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*"The most powerful form of activism is  
just the way you live": grassroots  
intentional communities and the  
sustainability of everyday practice*

**Matthew Daly**

Institute for Sustainable Futures  
University of Technology Sydney

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## Abstract

Changing household consumption patterns may be the fastest pathway for reducing the currently unsustainable levels of resource consumption in the developed world. Between 50% and 80% of global land, water and material consumption and greenhouse gas emissions can ultimately be traced to household consumption, contributing substantially to environmental degradation. Changing household consumption practices therefore presents an opportunity to significantly reduce this negative environmental impact. This thesis has explored 'intentionally sustainable communities', such as ecovillages and cohousing communities, as sites where significant changes to household consumption are occurring. These communities are niche sites of grassroots innovation; crucibles in which new arrangements of potentially innovative and sustainable household practices are formed that may (or may not) be usefully transferred to mainstream households.

This research examines the extent to which these intentionally sustainable communities have reduced their environmental impacts. It then explores the environmentally beneficial household consumption practices that have been established and sustained, the role of the intentionally sustainable community in enabling members to change their practices, and the potential for these communities to have wider influence.

A mixed method approach was adopted, first undertaking a systematic literature review of ecological and carbon footprint studies of intentional communities globally. Second, two Australian case study communities; a rural land sharing cooperative (Bundagen), and an urban cohousing community (Murundaka), explored the practices and elements of practice that residents perceived as significant for their everyday sustainability. Finally, the potential for Murundaka to influence household consumption practices on a wider scale was considered.

The systematic review found strong but limited evidence that many intentional communities are achieving substantial reductions in environmental footprints. Empirical insights from the case studies revealed that a broad range of community-led interventions across many domains of practice were improving household sustainability in the communities. Key elements discussed include explicit and shared meanings from creating a community vision, the impacts of shared spaces, infrastructures and resources, and the role of community dynamics in circulating competences through effective social learning. The research highlights the key role played by non-mainstream practices such as the intentional, resident-driven creation of community and community-scale governance. These practices enable community members to act as both policy makers and practitioners, with greater scope and reflexivity to intervene in the systems of practice which shape their daily lives. Finally, pathways through which intentionally sustainable communities may be able to influence the practices of wider society were discussed, through an exploration of the influence of Murundaka on its broader community.

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## CERTIFICATE OF ORIGINAL AUTHORSHIP

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as part of the collaborative doctoral degree and/or fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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Signature removed prior to publication.

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## Table of Contents

<b>Abstract</b> .....	<b>i</b>
<b>Chapter 1. Introduction</b> .....	<b>1</b>
1.1 The Anthropocene – The Global Context .....	1
1.2 Sustainable consumption and social justice .....	4
1.3 Rationale for research.....	6
1.4 Research Agenda.....	10
1.5 Thesis outline .....	11
<b>Chapter 2. Household consumption and intentionally sustainable communities</b> .....	<b>17</b>
2.1 The global environmental impact of household consumption .....	17
2.2 Policy approaches to sustainable consumption .....	21
2.3 Sustainable Consumption: factors and frameworks .....	29
2.4 Grassroots innovative niches in sustainability transitions.....	35
2.5 Intentional communities as grassroots innovation .....	41
2.6 Implications for research: Intentional communities as niche sites of sustainable consumption 58	
<b>Chapter 3. A social practice theoretical framework</b> .....	<b>63</b>
3.1 Understanding Social Practice Theory .....	64
3.2 Social practice theory and sustainable consumption.....	69
3.3 The spread and transformation of social practice.....	72
3.4 Governing practice change .....	75
3.5 Inter-relationship between social practice theory and transitions theories.....	80
3.6 Summary.....	82
<b>Chapter 4. Research Design</b> .....	<b>83</b>
4.1 Introduction .....	83
4.2 Research paradigm.....	84
4.3 Research agenda .....	86
4.4 Methodology.....	92
4.5 Methods .....	107
4.6 Data Analysis and reporting.....	113
4.7 Ethical considerations.....	115
4.8 Summary.....	116
<b>Chapter 5. Quantifying the environmental impact of ecovillages and co-housing communities</b> 117	
5.1 Introduction .....	117
5.2 Quantifying the environmental impact of ecovillage and co-housing communities.....	118
5.3 Supplement – Bundagen ecological footprint .....	138
5.4 Ecological footprinting and social practices .....	141
5.5 Summary.....	141

