



FROM ONE ISLAND TO ANOTHER

A Celebration of Island Connections

Edited by Karin Topsø Larsen

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FROM ONE ISLAND TO ANOTHER – A Celebration of Island Connections

By Karin Topsø Larsen (ed.)

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Cover design, layout and typesetting:

Hamilton Workshop - janehamilton@mail.dk

Set in 12/14 pt Chaparral Pro

Printed by Scandinavian Book A/S

1. Edition, 1. Print 2012

ISBN 978-87916-77-29-8

Printed in Denmark

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A word of thanks

This publication is a result of contributions from participants at the International Small Island Studies Association conference *Celebrating Island Connectivities* on Bornholm 2010. It is, however, particularly the result of Godfrey Baldacchino who has contributed not only to this publication, but to island research at the CRT for a number of years. He has done so through his continuous and repeated visits to Bornholm and to the CRT and through his lectures and seminars on different aspects of island studies. Godfrey has also contributed to CRT's participation in international research projects and has, last but not least, bridged the way to international research and development partnerships in the form of the North Atlantic Forum and in particular the International Small Island Studies Association. Godfrey has also contributed to the editorial work on this publication and his comments, suggestions and perspectives are greatly valued.

We would also like to thank the other contributing authors, who have been extremely patient with the stop-and-go process of this publication. More importantly, we are honoured that they have contributed with their many-faceted knowledge about islands and specific island conditions.

Thank you.

Steen Schönemann, *Director*

Karin Topsø Larsen, *Editor*

*Centre for Regional and
Tourism Research*



FOREWORDS



In August 2008 on the South Korean island of Jeju, the International Small Island Studies Association (ISISA) held its 10th international conference. Here it was decided that the Centre for Regional and Tourism Research (CRT) would be responsible for the 2010 conference, framed by the Danish island of Bornholm and the Baltic Sea.

Bornholm has an area of 589 km² and 41,802 inhabitants. Tourism, agriculture and related economic sectors including the service sector and a small number of production firms form the economic backbone of the Island. The public sector is considerable and includes a full scale hospital and a battalion. The island faces many classical peripheral issues. The island economy combines on the one hand a profound integration with the rest of Denmark and has strong transportation links to the Danish capital of Copenhagen by sea and air, whilst on the other hand exhibits many aspects of being a 'closed economy'.

The ISISA World Conference XI was entitled *Celebrating Island Connectivities*. The event was a success on all accounts: both in relation to participation, arrangement as well as media attention. The CRT chose to challenge traditional conference forms and venues by transforming a town – in this case Gudhjem – into an active conference location. The conference had a total of 69 participants including 57 foreign participants, who ranged from department heads and professors to students and representatives from diverse interest groups who came from a total of 16 nations spread across the globe: Australia (Tasmania), Canada (Prince Edward Island), Taiwan, United States (Hawai'i), Fiji, Virgin Islands, Japan, Turkey, Germany, Sweden, Ireland, Malta, Austria, Norway, France and the UK (England and Scotland). The conference was organised around a number of interactive sessions with 21 workshops and 4 plenary debates at 6 different locations in Gudhjem as well as at Bornholm's Art Museum and the Bornholm Folk School.

The academic content focused, among other things, on innovation and economic development, climate change and sustainability issues as well as on arts, culture and history—all themes based on islands' unique conditions and terms. Social events at Scala Gudhjem and at 'Kyllingemoderen' were arranged in connection with the conference as were optional tours to Christiansø and an 'Energy Bus Tour' around Bornholm. A conference programme and a film documenting the conference have been produced. The conference was serviced by ten students from Bornholm's Business College who catered to conference guests' information needs. This publication constitutes a selection of conference papers and presentations. Selection has been based on themes and issues which are most closely connected to island studies at the Centre for Regional and Tourism Research as well as to issues which are in focus by local policy makers on Bornholm and other regions around the Baltic Sea.

The Centre for Regional and Tourism Research contains the largest local concentration of knowledge society employment posts and thus has both the opportunity and an obligation to give input to and support island development. The CRT receives a basic grant from the Ministry of Research, Innovation and Higher Education (5 million Danish kroner annually) and provides additional funding from project-related research grants and through consultancy work (about 9 million Danish kroner annually). There is a strong affinity to Bornholm, and the Centre perceives itself to be Bornholm's "Window to the World". Efforts are concentrated in fields where the Bornholm interest is clear: the centre's research policy falls under the heading tourism, regional development and maritime regions / island studies seen from a peripheral development perspective. Connections and relations to national and international knowledge networks are essential for the centre, and participation in international organizations is a marked priority. The International Small Island Studies Association is a major partner, as this book demonstrates.

The conference and publication have kindly been supported by the Regional Municipality of Bornholm, 'Sparekassen Bornholms Fond'; The Ministry of Research, Innovation and Higher Education, Destination Bornholm and 'Bornholms Brandforsikring'.



Christian Wichmann Matthiessen

Chairman of the Board,
Centre for Regional and Tourism Research

Professor Emeritus,
Institute for Geography and Geology,
University of Copenhagen

ISISA, the International Small Islands Studies Association has been meeting since 1984, each conference carrying its sequential number.

Islands XI was organised and held on Bornholm Island by the CRT and the staff of that institution did an excellent job, with the right amount of high tech for presentations and small island warmth ('hygge', in Danish) in terms of meeting places and receptions.

ISISA has been hosted by academic institutions on not so small islands (Maui, for example) with the sessions being in an academic setting, something with which many of us in ISISA are familiar. But ISISA attracts also practitioners; those who are at the coal face, as it were, in terms of community development wherever small islands are found. Practitioners, either as community members, government officers or invited consultants, see things in terms of how they can be applied; how they work and the practical approach.

This is not to say that people such as myself at the University of Sydney, are in our remote towers: we too have practicalities in mind when we do our research and write our reports/papers/books. But application is not usually our central focus. In academic life, we are interested in comparing studies to get at truths about human experiments in living on small islands and elsewhere.

Those two ISISA constituencies, the practitioner and the academic, are joined by the third kind of attendee at an Islands conference: those who live on small islands, members of communities on small islands who hearing a crowd of outsiders are coming to talk about, well, small islands, are curious what is going to be said.

A truly successful ISISA Islands conference always attracts that wide audience of practitioners, academics and community members.

And that is what happened in 2010 on Bornholm where the Islands XI sessions took place in the middle of the community, where people could turn up for a while and very often make their observations and contributions.

I don't want to give the impression that those three constituencies are separate and discrete. Many people at Bornholm combined two of the above characteristics; some even all three!

The papers in this volume seek to give some of the flavour of the Bornholm meetings, even, maybe for the careful reader, of Bornholm itself, a beautiful setting for a conference of ideas and action.

For those who were unable to attend Islands XI, the papers selected and published by the CRT together make up an impression of our meetings, especially those papers that were relevant directly to the small island of Bornholm, an important criterion for being included in the volume. For those who were at Islands XI, they will recall the presentations, now polished and filled out, bringing back discussions in both formal and informal settings.

Those who have funded Islands XI are thanked elsewhere. I wish to add my

appreciation for those institutions and bodies (and their officers) for supporting the work of ISISA by providing support for Islands XI.

I hope the editors of this volume will forgive my putting in a word about ISISA itself, now with an excellent website hosted at the University of Hawaii at Maui; isisa.maui.hawaii.edu/. Here visitors can browse information about the organisation, past meetings and find out about those people from many countries and disciplines who make up the Executive and Advisory Committees. Visitors to our ISISA website also are invited to become members and participate in the conferences and governance of the organisation.

At time of writing at the end of December 2011, the next Islands conference takes place in 2012 at Tortola, British Virgin Islands. The host is the H. Lavery Stott Community College, a progressive and vibrant tertiary institution located in the heart of the Caribbean. The last ISISA Islands conference that took place in the Caribbean was in 1992, so it is good to get back to that very island part of the world, where small islands flourish as places of modern action, imagination and worthwhile participation in the world. The team at H. Lavery Stott awaits you, with a friendly welcome for a diverse and exciting program of events and presentations. Please see www.hlscc.edu.vg/islandsxii/ for more information.

Finally, when you living on small islands read the papers that follow, please consider not just participating in ISISA as a member, perhaps an office holder, but also keep in mind that our organisation meets every two years and we are looking for future places to host an Islands of the World conference with the same efficiency and care that all of us experienced on Bornholm for Islands XI.



Grant McCall, President
ISISA – International Small Islands Studies Association

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(writing from Rabi Island, Fiji)
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It was an honour for me to welcome the participants of the 11th Islands of the World Conference on Bornholm, Denmark in August 2010.

Many of the world's islands face the same challenges of declining population, lower education levels, and higher unemployment rates compared to the rest of their respective countries. We all think that our island is a paradise on earth. But we still need to continue to develop our islands—to make them attractive for families to live on and to ensure a qualified labour force for our local enterprises.

One way to maintain the attractiveness of our islands is to foster and maintain the connections to the surrounding world. Seen from that point of view, the theme for the conference in 2010 *“Celebrating Island Connectivities”* was very relevant. I’m therefore pleased to see that the results of the conference are gathered in this book.

For the island of Bornholm, the ISISA-conference was a great opportunity to present our comprehensive development strategy: “Bright Green Island – Bornholm 2014” the objective of which is to establish the island as a global example for the use of green technology, renewable energy and a sustainable way of life. The Regional Municipality of Bornholm is working toward phasing out the island’s consumption of fossil fuels and to make Bornholm’s supply of energy more sustainable.

Bornholm offers a unique environment as a green test laboratory. With its’ 42.000 inhabitants, Bornholm is a complete, geographically delimited society, with all economic sectors represented, which provides possibilities for testing and up-scaling to regional, national and even international levels.

Seen from a touristic point of view, I find it very promising, knowing that the ISISA-conference on Bornholm welcomed representatives from more than 15 different countries. It is my hope that the conference—and this book – can inspire conference delegates and readers to new and longer visits to the island.

May this book contribute to an ongoing debate about the development of islands in the world.



Winni Grossbøll
Mayor of Bornholm

INTRODUCING FROM ONE ISLAND TO ANOTHER AND ISLAND STUDIES



Godfrey Baldacchino

Godfrey Baldacchino (PhD, Warwick) is Professor and Canada Research Chair (Island Studies) at the University of Prince Edward Island, Canada; Visiting Professor of Sociology at the University of Malta, Malta; Executive Editor of Island Studies Journal; and Vice-President of the International Small Islands Studies Association since 2010.

Introduction

Even as the participants were gathering in Gudhjem for the 11th Islands of the World Conference in July 2010, moves were afoot to launch an interesting project on Bornholm that was examining the viability of electronic car use within a comprehensive green energy framework. An alliance of state, academia and private industry stakeholders – including Copenhagen utility DONG Energy, the regional energy company Oestkraft, the Technical University of Denmark, IBM, Siemens, Eurisco, the Danish Energy Association and the Regional Municipality of Bornholm—are working on an innovative pilot program that seeks to address the technical and logistic challenges of combining renewable (wind) energy with electric vehicles. The idea is for electric vehicles using the system to get charged when the wind is generating excess power, and electricity is cheap; conversely, vehicle charging will be slowed or delayed when the wind stops and energy production is diminished, during which time electricity will be more expensive. The initial objective is to deploy a fleet of 15 intelligent electric vehicles on Bornholm, and thus hopefully develop a model that could manage a network of some 200,000 wind-powered electric vehicles across the whole of Denmark by 2020.

Of course, Denmark is a recognised world leader in alternative/green energy: it already generates some 20% of its domestic energy needs using wind power; it has manufactured half the wind turbines in service worldwide; its capital Copenhagen is one of the world's most bicycle-friendly cities. No surprise then that the Danish capital city was a natural choice to host the 15th meeting of the Conference of the Parties (COP 15) in the UN-sponsored climate change negotiations, held in December 2009, a few months before the ISISA Conference hosted by CRT.

The Perfect Environment

Of all the possible sites in Denmark for launching the EDISON project described above – (the project title is an acronym for Electric vehicles in a Distributed and Integrated market using Sustainable energy and Open Networks) – the stakeholders opted for the island of Bornholm. The main reasons are cogently and succinctly explained in a three-minute promotional video: Bornholm is a small island and the easternmost part of Denmark (indeed, it is closer to the Swedish coast than to the Danish one, and it is therefore connected to the continental electricity grid via a cable to the Swedish mainland); given the size of the island, commuting distances are small and therefore require a relatively small power charge. Bornholm's size and island geography gives it the ideal characteristics of a 'controlled experiment': a large (but not so large) open air laboratory of some 45,000 residents on an island of 589 square kilometres, having its own municipal government and with a self-contained electric power grid. Not only that: Bornholm is, one hopes, the window to the future; the lessons learnt from its isolated, and therefore controlled, environment would not only benefit the island and its residents, but would be extended to benefit Denmark as a whole. And from there, perhaps, to Europe and the world beyond (Building a Smarter Planet, 2009). Bornholm is indeed "the perfect environment".

The exciting EDISON Project is one of the obvious ways in which islands lend themselves to the international community: sites of experimentation, with lessons that would have enormous translation potential. The notion of islands as microcosms, miniature versions of larger structures and processes which may be simply too complicated to understand, unravel or analyse elsewhere, is a long tradition. Study an island, and then extrapolate: it has been done by such famous, and diverse, scholars as naturalist Charles Darwin (1959), anthropologist Margaret Mead (1928) and, more recently, journalist David Quammen (1998) as well as environmental geographers Jared Diamond and Edward Robinson (2010).

The convenience of islands to the generation of big ideas is thus standard practice. Strangely enough, however, the script for this generative exercise

typically consists in non-islanders visiting islands, gathering their data and making their observations, and then moving back to the mainland. A similar debilitating narrative is reproduced even in fiction: whether it is Lemuel Gulliver or Robinson Crusoe, 'the island', and its people, exists only in the eyes of its mainland visitor, whose visit may have even been unplanned and unintentional (Swift 1726; Defoe 1719). Would most of us know of Alcatraz, or of Elba and St Helena, were it not for Al Capone or Napoleon Bonaparte, both unwilling residents? How else do Guantánamo Bay (Cuba), Lampedusa (Italy) and Christmas Island (Australia) make the news these days but strictly in relation to matters of detention and/or illegal migration?

When one considers that islands – if defined as habitable pieces of land that are smaller than continents – are so treated, then it may come as a surprise to note that they are today the home to over 10% of the world's population. Their representation – in newspapers, fiction, scientific literature, internet websites, movies – is often driven by the interests of others (including the latter's keen desire to contain dangerous prisoners, typically mainlanders, and keep them at bay). Their purpose has also been doctored by an obligation to present themselves as attractive paradises to potential tourists (again, mainlanders). Islands are perfect environments, indeed; but for whom?

Island Studies is a focus of interdisciplinary inquiry that is critical of the manner in which island spaces, and island peoples, have been systematically reconstructed, robbed of agency, serving the narrow agendas of others. Admittedly, attracting scientific interest as a "perfect environment" is not too bad; attracting tourists to enjoy an island holiday may not be too bad either. Invisibility is a probably worse fate than accepting such characterisations in a contemporary world gripped by brand familiarity. But such initiatives can be complemented by what I have described as "a re-centering of focus from mainland to island, away from the discourse of conquest of mainlanders, giving voice and platform for the expression of island narratives" (Baldacchino 2008: 37). The celebration of island affairs from a local perspective is an important and justifiable enterprise: we do need more material and ideational conceptualisations – scientific, technical, literary, ethnographic, artistic, as well as within each and across all disciplines ... – that engage with islanders, and that are written or produced by them, and that are not just written or produced about or (at best) for them.

The track record on this front has changed considerably in recent decades. First of all, there has been an explosion of small island developing states in today's decolonised world: they have their own 'development summits' (Barbados 1994; Mauritius 2005) and are the special targets of international agencies like the United Nations and the World Bank. Second, various island countries and territories now house local universities and centres of higher learning that realise

that they are important powerhouses and brokers of knowledge, and so are required to be sensitive and appreciative of their island geography and culture. Third, international and regional associations such as the International Small Islands Studies Association (involved in co-producing this volume), the Baltic Seven Network, the European Small Islands Federation, the North Atlantic Forum and the Small Island Culture Research Initiative continue to provide significant regional and international platforms for discussing island affairs, and promoting comparative and collaborative research, business, community outreach or just overall appreciation. Amongst these, perhaps the most articulate has probably been the Alliance of Small and Island States (AOSIS), since 1990 a coalition alerting the international community to the potentially catastrophic consequences of even a metre or two of sea level rise, and an early champion of carbon tax. Fourth, a few universities have even started offering courses that specialise in island studies – Malta (in Malta), Maui (in Hawai'i, USA), Prince Edward Island (in Canada) and the University of the West of Scotland (United Kingdom). These include at least three regional multi-island tertiary-level institutions with a special interest in regional island affairs: the University of the West Indies, the University of the South Pacific and the University of the Highland and Islands (in Scotland). The Contemporary Pacific (with its editorial office located at the Center for Pacific Islands Studies, University of Hawai'i), launched in 1989, is perhaps the pioneer and still running scholarly journal to consider island issues. Finally, both Island Studies Journal (launched 2006, and based at the Institute of Social Studies, University of Prince Edward Island) and Shima (launched 2007, and facilitated by the Division of Research, Southern Cross University, Australia) now provide freely downloadable and web-based scholarly articles. The Centre for Regional and Tourism Research (CRT) is a specialised research agency that is very much grounded in its island home: one of a growing number of such institutions around the world, going to show that in spite of the so-called borderless world, place still matters in this day and age.

This Book

This publication continues in this tradition: celebrating islands for their own sake, and on their own terms, without neglecting the remaining 90% of humanity that lives elsewhere and that is sure to benefit handsomely from island insights. Like the EDISON Project.

Divided into five self-contained but interlocking sections, plus an opening Foreword, this text offers the reader a sample of what island studies has to offer: in its wide-ranging pursuits, its eclectic approach to subject matter, its global sweep and reach. It touches on local nuances but is enriched by a truly archipelagic context that reminds us that our world is, after all, “a world of

islands” (Baldacchino 2007). These contributions are based in turn on papers presented at the 2010 ISISA conference in Gudhjem, and including a fine sample of the research in progress at the CRT.

The privilege of the first word is reserved to the comments of Professor Christian Wichmann Matthiessen, Chairman of the CRT Board, Winni Grosbøll, Mayor of the Bornholm Regional Municipality, and Professor Grant McCall, social anthropologist and President of ISISA. Theirs is a clear and crisp justification of the rationale behind hosting both a cutting-edge research centre, as well as a major international conference, on such a small island like Bornholm.

Section I foregrounds the text in its physical, economic and demographic context. Bornholm is a small Danish island that has opportunities to thrive as a sustainable community by enhancing its experience economy, attracting and keeping its resident ‘creative class’, and exploiting the benefits of being open to the world by a positive immigration experience. Indeed, these are some of the ongoing research projects that the CRT is involved in – the contributions in this text are penned by CRT academic staff Carl Henrik Marcussen, Jesper Manniche and Mikkel Toudal – and their relevance to the home island’s own socio-economic prospects is most significant, as highlights CRT Director, Steen Schønemann and editor Karin Topsø Larsen in their introduction to island research at the CRT.

Moving on to **Section II**, we explore contributions that speak to the rootedness and specificity of island spaces: the influence of the past on the present via the critical interpretation and appreciation of history; the unfolding evolution of representations of ‘self’ and ‘other’ by means of a study of island identity in the context of public events; and the active construction of island spaces as special enclaves or excised zones that permit a distinct regimen of legality and appropriate behaviour. This more conceptual section is penned by international scholars: Godfrey Baldacchino (University of Prince Edward Island, Canada) followed by, with an emphasis on the Baltic region, Janne Holmén and Samuel Edquist (Södertörn University, Sweden) and, finally, Doris Griessner (Alpen-Adria University, Austria). Such papers develop an appreciation of the role that islands can play in modern times: islands of difference in an ocean of increasing and dull uniformity?

