x
- 2010 Purohit, I., **Purohit, P.** Techno-economic evaluation of concentrating solar power generation in India. *Energy Policy*, 38 (6), 3015-3029, doi: 10.1016/j.enpol.2010.01.041
- 2010 **Purohit, P.** Emissions mitigation potential of clean development mechanism-built solar home systems in India. *Modern Energy Reviews*, 2 (1), 22-25.
- 2009 **Purohit, P.** Economic potential of biomass gasification projects under clean development mechanism in India. *Journal of Cleaner Production*, 17 (2), 181-193, doi: 10.1016/j.jclepro.2008.04.004
- 2009 Purohit, I., **Purohit, P.** Instrumentation error analysis of a box type solar cooker. *Energy Conversion & Management*, 50 (2), 365-375, doi: 10.1016/j.enconman.2008.09.030
- 2009 Purohit, I., **Purohit, P.** Wind energy projects in India: Status and future prospects. *Journal of Renewable & Sustainable Energy*, 1 (4), 042701, doi: 10.1063/1.3156003
- 2009 **Purohit, P.** CO₂ emissions mitigation potential of solar home systems under clean development mechanism in India. *Energy (Special Issue: Energy and its sustainable development for India)*, 34 (8), 1014-1023, doi: 10.1016/j.energy.2008.11.009
- 2009 Klimont, Z., Cofala, J., Xing, J., Wei, W., Zhang, C., Wang, S., Kejun, J., Bhandari, P., Mathur, R., Purohit, P., Rafaj, P., Chambers, A., Amann, M., Hao, J. Projections of SO₂, NO_x, and carbonaceous aerosols emissions in Asia. *Tellus, Series B: Chemical and Physical Meteorology*, 61B (4), 602-617, doi: 10.1111/j.1600-0889.2009.00428.x

- 2009 Purohit, I., Purohit, P. 2009. Instrumentation error analysis of a paraboloid concentrator type solar cooker. *Energy for Sustainable Development*, Vol. 13, No. 4, pp. 255-264, doi:10.1016/j.esd.2009.10.003
- 2008 **Purohit, P.**, Michaelowa, A. CDM potential of SPV lighting systems in India. *Mitigation and Adaptation Strategies for Global Change*, 13 (1), 23-46, doi: 10.1007/s11027-006-9078-x
- 2008 **Purohit, P.** Small hydro power projects under clean development mechanism in India: A preliminary assessment. *Energy Policy*, 36 (6), 2000-2015, doi: 10.1016/j.enpol.2008.02.008
- 2008 **Purohit, P.**, Michaelowa, A. CDM Potential of domestic solar water heating systems in India. *Solar Energy*, 82 (9), 799-811, doi: 10.1016/j.solener.2008.02.016
- 2008 **Purohit, P.**, Michaelowa, A. CDM potential of SPV pumps in India. *Renewable & Sustainable Energy Reviews*, 12 (1), 181-199, doi: 10.1016/j.rser.2006.05.011
- 2008 Purohit, I., **Purohit, P.** Effect of instrumentation error on the first and second figure of merits (F1 & F2) of a box type solar cooker. *International Journal of Ambient Energy*, 29 (2), 83-92, doi: 10.1080/01430750.2008.9675061
- 2007 **Purohit, P.**, Kandpal, T.C. Techno-economics of biogas-based water pumping in India: an attempt to internalize CO₂ emissions mitigation and other economic benefits. *Renewable & Sustainable Energy Reviews*, 11 (6), 1208-1226, doi: 10.1016/j.rser.2005.09.003
- 2007 **Purohit, P.** Financial evaluation of renewable energy technologies for irrigation water pumping in India. *Energy Policy*, 35 (6), 3134-3144, doi: 10.1016/j.enpol.2006.11.013
- 2007 **Purohit, P.**, Michaelowa, A. Potential of wind power projects under clean development mechanism in India. *Carbon Balance & Management*, 2 (8), 1-15, doi: 10.1186/1750-0680-2-8
- 2007 Parikh, J., **Purohit, P.**, Maitra, P. Demand projections of petroleum products and natural gas in India. *Energy*, 32 (10), 1825-1837, doi: 10.1016/j.energy.2007.02.008
- 2007 Purohit, I., **Purohit, P.** CDM potential of box type solar cookers in India. *International Journal of Ambient Energy*, 28 (1), 27-38, doi: 10.1080/01430750.2007.9675021
- 2007 Purohit, I., **Purohit, P.** CDM potential of windmill pumps in India. *International Journal of Energy Sector Management*, 1 (2), 141-159, doi: 10.1108/17506220710761564
- 2007 Purohit, P. Michaelowa, A. CDM potential of bagasse cogeneration in India. *Energy Policy*, 35 (10), 4779-4798, doi: 10.1016/j.enpol.2007.03.029
- 2006 **Purohit, P.**, Tripathi, A.K., Kandpal, T.C. Energetics of coal substitution by biomass briquetting in India. *Energy*, 31 (8-9), 1321-1331, doi: 10.1016/j.energy.2005.06.004
- 2006 **Purohit, P.**, Kumar, A., Kandpal, T.C. Solar drying vs. open sun drying a framework for financial evaluation. *Solar Energy*, 80 (12), 1568-1579, doi: 10.1016/j.solener.2005.12.009
- 2005 **Purohit, P.**, Kandpal, T.C. Solar crop dryer for saving commercial fuels: a techno-economic evaluation. *International Journal of Ambient Energy*, 26 (1), 3-12, doi: 10.1080/01430750.2005.9674966
- 2005 **Purohit, P.**, Kandpal, T.C. Renewable energy technologies for irrigation water pumping in India: projected levels of dissemination, energy delivery and investment

