

NP 2006: INTEGRATED DESIGN, TECHNOLOGY AND PRACTICES IN LOW CARBON PRECINCTS

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Problem

The design of low carbon precincts has not resulted in resources being used more efficiently. This research will examine the social practice aspects of low carbon housing to see if there are ways the design or occupant practices can enable sustainable lifestyles.

Research Question

What are the implications of household design on user practices and resource flows for sustainable living?

Go beyond people's attitudes and values towards living sustainably and see how people's daily practices, routines and habits actually change



Figure 1: WGV development in Fremantle (Source: <http://www.landcorp.com.au/Global/Project%20Images/Metropolitan/White%20Gum%20Valley/wgv-internal-estate-hero.jpg?mode=Crop&scale=Both&w=980&h=332&format=jpg>)

Anticipated impacts

Integrating theories of practice and behaviour into home settings through living laboratories to enable people to use resources more efficiently.

Informing the development of new precincts by providing case studies for how low carbon design, technologies and practices can be integrated into the development from the initial stages.

Methodology

Desktop literature review on frameworks of resource management, transitions and practice theory.

Mixed-method qualitative and quantitative data collection with 2 case studies.

People and Practices in WGV:

Sustainable Housing for Artists and Creatives (SHAC) and Evermore

Mixed density low carbon precinct in Fremantle, WA with One Planet Living accreditation featuring solar panels, batteries, solar passive design and an Electric Vehicle.

SHAC comprises of 12 apartments and Evermore of 24 apartments, which are living laboratories for researchers.

Participants are studied both before and after moving in through:

- Qualitative data collected through sensors in the households and on infrastructure (solar PV, battery storage, water meters, individual room monitors)
- Semi-Structured interviews exploring practices relating to energy, water, waste, transport, food and local economy use.
- Workbooks with a Social Network Analysis mapping activity to analyse how the social sphere of residents affects their resource use, and transport and hygiene diaries to monitor routines.
- Cultural Probes via SMS requiring short answers or pictures describing recent resource use.

Results

The literature review on Practice Theory has contributed to 3 journal articles on its application to behaviour change programs, household systems of practice and the Sustainable Development Goals.

Data collection and analysis is ongoing.

Research in progress: completion in November 2018

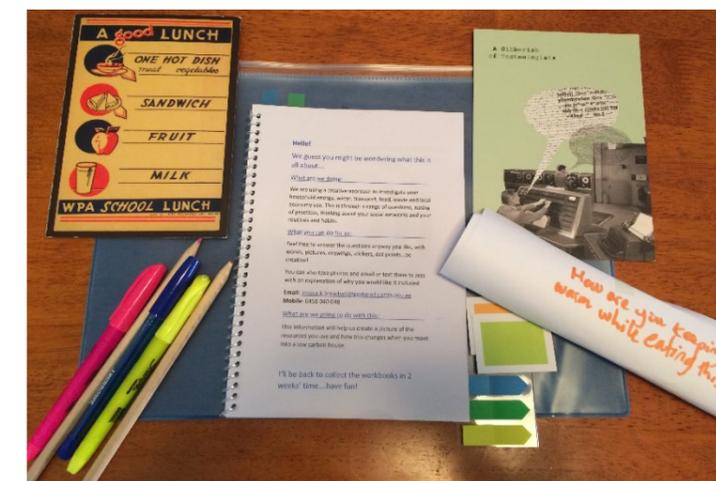


Figure 2: workbook packs sent to participants, taken by author