In **Section III**, the focus is decidedly more future-oriented. Islands often find themselves victims of pre-packaged ‘development kits’ that have been developed with larger, continental spaces in mind. Thus the need for a fresh perspective towards development that is more sensitive to the nuances of size, islandness and local resources; these are not handicaps but opportunities for a well-crafted economics of place that revolves around attractive (sometimes re-/invented) island brands and experiences. Much food for thought is provided by the contribution of island foods and beverages to regional innovation and

local economic development in Bornholm (authors: Karin Topsø Larsen, Jesper Manniche and Tage Petersen, all at CRT); as well as by the use of locally available marine products for food and medical purposes from the island of Chiloé, Southern Chile (Irene Novaczek and Abigail Vasquez, both at the University of Prince Edward Island). Meanwhile, the contribution by Jie Zhang and Anders Hedetoft (both at CRT) focuses on the prospects of tourism development on a number of Danish islands and peripheral municipalities by deploying economic models. Tourism is indeed often glibly considered as a panacea to the economic challenges faced by many (especially warm water) small islands; but extreme care must be taken to avoid a dizzy spiralling towards a mass industry that hardly leaves any value added at home while ravaging the very environmental and cultural assets that may have made the island locale attractive to tourists in the first place.

As noted earlier, educational institutions are not just obvious spaces for the deliberation of, and engagement in, island studies; they can serve as nurseries for special programmes that can acknowledge the island perspective more centrally and explicitly. This is the focus of **Section IV** in this text. Whether it is the challenges of teaching island studies to undergraduate students at the University of Prince Edward Island (Kathleen Stuart, now a PhD candidate at the Australian National University, Australia), the methodology of a graduate programme in Experience Leadership for peripheral areas (Lene Rømer and Tage Petersen, both at CRT), the link between higher education and island sustainability remains a relatively underexplored field. In such circumstances, all the more reason for collaboration among like-minded and like-challenged island-based institutions and academics: this is the case being made in the contribution by Clyde Sakamoto, (University of Hawai'i Maui College, USA).

Finally, what captures most enthusiasm and interest on both the local and global stage these days in island matters? Many would hopefully agree that it is the challenge of climate change and green (low/no carbon based) energy. We thus return, in **Section V**, to the theme that this paper was introduced with: islands as case studies par excellence. Islands make the perfect candidates for the staging and study of dynamics that, once proven successful in island contexts, could very well be reproduced on larger landscapes. Such experiments can be unsavoury ones: think Kwajalein and Mururoa, nuclear weapons test sites in the Marshall Islands and French Polynesia respectively. But the news is not always bad. Island spaces can be or become “islands of hope”: little microcosms of optimism, unassuming locales that are staging small but incrementally significant contributions towards truly more sustainable lifestyles. Think Samsø (Denmark—the 100% Sustainable & Carbon Neutral Island); Ærø (again in Denmark—the world's largest solar thermal plant); El Hierro (Canary Islands, Spain—declared a Biosphere Reservoir by UNESCO, including a 100% renewable

energy source project in its sustainable development plan); and Bonaire (the first 100% sustainable island in the Caribbean). To this still somewhat exclusive list, we can perhaps now add Bornholm, which is the place of departure for Christophe Rynikiewicz (Sussex University, U.K.) and Richard Snape (De Montfort University, U.K.), who, by first grounding their ideas around key initiatives on renewable energy in islands including Bornholm, introduce us to cutting-edge work dealing with the transition to a ‘Smart Grid’ on islands and the social learning and behaviour that would influence that transition. Next, Joie Taylor (University of Hawai'i Maui College, USA) ponders over the Hawai'i Clean Energy Initiative and addresses the unique challenges of switching to alternative and renewable energy on a small island like Maui in the search for a sustainable future which includes green energy production, the reduction of carbon footprints, and island eco-branding. Finally, Beate M.W. Ratter and Jan Petzold (both at the University of Hamburg, Germany) invite us to consider the example of Helgoland island in Germany, on one hand, to analyze the impact of small islands on the Earth using the concept of the ‘Ecological Footprint’; but, on the other hand, also invite readers to leave many tiny fingerprints that reflect individual pursuits in favour of sustainability. It is these fingerprints that should be measured to indicate the prevalent island attitude and active contribution to sustainable living.

Conclusion: A Testimony to Collaboration

“As the world changes, unique communities are more precious; islands have an edge in preserving and enhancing their special qualities and assets”, perceptively writes Professor Clyde Sakamoto in his contribution to this collection. Many islanders know instinctively that this statement is correct, but may succumb to fatalism and despondency bred from long periods of powerlessness. Many visitors to islands appreciate the merits of the observation, but their attention span may not be long enough to lead to serious action or attitudinal change. Island studies could yet help galvanize local and global resources and imaginations to usurp the heavy negative baggage often associated with small size and insularity, and instead confront the serious issues of our day with determination.

This volume bears testimony to the collaborative efforts of academic scholarship, business enterprise, government initiative, research agencies and international organizations in pushing the island agenda forward. Is this perhaps yet one other impressive achievement that is easier to deploy on small islands than on large and sprawling mainlands?

Acknowledgements

My heartfelt thanks to the Director and Staff of the Centre for Tourism Research in Bornholm, Denmark, as well as to my colleagues on the ISISA Executive Committee, for the privilege of presenting my ongoing research at the ISISA 2010 Conference; and a special note of gratitude to Karin Topsø Larsen at CRT, the stalwart editor of this volume, for assisting me in the compilation of this overview. I also thank former director of the CRT, Dr Peter Billing, for alerting and introducing me to the work of the CRT many years ago. The financial assistance of the University of Prince Edward Island in attending the ISISA Conference in Bornholm in 2010 is gratefully acknowledged. The usual disclaimers apply.

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- North Atlantic Forum: www.naf2011.com/
- Shima: The International Journal of Research on Island Cultures: www.shimajournal.org/
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- University of the West Indies: www.uwi.edu/

SECTION

I

Islands, Denmark, Bornholm and CRT

ISLAND RESEARCH AT THE CRT



Steen Schønemann

Director, Centre for Regional and Tourism Research



Karin Topsø Larsen

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It is not surprising that, according to Stephen A. Royle (Baldacchino, 2007), the English word 'island' derives from the Old Viking or Norse word for island 'ey' or 'ø'. The Vikings have left linguistic souvenirs around the coasts of the British Isles, where many of the small islands have '-ay' or '-ey' endings. This has later combined with the Old English 'ie' or 'i' and when it is joined to 'land', meaning a solid part of the earth, the word 'island' is formed. Denmark is a nation of islands, which is made up of the peninsula of Jutland and some 443 islands and islets, of which 78 are populated.

Islands play an important cultural and historical role in Danish self-perception and its long-standing connections to the world outside Denmark by way of water is significant for understanding how Danes concurrently perceive themselves to be self-contained and deeply integrated in European and 'western culture'. Thus, it is on historic roots that the descendants of Vikings at the Centre for Regional and Tourism Research on the Danish Island of Bornholm should occupy themselves with island studies.

The Centre for Regional and Tourism Research has since its establishment in 1994 had islandness as a basic premise, prerequisite and condition for our research and consultancy work. The CRT was established on Bornholm as part of a national support scheme "The Bornholm Package" to aid the island after the collapse of the fishing industry in the Baltic Sea and a profound economic crisis in 1992-1993. As an emerging research centre on a peripheral island, the

CRT has had to grapple with developing a small research environment in an isolated location and has worked strategically to integrate itself in national and international research networks in order to bridge such challenges. However, as a nation of islands, Island Studies in Denmark does not automatically lend itself to the definition put forward by Baldacchino in the introduction to this book.

“Island Studies is a focus of interdisciplinary inquiry that is critical of the manner in which island spaces, and island peoples, have been systematically reconstructed, robbed of agency, serving the narrow agendas of others.”

In a Danish context, where approximately 3.4 million of the total 5.5 million population live on islands, island studies as defined by Baldacchino, are also peripheral studies. In the past few years, the concept of “Peripheral Denmark”, understood as the municipalities with a marked lower wage level, lower level of education, and lower health levels compared to the rest of Denmark, has emerged. Geographically, peripheral Denmark consists of most of the northern part of the peninsula of Jutland, a band of municipalities along the southern part of Denmark, including Bornholm, and a number of municipalities on western Zealand. Most of the smaller populated Danish islands are part of peripheral Denmark. It is at this cross-road of *Island Studies* and peripherality, that CRT research has its point of departure.

The placement of CRT on Bornholm has meant a long-standing relationship between local development agents and policy makers and the researchers and consultants at the research centre. A unique partnership has developed over the years, where theoretically-based research projects, consultancy work on evaluating local development projects as well as strategy and policy inputs, have forged an institution which to a high degree is accountable for our outputs locally.

Our tourism research pertains primarily to tourism in peripheral areas, island tourism, and particularly to tourism on Bornholm. Our regional development research is also closely connected to Bornholm and other peripheral areas and focuses on business opportunities for small private enterprises, innovation processes, and access to technology within different economic sectors in peripheral areas including insular labour markets, an example of which was the *Making a Living in Insular Areas* project, which was a collaboration between Nordic Research partners with an analysis of insular labour market opportunities and barriers.

Our analyses are policy-input orientated and the CRT provided a comprehensive SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis across a field of business sectors on Bornholm in 2004, which has led to the CRT working out strategies for the tourism sector, the agricultural sector,

and the regional foods sector, and in recent years, strategies for utilizing the potentials of the experience economy on Bornholm.

Finally, the concepts of regional innovation and knowledge dynamics have been common threads throughout our work, in that we have focussed on the role of higher education on islands as well as the dynamics of searching for, adapting and anchoring new knowledge in innovative processes in private enterprises in peripheral areas.

Bornholm’s position in the Baltic Sea has provided the Centre with many opportunities to explore the connections between the coastal areas and islands in this part of the world and the particular economic growth and tourism opportunities that arise from the close connection to the sea. The CRT has analysed the business and trade opportunities for Bornholms enterprises targeting Baltic Sea trade, and has a long-standing connection with the B7 network, which is a Baltic island network consisting of Gotland, Öland, Åland, Hiiumaa, Saaremaa, Rügen and Bornholm.

In the past five years, the CRT has expanded its capacity to provide a comprehensive statistical and modelling system for the Danish Ministry of Economic and Business Affairs and the Danish Regional Authorities to monitor regional development in Denmark. This tool has allowed the CRT to participate in an international ESPON (European Observation Network for Territorial Development and Cohesion) project, which concerns monitoring island potentials. The *EURO-islands* project has developed a comprehensive policy analyses tool called Island Impact Assessment, which assesses the effects of different policy measures with a clear island territorial aspect, including effects of education policies on Gotland; information technology policies on Malta; and Green Branding of Bornholm.

The Centre for Regional and Tourism Research will continue to focus on island research and peripherality, areas of focus which on a national and international scale become ever more pertinent, as globalisation and migration to city centres dominates development flows and peripheral islands are in danger of facing a downward development spiral due to de-population. Many islands are dependent on national and EU support, the purpose of which is to enhance national or European cohesion, thus, again, focussing on the connection between the island and the mainland, often from a mainland perspective. Seen on a spectrum of globality at one end and insularity at the other, islands as spaces, whether they be geographically, culturally or otherwise defined, offer the non-island part of the world many pertinent lessons to be learned. Thus *Island Studies* and island research should be supported in and of itself, and not only as a study on cohesion between islands and mainlands.

CRT research in this publication

For some island nations – Iceland for instance – it is possible to make out national accounts to statistically monitor island development. But most island analyses deal with islands within a country. Here it is often difficult to get data at a level detailed enough for valid analyses, as data is most often merged with data covering an entire region or country. At the CRT we have access to data at a municipal level, rendering data from 98 Danish municipalities. The CRT has not only bottom-up data for every municipality in Denmark, we also have forecasts commensurable with the model used by the Danish Ministry of Finance. The models and data are used by the employment regions in Denmark to forecast the need for employment within different branches of employment. It is also used by the six Danish Growth Forums in order to survey the development of growth locally. The use of this data in analyzing aspects of islands is quite obvious, as quite a number of the larger populated islands are also municipalities. We thus have an extraordinary opportunity of grasping not only what elements are at play on the islands, but also the magnitude of these elements relative to other areas. In this publication we use our unique data to give a deeper understanding of island migration patterns (Marcussen), the growth of the ‘Creative Class’ on Danish islands (Manniche and Toudal), and tourism on islands (Zhang and Hedetoft).

The CRT has also done a study on the knowledge dynamics which have shaped the emergence of a regional food sector on Bornholm, showing that islands may have particular place branding opportunities (Larsen, Manniche and Petersen) and finally, we have explored and developed a unique model for offering university-level education programmes in peripheral areas – a method we call “The Caravan Model”. One of the many lessons learned from offering the Master’s Degree Programme on Experience Leadership in Peripheral Areas on Bornholm is that local cross-sectoral learning networks can be forged through the class room based on human and trust capital. The “Caravan” is presently rolling in Thy, in Northern Jutland and may be on its way to Iceland (Rømer and Petersen).

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A few Facts about Selected Danish Islands



In the following chapters a few smaller Danish Islands are selected for analysis. The islands are: Bornholm, Langeland, Ærø, Fanø, Samsø, Læsø, Morsø, Lolland and Falster.

A few key figures about the islands are presented here:

	Bornholm	+ Lolland	+ Langeland	Ærø	Fanø	Samsø	Læsø	Denmark
Population 1.1.2010	42,154	46,984	13,510	6,679	3,219	4,010	1,969	5,534,738
Population growth 2000-2010	-5%	-8%	-7%	-10%	0%	-5%	-14%	4%
Labour force 2008	18,778	19,661	5,669	2,694	1,477	1,696	863	2,734,457
Unemployment % 2009	5.5	4.6	3.7	2.6	2.9	3.7	7.2	3.6
*Average personal income 2009	87%	87%	85%	86%	104%	91%	84%	100%
**Commuting Labour force 2009	98%	95%	88%	88%	67%	96%	97%	-

* DK average 2009

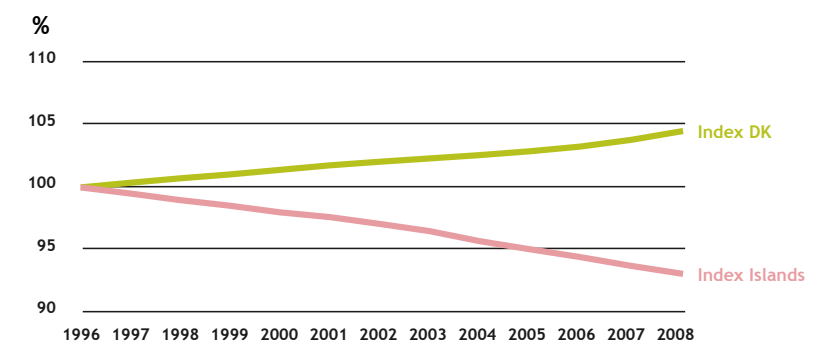
** + incoming labour - outgoing labour in percent of labour force

Source: Statistics Denmark.

Note: + marks that the island is connected to the mainland by bridge.

A common peripheral island characteristic is the constant depopulation process, an overview of which is given below:

For an analysis of the migration of the 'Creative Class' to the selected islands see Chapter 2 (Manniche and Toudal) and for an analysis of the economic impact of tourism on the selected islands see Chapter 9 (Zhang and Hedetoft).



THE EXPERIENCE ECONOMY

and the Creative Class on Danish Islands



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Introduction

This chapter takes its point of departure in two contemporary megatrends in modern societies. One is the 'culturization' - or the 'experience turn' - in today's economies. This can be observed not only in terms of the growing role of cultural and experience-based industries within the arts, design, tourism, media, film production, etc. but as a trend affecting the modes of production and consumption throughout the economy as a whole. Even in mature industries characterized by the production of traditional goods, innovation and value-added are increasingly connected with storytelling and experiences embedded in or attached to the physical products rather than with fabrication of tangible product functionalities. An excellent example of such culturization of the economies and of the emerging experience economy which have relevance for urban as well as rural areas is the diversification of markets for foods and drinks in numerous alternative directions. These alternative directions target the creation of particular qualities such as 'organic', 'gourmet', 'animal welfare' and 'fair-trade'. Another example is the new form of distribution based on, for instance, direct sales and services on production sites.

The second megatrend inspiring the present chapter is closely related to

the first and regards the growing importance of labour with 'creative' skills and competences for business innovation and consequently, for regional and city-based competition. The American researcher Richard Florida phrased this development "The Rise of the Creative Class" in his book from 2002 which presents the theory that that creative labour is accountable for major parts of business innovations and competitive activities in regions and cities and this creates and attracts the innovative jobs. This contends the traditional view within regional economics that supplies of innovative jobs attract creative labour. A central part of this theoretical standpoint is that, according to Florida, the migration flows of the 'creative class' is directed toward areas (mainly certain very large cities) characterized by 'soft' quality-of-life assets such as pleasant climatic conditions, social tolerance, and richness of night life offerings and cultural amenities in general rather than towards areas with jobs, high income levels and other traditionally emphasized economic assets. Although the empirical evidence for this theory is constricted to a North-American context (and even here is relentlessly contested and disputed by other scholars) it has had an enormous influence on mainly urban planning all over the world.

In Denmark both societal transformation processes are intensely debated in academic research and heavily affect public policy and planning discourses. Actually, in recent years the notions of the 'experience economy' and 'creative class' have become buzzwords for development and branding efforts in not only larger cities but also small municipalities and even in rural parts of the county. For instance, according to an analysis by Lorentzen from 2010, all 11 municipalities in the Danish Region of North Jutland, of which the majority are small and without large urban centres, explicitly utilize the experience economy concept in their policy planning with the goal of attracting new businesses and citizens ('the creative class') by developing the socio-cultural assets and attractiveness of the area.

Not least due to their influence on policy efforts in Denmark, the two overall megatrends motivate the question in focus for research in this chapter: To what extent are the two trends observable and interrelated on islands in Denmark? More precisely we want to empirically, by use of statistical data, investigate developments on Danish islands of, on the one hand, the number of jobs in industries that can be defined as 'experience-based' and on the other hand, the size of the 'creative labour market', as well as the extent to which the economic development on the islands is interrelated with the availability and migration of creative labour.

We have selected seven Danish islands for our empirical analysis. The islands are Bornholm, Fanø, Langeland, Lolland, Læsø, Samsø and Ærø. A map of the islands as well as a demographic and economic description can be found on page 31.

Definitions, data and methods

As emphasized above, the concept of the experience economy refers to general qualitative characteristics and transformations in the economy as a whole rather than to quantitative growth in specific economic sectors. This is also the case in regards to the definition of creative labour which in principle should not be constrained to particular job categories in labour statistics. To fully investigate the structural and dynamic characteristics of the experience economy and of creative labour we would need a multi-faceted research approach including qualitative analyses based on for instance interview data. Unfortunately however, such an approach is not available for this study. Our interest here is basically to inform the before mentioned academic and policy debates with empirical evidence. We wish to statistically quantify the existing experience economy and creative labour force on Danish islands, and to compare recent developments within these fields on the islands with the rest of Denmark.