- requirements using available diffusion models. *Renewable & Sustainable Energy Reviews*, 9 (6), 592-607, doi: 10.1016/j.rser.2004.07.002
- 2005 **Purohit, P.**, Kandpal, T.C. Solar photovoltaic water pumping in India: a financial evaluation. *International Journal of Ambient Energy*, 26 (3), 135-146, doi: 10.1080/01430750.2005.9674983
- 2004 **Purohit, P.**, Kandpal, T.C. Techno-economic evaluation of water pumping windmills in India. *International Journal of Global Energy Issues*, 21 (3), 263-275, doi: 10.1504/IJGEI.2004.005771
- 2003 Kandpal, T.C., **Purohit, P.**, Kumar, A., Chandrasekar, B. 2003. Economics of renewable energy utilization in developing countries, *SESI Journal*, 13 (1-2), 57-82.
- 2002 **Purohit, P.**, Kumar, A., Rana, S., Kandpal, T.C. Using Renewable energy technologies for domestic cooking in India: a methodology for potential estimation. *Renewable Energy*, 26 (2), 235-246, doi: 10.1016/S0960-1481(01)00127-6
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EDITED VOLUMES (INCLUDING SPECIAL ISSUES)

- 2021 Khatiwada, D., **Purohit, P.** Special Issue on Assessing the Modern Bioenergy Potential and Strategies for Sustainable Development: Transformations through Nexus, Policy, and Innovations. *Sustainability*, 13 (1), 374, doi: 10.3390/su13010374

BOOKS

- 2021 Khatiwada, D., **Purohit, P.** (Eds.) 2021. *Modern Bioenergy for Sustainable Development*. MDPI Switzerland, ISBN 978-3-0365-0469-8.

BOOK CHAPTERS

- 2021 **Purohit, P.**, Chaturvedi, V. Co-firing coal with biomass pellets for electricity generation in India. In: *Sugar Cogeneration Handbook – 2021*, Cogeneration Association of India, pp 86-94.
- 2019 Purohit, I., **Purohit, P.** Solar Thermal Power Generation. *Reference Module in Earth Systems and Environmental Sciences*, pp. 1-14, doi:10.1016/B978-0-12-409548-9.11865-2.
- 2019 Dhakal, S., Srivastava, L., Sharma, B., Palit, D., Mainali, B., Nepal, R., **Purohit, P.**, Goswami, A., Malikyar, G.M., Wakhley, K.B. *Chapter 6: Meeting Future Energy Needs in the Hindu Kush Himalaya*. In: Wester P., Mishra A., Mukherji A., Shrestha A. (eds) *The Hindu Kush Himalaya Assessment: Mountains, Climate Change, Sustainability and People*. Springer, Cham, pp 167-207, ISBN 978-3-319-92287-4.
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POLICY REPORTS

