local authorities, community organisations and householders with information on the technical and economic feasibility of deploying a suite of best practice refurbishment measures. Findings from this study are also relevant for practitioners and researchers engaged in tracking and assessing impact of large-scale area-based domestic refurbishments and the future effectiveness of the Green Deal after implementation.

Similar work includes the development of DECoRuM-Adapt, a next step for DECoRuM created to assess future climate impact, overheating risk and adaptation measure effectiveness. The assessment of the climate change risk allows for the further evaluation of mitigation measures to optimise the home's refurbishment to be thermally comfortable now and in the future (Gupta and Gregg, 2013). To further benefit research in this area, future work in urban modelling would include analysis of modelling outputs with socio-economic data to track the effect of refurbishments on fuel poverty.

ACKNOWLEDGMENTS

The authors would like to acknowledge the many residents of the neighbourhoods who returned energy questionnaires and allowed us to install temperature and energy data loggers in their homes. Thank you also to Laura Barnfield, Tara Hipwood, Chiara Fratter, and Bob Irving for assisting in the carbon mapping work, workshop presentations and performing the thermal imaging surveys. The research presented here is part of the EVALOC low carbon communities project [grant number RES-628-25-0012] which is funded under the EPSRC/ESRC Energy and Communities stream of Research Council UK's (RCUK) energy programme.

REFERENCES

BRE. 2014. BRE domestic energy model (BREDEM 2012). Available from: http://www.bre.co.uk/, accessed on 28th March 2014.

Booth, A. and R. Choudhary. 2011. Calibrating micro-level models with macro-level data using Bayesian regression analysis. Proceedings of Building Simulation 2011: 12th Conference of International Building Performance Simulation Association, Sydney, 14-16 November.

DECC. 2012a. Research report: How to explain the Green Deal. London: Department of Energy & Climate Change.

DECC. 2012b. Low carbon communities challenge: Evaluation report. London: Department of Energy & Climate Change.

DECC. 2014a. Sub-national consumption statistics: Methodology and guidance booklet. London: Department of Energy & Climate Change.

DECC. 2014b. UK national energy efficiency action plan. London: Department of Energy & Climate Change.

Gupta, R. Barnfield, L. and Hipwood, T. 2014. Impacts of community-led energy retrofitting of owner-occupied dwellings, Building Research and Information. 42 (4), 446-461.

Gupta R. and R. Cherian. 2013. Mapping communities and neighbourhoods for local carbon reductions. European Council for an Energy Efficient Economy (ECEEE) 2013 Summer study proceedings, 3-8 June, 2013, Belambra Les Criques, France.

Gupta, R. and M. Gregg. 2012. Using UK climate change projections to adapt existing English homes for a warming climate. Building and Environment, 55(2012), 20-42.

Gupta, R. and Gregg, M. 2013. Preventing overheating in English suburban homes in a warming climate, Building Research and Information. 41(3), 281-300.

Pereira, I. and E. Assis. 2013. Urban energy consumption mapping for energy management. Energy Policy, 59(2013): 257-269.

Williams, K., Gupta, R., Hopkins, D., Gregg, M., Payne, C., Joynt, J.L.R., Smith, I., and N. Bates-Brkljac. 2013. Retrofitting England's suburbs to adapt to climate change. Building Research & Information, 41(5): 517-531.

Zhou, Y., Weng, Q., Gurney, K., Shuai, Y. and X. Hu. 2012. Estimation of the relationship between remotely sensed anthropogenic heat discharge and building energy use. ISPRS Journal of Photogrammetry and Remote Sensing, 67(2012): 65-72.