For this reason, it seems appropriate to use the definitions of the 'experience economy' respectively 'creative labour' that are based on classifications in public statistical sources and are in line with the definitions used in relevant official ministerial analyses in Denmark. The Danish Enterprise and Construction Authority define the experience economy as 13 distinct industries all characterized by having experiences as their core product: 1. Architecture; 2. Design; 3. Books and the press; 4. Arts and crafts; 5. Radio and TV; 6. Film and video; 7. Content production; 8. Music; 9. Advertising; 10. Gastronomy and nightlife; 11. Accommodation and tourist offices; 12. Amusement parks, destinations and events; 13. Sports and leisure. 'Creative labour' is defined as persons having certain 'creative' educations. The particular creative educations are too many to be listed here, but they are identified as vocational and higher education within the fields of artistic, aesthetic and communication competences. They encompass education degrees such as architects, graphic designers, marketing and hotel assistants but they also include, for instance, more technical types of creative educations such as computer games and software developers. This definition is more restrictive and more focused on classical, art-related creative skills than Florida's definition of the creative class which includes a wider variety of 'knowledge workers' such as researchers, school teachers and laboratory technicians.

To describe the selected experience industries, we use data from Statistics Denmark for the period 2003-07 on the number of persons employed within particular industries. Employment on the islands as well as in other parts of Denmark, hence, is divided into two groups: jobs within the 13 experience-based industries and jobs within the remaining industries. Similarly, data from Statistics Denmark are collected for all islands for the years 2000-2007,

identifying the number of persons with a 'creative education', persons with other types of educations and persons with no education above the level of primary school. We are also able to identify whether these persons with a creative, other or no education are employed in one of the selected experience industries or in another industry, or alternatively if they are not employed at all, i.e. unemployed, retired or otherwise outside the labour market.

Finally, data from Statistics Denmark have been provided regarding migration to the islands of persons with different educational background and employment status allowing for analysis of possible relationships between economic development and migration.

An emerging Experience Economy on the islands?

As is apparent from figure 1 below, the studied period 2003-07 was characterized by very positive economic conjunctures and high employment growth in Denmark as a whole, and the experience industries contributed strongly to this growth. This development is less clear on the selected Danish islands, in that the overall employment level actually has decreased on three of the islands (Ærø, Læsø and Langeland) and the experience industries have been marked by serious employment decline on two of these three. Yet, five islands are characterized by an increase in the overall employment level as well as by over-average growth within the experience industries. Generally, our analysis indicates a statistically significant correlation (though on the basis of only a few observations) between employment growth in the experience/cultural industries and employment growth in the economy as a whole, i.e. that the experience industries in the studied period have depended on the overall employment trend.

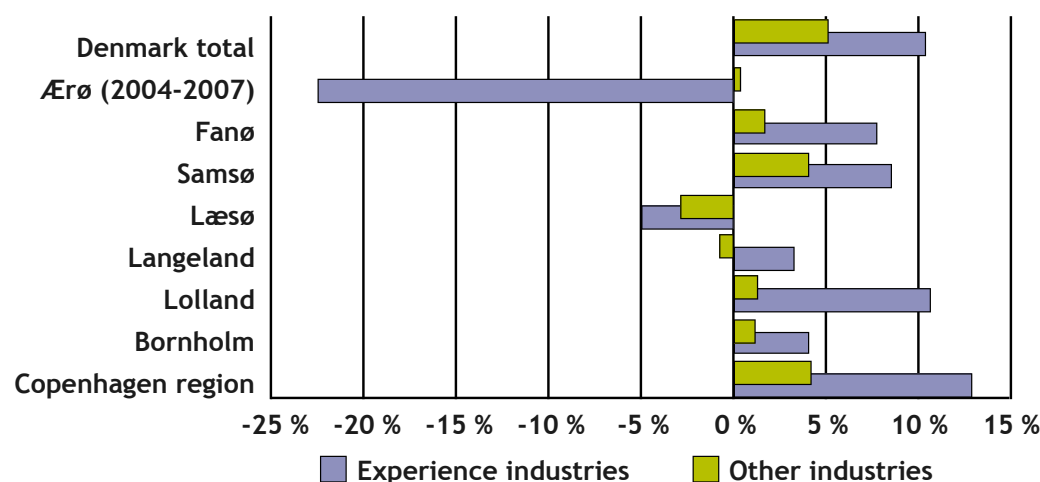


Figure 1. Employment growth 2003-07

Figure 2 shows that the experience industries' share of total employment on six of the studied islands is 8-11%, which is below the level in the capital region of Copenhagen, while the share on Fanø, which has a very strong position within tourism, is about 15% and thus exceeds the level in Copenhagen. These employment shares might be evaluated as insignificant, but considering the heavy weight of the public sector on the islands these figures actually indicate that the experience industries are responsible for a notable part of private sector jobs. Nonetheless, the growth rates within the experience industries are lower on the islands than in the rest of Denmark and in comparison with Copenhagen (Figure 1). Among the studied islands, Lolland and Samsø have had the highest growth rates but from relatively low points of departure, while the experience industries on Bornholm and Fanø have consolidated their relatively heavy weight in the local economies.

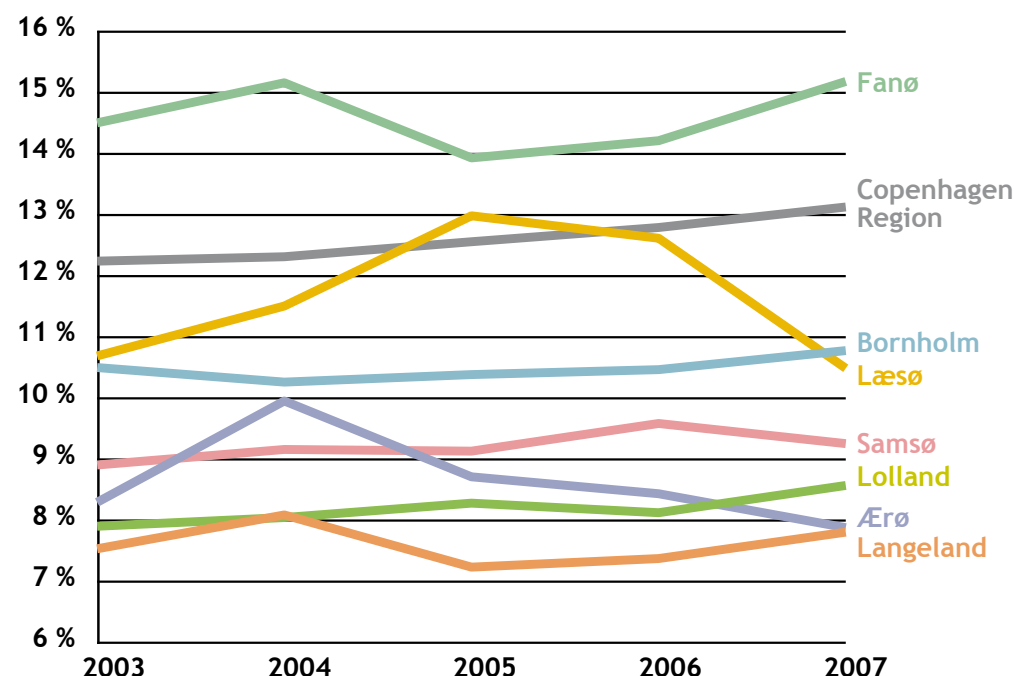


Figure 2. Share of experience industries of total employment, development 2003-07

It should be noted, that the experience economy on the islands and in Copenhagen differ regarding the weight of specific experience industries. For instance, the experience industries on the islands are largely related to tourism, gastronomy and nightlife while business fields such as design, film and video, and media play a much larger role in Copenhagen. However, further analyses which would require a higher level of disaggregation, has not been carried out here. The experience economy on the islands also differs from the experience

economy in Copenhagen regarding the educational background of the employees. As it is clearly shown in Figure 6 below, the experience industries on the islands are characterized by a lower educational level compared to the experience industries in Copenhagen. For instance, in Copenhagen approximately 75% of employees in the experience industries have an education above the level of primary school, while the shares of this group on the islands are only 50-60%.

The main conclusion regarding the expanding experience/cultural economy, is that during the studied period which is characterised by general positive economic conjunctures in Denmark, the experience industries have been successful business field in terms of job creation in the country as a whole, the capital region and on most islands, though within different business fields.

A rising Creative Class on the islands?

Figures 3 and 4 indicate that there is an increasing production of graduates with a creative education in Denmark and that the share of the population with a creative education is growing in Denmark as a whole as well as on the studied islands. Figure 3 shows a significant growth in the number of persons with a creative education on all seven islands as well as in the rest of Denmark. On Samsø, Fanø and Bornholm, which were relatively well-positioned compared to the other islands in 2003 (Figure 4), the growth rates are even higher than in Copenhagen. In regards to the development of persons with other educations, only Fanø, Langeland and Bornholm have growth rates that match the growth rate in the country as a whole, while the other islands as well as the capital region have lower growth rates than the national level.

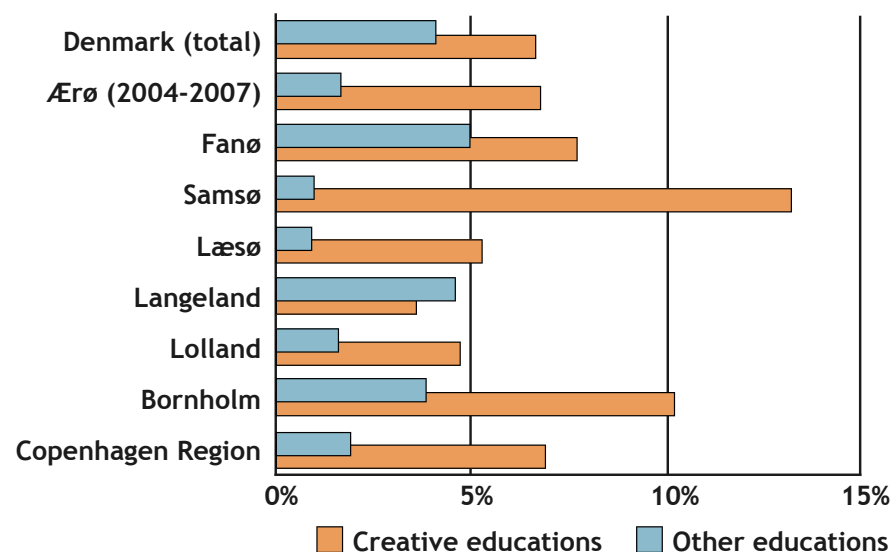


Figure 3. Growth rates 2003-07 of persons with creative and other educations (%)

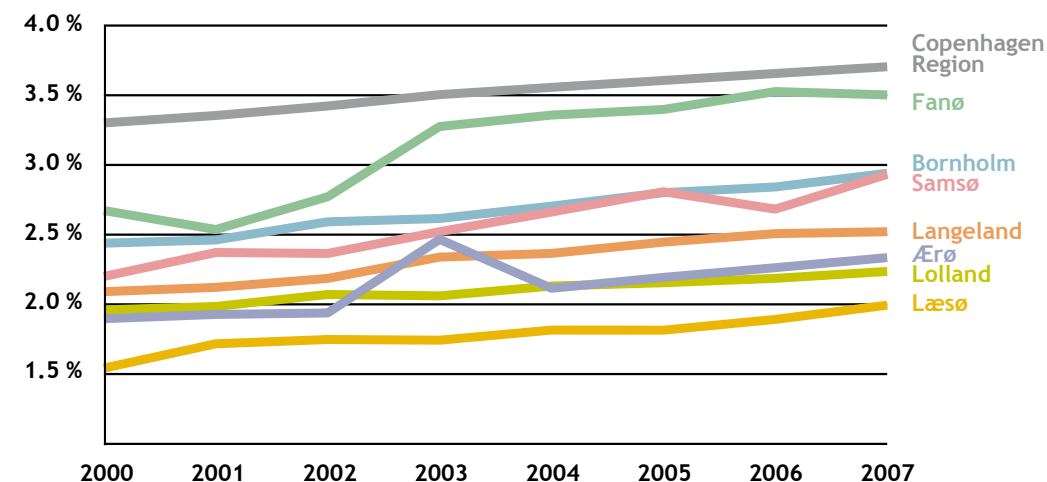


Figure 4. Persons with a creative education as percentage of total population.

If we examine the types of industries in which persons with creative educations are employed (Figure 5) and the educational background of employees in the experience industries (Figure 6), the links between the 'creative class' and the experience economy are not immediately obvious. On the selected islands only approximately one fourth and in Copenhagen one third of employed persons with a creative education are employed within the experience industries (Figure 5) and an even smaller share of the jobs in the experience industries are occupied by persons with a creative education (Figure 6). On the other hand, in Denmark as a whole, the share of the creative labour force is much higher in the experience industries than in other industries (12 % compared to 3 %) and while about one third of the persons that are employed and have a creative education are employed within the experience industries, the share among persons with 'other educations' is only 8 %. These findings indicate firstly, that the experience economy and the 'creative class' are difficult to confine to certain statistical classifications of industries and educations, and secondly, that the experience industries indeed seem to provide important job opportunities for labour with creative educations, not only in the capital region but also, though on a lower scale, on smaller islands.

Figure 5 also shows that persons with a creative educational background living on the islands compared to their colleagues in Copenhagen more often are without a job, i.e. are unemployed, retired or in other ways outside the labour market. For those that are employed, the job is less frequently within the experience industries. This reflects structural differences within the experience industries and the labour markets on the islands compared to Copenhagen. For instance, as it appears in Figure 6, 21 % of the employed in the Copenhagen experience industries only have a primary school education

while the share of this group on the islands is 35-47 %. However, the islands' higher share of unemployed persons among the creative class also might be connected with demographic differences (for example a higher share of retired persons) as well as varying motivations for choice of residence. We will look at this question in the following section.

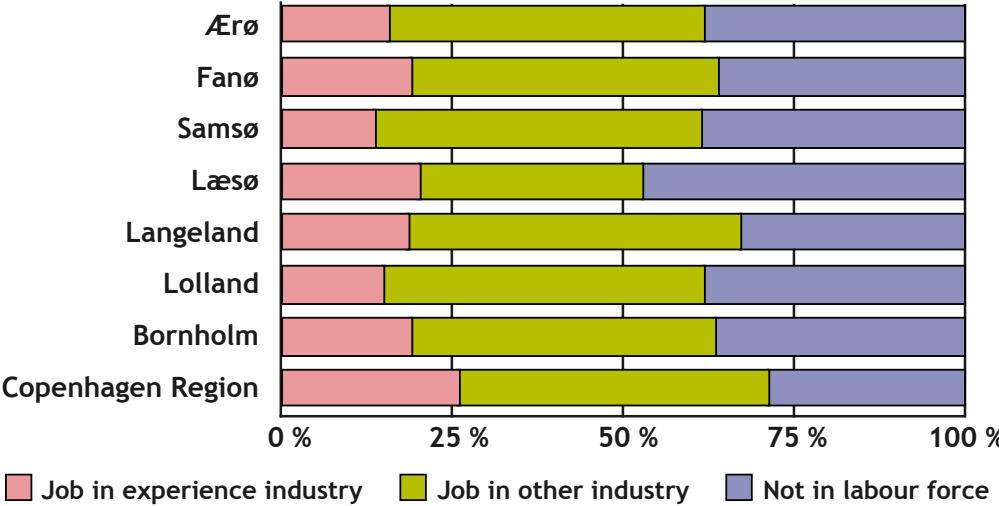


Figure 5. Population with creative education by occupation, 2007

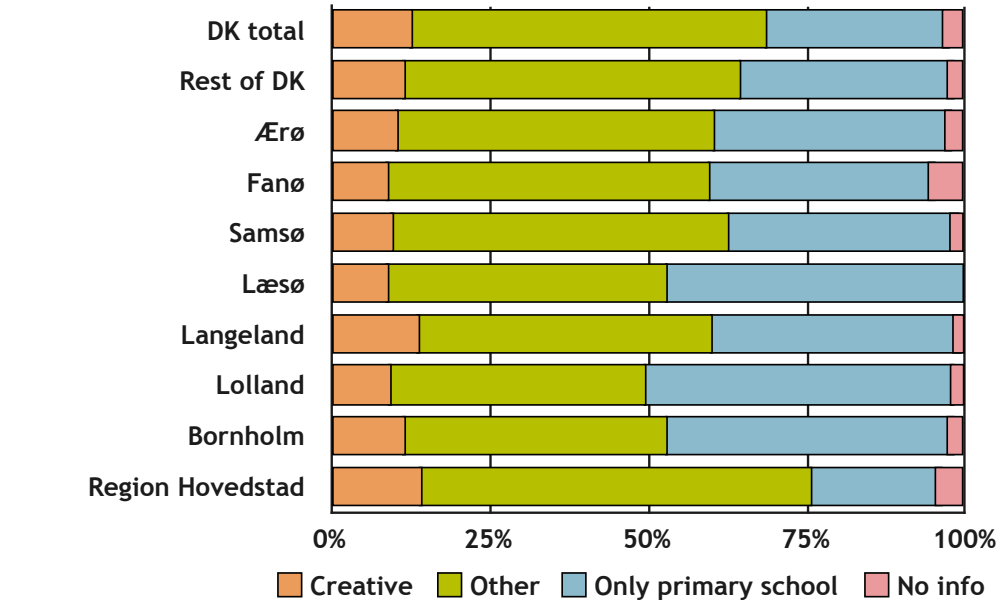


Figure 6. Employed in the experience industries by education, 2007 (%)

Immigration to the islands

As said above, among the seven studied islands only the three largest, Lolland, Bornholm and Langeland, have a supply (though limited) of educational institutions above the secondary level including ‘creative education’ institutions. Consequently, the growing number of islanders with creative as well as other types of education, shown in figures 3 and 4, are primarily a result of immigration (or locals graduating via ‘distance education’). Accordingly, the islands with particularly high growth rates concerning persons with creative educations, Samsø, Bornholm and Fanø (cf. Figure 3), are also those with the largest shares of immigrants who have a creative education (cf. Table 2). Table 2 also shows that except for Lolland and Langeland, immigrants to the islands more often have an education than immigrants to Copenhagen. This reflects the basic fact that Copenhagen plays the role of the main national educational centre and thus relatively many immigrants in Copenhagen are students from the provinces who move to the capital in order to embark on a higher education.

%	Creative education	Other education	Primary school or none	All immigrants
Copenhagen Region	2.1	29.4	68.5	100
Bornholm	3.4	34.6	62	100
Lolland	2.1	29.1	68.8	100
Langeland	1.6	22.3	76	100
Læsø	1	37.2	61.8	100
Samsø	4	41.4	54.6	100
Fanø	3.4	46.3	50.2	100
Ærø	2.8	41.6	55.6	100

Table 1. Immigrants 2003-07 by education 2007 (%)

An important question for our analysis is to what extent the immigrants on the islands are employed and contribute to local economic development. Table 3 shows the educational background and the employment status in 2007 of persons who moved to the studied areas during the period 2003-07. Interestingly, the figures show, firstly, that the shares of unemployed immigrants are much bigger on the islands than in Copenhagen, and secondly, that island immigrants with a creative education more frequently are without a job than island immigrants with other educations, while the opposite is the case for

IMMIGRANTS WITH CREATIVE EDUCATION 2007				
RESIDENCE 2007	Job in experience industries %	Job in other industries %	No job %	Number of persons 100%
Copenhagen Region	35	47	18	4425
Bornholm	24	28	48	186
Lolland	15	43	42	150
Langeland	12	42	46	57
Læsø	-	-	100	3
Samsø	-	58	42	33
Fanø	39	35	26	23
Ærø	15	42	42	33

IMMIGRANTS WITH OTHER EDUCATION 2007				
RESIDENCE 2007	Job in experience industries %	Job in other industries %	No job %	Number of persons 100%
Copenhagen Region	13	67	21	63029
Bornholm	6	61	33	1893
Lolland	5	58	37	2037
Langeland	5	55	40	778
Læsø	8	66	26	113
Samsø	7	61	32	345
Fanø	8	59	33	311
Ærø	6	57	37	496

Table 2. Immigrants 2003-2007 by education and employment status 2007

The considerable number of immigrants with no further education above primary school is not included in the table. The figures show the immigrants' educational and employment status in 2007 and not necessarily how this was at the time of moving.