---

<b>Chapter 6. Sustainable consumption practices at Bundagen Cooperative Community ...</b>	<b>145</b>
6.1 Introduction .....	145
6.2 Creating home and community .....	148
6.3 Governing home and community .....	164
6.4 Dwelling the house .....	173
6.5 Food provisioning .....	195
6.6 Summary .....	207
<b>Chapter 7. Sustainable consumption practices at Murundaka Cohousing Community ...</b>	<b>209</b>
7.1 Introduction .....	209
7.2 Creating home and community .....	211
7.3 Governing home and community .....	225
7.4 Dwelling the house .....	233
7.5 Food provisioning .....	245
7.6 Mobility and Transport .....	253
7.7 Conclusion .....	258
<b>Chapter 8. Interventions for sustainable practices: the intentionally sustainable communities' perspective .....</b>	<b>260</b>
8.1 Introduction .....	260
8.2 Analysing sustainable consumption interventions in practice .....	262
8.3 Key interventions in the elements of practice .....	266
8.4 Systems of interlinking practices at Bundagen and Murundaka .....	280
8.5 Practices for sustainability interventions .....	285
8.6 Summary .....	296
<b>Chapter 9. Influencing sustainable household practices on a wider scale.....</b>	<b>299</b>
9.1 Introduction .....	299
9.2 How does Murundaka influence sustainable practice on a community scale? (Direct influence)	304
9.3 How can Murundaka influence professional practices (indirect).....	311
9.4 Murundaka as a grassroots niche: regime influence and diffusion pathways.....	317
9.5 Ideas for the more effective spread of sustainable consumption from intentional communities	323
<b>Chapter 10. Conclusion .....</b>	<b>329</b>
10.1 Main findings of the research .....	330
10.2 Research contribution .....	338
10.3 Implications for policy and practice groups.....	342
10.4 Limitations of the research.....	345
10.5 Next steps: Questions for future research .....	347
10.6 Closing thoughts .....	348

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<b>Appendices .....</b>	<b>351</b>
Appendix A. Initiative mapping database shortlist .....	353
Appendix B. Research Information Sheet: Grassroots sustainable housing initiatives in Australia 355	
Appendix C. Participant Consent Forms .....	357
Appendix D. Interview Discussion Guide .....	361
Appendix E. Bundagen Ecological Footprint Survey 2014 .....	368
Appendix F. Ecological Footprint Survey Results .....	383
Appendix G. Additional information about Bundagen Cooperative Community .....	385
Appendix H. Additional information about Murundaka Cohousing Community.....	393
Appendix I. Extract from an interview .....	401
Appendix J. Murundaka architectural drawings .....	405
<b>References .....</b>	<b>407</b>

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## Table of Figures

Figure 1-1 - Global Ecological Footprint by component (Global Footprint Network 2017b) .....	2
Figure 1-2: A safe and just space for humanity to thrive in (Raworth 2012) .....	6
Figure 1-3: Schematic outline of thesis structure.....	14
Figure 2-1: Consumption categories where households can make a difference (Spangenberg & Lorek 2002) .....	20
Figure 2-2: Relationship between subjective well-being (SWB) and economic development (as measured by per capita GDP) for various global societies (Inglehart et al. 2008).....	26
Figure 2-3: Scales of technological efficiency based on diagram by Bruce Coldham (Meltzer 2005) .....	53
Figure 2-4: Recreation of Meltzer's findings of progressive change in pro-environmental behaviour over time (Meltzer 2005) .....	56
Figure 3-1: The elements of practice (modified from Shove et al. (2012)) .....	66
Figure 3-2: Re-crafting practices (Spurling et al. 2013) .....	77
Figure 3-3: Substituting practices (Spurling et al. 2013).....	78
Figure 3-4: Changing how practices interlock (Spurling et al. 2013).....	79
Figure 4-1: Aerial view of Bundagen looking towards the coast (Bundagen Community 2016a)..	100
Figure 4-2: Aerial photo of Bundagen land (outlined in red) surrounded by National Park. The 12 villages are clustered within the cleared areas (source: SIXmaps - 14/08/2017). .....	101
Figure 4-3: Murundaka Cohousing location in context with Melbourne CBD (Source: maps.google.com - 14/08/2017) and the suburban street frontage .....	102
Figure 4-4: Murundaka plan layout .....	103
Figure 4-5: Aerial view before and after the development of Murundaka. Before (left) showing three houses spread over separate blocks (Source: whereis.com 2/03/2016) and after (right) showing two apartment wings arranged around a central communal building and shared backyard (Source: maps.google.com on 2/03/2016).....	103
Figure 5-1: Bundagen footprint compared with regional, state and national averages (sourced from Australian Conservation Foundation consumption atlas (ACF 2007). .....	139
Figure 5-2: Variance in the footprint and footprint components of all respondents within Bundagen .....	140
Figure 5-3: The ecological footprints of intentional communities worldwide compared with relevant regional averages, including Bundagen .....	140
Figure 5-4: Visual representation of the ecological footprints of the intentional communities from the systematic review compared with relevant regional averages, including Bundagen .....	142
Figure 5-5: Visual representation of the carbon footprints of the intentional communities from the systematic review compared with relevant regional averages. ....	143
Figure 6-1: A selection of photos of Bundagen.....	147