- 2021 Capros, P., De Vita, A., Florou, A., Kannavou, M., Fotiou, T., Siskos, P., Tsiropoulos, I., Katoufa, N., Mitsios, I., Evangelopoulou, S., Asimakopoulou, G., Kalokyris, T., Paroussos, L., Fragkiadakis, K., Karkatsoulis, P., Höglund-Isaksson, L., Winiwarter, W., **Purohit, P.**, Gómez-Sanabria, A., Rafaj, P., Warnecke, L., Deppermann, A., Gusti, M., Frank, S., Lauri, P., di Fulvio, F., Forsell, N., Havlík, P., Witzke, P., Kesting, M. 2021. [EU Reference Scenario 2020: Energy, transport and GHG emissions - Trends to 2050](#). European Commission, Directorate-General for Energy, Directorate-General for Climate Action and Directorate-General for Mobility and Transport, Brussels.
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- 2006 Purohit, I., **Purohit, P.**, Negi, B.S. Thermal performance evaluation of box type solar cooker employing non-tracking planar reflectors. *World Renewable Energy Congress (WREC-IX)*, Florence, Italy 19-25th August 2006.
- 2005 **Purohit, P.**, Kandpal, T.C. Social cost benefit analysis of using SPV pumps for irrigation in India. *Proceedings of the Solar World Congress 2005: Bringing Water to the World*, Florida, U.S.A. (pp. 2403-2408).
- 2005 **Purohit, P.**, Parikh, J. CO₂ emissions mitigation potential of bagasse-based cogeneration in India. *Proceedings of the Solar World Congress 2005: Bringing Water to the World*, Florida, U.S.A. (pp. 1743-1748).
- 2004 Parikh, J., Parikh, K., Karmakar, S., **Purohit, P.** *Impact of fuel Scarcity and Pollution on Rural Poor: A Comparative Analysis of Vulnerable Groups in Himachal Pradesh*. Integrated Research and Action for Development (IRADe), New Delhi.
- 2004 **Purohit, P.**, Kandpal, T.C. Potential of water pumping using community biogas plants: an economic analysis. *World Renewable Energy Congress (WREC-VIII)*, Colorado, USA.

- 2004 **Purohit, P.**, Kandpal, T.C. Dissemination of renewable energy technologies in India: an assessment using technology diffusion models. *World Renewable Energy Congress (WREC-VIII)*, Colorado, USA.
- 2003 **Purohit, P.**, Kandpal, T.C. Solar photovoltaic pumping in India: a financial evaluation. *Proceedings of the ISES Solar World Congress 2003*, Göteborg, Sweden.
- 2003 Kandpal, T.C., **Purohit, P.**, Kumar, A. Techno-economic evaluation of solar crop dryer. *Proceedings of the Second International Conference on Renewable Energy Technology for Rural Development (RETRUD-03)*, Kathmandu, Nepal.
- 2002 **Purohit, P.**, Kandpal, T.C. Social cost benefit analysis of box type solar cooker. *Proceedings of the World Renewable Energy Congress (WREC-VII)*, Cologne, Germany.
- 2002 Kandpal, T.C., Kumar, A., **Purohit, P.** CO₂ mitigation potential of renewable energy technologies for domestic cooking in India. *Proceedings of the National Conference on Advances in Contemporary Physics and Energy*, New Delhi, India, 8-9th February 2002 (pp. 390-401).
- 2001 Kumar, A., **Purohit, P.**, Rana, S., Kandpal, T.C. Potential of using renewable energy technologies for domestic cooking in India. *Proceedings of the National Workshop on Energy and Environment Management for Sustainable Development of Agriculture and Agro-Industrial Sector*, Bhopal, India, 8-10 July 2001 (pp. 100-102).
- 2000 **Purohit, P.**, Kumar, A., Rana, S., Kandpal, T.C. Estimation of monetary worth of agricultural residues used as biofuels: a preliminary estimation. *Proceedings of the 24th National Renewable Energy Convention 2000*, Mumbai, India, 30th November - 2nd December 2000 (pp. 328-333).