	Persons with creative education	Persons with other education
Copenhagen Region	1,065	15,160
Bornholm	58	-168
Lolland	27	-467
Langeland	14	-1
Læsø	3	-6
Samsø	11	17
Fanø	15	46
Ærø	20	35

Table 3. Net migration 2003-2007 for educational groups 2007 (number of persons)

The considerable number of immigrants with no further education above primary school is not included in the table.

immigrants in Copenhagen. These findings mirror the structural differences between Copenhagen and the islands regarding industrial sectors, labour markets, educational opportunities etc. As already mentioned, our research framework does not allow for detailed disaggregated analyses, but the presented figures may very well indicate that immigrants in Copenhagen are better educated, younger, and more career-oriented than immigrants on the islands and that this is even more the case for immigrants with a creative education than for immigrants with other educations. This would mean that the Florida-thesis about the 'creative class' and its important role for economic development mainly holds true in urban contexts with diversified economies while the 'creative class' has bigger difficulties in finding jobs on island labour markets.

In line with this, the significantly higher unemployment rates among island immigrants may indicate the importance of certain differences between motivational impetus for migration to the islands and to Copenhagen, i.e. that island immigrants' choice of residence less frequently is motivated by economic and career-related factors. An in-depth analysis made by the municipality of Bornholm (Bornholms Regionskommune, 2009) about immigrants to the island during the same period studied here (2003-07), showed that the vast majority of immigrants had close relations to Bornholm, for instance they were born or had family members living there, and furthermore, that more than 20 % were retired persons and thus outside the labour market. Such retirement-related home-migration, i.e. moving back to the place of birth in connection with retirement in order to enjoy a higher 'quality of life', might partly explain the high shares of unemployed immigrants to the islands.

From a local economic perspective, retirement immigration is obviously less attractive than immigration of young, skilled labour induced by growth and attractive job opportunities. On the other hand, at least in a Danish context, the economic and social resources of today's retired, aged from 60 years and up, certainly lead active and productive lives that unquestionably contribute positively to the development of local communities, including the voluntary sector.

The question why island immigrants with a creative education have higher levels of unemployment than immigrants with other educations cannot be informed by the in-depth migration analysis from Bornholm, which does not consider the specific educational background of the immigrants. But a recent analysis from Sweden (Asheim & Hansen, 2009) has explored the motivational background for migration and choice of residence for different population groups defined by statistical types of occupations (such as architects, engineers, school teachers etc.) among which the group of 'symbolic knowledge workers' is defined in a manner which is comparable to our group of persons with 'creative educations'. The analysis found that this particular group of persons to a higher degree than other occupational groups emphasize the importance of 'people climate' rather than 'business climate' in their choice of residence, i.e. that they more often prioritise social and cultural qualities of a place over economic, job-related qualities.

In order to accurately evaluate the relationship between migration and local economic development, data concerning both immigration and emigration should be taken into account. Unfortunately our data on emigration is not fully consistent with the presented data on immigration, disaggregated for varying educational and employment groups. However, basically our data indicates (Table 4) that all islands have a positive net migration result for persons with creative educations, while four of the seven islands have a negative net migration result for persons with other educations. Although Table 4 does not include the largest migration group consisting of persons with only a primary school education, this finding indicates that migration to and from the islands actually contributes to the economic change from traditional sectors to new fields of business activities, including cultural and experience industries that is observed in Figure 1 above. This could be seen as a confirmation of the relevance of Florida's 'Rising Creative Class', even in insular economic contexts.

On the other hand, the positive net migration of persons with a creative education is not high enough to explain the entire population growth of persons with a creative education on Samsø, Bornholm, and Fanø (confer Figure 3). A plausible explanation for the high growth rates on Samsø and Fanø could be that many locals during the period 2003-07 have achieved a creative education through distance learning.

On Bornholm the situation differs from that of Samsø and Fanø. Here a part of the high rise in the number of creatively educated persons may be contributed to the local production of graduates from the Danish Design School within glass and ceramics crafts and design – a field within which Bornholm has strong business traditions. During the studied period 2003-07, the school had an annual admittance of 25-30 students, all of whom moved to the island from the rest of Denmark or abroad in order to study this particular education programme. However, as is clear from the high unemployment rates among the Bornholm immigrants with a creative education in 2007 (confer Table 3), many of these graduates had not succeeded in finding a job. In other words, the school indeed has succeeded in supplying the local labour market with creative labour that however, is not yet fully demanded by local businesses.

In contrast, immigrants with a creative education on Fanø have been much more successful in finding jobs, often within the expanding experience industries, while relatively many Samsø immigrants, independent of their education, are unemployed (perhaps they are retired persons who have moved to the island) and only very rarely are employed in the experience industry. In general, in the case of Samsø the causal relations between growing employment in the experience industries and growing availability of creatively educated labour seem weak, which is also reflected in Figures 5 and 6.

Conclusions and perspectives

In this chapter we have tried, using seven Danish islands as empirical playground, to identify the significance and interconnectedness of two overall and intensely debated trends in contemporary societies: on the one hand the 'culturization' or the 'experience turn' of economies and on the other hand the emergence of a 'creative class', often proclaimed as today's critical source for economic growth. Considering the range and complexity of these issues, this analysis has only scratched the surface and thus explores the analytical reach of the available statistical data which in international comparison is unique in their level of detail and disaggregation.

The main conclusions from our analysis are:

In the studied period from 2003-07, which was characterised by very positive conjunctures in the Danish economy as a whole, we have witnessed an above-average positive employment growth within those specific industries that we have defined as 'cultural' or 'experience-based'. This growth has been strongest within the capital area of Copenhagen, but also on a majority of the studied islands the experience economy seems to constitute an expanding business field, although expectedly within different and less competence-demanding business fields than in the larger cities.

Also the population of persons with a creative education (our proxy for

quantifying the 'creative class') is increasing, in this case on all the islands and on some of them even faster than in Copenhagen, though from lower points of departure. Immigration to the islands generally seems to contribute to structural change of the islands' economies and labour markets from traditional sectors towards experience-based sectors. However, since the majority of 'creative' labour - both among newcomers and more permanent residents - is employed in 'other' rather than in 'experience' industries, the causal links between on the one hand the development of the experience industries and on the other hand the availability of creative labour seem weak. Accordingly, while the availability of a well-educated, innovative 'creative class' might explain part of the positive growth rates in the Copenhagen area, the economic development on the islands, including within the experience industries, generally seems to depend on quite other factors than availability and in- migration of the creative class. Identifying such development factors would require a much more thorough analysis than what has been carried out here. Such an analysis would need to include the unique development conditions of each of the individual islands, for example their geographical location in relation to larger urban centres, their economic structures and supply of educational programmes.

Finally, the analysis has indicated that a considerable part of immigration to the islands may be connected to retirement home-migration, and that persons with a creative education more frequently than persons with other educations move without considering job opportunities. This would seem to confirm the first half of Florida's 'Creative Class' argument, namely the priority of an area's social and cultural assets above traditional economic assets by creatively educated persons when choosing their place of residence. On the other hand, the second half of the Florida-argument; that jobs tend to follow the residence of the creative class, seems to have been rejected by our analysis, at least in the case of the studied rural Danish islands.

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MIGRATION TO AND FROM BORNHOLM



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Introduction

This paper compares the characteristics of people moving between given locations. The focus is on the Danish island of Bornholm. The data used for this study is individual and family level information about persons residing in Denmark in two different years. Specifically, register data from the national statistical authorities, Statistics Denmark for the years 2002 and 2007 will be applied. The two sets of data are merged into one dataset, which will then consist of a section of 2002-variables, a section of 2007-variables, and a set of change variables. Individual level and family level characteristics like age, education, gender, employment status, income, housing prices and earlier places of residence or place of birth, are among the socio-demographic and place related characteristics which may have an impact on the probability of domestic immigration and emigration, respectively.

Basic descriptive statistics are shown for persons alive and residing in Denmark both in 2002 and 2007 overall and then as subsets of those living on Bornholm in 2002 and in 2007, respectively, compiling the three datasets. Simple t-tests (tests of statistical significant differences in means) will show in which respects immigrants to and emigrants from Bornholm are different from those residents on Bornholm who did not migrate. The set of explanatory variables developed and applied for the island of Bornholm may be applied to any one of the 98 (or 99) municipalities, including several islands, any of 11 geographical districts (in Danish: “landsdele”, NUT 3 areas), and any of 5 regions (NUTS 2 areas), in Denmark.

Depopulation has been one of the key issues of Bornholm as well as other peripheral areas of Denmark, notably islands. Therefore it is essential to understand the reasons for domestic migration so that possible remedies can be designed on an informed basis.

The purpose of this chapter is the following: To describe and explain domestic migration (also known as internal migration) to and from Bornholm, which is the largest genuine island in Denmark without connection to the mainland.

Selected Danish migration studies

This section is a brief review of the literature on migration, with an emphasis on internal migration, i.e., domestic migration within a country, and with a special emphasis on Denmark and Bornholm. Migration is generally defined as a permanent change of residence, conventionally for at least one year (Britannica.com).

Lee (1966) divided the factors that decide migration into: Factors associated with the area of origin; Factors associated with the area of destination; Intervening obstacles and Personal factors. Andersen (2008) reports on a study of explanations for counter-urban migration in Denmark and discusses five general factors: 1. Preferences for [avoiding] commuting. 2. The importance of age and gender. 3. Family situation and family changes. 4. Unemployment. 5. The importance of the housing situation. Specifically in relation to his study of counter-urban migration Andersen (2008) discusses the importance of the following migrant characteristics: Education; Career and employment; Exit from the labour market; Demands for changed or improved housing and neighbourhood, or for a change of life style; Demands for cheap housing – the ‘income-transfer’ hypothesis; Desires to go back to the place where one grew up, or to other places one is attached to.

Ærø, Suenson, and Andersen (2005) made a register-based analysis of reasons for migration to and from peripheral municipalities in Denmark, supplemented by focus group interviews. The register-based part of the analysis was based on variables such as age, parish of birth, family type, social group, industry and level of job, place (municipality) of work, and information about accommodation.

The Regional Municipality of Bornholm has conducted a migration analysis for Bornholm covering the years 2003 to and including 2007, based on a survey of all the persons having moved to or from the island during the mentioned period. The factors which impacted migration included: age, income, education (primarily emigration), new job, retirement from the job market, industry of employment, commuting, family at the destination, nature, housing, family situation, and a desire to try to live somewhere else. About 30% of immigrants to Bornholm are born and have grown up on Bornholm.

Method

Whereas the study by the Regional Municipality of Bornholm is survey-based, this study is based on register data from the national statistical authorities covering the entire Danish population including Bornholm, but otherwise the studies are parallel. They both concern the period 2002 to 2007, and they both have a focus on the island of Bornholm. To some extent the two studies may reach some of the same conclusions, but on the other hand they may also supplement each other. Although more recent register data exist, the years 2002 and 2007 have been maintained in order to facilitate direct comparison between the register data study results and the survey results. Since the datasets used in this study are national, i.e. encompassing 100% of the Danish population, the reasons for immigrating to and the reasons for emigrating from Bornholm may be compared. The register data method applied on Bornholm may be applied on any other specific municipality or geographical district (“landsdel”) of Denmark, for the years focused upon in this study or for other years.

Results

Before turning the focus specifically to domestic migration, migration is put into the perspective of the overall population growth. By definition, net domestic migration is zero for the country as a whole, but for a specific geographical district or municipality like the island of Bornholm, net domestic migration has been negative.

During 11 years, 1996 to 2007, the population on Bornholm declined by 5%, whereas the overall population in Denmark increased by 4% during the same period. The decline in population on Bornholm was due to a minus of 3% in net reproduction (births and deaths), and a minus of 2% in net domestic migration, whereas net international migration had little impact.

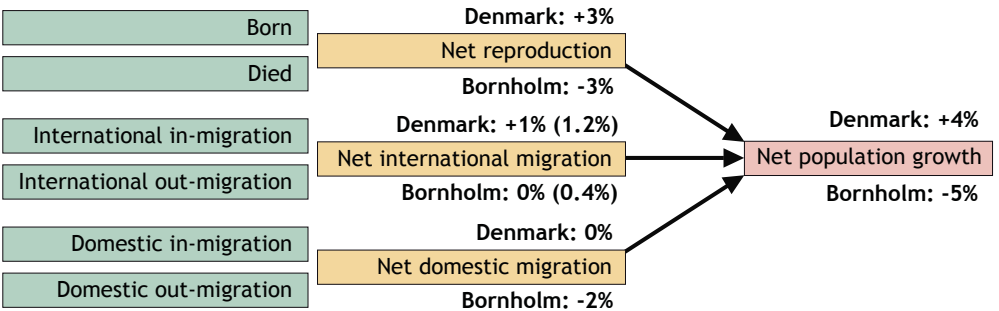


Figure 1: Population growth and migration – Denmark and Bornholm, 1996-2007
Source: Based on Statistikbanken.dk

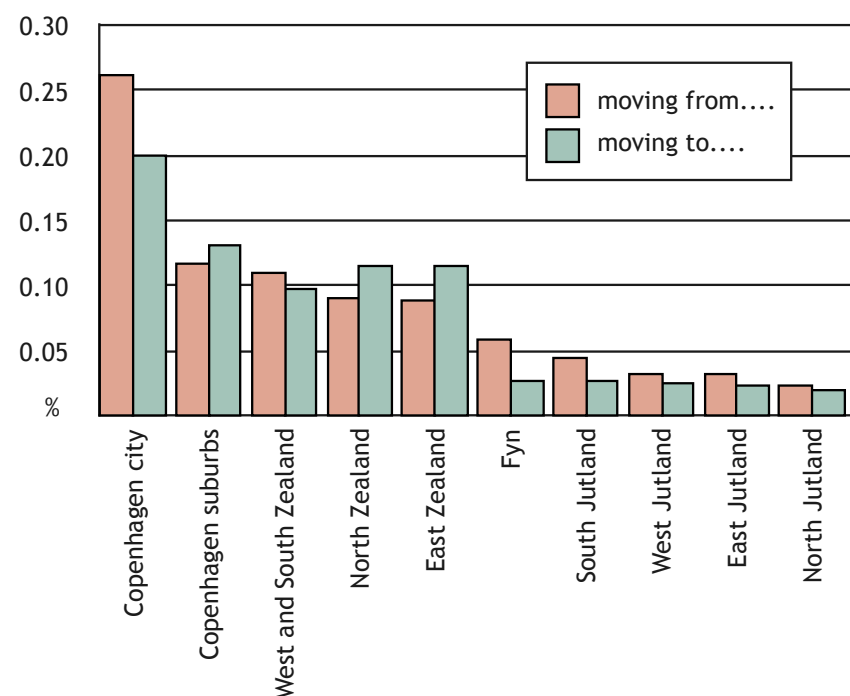


Figure 2: Domestic migration to/from Bornholm – from end of 2002 to end of 2007
Note: Based on analysis of register data from Statistics Denmark.

During the 5 year period from the end of 2002 to the end of 2007 most of domestic migration to/from Bornholm – namely 78% - was to/from geographical districts to the east of the Great Belt. Copenhagen city alone – with its many educational institutions - accounted for 35% of domestic migration from Bornholm during the period.

Figure 2 shows that proximate geographical districts – those east of the Great Belt - dominate migration to/from Bornholm. In average, those who moved from Bornholm to other parts of Denmark accounted for 0.09% of the total Danish population while those who moved to Bornholm from other parts of Denmark accounted for 0.07% of the Danish population. The Great Belt is the dividing line between relatively high and relatively low migration (seen in relation to the total population of other geographical districts, “landsdele”, between Bornholm and the rest of Denmark. Based on a crude analysis, approximately 90% of all domestic migration between Danish municipalities in general, concerns migrations of less than 200 km.

The analysis of the reasons for domestic migration between municipalities (as well as between geographical districts) is based on a comparison of the situation in 2002 and 2007, and changes between the two. In Denmark overall, migration is very often associated with a change in the family composition as

	Variable	Stayed Mean 1	Moved in Mean 2	IMMIGRATORS MINUS "STAYERS"		
				Diff (2-1)	t Value	Pr > t
1	New work municipality	2%	36%	33%	42	<.0001
2	Was a commuter, 2002	2%	29%	27%	36	<.0001
3	Age group: 20-34	12%	32%	20%	26	<.0001
4	Was married initially	46%	31%	-15%	-18	<.0001
5	Returned to municipality	0%	6%	6%	16	<.0001
6	Got married 2003-2007	4%	12%	8%	15	<.0001
7	Is a commuter 2007	2%	8%	6%	13	<.0001
8	Immigrated before 2003	7%	14%	7%	12	<.0001
9	Left the jobmarket	9%	16%	7%	12	<.0001
10	New ongoing education	22%	28%	6%	8	<.0001
11	Change in housing value	0.082	0.020	-0.062	-6	<.0001
12	Income increase, 2002-07	30371	20383	-9988	-4	<.0001
13	Gross income, DKK, 2002	161445	171988	10544	4	<.0001
14	New highest education	13%	16%	2%	4	0.0003
15	Entered the jobmarket	9%	11%	2%	3	0.0047
16	Got divorced/widowed	5%	4%	-1%	-1.69	0.0905
17	Divorced/widowed (2002)	15%	14%	-1%	-1.35	0.1777
18	Gender: Share of males	49%	50%	0%	0.48	0.6297
	Age (in the year 2002)	41.7	33.8	-7.9	-24	<.0001
	Age group: 0-19	22%	21%	-1%	-1.17	0.2405
	Age group: 35-64	50%	42%	-8%	-9	<.0001
	Age group: 65-99	16%	4%	-12%	-31	<.0001
	Number of observations	36435	3741	40176		

Table 1: Characteristics of immigrants to Bornholm – ranked by numeric t-values
Note: Unequal variance assumed. Based on analysis of register data ,Statistics Denmark.

indicated by a change in the statistical family number. This is less frequently the case when people move to Bornholm, since our data indicate that family composition remains intact before and after domestic migration. Therefore, a change in the family composition (for example divorce, having children or children moving away from home), is not treated here as a reason for migrating.

Analysing the reasons for migrating to Bornholm from other parts of Denmark one by one, Table 1 shows the following top 10 reasons for moving to – or the main characteristics of those migrating to – Bornholm:

- 1. Job: 36% of immigrants had found a job on Bornholm.
- 2. Avoid commuting: 29% of those who immigrated to Bornholm during the period 2003-2007 were commuters in 2002. Please note that this reason is overrated, since the commuting was generally not between a municipality in the capital area and Bornholm, but between different municipalities within the capital area.
- 3. Age: 32% of those who immigrated were in the age group 20 to 34 years.
- 4. Marital status: A lower proportion (32%) of those who immigrated in the 2002-2007 period were married than among those who stayed on Bornholm (46%). The proportion of unmarried people was lower among those who emigrated, though (20%) see Table 2.
- 5. Returning back home: 6% of immigrants during the period 2003-2007 had lived on Bornholm at least in one of the six years prior to 2002 (1996-2001). Since immigrants were only 34 years of age in average, obviously, if a longer time span had been available, or if information about place of birth had been included in the available dataset, then we would probably have seen a higher level of immigrants, who could be classified as “returners”. This argument fits well with the mentioned findings of the survey by Bornholm’s Regional Municipality; i.e. that 30% of immigrants to Bornholm are born and have grown up on Bornholm, as previously mentioned.
- 6. Newly married couples: 12% of those who immigrated got married.
- 7. Out-commuting: 8% of those who immigrated 2003-2007 out-commuted by 2007, while this was the case for only 2% of those who lived on Bornholm already.
- 8. International immigrants: There was twice as high a proportion of persons who had immigrated to Denmark no later than 2002 among domestic immigrants to Bornholm during the period 2003-2007, than among those who already lived on Bornholm in 2002.
- 9. Retired persons: Retirement from the job market was an important reason for immigrating to Bornholm (Table 1), while retirement is NOT a typical reason for emigration (Table 2).
- 10. Education: here was a higher percentage of persons who had started a new education among those who moved to Bornholm than among those who lived there already (Table 1). However, starting on a new education is a much more common reason for emigrating from Bornholm (Table 2).

