

## Translating Sustainabilities between Green Niches and Socio-Technical Regimes.

A role for green niches has risen to prominence in the environment and innovation literature. These niches are spaces where networks of actors experiment with, and mutually adapt, greener organizational forms and eco-friendly technologies. In this paper two green niches in the UK are considered: eco-housing and organic food. The analysis of niche-regime relationships reveals the importance of processes by which practices translate between the different socio-technical situations in the niche and the regime.

Strategic niche management is concerned with institutional embedding and the quality of learning. Institutional embedding is first about the niche entraining complementary technologies and necessary infrastructures. Second it involves the development of robust, widely shared expectations and finally, an influential niche enlists a broad network of actors. The quality of learning is about the wideness of the learning and the second-order learning, what takes a step back and questions the values and assumptions that frame the configuration of that practice, and draws deeper reflections about the underlying approach. Transition management recovers a role for niches, but the precise relations between niche and regime still requires further analytical attention.

The argument of this paper is that a focus upon the translation of socio-technical practices between niche and regime will further help theory development. In addition to identifying opportunities for niche-regime connections, we need to understand the connecting processes how these reconfigure developments in niche and regime. Therefore first the contrasting socio-technical practices in niche and regime are described for the eco-housing and organic food niches and then the socio-technical translation issues between the niches and the regime are described.

	Food		Housing	
Socio-technical dimension	Conventional food	Organic food	Mainstream house building	Eco-housing
Guiding principles	Maximize output using external inputs (ship food over long distances and use of chemicals for better	Optimize output within natural constraints	Maximize profit and minimal losses with high external inputs	Environment friendly, minimize ecological footprint within cost constraints. The house is not linked to the mains

	products)			services of gas, water, electricity or drainage. within cost constraints.
Technologies	Agrochemical inputs and pest control. Controlling animal disease with drugs	Crop rotation ('vruchtwisseling'), nutrient recycling, biological pest control. Healthy animal environments,	The current used technologies are tried and tested. There are listed suppliers and they use routine and bulk purchasing. And there are grid services.	Buildings are small-scale with off-grid services. Natural/reclaimed materials are used from green suppliers
Industrial structure	Specialized and intensive production. Large commercial operations. Global distribution of food	Mixed production on single faming units and local food economies.	Volume building with subcontracted labour. There are construction costs and profit from contracted rices. Large liabilities.	Specialist builders for passive solar design, super insulation, small-scale renewables etc. Lifecycle osts are taken into account, premium for sustainable features. They learn from correcting faults. Single dwellings or small groups
User relations and markets	Intermediary food processors and supermarkets. Processed and packaged foods.	Consuption of farm output is close to source of production and only lightly processed. Food is sold as a whole, not sliced etc.	Passive & conservative consumers	Householders play an active role by for example closing thermal blinds at night to prevent warmth escaping
Policy and regulations	Production subsidies, agrochemical research subsidies and extension services provide information about agrochemical input.	Certification of organic standards. Financial help for conversion to organic production. Specialist extension services	Land use planning and building regulations are followed. Lobby to control the pace of environmental standards	Land use planning and building regulations can be a constraint. Lobby to accelerate the pace of environmental standards
Knowledge	Biochemistry Food technology Transport	Soil science and ecology. Crop varieties Seasonal	Knowledge relevant to existing competencies	Knowledge relevant to reducing the ecological

	logistics	food	and business practice. Standard designs of developers chosen.	footprint of homes. Site-specifics taken into account, e.g. solar orientation, waste water treatment and recycling
Culture	Profit & convenience	Sustainable food	Markets & regulations	Sustainable housing

Analytical focus	Eco-housing	Organic food	Socio-technical translation
Learning			
1st order lessons about socio-technical performance	Learn the socio-technical requirements and performance of specific practices, e.g. earth-sheltered housing; solar water heating; water recycling, greener household occupancy	Organic growing techniques. How to market and distribute to niche customers. Developing standards	Some niche practices are sufficiently flexible to be interpreted favorably against regime socio-technical criteria. This permits those practices to translate into regime settings
2nd order lessons reflecting upon framing assumptions	The regime approach is questioned. Integrated approach to autonomous housing based on alternative values and criteria	There are concerns about high-input modern agriculture and the quality of processed foods. Alternative food production model	Niches are informed by sustainability problems in the regime. Systembuilding pragmatists can help the translations
Institutional embedding			
Technical configurations	Experimenting and linking favored technologies. A limited set of practices enter the mainstream through regulatory push	Using of organic techniques. Certification schemes. Alternative distribution. Organic ingredients adopted by mainstream	Practices that can be added onto regime configurations, or slot in easily, are favored, i.e. articulated with existing regime
Niche expectations			
Social network formation	Autonomous eco-homes vs. diffusion of some greener	Mixed organic farms & local food economy vs. diffusion of	Lack of deeper institutional embedding can fragment

	practices	organic industry globally	expectations amongst niche actors
Regime tensions	Between the green builders and households. Engagement with the regime is very slight, and limited to demonstration programs and regulatory pressures. But there are recent intermediary developments	The organic movement followed by mainstream interest and organic industry. Revived local food networks	Tense relation between niche initiating idealists and pragmatic system builders. Regime adaptation permits wider practice of aspects of niche, but at cost of original vision
The form in which environmental pressure is articulated	Waves of environmentalism (1960s, late 1980s, present). Energy crises and research programmes (1970s). Climate concerns and building regulations (present)	Many tensions, shifting over time, e.g. pesticides, biodiversity loss, food scares, GM. Organic niche repositioned itself in the light of shifting tensions	Niches seek to represent regime tensions to their own advantage. Different tensions—beyond niche control—provide occasions for diverse actors to (re)interpret the niche is favorably
Niche-regime links			
Translating sustainability Problems	Initial radical framing (autonomy). Pragmatic recognition by regime, convenient greener practices regulated (present). Ongoing eco-house exemplars	Initial radical framing (local organic food economy). Pragmatic adaptation of elements into regime. Localism as response to some perceiving mainstreaming as insufficient	Niches and regimes develop different kinds of sustainabilities through both positive, synthetic interactions, and through contentious, antithetical interaction
Adapting lessons	Regulations translate flexible practices into mainstream building codes	Organic ingredients to fit processing and marketing requirements of major retailers	Niche lessons are interpreted from regime perspective and adapted accordingly
Altering contexts	Some intermediary developments facilitate mutual adaptation	Wider organic diffusion, but without altering mainstream food practices significantly	Niche-regime engagement can lead to mutual adaptations, though regime

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The literature on green niches must pay greater attention into niche-regime interaction. There are three different kinds of translation:

1. Translating sustainability problems, i.e. how problems in the regime inform the guiding principles creating the niche
2. Translations that adapt lessons, i.e. reinterpreting elements of socio-technical practice in the niche and inserting them into regime settings or modify the niche with the lessons learnt about the regime
3. Translations that alter contexts, i.e changes that bring the regime closer to the situation that pertains in the niche, or vice versa.

Niche idealists and regime tensions are very important. Committed individuals and groups in the case studies were central to the creation of both green niches, and persisted despite periods of mainstream indifference and despite the difficulties of enrolling resources. But it has to be taken into account that translation is rarely a process between equals. Regimes enjoy a highly embedded and influential position. Green niches, by contrast, are of the poorly embedded and lessons disputed.