INVITED TALKS (SELECT)

- 2022 Invited lecture (online) on *Co-benefits of global HFC phase-down under the Kigali Amendment* at the Division of Natural and Applied Sciences, Duke Kunshan University, China, 6th April 2022.
- 2022 Panelist at the [Virtual discussion forum for the expansion of the global network of ODSs, HFCs, and other compounds of interest to the Montreal Protocol](#), Modelling Long-term HFC Emissions with Mitigation Potential and Costs: GAINS Model Methodology, 16th March 2022.
- 2022 Invited lecture on “*Application of GAINS model for integrated policy design and impact evaluation*” at the 2nd Online Refresher Course in Geography & Environmental Studies organized by the UGC-Human Resource Development Centre, Jamia Millia Islamia, New Delhi, 28th January 2022.
- 2021 Panelist at the *IPCC side event at the COP12(II)/MOP33: Key findings of the AR6 WGI Report and Assessment of Interest for Stratospheric Ozone and Substances Controlled under the Montreal Protocol*, 26th October 2021.
- 2021 Invited presentation (online) on [GAINS Methodology: Activities, Sectors and Control Strategies](#) at the TIFAC-IIASA-IITD-NEERI Training Workshop on *Integrated Assessment of Air Pollution and Greenhouse Gas Mitigation in India using the GAINS model*, Organized by the Technology Information Forecasting and Assessment Council (TIFAC), International Institute for Applied Systems Analysis (IIASA), Indian Institute of Technology Delhi (IITD) and the National Environmental Engineering Research Institute (NEERI), 13-17 September 2021.

- 2021 Panelist at the Initiative for Sustainable Energy Policy (ISEP) webinar [*Incorporating political-feasibility concerns into the assessment of India's environmental policies*](#), organized by the Johns Hopkins University, 7 September 2021.
- 2021 Invited presentation (online) on the *GAINS-IGP Model Data Sources with State Pollution Control Boards on GAINS Activities, Sectors, Controls and Emissions*, Organized by the Centre for Atmospheric Sciences (CAS), IIT Delhi, 31 August -8 September 2021.
- 2021 *Kigali Workstream - Accelerating the Kigali Amendment* (online event) organized by the Climate and Clean Air Coalition (CCAC), 6 May 2021.
- 2021 *HFC consumption trends in Article 5 countries* (online event) organized by the Climate and Clean Air Coalition (CCAC), 4 May 2021.
- 2021 *Co-benefits of global HFC phase-down under the Kigali amendment to the Montreal Protocol* at the Energy, Climate and Environment (ECE) Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria, 19 April 2021.
- 2021 *Emissions from residential and commercial sector in India using the GAINS model* at the Strategic Partnerships for the Implementation of the Paris Agreement (SPIPA) India GAINS workshop, 15 April 2021.
- 2021 *Emissions from residential and commercial sector in South Africa using the GAINS model* at the 1st Technical Advisory Committee meeting of the CSIR-NWU-GAINS project on cost-effective air quality management in the cities of Johannesburg, Ekurhuleni, and Tshwane (A World Bank funded project), 25 March 2021.
- 2020 *Applications of GAINS model for integrated policy design and impact evaluation* at the 18th refresher course on *Spatiality and Sustainability for an Inclusive Future*, organized by the Jamia Millia Islamia (Central University), New Delhi, 9 November 2020.
- 2020 *Air quality management and clean air technologies* at the panel discussion on Air Pollution Management, Vaishwik Bharatiya Vaigyanik (Vaibhav) Summit, 15 October 2020 (online event).
- 2020 *Air pollution management in India: Issues, challenges, and the way forward* at the panel discussion on Air Pollution Management through Monitoring and Modelling and Health Benefit assessment, Vaishwik Bharatiya Vaigyanik (Vaibhav) Summit, 12 October 2020 (online event).
- 2020 *Co-benefits of the global HFC phase-down* at the Catalyzing 2030 Mitigation Ambition – HFCs, Climate and Clean Air Coalition (CCAC) Science Policy Dialogue, 28 September 2020 (online event).
- 2020 *Co-benefits of the global HFC phase-down under Kigali amendment to the Montreal Protocol* at the Sustainable Recovery in Building Sector – Energy Efficient Cooling and Renewable Energy, The 6th IEA-Tsinghua Joint Workshop, 28 September 2020 (online event).
- 2020 *Applications of GAINS model for integrated policy design and impact evaluation* at the Clean Air Project (CAP) India webinar series on Air Quality Management, organized by The Energy and Resources Institute (TERI), New Delhi ,1st May 2020.
- 2019 *Mitigation Pathways towards Clean Air in India* at the International Conference on Material Science and Applications (ICMSAA), H.N.B. Garhwal University Srinagar, India, 25-27 November 2019.
- 2019 *Pathways to Achieve National Ambient Air Quality Standards in India* at the 38th International Energy Workshop, Organized by International Energy Agency (IEA), Paris, 3-5th June 2019.