Other indications: Those who moved to Bornholm took advantage of the relatively cheap housing prices on Bornholm, while the opposite was true for those who moved from Bornholm (Table 2). This fits with the fact that sales prices for houses on Bornholm are 40% below the national average and 56% below the overall average in the Capital Region (own calculation based on data from Statistikbanken.dk).

	Variable	Stayed Mean 1	Moved out Mean 2	EMIGRANTS MINUS "STAYERS"		
				Diff (2-1)	t Value	Pr > t
1	Age (in the year 2002)	41.7	25.6	-16.1	-59	<.0001
2	New workmunicipality	2%	36%	33%	45	<.0001
3	New ongoing education	22%	54%	32%	41	<.0001
4	Is a commuter, 2007	2%	30%	28%	40	<.0001
5	Was married initially	46%	20%	-26%	-40	<.0001
6	New highest education	13%	41%	28%	36	<.0001
7	Gross income, DKK, 2002	161445	102696	-58749	-29	<.0001
8	Income increase, 2002-07	30371	74286	43915	23	<.0001
9	Entered the jobmarket	9%	23%	14%	21	<.0001
10	Immigrated before 2003	7%	20%	13%	20	<.0001
11	Age group: 20-34	12%	26%	14%	20	<.0001
12	Returned to municipality	0%	7%	7%	19	<.0001
13	Divorced/widow (2002)	15%	7%	-8%	-18	<.0001
14	Change in housing value	0.082	0.207	0.124	11	<.0001
15	Was a commuter, 2002	2%	6%	4%	11	<.0001
16	Got married 2003-2007	4%	5%	1%	4	<.0001
17	Left the jobmarket	9%	7%	-2%	-4	<.0001
18	Got divorced/widowed	5%	4%	-0%	-1.34	0.1797
	Gender: Share of males	49%	50%	1%	1.10	0.2692
	Age group: 0-19	22%	50%	28%	34.72	<.0001
	Age group: 35-64	50%	22%	-28%	-40.58	<.0001
	Age group: 65-99	16%	3%	-13%	-42.51	<.0001
	Number of observations	36435	4313	40748		

Table 2: Characteristics of emigrants from Bornholm – ranked by numeric t-values
Note: Unequal variance assumed. Based on analysis of register data, Statistics Denmark.

The income increase of those who moved to Bornholm was relatively low (Table 1), while those who moved from Bornholm had a relatively high increase in income (Table 2). Those who moved to Bornholm 2003-2007 had a higher average income in 2002 than those who lived on Bornholm already (no. 13, Table 1), but on the other hand, their income increase was lower (no. 12, Table 1), so by 2007 those who had moved to Bornholm had the same average income

as those who lived on Bornholm already (no. 13 plus no. 12, Table 1), but this was achieved at a lower average age than those who lived on Bornholm already.

Now a few comments on those who emigrated from Bornholm to the rest of Denmark are stated. Based on Table 2.

1. *Age: The average age in the year 2002 of those who emigrated was just 25,5 years, while the average age of immigrants to Bornholm in the year 2002, was 33,8 years.*
2. *Change of work municipality: 36% of emigrants went from working in one municipality (Bornholm) to another.*
3. *To start on a new education is one of the main reasons for emigrating from Bornholm.*
4. *30% of emigrants were commuters by the end of the period, but only a minority of those commuted to Bornholm.*
5. *Given the relatively low average age of emigrants, and the initiated educational activities of many of those moving from Bornholm, it is not surprising that only 20% of emigrants were already married by the beginning of the period.*
6. *As many as 41% of emigrants during the period 2002 to 2007 had finished a new education by the end of the period.*
7. *Average income of the emigrants was low.*
8. *But emigrants increased their annual gross income very much, i.e. if the prospect of achieving a higher income was one of the reasons for emigrating, a high increase in income was actually achieved by those who emigrated.*
9. *23% of emigrants had entered the job market by the end of the period.*
10. *Persons with a foreign background were much more likely to emigrate from Bornholm than those who stayed on Bornholm.*
11. *26% of those who emigrated to the rest of Denmark were in the age group 20-34, while this was the case for only 12% of those who stayed.*

Conclusion

Changing work municipality is a main reason for both immigration to and emigration from Bornholm, and the same is the case for other municipalities and other districts in Denmark. Commuting between municipalities or even geographical districts is not a problem in the rest of Denmark since apparently it does not lead to migration in the rest of Denmark, but commuting is problematic to/from Bornholm because of distance, time consumption, and costs of commuting. Educational reasons rank highly for those who emigrated, who have a relatively low average age. There is a relatively high proportion of newly married couples as well as a relatively high proportion of newly retired among immigrants to Bornholm. For both groups, and other immigrants, the relatively low housing prices are an advantage. The children of the young couples do not need high level education opportunities for quite a number of years. The prospect of higher income is a major driver for those who emigrate, which to some extent is facilitated by the completion of an education and entering the job market.

The relatively low property prices could perhaps be emphasised more as an incentive for immigration. To start higher education is a common reason for young people to leave the island. Thus, if more educational offers were available, by face-to-face teaching and/or by distance learning, more young people might remain on the island. The largest airport in the country may be reached in half an hour from Bornholm by air, and the centre of Copenhagen may be reached in 3 hours by surface transport via fast ferry and an international bridge. This relatively short transportation time has been in place for 10 years. The fact that Bornholm is within relatively easy reach may be emphasised more. Opportunities for entrepreneurs in particular within the creative industries and distance working may also be stressed more to promote immigration and in making residents remain on Bornholm. For a discussion on the role of the emerging experience economy and its impact on migration to rural islands, please see the chapter by Manniche & Toudal in this publication.

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SECTION

II

Island Cultures: Design, History, Identity

ISLANDS AS DESIGNED SPACES

A Global Review



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Introducing a couple of examples from Denmark

Those familiar with Denmark may also be au courant with Christiania, a suburb of Copenhagen that is renowned for its liberal and carefree way of life. Also known as 'Freetown Christiania', this is a self-proclaimed autonomous neighbourhood of about 850 residents, covering 34 hectares (85 acres) in the Danish capital's borough of Christianshavn. Its idiosyncratic architecture, vibrant arts scene, lax cannabis practices and even a distinct currency make Christiania a social experiment that continues to defy 'reform'. Formerly a military barracks, the area is today one of Copenhagen's tourist attractions, and abroad it is a well-known 'brand' and exponent for today's progressive, secular and liberal Danish lifestyle.

Still in Denmark, but further east in the Baltic Sea, is the community of Christiansø. This is also the site of a former military installation. Located 18 km north-east of the island of Bornholm, this is actually an archipelago called Ertholmene with three main islands: Christiansø, Frederiksø and Græsholm. Their total land area is around 39 hectares, and their permanent population is around 100. These islands are visited by some 80,000 tourists every year, and the islanders derive their main income from this activity, as well as fishing. The islands are quite unique in Denmark; they form the only unincorporated area of the country, not belonging to either a municipality or a region. They are instead governed by an administrator appointed by the Danish Ministry

of Defence. This is also the only area in Denmark where residents are exempt from paying the central government 8% 'health contribution' tax introduced in 2007; the argument being that, without a fiscal incentive, the islets would otherwise be abandoned.

The case at hand

Jurisdictions imply territories and borders; and the territories and borders of small states can be designed – by these same states or by others – with special purposes in mind. Some such purposes – from prisons to offshore finance, from refugee camps to military bases, from exclusive economic zones to special communities like Christiania and Christiansø – can be argued to pose 'security threats' or treat their residents differently from those living in the rest of the same country. And yet, such spaces proliferate today. Excising, zoning, detaching, niching, outbordering, dislocating, insulating, unbundling, quarantining, or offshoring are some of the active verbs that are used to describe a clutch of different design initiatives that share many basic characteristics. These initiatives involve the endowment of specific spaces with particular and closely circumscribed privileges and powers, often ratified by law (but not always) or simply by convention and custom. The distinctiveness of small (often island) jurisdictions makes these spaces especially attractive, and often default candidates of choice for such a thrust of political design. Christiania is one such metaphorical island; Christiansø is a more material one. Both are excellent examples of Danish 'designed spaces', the first tolerated begrudgingly by the central state; the second constructed and nurtured by it.

Examples abound

There are many other examples of such designed spaces around the world. In some extreme examples, the design is so innovative and radical that such spaces are designed from scratch: consider the artificial islands that have been built, or are envisaged, in such parts of the world as Dubai ('The World', and 'The Palm') or the lavish transformation of existing islands (for example, what used to be Hog Island is now Paradise Island in Nassau, Bahamas: a lavish, Disneyfied playground for upscale tourist visitors). In other cases, islands have been determined as suffering from special development problems that merit equally special support packages: consider the French, Spanish and Portuguese ultra-peripheral regions (or overseas territories) of the European Union (all of which are material islands, except for French Guiana), with their status of chronic dependency enshrined in the Treaty of Lisbon.

There are also many metaphorical island spaces that perform specific functions. For example, various international airports or sea ports are considered by law not to be national territory for the purpose of those incoming

passengers who may wish to claim asylum status. (This has been the practice in Australia since immigration legislation was revised in 2002.) Other airports and seaports are exempt from aspects of national taxation in order to encourage foreign companies to set up shop there. (The world's first free trade zone was established outside Shannon International Airport, in Ireland.)

The incentive to engineer such spaces increases with the parallel obligations of countries to adopt and honour international treaties and agreements. As the world moves slowly but surely towards the adoption of a more universal code of behaviour – in justice and respect for human rights, in the regulation of taxation and finance, in pursuing criminal behaviour, in the elimination of tariffs, quotas and other protectionist measures in trade – there is all the more scope to try and 'cheat' or exploit this system by constructing internal spaces where other, different practices can apply, and which remain largely within the absolute purview of the single sovereign state. Perhaps the best known and most notorious of such spaces is Camp X-Ray in the 'legal limbo' of Guantánamo Bay, Cuba (an island within an island within an island).

The case for autonomy without sovereignty

For small island territories, this situation may be one opportunity that could allow them to identify lucrative niches with which to discriminate and chart their way in an increasingly articulated and globalised world. These opportunities may very well explain why many former island colonies of metropolitan countries – from Puerto Rico to Bermuda, from the Falklands to Aruba, from Guam to Tokelau, from Niue to the Cook Islands, and from Dutch Sint Maarten to French St Martin – have little or no interest in becoming politically independent, sovereign states. Of course there are exceptions – the most notable one (and again involving Denmark) is probably Greenland/Kalaallit Nunaat – but any eventual independence for this territory may still involve some enduring association with the Danish realm. Most of these erstwhile colonies have strategically determined that their best hope for economic affluence and political security in the modern age is some version of the status quo: one that allows them to benefit from being associated with a powerful patron state, while at the same time allows them to construct and maintain a notable and identifiable 'niche' activity that attracts investment and/or visitors. They are especially keen to maintain the flow of state aid (from national and regional coffers, as in the case of the EU), while maintaining considerable domestic self-government in internal affairs. They are also anxious not to lose the right to migrate to the metropole as fully-fledged citizens, should that need arise.

There are of course other spaces which are not colonial remnants and which can also take on the challenges offered by this game of designing special spaces. There are many federal, typically large jurisdictions in the world that

afford opportunities for internal differentiation within their legal systems, recognising regions/provinces with specific historical, cultural, linguistic and/or geographical characteristics that merit some special consideration, even within a single sovereign state. Largely anglophone, Canada is well known for its accommodation practices in regard to the francophone province of Quebec; Labuan is a special 'finance' zone within Malaysia; Kish is the most liberal region in Iran; Jeju is a special autonomous province of South Korea; the Galápagos islands are a special province of Ecuador; and Hong Kong and Macau are special administrative regions of China. Within Europe, Svalbard is a special territory administered by Norway, and subject to international law; Åland is a Swedish-speaking, demilitarised autonomy within the state of Finland, also an outcome of an international treaty; the county of Gotland is a special regional municipality within Sweden, the only one without a county council; and since 2003 the municipality of Bornholm in Denmark has also had special regional privileges. The Channel Islands (Jersey, Guernsey and other bailiwicks) and the Isle of Man enjoy a privileged relationship with the British crown: they are not part of the United Kingdom and not members of the EU. These and similar arrangements allow for what is called asymmetrical federalism: concessions that are not shared with all the constituent members of the federal state. Some parts of the state are indeed 'more equal' than others. The accommodation to such diversity is oftentimes part of the price to be paid for maintaining disparate entities within a single political unit.

A distinct cultural, historical and/or natural environment has led to some such territories being nationally or internationally renowned: from national parks and reserves to UNESCO inscribed World Heritage Sites. Some of the best such recognised locales include: Skellig Michael (Ireland), Easter Island/Rapa Nui (a territory of Chile), Yakushima Island (Japan), Socotra (Yemen) and Aldabra atoll (Seychelles).

For designed spaces

In contemporary times, the incentive to design different spaces within the state is increasing. In spite of some strong arguments about the diminishing power of the state in regulating its own affairs, the construction of designed spaces is part of the state's reaction to this loss of power: what it has begrudgingly forfeited *internationally* it has crafted and regained *intra-nationally*.

The stakes are particularly high in the area of economic development. In fact, designing island spaces offers a fresh and interesting twist to the politics of development. In previous decades, states would implement protectionist policies in order to prevent other countries from flooding their home/domestic markets with foreign products. (Whether they were better or cheaper was frankly beside the point.) Today, the window for states to deploy protectionist policies

is increasingly narrow; but they can certainly get away with implementing laws and regulations that allow them to tap revenue and value added that has been generated elsewhere.

Tourism is one such global industry, enticing individuals to spend in one place money that has been earned in another place; offshore banking is another. Many small island territories – like the Bahamas, or Cayman Islands, or the Isle of Man – have done well in tapping both these export markets effectively. Even more aggressively, states are developing powerful, widely advertised and consistent images of themselves – brands – that speak to their economic strengths and industrial niches: think New Zealand and you think wool, lamb and pristine nature, the backdrop to the filming of *The Lord of the Rings* trilogy. Think Scotland, and you conjure up images of tartan, bagpipes and whisky. Think Denmark and up come images of pork, cheese (Danish blue) and increasingly of wind turbines and clean energy. Such 'sales pitches' are more than that, because they help position special places in people's minds in precise alignment and association with particular industries. Scandinavian islands like Samsø, Åland and Bornholm are vigorously positioning themselves as green islands running on clean energy and low carbon footprints. Branding establishes a larger-than-life presence for a place; it builds and promotes character and differentiation in a very competitive market where there are hundreds of players.

One can imagine the opportunity that such a visibility produces especially to small island spaces. That they are jurisdictions – that is, self-governing entities with elements of local government – is already a significant step forward. The challenge then is to deploy self-government in a direction where flagship products and services are known well enough for them to command a regional or international market niche. Small spaces, islands in particular, can only thrive when they attract income from elsewhere.

Two approaches to image management

This 'image management' exercise can be done in two distinct ways. First, it can be devised and promoted by small islands themselves. The adage goes: no one is better placed than yourself to stake a claim for your strengths: brand development is a critical and strategic initiative that should command popular support, and speak to clear local commodities, preferably ones that can be romanced as unique and place specific. Place branding is particularly congenial to island spaces. Quality local food, beverages and crafts made from local material are at the top of such a wish list: think of Cyprus brandy, Fijian kava, Gozo lace, Iceland water, Islay whisky, Jamaica rum, Maltese beer and, of course, Texel sheep.

But: island spaces can be designed by other actors; their publicised raison

d'être on the regional or global stage can be set for them, and not necessarily by them. Australia designated Christmas Island (amongst various other islets and reefs) as 'non-Australia' by virtue of its 2002 Migration Act, paving the way to that island becoming a detention centre for would be asylum claimants. Italy has done similarly with the island of Lampedusa. We have already mentioned Guantánamo. Many far-flung island spaces house navy, army or air force installations and barracks: think Diego Garcia, Okinawa and Guam. Others have been used for military exercises and bomb tests, and may still include spent cartridges, mines and high levels of radiation: think Bikini Atoll, Kaho'olawe and Vieques. In such cases, the islanders are not always amused. In some cases, they have had to be evacuated, at times against their will, or denied rights of abode. The plans of larger, more powerful actors can imply the wholesale evacuation of island communities.

Nevertheless, while there are always dangers lurking in the treacherous waters of international political economy, and some initiatives will be hotly contested by larger powers, many small islands have done very well in positioning themselves as attractive locales offshore. They come across as spaces that have and can offer a congenial quality of life, safety and a more intimate connection with nature. They are prime targets for a large number of 'urban refugees' that have had enough of the stress, speed and depression of mega-city living. Indeed, in so doing, they become milieux for gentrification, as the cost of (especially beachfront) property appreciates in value and becomes increasingly unaffordable to local inhabitants: consider the alluring archipelagos outside such major urban centres as Stockholm, Gothenburg and Åbo/Turku (in Scandinavia), La Rochelle (France), Trieste (Italy) and Athens (Greece).

Conclusion: an alternative to vulnerability discourse

Coupled with evidence-based, good governance practices and the power to make their own laws and regulations – the power of jurisdiction – island spaces should be able to navigate a globalised world with relative confidence. This is certainly a more welcoming prospect, and one that is in sharp contrast with the economic and environmental vulnerabilities that are often proposed as inevitable for islands and island inhabitants. In this case, it appears that the practice is more wholesome and attractive than what the theory suggests, and expects. Perhaps the dismal 'vulnerability thesis' needs to be ditched; in its place one should consider a fresh and more positive perspective that is more grounded in observational and experiential facts.

Disclaimer: the ideas and arguments in this paper are strictly my own and not necessarily shared by my employer or other organisations with which I am affiliated.

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IDENTITIES AND HISTORY WRITING ON ISLANDS IN THE BALTIC SEA



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Introduction

The sea creates distance to the mainland, providing islands with ‘natural boundaries’; simultaneously it functions as a route of communication to foreign shores. Political changes may shift the balance between the separating and the connecting properties of the sea. This chapter focuses on how the geographical situation of islands – isolation in combination with potentially far-reaching waterway connections – affects the formation of identities in interplay with political changes and cultural processes. We investigate if and how a particular island identity is expressed in local history writing on the large islands in the Baltic Sea during the 19th and 20th centuries, as well as how it is related to national identity. Our focus is on Gotland, the Åland islands, Hiiumaa and Saaremaa.

The islands

In spite of their relative geographical and cultural proximity to each other, the islands in the Baltic Sea provide a rich variation in geographical, historical and political parameters relevant to the construction of local and regional identities. The most important of these parameters are distance to mainland, fragmentation of the archipelago, previous affiliations to foreign countries, linguistic differences to the mainland and current or historical political autonomy.