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Figure 6-2: The domain of intentional community creation and the practices discussed in this section .....	149
Figure 6-3: Layout of House and Village Zones in Bundagen as of 2012.....	155
Figure 6-4: The domain of governing home and community and the specific practices discussed in this section.....	164
Figure 6-5: The practices of dwelling the house discussed within this section.....	173
Figure 6-6: Trevor’s solar panel array, constructed by addition over a number of years.....	174
Figure 6-7: Mudbrick composting toilet 'block', with toilets. Note the raised level of the building to allow the composting chambers, which can be accessed from the hatches on the side. ....	188
Figure 6-8: Relative contributions by component to the average Bundagen community member ecological footprint.....	195
Figure 6-9: Food provisioning practices to be discussed in this section.....	196
Figure 6-10: Large garden shared by a couple of residents .....	197
Figure 7-1: A selection of photos of Murundaka, both indoor and outdoor. ....	210
Figure 7-2: The domain of creating home and community, and the practices discussed in this section .....	211
Figure 7-3: The practices of governing home and community discussed in this section .....	225
Figure 7-4: Practices of dwelling the house discussed within this section .....	233
Figure 7-5: The living area of Murundaka’s common house from the mezzanine level library (Photo: Anne Garland).....	236
Figure 7-6: Food provisioning practices to be discussed in this section .....	245
Figure 7-7: Garden space at Murundaka with compost bins in the foreground.....	246
Figure 7-8: Mobility and transport practices to be discussed in this section .....	253
Figure 8-1: Diagrammatic representation of the practices and elements interacting within Bundagen (the dashed lines indicated elements linked to a specific practice). ....	283
Figure 8-2: Diagrammatic representation of the practices and elements interacting with Murundaka .....	284
Figure 9-1: Schematic of the conceptual framework of Murundaka within local and wider contexts. Contexts refers to both the planning and development regimes, and the spectrum of mainstream practice .....	300
Figure 9-2: Schematic of interactions and circulation of elements between Murundaka, the local community context and the wider community context.....	324
Figure G-1: The Bundagen Decision-making process (Rejane 2017, pers. comms., 17 June).....	391
Figure H-1: Murundaka vision statement as displayed on the wall of the common house.....	397
Figure J-1: ESD, Circulation, Community and Landscape sketch layouts of Murundaka community.....	405
Figure J-2: Typical Murundaka floor plans.....	406

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## Table of Tables

Table 2-1: Per Capita GHG Footprint of selected Nations in 2001, and breakdown by contribution from different consumption categories (modified from Hertwich & Peters (2009)).....	20
Table 2-2: Factors explaining the varying environmental impacts from consumption of different households .....	31
Table 2-3: New Economics indicators for sustainable consumption (Seyfang, 2009 p.62).....	32
Table 2-4: Mitigation strategies and sub-strategies and resulting impact on greenhouse gas emission (Schanes, Giljum & Hertwich 2016) .....	34
Table 2-5: Comparing the characteristics of market-based and grassroots innovations (Seyfang & Smith 2007). .....	37
Table 2-6: Characteristics of the four types of community by the degree of withdrawal based on locational, ideological, economic and social factors. Ordered from most withdrawn (religious) to least (practical) (Meijering, Huigen & Van Hoven 2007). .....	43
Table 2-7: Comparison between ecovillages and cohousing – adapted from Meltzer (2010) .....	47
Table 2-8: Overview of academic research regarding ecovillages .....	48
Table 3-1: Key elements in the understandings of practice (Gram-Hanssen 2011).....	67
Table 4-1: Summary of the research framework .....	83
Table 4-2: Sustainability related household practices grouped according to the four clusters (modified from (Waite et al. 2012)).....	90
Table 4-3: Existing online resources for grassroots sustainable housing initiatives (web addresses and number of initiatives were current at the time of database creation in 2013).....	96
Table 4-4: Murundaka vision statement (Murundaka Cohousing 2016).....	104
Table 4-5: Similarities and differences between Bundagen and Murundaka .....	104
Table 4-6: Research participants from Bundagen, indicating nature of the participation in the research and length of involvement with the community. ....	110
Table 4-7: Research participants from Murundaka, indicating nature of the participation in the research and length of involvement with the community. ....	112
Table 4-8: Planning, housing and urban development professional interview participants .....	113
Table 6-1: Key practices and elements in the creation of Bundagen Community Cooperative ....	163
Table 6-2: Key practices and elements in the management of Bundagen Community Cooperative .....	172
Table 6-3: Key practices and elements of dwelling the house at Bundagen Community Cooperative .....	193
Table 6-4: Average percentage of organic food consumption within Bundagen .....	203
Table 6-5: Key food provisioning practices and elements at Bundagen Community Cooperative	206
Table 6-6: Practices and domains of practice discussed at Bundagen .....	207
Table 7-1: Mix of apartment sizes.....	218