- 2019 *Pathways towards clean air in India* at the European Geosciences Union (EGU) General Assembly 2019, Vienna, 07 – 12th April 2019.
- 2018 *Temperature, environmental, and development impacts - benefits of HFC phasedown with enhanced cooling efficiency* at the meeting of steering committee members and lead authors - UN Environment assessment of development and climate benefits Report on “Kigali Efficient and Climate Friendly Cooling” UNEP/DTU Partnership, Copenhagen, 25th June 2018.
- 2018 *Pathways to achieving India’s ambient air quality standards* organized by the Council of Energy, Environment and Water (CEEW) and the International Institute for Applied Systems Analysis (IIASA) at the IHC, New Delhi, 23rd March 2018.
- 2017 *Managing future air quality in Delhi* at the workshop organized by the Technology Information Forecasting & Assessment Council, (TIFAC), Government of India, New Delhi 26th October 2017.
- 2016 *Co-benefits of managing future air quality in Delhi* at the Technology Information, Forecasting and Assessment Council (TIFAC) side-event on *Climate Change and Health in Indian Cities: Modelling the Impacts of Heat and Air Pollution and Potential Co-benefits from Mitigation and Adaptation* at India Pavilion, 22nd Conference of the Parties (COP 22) to the UN Framework Convention on Climate Change (UNFCCC), Marrakech, Morocco, 12th November 2016.
- 2016 *Economy-wide cost of HFC phase-down in India* at the CEEW-IIASA side event at the 38th Meeting of the Open-ended Working Group (OEWG) of the Parties to the Montreal Protocol, Vienna, 20th July 2016.
- 2015 *Long-term HFC Emissions and Alternative Policy Scenarios* at the CEEW-IIASA workshop, International Centre (IIC), New Delhi, 23rd February 2015.
- 2013 *Black carbon emissions from kerosene lighting and diesel generator sets in the GAINS model* at the GAINS Workshop on Toyota Ozone Project, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria, 23rd October 2013.
- 2013 *Carbon finance potential of renewable energy technologies in India* at the Centre for Energy Studies, Indian Institute of Technology (IIT) Delhi, 25th July 2013.
- 2013 *Impact of current policies on future air quality and health outcomes in Delhi, India* at the European Geosciences Union (EGU) General Assembly 2013, Vienna, 07 – 12th April 2013.
- 2012 *GAINS Seminar on Applications of the GAINS model for integrated policy design* organized by the Pakistan Institute of Engineering & Applied Sciences (PIEAS), Islamabad, 6th November 2012.
- 2012 *Opportunities for integrated policy design - applications of the GAINS India Tool* at the Centre for Energy Studies, Indian Institute of Technology Delhi, 24th February 2012.
- 2012 *The GAINS Model: Emission Inventories and Scenarios* at the TIFAC-IIASA-NEERI workshop on Economic Development and Atmospheric Pollution, National Environmental Engineering Research Institute, Nagpur, India, 6-10th February 2012.
- 2011 *Concentrating solar power* at the Expert Group Workshop on *Environmental Sustainability Benchmarking of Clean Energy Technologies*, organized by International Resource Panel, United Nations Environment Program, 1-2nd June 2011, Helsinki.
- 2011 *Greenhouse Gas and Air Pollution Interactions and Synergies Mitigation (GAINS) – India* at the Ministry of New and Renewable Energy (MNRE), Govt. of India, New Delhi, 31st January 2011.

- 2011 *The GAINS Model: Emission Inventories and Scenarios* at the TIFAC-IIASA-CEPT workshop on Climate Change, Regional Air Pollution and Greenhouse Gas Mitigation at CEPT University, Ahmadabad, 27-28th January 2011.
- 2010 *Renewable Energy in India - Opportunities and Challenges* at the Department of Geography, University of Cambridge, UK, 27th April 2010.
- 2008 *Flexible Mechanisms under the UNFCCC* at the Greenhouse Gas Initiative (GGI), International Institute for Applied Systems Analysis, Austria, 24th Sep 2008.
- 2007 *CDM potential of renewable energy technologies in India* at the Greenhouse Gas Initiative (GGI), International Institute for Applied Systems Analysis (IIASA), Austria, 17th November 2007.
- 2007 *Greenhouse Gas and Air Pollution Interactions and Synergies (GAINS) - Asia Model* at the Asia-Europe Scientific Cooperation Day, Vienna, 24th October 2007.
- 2007 *Carbon dioxide emissions mitigation potential through renewable energy technologies in India* at the Energy Systems Engineering, Indian Institute of Technology (IIT) Bombay, Mumbai, India, 2nd July 2007.