Åland is an autonomous province in Finland, situated 70 km from the

Finnish mainland and 36 km from the Swedish mainland. However, main Åland is connected to mainland Finland by the most island-rich archipelago in the world. The Åland islands are constituted by nearly 7,000 islands, which are larger than 0.25 ha, 60 of which are populated. Counting smaller islands and skerries, Åland has roughly as many islands, 27,000, as inhabitants, 28,000. The official language on Åland is Swedish, which is the mother tongue of 90% of Åland's and 5% of Finland's population. Åland and Finland were integrated parts of Sweden until 1809, when they came under Russian sovereignty. In the autumn of 1917, Åland tried to secede from Russia to join Sweden. When Finland gained independence in December that year it laid claims on the islands, offering Åland autonomy. The League of Nations granted Finland sovereignty over Åland in 1921. However, as Godfrey Baldacchino states in his chapter "Islands as Designed Spaces", states have often had to pay a price for maintaining disparate entities within their realms. In this case, Finland had to give Åland an autonomy that safeguarded the language and culture of its inhabitants.

Saaremaa is an Estonian county, which consists of, in addition to main Saaremaa and adjacent small islands, a sizeable island, Muhu, and a more distant island, Ruhnu, in the Bay of Riga. Today 98% of the 35,000 inhabitants on Saaremaa speak Estonian, but German was common until World War II, as it was the language of the landed aristocracy and of the bourgeoisie in Arensburg (modern day Kuressaare). Ruhnu had a Swedish speaking population that deserted the island for Sweden during World War II. Saaremaa was invaded by German crusaders in 1227, and the island was, like Hiiumaa, divided between the Brothers of the Sword (from 1237 the Livonian Order) and the bishopric of Oesel-Wiek, that also comprised present day Läänemaa on the mainland. In 1559 Saaremaa became tied to Denmark, which handed the island over to Sweden in 1645. In 1710 Russian troops gained control over the island, and it remained part of the Russian empire until the end of the First World War. Kuressaare/Arensburg is situated on the southern coast of Saaremaa and has had good connections to Riga, which was the centre of Livonia.

Hiiumaa was probably populated from Saaremaa and Sweden in the 13th century. The Swedish peasant constituency was greater than on Saaremaa, and they remained a large community until the end of the 18th century. Hiiumaa was under Swedish rule from 1563 to 1710. Today, Hiiumaa has some 11,000 inhabitants, 98% of them Estonian speakers. Kärkla on Hiiumaa didn't gain city rights until 1938, and not until after the Second World War did it replace Haapsalu on the mainland as the administrative centre of the island.

The Swedish island of Gotland is the largest of all Baltic islands, with a population of some 57,000 on 3,000 square kilometres. Gotland is one of Sweden's 25 historical provinces ("landskap"), and constitutes a separate "län"

(county; the official entity of regional administration in Sweden). Today, the Gotlanders generally consider themselves Swedes, but the medieval language of Gotland is considered by linguists as a distinct language. Before the 14th century, Gotland was largely autonomous, with a loose bond to the Swedish kingdom. However, in 1361, Gotland was attached to Denmark, and a period of economic stagnation took place. In 1645, Gotland was passed over to Sweden.

Who has been writing local history?

Each of the islands has nurtured its own history writing in modern times, but there are big quantitative differences. The number of books that have been produced on Gotlandic history can be measured in thousands, whereas Hiiumaa only recently has seen a historiography of its own, which remains rather miniscule.

Gotland has seen the richest history writing of all the islands of the Baltic Sea. There is a continuous historiography since the 17th century, although the main stream of writing has been conducted since the late 19th century. That period witnessed the birth of the main institution "Gotlands Fornvänner" ('Friends of Gotland's Antiquity') in 1874, which gathered people interested in especially the rich medieval and prehistoric heritage of the island. Its main task was the foundation of the main regional museum of Gotland, Gotlands Fornsal ('Hall of Gotland's Antiquity'). Most of these people were local intellectuals. In the 20th century, however, Swedish archaeological research, driven from mainland universities, has used Gotland as a research field more than any other Swedish region. One of the results from this is the amalgamation between local and national historiography. There is no clear border between local Gotlandic history writing, and mainland history writing about the island. Even so, the regional history-producing institutions have kept their strength. The Friends of Gotland's Antiquities has since 1929 published the influential journal "Gotländskt Arkiv" ('Gotlandic Archive'), which is partly scientific in character. From the late 19th century to this day, a large amount of monographs have also been written about Gotland's history. Dozens of these are general descriptions about Gotland's overall history, while a great deal has been written about more specific topics.

On Åland, only a few works about local history were written before the islands gained autonomy. Since then, almost all locally produced publications about Åland's history have been initiated or sponsored by the local government. The main exception is maritime history, which has been supported by the local shipping industry. Similar to the nation-building efforts of independent states, the local government has helped create a sense of Åland as a separate historical unit through its support for research.

On Saaremaa, all works on local history published in the 19th century

were written in German by Baltic Germans. In the 20th century, local history writing has predominantly been in Estonian, but there is a divide between national Estonian and Soviet age history writing. During Estonia's period of independence between the world wars, a great multi-volume work on the geography, ethnology and history of the Estonian counties was published, including a volume on Saaremaa. In the Soviet era works about recent local history published in Estonia spread a communist view of history, mainly through the writings of Vassili Riis, a former NKVD¹ official. However, less politically sensitive issues, like agrarian history, could be handled more freely. Saaremaa islanders in exile continued to write local history from a national Estonian perspective, while a few Baltic German islanders in exile gave their view of events.

After independence in 1991, there was great interest in writing the hitherto untold history of Soviet crimes. On Saaremaa, this was often carried out by local branches of nationwide organizations, like the Memento-association or the Home Guard ("Kaitseliit"). The Saaremaa museum has published works on a wider range of subjects, among others a biannual yearbook. The overviews *Saaremaa 1* and *Saaremaa 2* were published in 2002 and 2007, but the first initiative had been taken already in 1989 by researchers and professors attached to the academic world in Tallinn and Tartu but living on or originating from Saaremaa.

In contrast to the situation on Åland, where local history writing stresses its independence from the mainland and its national project, Saaremaa local history writing is being conducted as Estonian national history writing. This kind of national (Finnish) local history writing was in the late 1800s and early 1900s on Åland represented by "Föreningen Ålands vänner" ('Friends of Åland Association'). The association never produced a comprehensive narration of the history of Åland, but published a number of articles on various subjects in their series "Åland". Authors of such articles were generally members of the national elite who were living on Åland or had grown up on the islands.

While national Finnish history writing on Åland was considered the project of a foreign elite, national Estonian history writing on Saaremaa was a popular enterprise. Since Estonia had never been politically united before, it was not possible to write a national history based on the political history of the Estonian state. The function of the monumental work *Eesti*, where volume VI about Saaremaa was published in 1934, was to construct a nation by adding up the sum of local histories.

Much less local history writing has been produced on Hiiumaa than on Saaremaa. Hiiumaa was part of Läänemaa county until the mid 20th century,

and it has, until recently, often been included in Läänemaa history writing. Saaremaa local historian Endel Püüa writes that lately, the Hiiumaa islanders' sense of independence has grown and become well established. During the last decades, a few books on Hiiumaa local history have been published, and a large overview of Hiiumaa (around 850 pages) is under preparation.

Conflicts between island populations and newly emerged nations

During World War I, Saaremaa, Hiiumaa and Åland became fortified outposts of the Russian empire. Minefields, coastal batteries and travel restrictions isolated them from the mainland during the years preceding national independence. This isolation seems to have weakened the islands' affiliation to the national projects of respectively mainland Finland and Estonia: the Åland islands tried to join Sweden and an uprising broke out on Saaremaa.

The young Estonian national government used conscription to defend its independence against Bolshevik Russia. This ignited an uprising on Saaremaa in February 1919, which was swiftly and bloodily put down by the national government. The event has been portrayed very differently by national Estonians, communists and Baltic Germans. The Estonian government blamed the Baltic German landlords, and used the incident to legitimize a land reform. The communist view was that Saaremaa's peasants rebelled out of proletarian solidarity; they did not want to shoot their Estonian and Russian comrades. A third view was expressed by the Baltic German amateur historian Oskar Buxhoeveden, related to two of the landlords killed in the conflict, who blamed communist agitation and lack of cooperation between Estonian officials and the local nobility. In his opinion the local nobility had previously governed the island in good patriarchal order, raising troops without friction.

Maritime Golden Ages

On Gotland as well as on Saaremaa and Åland, there is a conception that the island experienced a Golden Age during the Middle Ages. This is not the case on Hiiumaa, which can probably be attributed to the fact that medieval sources describe the island as uninhabited.

Even though, with a few exceptions, Gotlanders identify themselves as Swedes, there is a strong regional identity of the islanders. One reason for this is the fact that the island is geographically distinct; it can only be reached by air or by ferries. But maybe the most distinct nucleus of Gotlandic regional identity is placed in history. The dominant topic in the island's regional history writing from the 19th century and well into our own age, is the stress on the perceived peaceful, prosperous and independent 'peasant republic' of the early Middle Ages. It has often been transferred earlier into prehistory, not only into the Viking Age which saw a very large influx of Arabic silver coins to Gotland,

¹*Peoples Commissariat for Internal Affairs, the public and secret police force of the USSR.*

but also earlier into the Bronze Age.

The Middle Ages remain at the centre of Gotlandic historiography, especially when it is written for, or by, mainland Swedes. The tourist industry on Gotland focuses on the medieval past – the city wall and church ruins of Visby, and the almost one hundred stone churches of the countryside. Since 1984, an annual medieval festival week has been staged in Visby, attracting a great deal of attention.

There are some recurrent topics of this history writing. First, there is a distinct 'Golden Age' thinking behind the narrative. Prehistoric Gotland is generally depicted as the freedom-loving trade centre of the Baltic. In the Viking Age, peaceful Gotlandic tradesmen went eastwards into Rus together with the Swedes, who, by contrast, are depicted as warriors.

The relationship between this peaceful peasant republic of Gotland and the evolving Swedish kingdom on the Scandinavian mainland has for long been at the centre of attention of researchers and others, and is still a prevalent discourse today. According to the Medieval manuscript Guta Saga from the 13th or early 14th century, the Gotlanders had voluntarily signed a treaty with the Swedish kingdom in Pre-Christian times, leaving the island practically independent well into the 13th century. Gotlandic historiography regularly stresses this independence and its importance for Gotland's central position in the Medieval Baltic. This narrative is reproduced in most of the history writing, with the exception of more recent academic studies, which often question older romanticising ideas.

Heathen pirates on Saaremaa before 1227

Local history writing from the 19th century, which was written in German, and national Estonian history writing from the 20th century onwards have interpreted Saaremaa's earliest history differently. In the German language historical writing, the Osilians – the Latin name for the population of Saaremaa of the pre-Christian era – are portrayed as superior to the mainland Estonians, Latvians and Livonians. Körber describes them as equals to the Swedes and Danes as warriors, but inferior to the Germans. Luce writes that the Osilians had learned military technology from foreign lands.

Modern Estonian history writing also stresses the important role of Saaremaa in the Estonians' struggle against foreign invaders, but without claiming superiority over the mainlanders. In *Saaremaa 2*, Enn Tarvel writes that the Osilians learned to build catapults at Varbola fortress in mainland Estonia. This contradicts Luce and Körber who claim that the Osilians were more advanced than the mainlanders.

During the 13th and 14th centuries the peasants on Saaremaa rebelled several times. Körber saw the uprisings as specific for Saaremaa: the islanders

had in contrast to the mainlanders never been in a tributary relationship. Furthermore he claimed that island dwellers in general were animated with a bold spirit of independence. In contrast to this, Tarvel notes that the Great uprising on Saaremaa was coordinated with an uprising in Harju province on the mainland. Thus the German history writing viewed Saaremaa's history as more insular and exceptional, while the Estonian history writing is more prone to find parallels and connections to the mainland.

Luce and Körber described piracy and raiding as central activities in the old Osilian society and later Estonian historians have maintained that view. In local Saaremaa history writing, the sack of Sigtuna in 1187 is attributed to the Osilians, although many others have claimed the honour. A frequently cited source is the chronicle of Henry of Livonia, which among other things describes how raiding Osilians sailed home with enslaved Swedish maidens. The Saaremaa islanders' piracy is usually compared to that of the Vikings, and among local Estonian amateur historians, the inhabitants of Saaremaa are often described as Vikings. For example, when Robert Kreem describes his travel by boat to Tallinn with the Saaremaa Home Guard youth organization in 1938, he adds that it was not appropriate for the descendants of Vikings to take the land route.

Crusader Jarls on the Åland islands

In 1933 the regional authorities on the Åland Islands employed an archaeologist; it was believed that the exploration of local history would create a sense of identity, a necessary prerequisite for a successful defence of the islands' autonomous status. The appointed, Matts Dreijer, was born on Ruhnu but had lived on the Åland islands since the age of six. Initially Dreijer's view of Åland's past was based on national Swedish history writing; Åland was in heathen times part of the great Sveonian kingdom. After the Second World War, when Sweden definitely had rejected proposals from the Åland islands to rejoin the 'motherland', political efforts on Åland focused on developing its newly won autonomy. In line with this political reorientation, Dreijer started to distance the history of the islands from that of Sweden. When his theories were fully developed in the early 1980s, he had reshaped much of Northern Europe's history. He believed that the Åland islands had experienced a Golden Age in the 12th century, when they were a centre for trade and a base for Danish crusaders in their attempts to convert Finland to Christianity. He placed the trading post of Birka traditionally believed to have been situated in the Swedish lake Mälaren on the Åland islands. He also backdated Kastelholm Castle and Main Åland's parish churches to the 12th century. A cornerstone in his construction of history was the belief that it was impossible for navigators to cross the open sea before the time of the seaworthy Hanseatic cogs; hence

it was necessary for trans-Baltic trade to use the protected route through the skerries of Åland. Taxation of this trade provided the economic basis for the islands' Golden Age, and the cogs caused its demise. Dreijer's low confidence in early medieval navigation caused him to doubt that the Vikings had ever crossed the Atlantic. When the Norse sagas mention Iceland they really mean Åland, he claimed. Since the 1990s local history writing has distanced itself from Dreijer's theories.

Conclusions

The expressions of local identity in the history writing on Åland, Saaremaa, Hiiumaa and Gotland are clearly influenced by the islands' different histories and geographical positions. However, this study illustrates that the islanders' interpretation of their historical legacy and their geographical location is strongly linked to contemporary political circumstances. Rapid political changes are followed by reinterpretations of the islands' past and their relationship to the mainland. In most cases, these changes are the results of war or military use of the islands.

On Åland and Saaremaa, history writing undergoes clear changes following both World Wars. Following the First World War, Åland strived for unification with Sweden but gained autonomy within Finland, while Estonia's independence brought the German nobility's rule on Saaremaa to an end. Between the wars, Åland's history writing was an expression of Swedish nationalism, trying to link the islands to the west. On Saaremaa, the island's local history was together with the history of other Estonian regions amalgamated into a national history in the work *Eesti*.

After the Second World War the political leadership on Åland gave up hopes of unification with Sweden. In line with this, Åland's archaeologist Matts Dreijer changed from a pro-Swedish to a more independent interpretation of the island's history. On the Estonian islands the war brought more dramatic changes. In the Soviet era, books on recent political history could only be published if written from a communist perspective, although refugees in exile continued to give a national Estonian view of events. Hiiumaa became an independent county after the Second World War, during the time when it was transformed into a military zone separated from the mainland by travel restrictions. As a separate county the Hiiumaa islanders' independence has grown, and during the last decades the island has seen the rise of local history writing.

On Gotland, there are no comparable military or political events that interrupt the island's development during the last 200 years. In accordance with that, there are no clear points in time when the interpretation of the island's history suddenly changes, as is the case on Åland or Saaremaa.

The destinies of the islands in the Baltic Sea have been decided by the regional powers' political and military needs, which have resulted in many twists and turns in the islands' history. Local history writing has functioned as a means for the local population to come to terms with – and sometimes legitimise – these changes, often by trying to find the roots of the present political situation way back in history. Local history writing helps create a sense that regardless of the political changes there has been a continuity in the identity of the islanders.

It can also be argued that the dual nature of the sea – as a distinct, separating boundary and a medium for transport and communication – is reflected in a certain dualism in the island identity. On one hand, local history writing indicates that the islanders identify strongly with 'Golden Ages' when they perceive that their ancestors were actively participating in far-reaching maritime exploits. On the other hand, the formation of island identities has been strengthened during periods when political circumstances have heightened the separating potential of the sea – as during periods of war and unrest, when navigation has been interrupted.

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THE ÅLAND ISLANDS

and the construction of Ålandishness



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Åland: the 'in-between-island' in the Baltic Sea

My contribution to this publication focuses on a group of islands, an archipelago that is situated in the Baltic Sea: the Åland Islands. The presented data (pictures, artifacts) was collected during three-months of field work on Åland during the summer of 2009.

Geographically speaking, the Åland Islands have a kind of in-between-position being located just between Sweden and mainland Finland. The archipelago (approx. 28.000 inhabitants) belongs to the Republic of Finland and possesses a special status that is linked to the islands' wide ranging autonomy. Due to the Autonomy Act of 1921 Åland is an autonomous region within the Finnish Republic. Åland has self-determination in a variety of fields such as education, culture and the preservation of ancient monuments, the promotion of industry, island-internal transportation, local Government, policing, postal communications and radio and television. On the basis of language, Åland is a monolingual Swedish-speaking region in bilingual Finland (Finnish and Swedish). Ålandic road signs are without exceptions in Swedish, the two Ålandic daily newspapers *Ålandstidningen* and *Nya Åland* are published in Swedish. The language of instruction in schools on Åland is Swedish as well. The Finnish language may be chosen as a non-compulsory elective subject. Swedish is used in all official communication and is the language used by the local municipality, but there is the exception that Finnish citizens do have the right to use Finnish when confronted with state affairs such as issues regarding the court.

A look back into Ålandic history shows that Åland was part of the Swedish

Crown, later the Russian Empire (until 1917) and today the Finnish Republic. Åland's geographically and culturally determined in-between-position has effectively created certain strategies and tendencies on Åland that form and shape a special form of regional identity. It is this concept of Åland's wide ranging autonomy and at the same time the demand to preserve, develop and show Åland's autonomy, which in academic literature is termed *ålandishness* ("åländskhet" in Swedish).

The Åland Islands as a 'quasi-nation'

To fully understand the concept of *ålandishness* one has to know that when Finland declared independence of the Russian Empire in the year 1917 the Ålanders refused to be part of the newly established Finnish Republic. Instead the Swedish-speaking islanders wanted reunion with the Swedish Kingdom which they considered as their (cultural) motherland. Under no circumstances would Finland lose Åland. In 1921 the League of Nations had to find a solution to the heavily discussed problem whether Åland should be part of the Swedish Crown or the Finnish Republic. It was through the Guarantee Act of the year 1921 that Åland was declared as an autonomous region in the Republic of Finland guaranteeing for example the protection of the Swedish language and cultural heritage. Over the years Åland's autonomy has been continuously adjusted. According to De Geer-Hancock the concept of *ålandishness* is followed by an Ålandic nation building process that first started when Åland became an autonomous province in the Finnish Republic. It is this argument that makes it plausible to regard Åland as a 'quasi-nation': due to its autonomous status, the archipelago is in the position to feature its 'own' flag (red and yellow cross on a blue back), stamps (Finnish stamps are invalid), hymn, car license plates and even a form of Ålandic citizenship ("hembygdsrätt"). This regional citizenship allows you to buy land on Åland, start a business on the archipelago or make use of your right to take part in political elections. Åland Islands' attempt to introduce their own currency, the "Daler" was struck down by the Finnish Government in the year 1991. The latest symbols marking national identity are Åland's country code AX and Åland's top-level-domain .ax which makes Åland's autonomous status visible on the World Wide Web.