---

Table 7-2: Key practices and elements in the creation and ongoing governance of Murundaka Cohousing Community .....	223
Table 7-3: Key practices and elements in the creation and ongoing governance of Murundaka Cohousing Community .....	232
Table 7-4: Key practices and elements in the practices of dwelling the house within Murundaka Cohousing Community .....	243
Table 7-5: Key practices and elements in the provision of food in Murundaka Cohousing Community .....	252
Table 7-6: Key practices and elements in the provision of transport and mobility at Murundaka Cohousing Community .....	257
Table 7-7: Practices and domains of practice discussed at Murundaka .....	258
Table 8-1: Sustainability Practices and domains of practice at Bundagen and Murundaka .....	261
Table 8-2: 'Direct' Sustainable consumption practices and elements by priority area.....	264
Table 8-3: Key elements for sustainability in circulation at Murundaka and Bundagen .....	267
Table 8-4: Sustainable consumption activities at Bundagen and Murundaka with reference to the New Economics framework (Seyfang 2009).....	286
Table 9-1: Examples of Murundaka community engagement with the wider community from September 2013 to September 2014 (Foyster 2014b).....	303
Table 9-2: High-level assessment of Australian intentionally sustainable communities (niche) and Murundaka Cohousing (niche project) development.....	318
Table 9-3: High-level assessment of niche diffusion from Murundaka cohousing community (niche project), and Australian intentionally sustainable communities (niche).....	321
Table 10-1: Sustainability practices and domains of practice at Bundagen and Murundaka.....	331
Table 10-2: Common elements contributing to sustainable practice within the case study communities.....	333
Table 10-3: Research objectives .....	338

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## List of Publications by Author

### Journal Articles

Daly, M. 2017, 'Quantifying the environmental impact of ecovillages and cohousing communities: A systematic literature review', *Local Environment: The International Journal of Justice and Sustainability*, vol. 22, no. 11, pp. 1358–77.

### Conference papers – peer-reviewed

Daly, M. 2015, 'Practicing sustainability: Lessons from a sustainable cohousing community', in P. Burton & H. Shearer (eds), *State of Australian Cities Conference 2015: Refereed Proceedings*, State of Australian Cities Research Network.

### Book Chapters / Thinking Notes

Royston, S., Daly, M. & Foulds, C., 2014. Know-how, practices and sustainability. In C. Foulds & C. L. Jensen, eds. *Practices, the Built Environment and Sustainability - A Thinking Note Collection*. Cambridge, Copenhagen, London: GSI, DIST, BSA, CCSG, pp. 7–9.

Macrorie, R., Daly, M. & Spurling, N., 2014. Can “systems of practice” help to analyse wide-scale socio-technical change? In C. Foulds & C. L. Jensen, eds. *Practices, the Built Environment and Sustainability - A Thinking Note Collection*. Cambridge, Copenhagen, London: GSI, DIST, BSA, CCSG.

Macrorie, R., Royston, S. & Daly, M., 2014. The role of “Communities of Practice” within the built environment. In C. Foulds & C. L. Jensen, eds. *Practices, the Built Environment and Sustainability - A Thinking Note Collection*. Cambridge, Copenhagen, London: GSI, DIST, BSA, CCSG.

### Conference presentations – peer-reviewed abstract

Daly, M. 2017, “The most powerful form of activism is just the way you live’: creating sustainable everyday practice in our cities’, *Ecocity World Summit 2017*, 12th - 14th July 2017, Melbourne, Australia.

Daly, M. 2016, 'Sustainable intentional communities: Niche sites transforming everyday household consumption practices', *7th International Sustainability Transitions Conference 2016*, 6th-9th September 2016, Wuppertal, Germany.

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Daly, M. 2013, 'Ecological Footprinting in Intentional Communities', *Australian Intentional Communities Conference 2013*, 6-8 December 2013, Moora Moora Cooperative Community, Victoria, Australia.

**Poster displays – peer-reviewed abstract**

Daly, M. 2015, 'Ecovillages and cohousing as grassroots innovations: Exploring the sustainability of everyday consumption practices within the Australian niche', *GEN+20 Summit: Living the New Story*, 6th - 9th July 2015, Findhorn Community, Scotland.

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