TEACHING EXPERIENCE

Courses taught	Institution
1. International Climate Policy: policy levels, stakeholders and outcomes	Institute of Political Science, University of Zurich, Switzerland (2007)
2. Energy Economics	College of Engineering, University of Petroleum & Energy Studies, New Delhi, India (2005)
3. Energy Management	
4. Renewable Energy Resources	Linnaeus University Summer Academy 2019, Sweden.
5. Environmental Technology for Sustainable Development (<i>select lectures</i>)	
6. Evaluation and Design of Energy Policies (<i>select lectures</i>)	Department of Built Environment & Energy Technology, Linnaeus University, Sweden (2019-20).

PROFESSIONAL AND REVIEW ACTIVITIES (SELECT)

Journal reviews

Applied Economics, Applied Energy, Atmospheric Chemistry and Physics, Atmospheric Environment, Atmospheric Pollution Research, Chemosphere, Climate Policy, Communications Earth & Environment, Current Science, Desalination, Economic & Political Weekly, Energies, Energy, Energy & Buildings, Energy and Climate Change, Energy Economics, Energy for Sustainable Development, Energy Policy, Energy Strategy Reviews, Energy, Sustainability and Society, Environment, Development & Sustainability, Environmental Challenges, Environmental Engineering & Management Journal, Environmental Progress & Sustainable Energy, Environmental Research, Environmental Research Letters, Environmental Science & Technology, Greenhouse Gas Measurement & Management, International Journal of Climate Change Strategies & Management, International Journal of Electrical Power & Energy Systems, International Journal of Energy Sector Management, International Journal of Environmental Research & Public Health, International Journal of Global Energy Issues, International Journal of Global Environmental

Issues, International Journal of Global Warming; International Journal of Green Energy, International Journal of Sustainable Energy, Journal of Cleaner Production, Journal of Environmental Management, Journal of Integrative Environmental Sciences, Journal of Renewable & Sustainable Energy, Journal of Renewable Energy, Journal of the Air & Waste Management Association, Mitigation & Adaptation Strategies for Global Change, Nature Communications, Nature Energy, Nature Sustainability, Renewable & Sustainable Energy Reviews, SESI Journal, Solar Energy, Sustainability, Sustainable Energy Technologies & Assessments, The Open Fuels & Energy Science Journal, The Open Renewable Energy Journal.

Grant Reviews

- National Centre of Science & Technology Evaluation (NCSTE), Ministry of Education & Science, Astana, Republic of Kazakhstan.
- King Fahd University of Petroleum & Minerals (KFUPM), Saudi Arabia.

Advisory/Editorships

- Lead and contributing authors to several policy report of the UNEP, IPCC, IEA, REN21, IIASA.
- Advisor on Energy, Air Pollution and Climate Change, *Social Development for Communities (SDC) Foundation*, Dehradun, India.
- Associate Editor (Apr 2010 onwards), *International Journal of Global Energy Issues (IJGEI)*, Inderscience Publishers.
- Associate Editor, *Handbook of Climate Change Management*, Springer Nature.
- Guest Editor (Special Issue on *Cool it - How to address global cooling needs in a warming world?*) for the *Mitigation and Adaptation Strategies for Global Change* (Springer Nature).
- Guest Editor (Special Issue on *Atmospheric Pollution*) for the *Sustainability* journal.
- Guest Editor (Special Issue on *Modern Bioenergy for Sustainable Development*) for the *Sustainability* journal.
- Member of the Editorial Board for the *Sustainability* (MDPI) journal.
- Member of the Editorial Board for the *Environmental Challenges* (Elsevier).
- Member of the Editorial Board for the *Progress in Energy & Fuels* journal.
- Member of the Editorial Board for the *Journal of Renewable Energy* journal.
- Member of the Editorial Board for the *Innovative Energy & Research* journal.