Maritime heritage as a resource for the creation of Ålandic identity

Key elements like the above-mentioned symbols that reflect 'national identity' are the cornerstones of the self-concept of Åland identity. My interest is to show how and on which other levels this Åland identity is being expressed and shaped. Therefore I focus on two institutions that are responsible for narrating Åland's history as a world famous sailing 'nation'. My analysis is based on the central concept of the invention of tradition which was introduced

by historian Eric Hobsbawm. In this concept Hobsbawm argues that traditions function as sets of rules which demand a certain implementation: in other words, that the (national) traditions which serve as the basic building blocks that form the conceptualization of every nation, do not just exist but must be established and constructed. Traditions are implemented in that way that they pretend to be a continuation of or a follow up on a certain period in the past. The introduced concept of the invention of tradition is based on the key argument that suggests that only events that have taken place in the past work as models for creating tradition(s) in the present. With this thematic approach, I try to bring light into the Åland case: Åland is keen to form an image that reflects Åland as a sailing nation and as a consequence constructs and presents Ålands maritime history and heritage. This argument gains merit through economic figures that show that more than 40% of Ålands GDP is related to the maritime business sector.

Artefacts representing Ålands maritime past and present can be found in Åland's capital. Mariehamn can be seen as a living maritime museum: the maritime past is a part of the town's daily life e.g.: a walk through the island capital shows that old anchor chains serve as fences, rejected ship propellers and ship's bells lie on the wayside or close to maritime museums. A wooden direction sign shows the distances from Åland to places like Tokyo, Cape Town, Cape Horn, Alexandria or New York. Places that reflect the time when Åland had one of the world's leading sailing fleets. On Åland this observable visualization of its maritime past is expressed in a variety of ways. Therefore the ethnologist Marika Rosenström embossed the expression "tar flavour for sale – the maritime cultural heritage in the service of tourism". And indeed, maritime events and locations have touristic and historic meanings as the following examples try to explain.

The rowing competition "Postrodden"

Since the year 1974 the rowing race "Postrodden" has been a part of the Ålandic event calendar, initiating the tourist season in mid June. Again, on a long term perspective, the annual rowing competition serves as a kind of historic performance pertaining to a certain period of Ålandic history: From the years 1638 until 1910 Åland's farmers had certain duties to carry out. During the centuries and under the reign of the Swedish Kingdom and later the Russian Empire so-called post farmers were in charge of forwarding mail and passengers from the Swedish mainland via Åland to present-day Finland. It was King Gustav Wasa who recognized Åland's favourable in-between-position in the Baltic Sea and committed Swedish and Ålandic post farmers to establish a communication system. By means of horse-drawn carts and sailing/rowing boats, the post farmers had to transport mail and passengers over the



*Restaging the maritime past in a touristic event over the Åland Sea 2009.
Source: Courtesy of Rudolf Teichmann*

mailroad respectively the water ways. One can follow the mailroad on Åland – red wooden poles and memorial plaques mark the mailroad even in present times. And within this historic context the rowing competition takes place: “Postrodden” is therefore the matter of analysis because it can be seen as an ideal place where a specific element of the so-called ålandishness (“åländskhet”) is being created and visually perceptible. The poster announcing the competition in the year 2009 uses a variety of textual and visual elements that try to build up a historic context.

*Poster announcing “Postrodden” in 2009
Source: Doris B. Griefßner*



The yellowish colour of the poster’s paper creates the image of patina in combination with the capital letters saying “Postrodden Över Ålands Hav” one is tempted to associate a western-like ‘wanted-poster’. The black-and-white photo elements contribute and complete to such an image.

The last time when post farmers forwarded the mail via rowing/sailing boats was around the year 1910. In order to remember Åland’s rather meaningful position as a communication intermediary, the event “Postrodden” serves as a kind of cultural performance: Within the context of a rowing race a long past epoch is reinterpreted. Here, the concept of the (re-)invention of history respectively tradition is shown in practice. As a form of adaption of Ålandic history the event “Postrodden” can be analyzed on different levels: Firstly, the event is designed as a competition, as a boat race. A specification is that the starting port and the port of destination are situated on two different countries: In the year 2009 the race was started at Grisslehamn in Sweden. The distance that is crossed leads over the Åland Sea and is approx. 40 km long. The goal was on Eckerö/Åland. Every year start and finish rotate. Due to this structure not all visitors can follow the whole course. There is the possibility to see the start and follow the course on a ferry boat that accompanies the sailing boats. Visitors that either stay in Grisslehamn/Sweden or on Eckerö/Åland do have the opportunity to follow the race via a monitor showing the coordinates of the participating boats.

*The winning team of
“Postrodden” 2009.
Source: Doris B. Griefßner*



One has to know that all sailing boats are equipped with technical devices such as a gps-system, car batteries and monitors. To guarantee the security for the boat crew, motorized rescue boats escort the sailing boats along the approx. 40 km route.

Despite the high involvement of technical devices the regulations of the race are designed in the following way: There is special focus on the equipment of the competing teams and their boats: teams receive points if the boat, for example, has a certain age or is built after a certain boat type that existed during the time when the Ålanders were responsible for establishing a mailing system. Through wearing ‘traditional’ clothing the (three to four) team members are in

a position to collect additional points. In the start harbour every team receives a so-called post bag filled with mail that must be sealed at the finish-line. A special postmark is therefore created.

In this section I have tried to show how and on which levels a certain period of Ålandic past is 'enacted' within the context of a boat race. Another term used in the 'theatre genre' that fits well into my analysis is the so-called 'theatre props'. These are items that 'brand' and make each performance complete: in the context of "Postrodden" these items (patina-style of the poster announcing the race, postbag, post sealing, traditional clothing and boats) serve as a form of historiography. In contrast, the 'modern' elements of "Postrodden" (use of gps/satellite technique, monitors, electronic devices) emphasize my argument that "Postrodden" can be interpreted in the context of 're-invention' of tradition and history.

On institutionalising maritime heritage on Åland: the Maritime Quarter in Mariehamn

The east harbour (Östrahamn) in Mariehamn houses one of the most popular sights on Åland: the so-called Maritime Quarter ("sjökvarteret") – a building complex, the purpose of which is to show and preserve Ålands sailing history. As a contrast to the above-mentioned sailing/rowing competition, "Postrodden", the docklands in Mariehamn can be described as a permanent institution showing Ålandic sailing traditions. The building complex consists of a variety of maritime buildings and facilities: boat landing stages, a boat/sailing museum, a wooden pyramid beacon that served as a navigation guide and the latest building: the sailor's chapel. In the shipyard boat builders reconstruct traditional boat types throughout the year.

Beside these maritime buildings and facilities, the docklands in Mariehamn also host the arts and crafts studio SALT. Six designers and co-owners run this crafts studio and sell textiles, ceramics, jewellery and (home) accessories made from silver, iron and wood. The docklands area also houses the studios of a blacksmith and two silversmiths, an art design studio and an organic café.

In terms of the conception of the planning of Mariehamn's Maritime Quarter one can state that a past period of time is made visible in present day Åland. The boat landing stages, the sailor's chapel, the boat museum or the shipyard preserve Åland's maritime history and culture. To understand my further arguments one has to know that Mariehamn's Maritime Quarter did not develop or grow over the centuries – instead the building complex was strategically adjusted within a short period of time. As the east harbour in Mariehamn is relatively exposed to the open sea, the bay where the Maritime Quarter lies is literally not very well suited for a harbour location.



Images of the maritime quarter in Mariehamn. Source: Doris B. Griebner

The reason why the Maritime Quarter was founded on this spot goes back to the year 1985: Based on old ship building plans the galleass, Albanus, and the schooner Linden were built in the east harbour, where they are still based. Around the dockyard where the two boats were constructed, the Maritime Quarter emerged and expanded over the years. This step-by-step extension can be interpreted as the concept of the 're-invention of Ålandic tradition' as explained above. The re-construction of Ålandic tradition and maritime past takes place continuously: The latest building that has opened for visitors is the wooden sailor's chapel which was built in the year 2005. In the same year the showroom, studio and shop of the Ålandic arts and crafts association, SALT, was completed.

The Maritime Quarter as form of representation of Ålandic tradition is deeply linked to Åland's sailing/maritime past. Within a touristic environment (café, arts and crafts shops) the maritime quarter tries to show and conserve Ålandic sailing tradition. The Maritime Quarter is not only open during the peak season in the summer months but all year round. A few times a year the building complex serves as a location for events like the Åland Seadays ("Ålands Sjödagar") held in July, the harvest festival ("Skördefesten") at the end of September or the Christmas market.

The homepage of Ålands Official Tourist Gateway www.visitaland.com describes the maritime quarter as a “living maritime centre” and promotes readers and visitors to “experience the genuine scent of a tarred wooden boat!” These chosen descriptions make it clear that the maritime quarter should be regarded as a kind of living museum that presents Ålandic tradition: typical Ålandic arts and crafts in combination with Ålandic maritime heritage.

The two mentioned case studies – “Postrodden” and the Maritime Quarter – act as examples showing that Ålandic history and the conservation of Ålandic (maritime) traditions are key elements for constructing a kind of regional island identity or ålandishness (“åländskhet”).

On re-inventing traditions on islands and on the mainland

In general, islands can be seen as isolated and remote places, the term insularity leads to this interpretation. Due to this assumption, the question arises whether the island as a closed and cut-off territory serves as a place for creating or (re-)inventing a special kind of (island/regional) tradition. The case study of Åland, a sub-national region in the Finnish Republic, tries to show different levels (national symbols, island events) on which a form of island/regional identity is being created. The theory that islands – due to their assumed isolated position – promote the development of a special tradition or (island) identity cannot be answered either with a yes or a no. The differences and similarities concerning how regions on the mainland create their *own* tradition and identity would be an interesting topic for further research. For Åland, the island geography does not have a deep impact on Åland’s self image. Instead, its political/judicial status as an autonomous region within the Finnish Republic can be regarded as the major factor for ålandishness.

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SECTION

III

Island Development: Heritage, Food, Tourism

SUPPORTING HERITAGE ENTERPRISE DEVELOPMENT

The island of Chiloe, Chile



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The Archipelago

*"We are people of the island. We live
differently than the others..."*

*When someone sees that something is
from Chiloe, it's good, it's natural, it's
ecological, it's magical, it's even mystical.*

*(Interview respondent
Vanessa, Chiloe, 2008)*

One approaches the "big island" of the Chiloe archipelago in the Los Lagos region of southern Chile on a car ferry that carries only a small number of cars and a bus or two. The rumble of the ferry underfoot as you slowly approach the island slipway feels old-fashioned, an apt reflection of the reluctance of the island's people to embrace the speed and scale of the modern world. The islands in the Chiloe Archipelago support about 170,500 people, most of whom

live on the “big island” which is also called Chiloe. Official census data tell us that about 13% of residents declare themselves to be indigenous Williche; but more than half of the population is ‘mestizo’, meaning they have some degree of indigenous ancestry. Whether indigenous or not, islanders generally identify first with the archipelago, calling themselves simply “Chilote”.



The ferry



No bridge!

People’s resistance to the intensive, industrial-scale salmon aquaculture that was widespread throughout the archipelago in 2006 turned out to be well-founded. Research performed around that time revealed that the economic benefits of aquaculture were matched by serious disruptions to social well-being, environmental degradation, and a worrisome emptying of rural and small island communities as young people flocked to jobs in urban centers. By the time I returned in 2010, infectious salmon anemia had ravaged the salmon aquaculture pens, many operations had gone bankrupt, and unemployed workers were struggling to survive.



No windmills!

When I visited in February 2011, I was met by more graffiti, this time protesting the next great idea – a wind turbine development to be built in the flight path of migratory birds.

As I spoke to university students, artists and traditional indigenous leaders it became clear that they were leading the resistance to such poorly conceived development projects. In the background, many Chilote people were quietly resisting in their own way, by building small businesses rooted in what they believed was truly valuable in Chiloe — their cultural and environmental heritage.



Agricultural produce from offshore islands

Chiloe has always been seen as a special and mysterious place rich in natural beauty and environmental resources. Charles Darwin was one of the early scientists to note the many endemic species of the island, and to draw attention to the island’s beauty. Some of the last remaining virgin rainforest of Chile is protected in the national park that occupies a large proportion of the Pacific coast of Chiloe. In 2003 scientists were surprised to discover a reason to consider establishing a marine protected area, as well: one of the most important blue whale (*Balaenoptera musculus*) feeding and nursing grounds in the southern hemisphere, is in waters close to Chiloe. (<http://news.bbc.co.uk/2/hi/science/nature/3305069.stm>).



Pacific shore

Chiloe is also famous for its unique blend of indigenous and European cultures which has stimulated development of a rich mythology; church architecture that has attracted world heritage designations; and an abundance of artists, artisans and musicians. The people are recognized as being very independent, and also very



Landscape with historic church reconstruction

stubborn about preserving their traditions. In her book *My Invented Country* (2003), Isabel Allende describes Chiloe as having a “*culture different from the rest of the country... Chilotes live as they did a hundred years ago, dedicated to agriculture and the fishing industry ... Buildings are constructed solely of wood, and in the heart of each house there is always a huge wood stove burning day and night.*”

The rich and unique local cuisine is supported by the traditions of gathering herbs from the native forests and seaweeds from the shores, and more recently the focus on shellfish and salmon aquaculture.

In Chilote mythology, which is a fascinating blend of indigenous beliefs and European folktales, the forests are inhabited by little people, witches fly through the air and the sea contains mermaids and other magical creatures. As a result, when you browse the artisanal markets of Chiloe you will find woolen toys and wooden carvings representing all sorts of exotic creatures.



Carvings

The Chilote people have been master crafters for centuries, turning wool, wood and plant fibres into both useful household articles, and works of art. In the past, young men migrated seasonally to tend flocks of sheep on the plains of Patagonia. Wood was cut for building materials and for firewood. Forest herbs, shellfish, seaweeds, fish and marine mammals were gathered for food and medicine, and people grew

various crops in small farm plots. For centuries, Chilote people nurtured and subsisted on their lush resources, making it through hard times by a combination of seasonal migration to the mainland, and a culture of helping each other. The tenacious conservation by farm women of their small, multi-coloured native potatoes during the ‘green revolution’, when the state government encouraged farmers to grow larger white varieties, is just one example of their stubborn adherence to tradition. In 2010, Chiloe was recognized by the United Nations Food and Agriculture Organization as a world center of agricultural biodiversity, because of its rich heritage of indigenous potato varieties (www.papasnativas.cl).



Magical island sign

To the visitor, road signage on Chiloe promises a magical island experience, and the government’s tourist information (<http://www.chile.travel/en/where-to-go/islands/chiloe.html>) clearly markets the ecological, historical and cultural merits of the archipelago. Even so, tourism on Chiloe remains modest. In a typical year only 75,000 visitors, 50,000 of whom are from mainland Chile, arrive during the summer months (especially January and February). In other months of the year, the relentless rain in this temperate rainforest zone is a serious deterrent to tourism, and becomes another of the island’s ‘mixed blessings’.

In 2007 Chiloe was named by the National Geographic Traveller magazine as one of the world’s top ten unspoiled island destinations that had avoided ‘tourist overkill’. Chiloe was tied with the Shetland Islands and with Norway’s Lofoten Islands, and ranked behind the Faroe Islands and the Azores. The survey ranked islands on environmental and ecological quality, social and cultural integrity, the condition of their historic buildings and archaeological sites, their aesthetic appeal, the quality of their tourism management and their outlook for the future. (http://news.bbc.co.uk/go/pr/fr/-/2/hi/uk_news/scotland/north_east/7077654.stm).

The Institute of Island Studies at University of Prince Edward Island, Canada, worked with the Williche Council of Chiefs on Chiloe in 2008 to conduct a preliminary study of the heritage enterprise sector on Chiloe. We found a few entrepreneurs who were working independently, but many more were in family groups or community-based collectives. Formal co-operatives were rare. Among eight case study businesses we documented, most were run by women — frequently indigenous women. They were engaged in making a wide variety of products: processed foods using local garlic and herbs; handmade dolls, clothing and other products from wool and plant fibres; natural health and beauty products; and works of art including carvings and paintings. The predominance of women in our sample was typical of the artisans we saw selling their wares in the many fairs and festivals that happen all over Chiloe in the summer season.

When interviewed, each entrepreneur spoke of her/his business as a conscious resistance to the dominant economic paradigm, which was industrial salmon farming. They wanted alternatives for rural economic development which supported their core priorities: family well-being, independence, the conservation of the environment, and the promotion of Chiloe’s heritage and culture. They were happy to take a path that was less secure and probably less lucrative than a regular job, because it gave personal satisfaction that was more important than money.

“The salmon farms bring more money, and people are happy because it brings more money, there is work; but we are watching what is happening. Chilotes have lived

here 14,000 years. We have a lot of ability and knowledge, [and]... the culture needs to survive. ...It was not the objective to sell the culture, but to do something for the culture. ...Some people need to take care of the woods. Some need to take care of the ocean. And if everyone did this, their part of the culture would be maintained. ... A lot of people say that when you want to preserve or take care of something you like, you have to do it yourself.” (Interview respondent Victor, Chiloe, 2008).

The cultural entrepreneurs of Chiloe are not Luddites; they embrace new technologies, especially the internet, to help overcome the insularity and seasonality of Chiloe’s markets. They strive to develop new designs that will appeal to modern and foreign consumers. At the same time, they recognize that insularity is a fundamental resource for the type of economic development they value. Their foundations are their native pride of place, their feelings of being separate, different and somehow special in comparison with the mainland, and their respect for the archipelago’s natural and cultural heritage.

Our respondents were part of an important sector of the economy of the Los Lagos region, which includes Chiloe. Statistics show that Los Lagos has more than 72,000 micro and small enterprises, making up 86% of the total



Wool market

number of registered businesses. The microenterprises (with fewer than 10 workers each) employ 380,853 people, and conduct 29 % of the region’s retail sales. Small enterprises employ an additional 285,473 people, and account for another 25% of sales.

These micro and small enterprises persist despite significant challenges. Their relative isolation from major urban markets and the extreme seasonality

of tourism dictated by the rainy climate, mean that crafts persons who depend on the tourists gain most of their income in summer and have difficulty making ends meet over the winter. The entrepreneurs’ solution is to attempt internet-based marketing and sales, aided by local governments and non-governmental organizations which actively promote the Chilote “brand” to mainland and international consumers (e.g. www.corporacioncet.cl). Tourism operators are developing more eco-tourism activities, plus agro-tourism and food-based tourism experiences to take advantage of Chiloe’s reputation as an idyllic island getaway rich in biodiversity and fresh local foods. But while trying to grow tourism, the small businesspeople are acutely aware that too much success could destroy the very landscape and sense of tranquility that they depend on to attract customers.

Because of the historical legacy of racism against Chile’s aboriginal peoples, indigenous entrepreneurs have faced significant hurdles in the past. They still express frustration over their lack of access to land for business development and organic agriculture. However, the 21st century has brought a change in mainstream attitudes towards indigenous people and their products. As expressed by one of our respondents, “My roots are now an advantage; this place, and being indigenous gives me value.” (Interview respondent Teresa, Chiloe, 2008). Similarly, after generations of gender-based discrimination, rural women in Chiloe are now finding that more doors are opening to them as community leaders and business people. Often, the people we interviewed told of developing businesses by working together to overcome marginality and rural isolation. This approach is rooted in the island’s culture in which people historically banded together to build homes and to move buildings from place to place. (<http://news.bbc.co.uk/2/hi/8475642.stm>).

Although there are non-governmental organizations active in promoting community development on Chiloe, we noted serious gaps in the supports for heritage enterprise development. Those people we interviewed need access to small loans and to training and education for practical needs such as writing proposals, developing new products, marketing via the internet, managing their businesses, and dealing with government regulations. Many saw the need for an umbrella organization which could make it possible for small businesses to communicate and cooperate with each other. Others worried about the lack of schools where their skills and knowledge could be passed on to younger generations. In short, there is great opportunity for positive intervention by both non-governmental organizations and government agencies.

According to some community organizations it is a significant challenge to convince the federal government of the merits of business development which is small scale and gradual. Chiloe, with its sheltered waters and virgin rainforests, is an object of intense desire for global industry, and the arguments made by

wealthy forestry and aquaculture corporations have been very seductive to past Chilean governments. The Chilote people are wise to be vigilant in protecting their heritage, so that they can continue to engage with the global economy on their own terms.

One reason for optimism is the publication of a study in December 2010 in which a federal government development agency (SUBDERE) and several municipalities collaborated with NGOs to explore the potential for heritage enterprise development. They all agreed that the rapid growth of industrial aquaculture since the 1980s posed a threat to the cultural integrity of Chiloe, and that action was required to reverse the damage done. It was especially interesting to note that the project involved a Japanese NGO, and that the community development strategies explored were inspired by the experience of communities on islands in Japan.

Such exercises in comparative island studies are important for identifying appropriate solutions for small island development problems. As of February 2011, a second initiative will involve ARCIS Patagonia University on Chiloe, which has invited the Institute of Island Studies in Prince Edward Island, Canada to work with them to develop a research and policy institute on Chiloe that will be dedicated to island studies. Among other things, this new island-to-island partnership will explore the potential for Prince Edward Island and Chiloe to jointly develop niche products for high-end markets that neither could serve in isolation. Thus, the elements of islandness often seen as barriers to economic development can be overcome - and even turned into assets - for creative and appropriately-scaled development initiatives.

Acknowledgements

Field research on Chilote microenterprises was performed by IIS intern Kim D'Ambrogi. This and other research performed in Chiloe was funded by the University of Prince Edward Island, Canadian International Development Agency (CIDA), Social Sciences and Humanities Research Council of Canada (SSHRC) and the Association of Universities and Colleges of Canada (AUCC) and undertaken with collaboration from the Atlantic Council for International Cooperation (ACIC) and Williche Council of Chiefs.

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ISLAND FOODS AND REGIONAL DEVELOPMENT:

a recipe for success?



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Introduction

This chapter describes the emergence of a new economic niche sector on the Danish island of Bornholm and explores how it is possible that a small island, otherwise wrought by the usual ailments that are so well-known to peripheral areas, has been able to gain a leading position on Danish consumer markets for dedicated regional foods.

The Bornholm food case concerns the restructuring and innovation of the agri-food sector on the island starting in 1995 and culminating during the mid- 2000s. On the back drop of dramatic decline in the standardized food industry and the agricultural and fisheries industries, a niche economic sector has emerged which caters to a new market demanding specialized food and drinks products. Although the niche sector consists of a diverse range of food and drinks products from cooking oil, chocolates, to beer and wine, the products have been successfully marketed collectively as *Bornholm regional foods*.

This new economic niche sector represents an example of a general 'quality turn' within the food sector, whereby food products in a Northern European context have emerged from primarily being mass-produced industrial products,

to becoming a diversified sector driven by consumer demands for specific food qualities, one of which is identifiable food products closely connected to specific places and their distinct culinary cultures.

The focus in this chapter is on describing how Bornholm has 'tapped into' this trend and on identifying the innovation capacity which must be in place in order to bring about the restructuring and innovation of the Bornholm food sector in order to do so. This innovation capacity will be described by focussing on the important knowledge inputs in the process. Bornholm does not have the capacities which are often emphasised within regional economic theorizing; i.e. large clusters of sector-related companies and enterprises, institutionalised research and development capacities, knowledge-intensive business services etc. However, we can trace the development of an innovative capacity and how it has emerged on Bornholm by tracing how Bornholm firms and other development actors search for, adapt, apply and use different types of knowledge within a nested framework of local and non-local contexts or arenas; the firm, their networks and markets, their relations with the governance system, the education and science system, and the socio-cultural milieu¹.

Our research has shown us that a central prerequisite for developing and inventing a regional food platform rests not so much with producers and their capacity to innovative new food products, as it rests with the relationship between consumers/tourists' and their perception of the island of Bornholm. This chapter thus suggests that islands, due to their easily identifiable place characteristics, may have distinct economic opportunities in exploiting consumer trends where quality and identification of food origin is in focus.

Particularly about the new meaning of food

The case of Bornholm regional foods describes the emergence of a new or re-invented culinary culture, which is based on the production of local food and closely tied into international trends where consumers engage themselves in demanding foods of a higher quality than foods produced on a mass scale through industrial methods as well as foods with a number of specific qualities, the knowledge about which produces added value for the consumer. This can

¹ The analysis conveyed in this chapter stems from an EU 6th framework international research project called EURODITE, which focused on knowledge dynamics in relation to innovative processes in different economic sectors within different European regions. During the period between February 2008 until May 2009 the authors have conducted 26 'knowledge biography' interviews with owners and employees of Bornholm food producing firms, private consultants, restaurants, distributors and retailers, as well as public sector actors within regional and rural development. What is done in this article is in fact only a re-interpretation of the empirical findings of these case studies from an island and place perspective.

be organic foods, foods produced in specific locations, foods produced with specific handcrafted traditions, using 'authentic' traditional recipes, foods with a specific design and/or taste etc. In this sense, food that is recognisably connected to a place and to positive emotions experienced in a certain location gain a place-quality that adds value to the product.

This development can be seen as part of a general trend and is typical for a process on Northern European food markets, which is reminiscent of food discourse and food marketing in Southern Europe, expressed in the *terroir* concept. Terroir is originally a French term used within primarily wine markets, but also other food and drink products conveying a sense of place, i.e. that it is possible to taste the specific soil and weather conditions as well as farming techniques which collectively have contributed to the unique qualities of specific local products.

In a Northern European context, terroir has been reinvented, labelled and epitomised by the dogmas expressed in the New Nordic Kitchen Manifest:

"By consuming the produce we become part of the surroundings that go into the food, and the cultivation location becomes part of us".

- Claus Meyer, the New Nordic Kitchen Manifest

The New Nordic Kitchen Manifest thus begs a direct connection between the food we eat and who we are.

Food is also a central aspect of tourism and food experiences are an integral part of defining the notion of a place. Thus, the introduction of new types of food products at a tourist destination can also in many ways re-invent the perception of the place.

The role of place in innovative processes

Within research on regional or territorial innovation models or systems, emphasis has primarily been on local/ regional interaction and dynamics. In this perception, the co-localisation within a (usually large/ urban) region of specialised capabilities expressed in strong institutions, interactive knowledge exchange between local actors, and a clustering of knowledge and skills gives the particular region a competitive advantage in a globalised economy. In such a perception, islands and other peripheral areas are generally reduced to be places of production, often of agricultural and fisheries products and they are handicapped compared to urban mainland regions due to their difficult or hampered access to knowledge institutions, capable firms and access to markets.

Regional innovation theorising has been contested, among others from the researchers involved in the EURODITE project, which has helped form an understanding whereby knowledge flows through relations and interaction

between local and non-local agents, institutions, organisations, firms and individuals has come to light. In other words, by focussing on knowledge dynamics in and out of regions, on knowledge adaptation to local contexts and anchoring with local agents, we begin to perceive 'connectivities' between disparate locations where we before tended to focus on adhesive qualities within regions. This opens up for a new perception of localities as less bounded and connected to other locations through a spider's web of relations, connections and networks. In this perception islands become less insular, and we begin to understand how local small-scale innovation on small islands can be fed from both local and non-local resources.

Such a perception brings to light the complex relationship between local and non-local markets and local and non-local consumers and their role in developing new products. In the case of Bornholm foods, the basic thrust which instigated the development of a regional food platform was the interaction between local food entrepreneurs who were quick to perceive a new market demand for specialised food through interaction with tourist consumers.

About Bornholm

At the beginning of the 1990s, serious structural crisis and economic decline hit the agro-food sector on Bornholm as well as the rest of Denmark. The agro-food sector at the time mainly consisted of bulk producing agricultural- and fisheries companies and a number of large-scale, volume-oriented manufacturing plants within the food and fish processing industries. There was no regional culinary heritage with the exception of a smoked herring specialty, which is specific to Bornholm. However, Bornholm had and still has a pronounced position as a renowned tourist destination attracting approximately 600.000 tourists annually from national as well as German and Scandinavian tourism markets.

In the period from ca. 1995 until the present, a new, flourishing niche food and drinks sector based on dedicated, quality food and drinks products has emerged. The sector consists of 40-50 firms which employ approximately 400 full-time workers and produce in the vicinity of 110-125 different food products, ranging from industrial poultry products, cooking oils, to specialty beer, cheeses and other dairy products as well as a wide range of ice cream, chocolates and confectionary products. The restaurant sector is a dominant sub-niche-sector, boasting 5-10 restaurants, which base their cooking on high quality Bornholm food products.

A necessary prerequisite for the development of regional foods on Bornholm was and is Bornholm's status as tourist destination. Thus tourists already know the name and place of Bornholm and connect it with positive holiday destination memories. In extension to this, the existence of a local tourism

sector facilitates user-driven product development, in other words, tourism facilitates the possibility of bringing urban markets to the rural location during summer months.

However, there are a number of obvious prerequisites which Bornholm did NOT have, a primary one being the lack of a local culinary culture. Until the 1990s tourists and residents on Bornholm were offered the same food products as the rest of Denmark. An exception to this is the local traditional smoked herring, which in no way constitutes a stable part of Bornholm cuisine. Bornholm also did not have access to cheaper or better raw materials and did not have a terroir concept. Although Bornholm geographically is distinct from the rest of Denmark, there has been no tradition of emphasising distinct soil or weather conditions for agricultural products from Bornholm. Finally, Bornholm did not have any specific knowledge about small scale food production, nor a marked entrepreneurial or innovative tradition.

Innovation of a new economic niche quality food sector

In this section, we explore the actual innovations that have been developed on Bornholm. They fall into four categories:

- The development of new local food and drinks products
- Bringing the experience economy to Bornholm
- Forging a regional development platform for local foods
- Conceptualizing an invented culinary culture on Bornholm

New local food products and technologies

Although most of the new food products introduced above are marketed on a platform of originating from Bornholm, there is no formal or common definition of what constitutes a product 'Bornholmian', nor indeed what constitutes Bornholm quality: while some products are produced from raw materials grown on Bornholm, others are merely processed on the island and are made of ingredients which are not native to Northern Europe. Distribution also varies; while all regional food products are sold locally to a local tourist market, a growing number of products are 'exported' to the rest of Denmark as well as to international markets. Some products refer through name or graphics to Bornholm, while others merely refer to their Bornholmian origins through storytelling marketing.

A significant aspect of the emergence of a new Bornholm culinary culture has been the slightly delayed emergence of a related food and tourism sector: the restaurant sector. Restaurants on Bornholm have evolved from serving either the ubiquitous smoked herring or even more ubiquitous pizza and hamburgers, to boasting a small number of gourmet restaurants that specialize in servicing modern fusion cooking based on unique Bornholm ingredients and food products.

The primary actors involved in the emergence of new food products on Bornholm are the entrepreneurial individuals who own the food production companies, many of which have no more than 1-5 employees. The sector can be divided into three sub-groups: food producers who rely on direct sales to tourists on local markets; producers who rely on distribution of their products via retailers to markets outside Bornholm; and finally, the restaurant sector.

In terms of knowledge contexts in the development of new food products on Bornholm, the impetus has been the firms and the firm owners themselves, who on an individual basis have searched for knowledge about production methods for generic food products within branch specific knowledge chains through national and international professional communities. Knowledge about food production from quality in raw materials to production apparatuses and quality control are thus anchored in the individual firms and therefore a common knowledge base about specific food products or technical knowledge about small scale food production does not exist.

Bringing the experience economy to Bornholm

As an integral aspect of the development of new quality food products, a complex development has taken place whereby customers and producers are re-defining their market roles. This development may be termed 'the experience turn', by which is meant an increased focus on non-material product features such as narratives and images which relate to customers' perception, more than a focus on functions or services related to a particular product. This in turn is altering business strategies as well as local development strategies both in urban as well as in rural settings. It is a growing demand for meaningful experiences which is a driving force in the experience economy, and which presents many opportunities to be exploited by firms relying on experience-based value creation; this goes for the creative industries as well as for tourism industries and the quality food sector.

On Bornholm regional food consumers have evolved from being mere consumers to being visitors, who are interested not only in the end-food-product, but who seek information about raw materials, production processes and, not least, stories about the producers themselves and their new businesses. A number of producers give consumers access to their small scale production facilities, including themselves as 'entrepreneurs with an attitude', while others organise attendance-based experiences, which directly engage consumers. A number of event-based tourist products have been developed, including culinary bus tours and cooking events which draw renowned chefs from outside Bornholm to cooking contents using Bornholm food products. In short, a number of food-based tourist activities have evolved which engage food consumers in the production and consumption of quality foods with a local origin.

Simultaneously, a growing number of firms undertook firm and product branding processes, involving professional marketing firms. A few consultancy firms have played a remarkable catalytic and intermediating role in the development of experience elements and have provided much of the knowledge that defines the producer-side of the experience and authenticity staging, i.e. graphic design, marketing, communication and storytelling, branding and strategic experience management inputs. This relatively small group of consultants, who moved to Bornholm from marketing and design firms in Copenhagen, engaged local food producers in knowledge processes, allowing producers to define themselves from 'outside' and perceive their specific individual food product in a culinary cultural context and to develop experience elements as a more or less dominant aspect of their business models. The result of the input of these consultants has been the construction of a conceptual understanding amongst food producers about the implications of running experience and value based businesses.

Forging a regional development platform for regional foods

Since the mid 1990s and until the present, local food firm owners and idealist regional development agents have forged a regional food networking platform from which Bornholm regional food products are marketed collectively and are on their way to forming joint distribution channels for food products sold outside Bornholm. Although the platform first and foremost is a practical organisational arrangement, the development process toward a collective food networking platform has concomitantly conceptualised a joint culinary culture on Bornholm. In other words, food producers have evolved from focusing on their own singular products to conceptualising their products as part of an emerging specialised food sector and even a new culinary culture.

The development toward a regional food networking platform has been long and not without conflict, it has taken time for food firm owners to perceive their own entrepreneurial aspirations to be part of a market trend and to conceive other food producers on Bornholm as supporting the development of a local market, rather than as mere competitors.

Although the food network is a very locally based and locally driven platform, its development has been inspired by ideas stemming from other rural regions in Europe and expressed in the formation of the pan-European Regional Culinary Heritage Association. This formal network was initiated in the mid 1990s in a collaborative effort between the local agricultural development centre on Bornholm and Southern Swedish interest groups. The network has since developed into a European association, the purpose of which is to enhance and develop culinary culture and heritage in different European rural regions. The Bornholm association has focused its activities on sector-crossing

cooperation between food and tourism including the restaurant sector and has thus supported the branding of Bornholm as a tourist destination rich in culinary culture. The Regional Culinary Heritage Association primarily focuses on local markets and targets tourists who visit different rural regions in Europe.

As an increasing number of entrepreneurs started setting up successful businesses within the quality food sector, an increasing number had aspirations of large scale production and to reach markets outside Bornholm. To support such developments, local policymaking, in the form of the Local Action Group under the EU Rural Development Program as well as regional and municipal development agents with access to European Structural Funding, adopted strategies in support of the development of regional foods. This led to a series of regional food development projects, resulting in the foundation of a Regional Food Show Room at Gudhjem Mill and to the development of a food ambassador position, which functioned from 2003-2005.

The food ambassador helped market the comprehensive concept of Bornholm culinary culture collectively as well as specific food products and brands. The food ambassador focused on food firms that were able and willing to ensure regular production output and had secure distribution channels outside Bornholm. This was not without conflict, but in the long run, this strategy has created a close, trust-based relationship between 10-12 food producers who at present form the nucleus of a formal micro-cluster network called Gourmet Bornholm.

Although this development has been inspired by amateur idealists as well as professional networking and marketing agents, the knowledge about the marketing of small scale food products as well as the conceptualisation of a regional food sector, is local and place-specific. At the time the networks were forming, the concept of regional food platforms in Denmark was at an embryonic stage and the knowledge generated in the food networks was based on learning by doing and interpersonal relations.

Conceptualising a culinary culture on Bornholm

Comprehensively, the development of new food products and a rejuvenated restaurant sector; the development of experience elements to enhance customer engagement; and the evolution of a regional food networking platform, has not only created a new niche economic sector on the island of Bornholm, but has reinvented Bornholm as a tourist destination.

For many decades, Bornholm has been a distinct Danish tourist destination which offered unique geological attractions and sandy beaches in a typical rural setting. Inhabitants speak a unique dialect, Bornholm's history is wrought with supremacy battles, where Sweden, Russia and Germany in turn have ruled over the island. Touristic products on the island consisted primarily of access to natural attractions, bathing and swimming activities and a taste of the

traditional smoked herring. With the emergence during the past 10-15 years of a number of new food and drink products as well as tourist activities and experiences offered as part of the product, a new dimension has been added to Bornholm as a destination.

These new types of touristic food offers have for some tourist segments evolved from being something tourists do when they are on Bornholm, to becoming a reason to go to Bornholm.

The close connection between a local place brand with local food and local culinary culture, which is so evident in for example Southern Europe, is novel in a Scandinavian context. On Bornholm, local food products do not have an apparent local heritage connection. Thus the collective producer marketing of local foods has evolved into a conceptualisation of a local culinary culture built up within the past 15 years. This development has been influenced by and is a local counterpart of the development on a national and Scandinavian level of the concept of New Nordic Kitchen described above.

In other words, the food products which have been developed on Bornholm are not traditional, local products, but are products and experiences which cater to a modern, perhaps urban, lifestyle and thus, potentially re-invent Bornholm for and by tourists, residents, as well as potential residents.

Discussion

An analysis of knowledge flows in and out of a location does not in itself explain why it has been possible to create a new economic sector on Bornholm, but it does explain how it is possible despite the lack of large business enterprises, institutionalised knowledge and research resources and specialised business support structures to generate regional innovation, if even on a small scale, in a peripheral area. The case of Bornholm foods shows the dependence of Bornholm firms on technical and generic food-specific knowledge chains from professional communities outside Bornholm and exposes the fragility of firm-based technical knowledge, which often rests on single entrepreneurs in small local firms. But it also brings to light a local knowledge base, which has been built up over the past 15 years, by which food producing entrepreneurs, local development agents, business service consultants and a small number of marketing firms have built up trust and networking capacities. The emergence of the new food sector is a result of favourable market conditions in conjunction with local passionate entrepreneurs who through local visionary and dedicated key agents were brought together on a joint marketing platform. The case is an example of how new developments and new products can be created even on small islands when focus is on possibilities rather than barriers and on a willingness to form trust-based collaborations.

In this chapter, 'place' has been used to connote both a physical place, i.e.

the peripheral location of islands separated from mainland spaces and urban centres and 'place' as a non-material construction defined by for example a specific cultural locality.

Looking at peripheral islands as geographical places, the barriers for local development are those which most readily spring to mind in that physical distance makes accessibility to markets, raw materials, production facilities, knowledge institutions and specialised business consultancies difficult. Yet, we see that connections between local and non-local knowledge resources do exist and can be developed and utilised. And in the perception of islands as construed places, peripheral islands have definite advantages, in that they seemingly are a simple concept to fathom and constructing a distinct local culture, which "sticks out" in a globalised world seems to be rather straight forward. Other regions of Denmark, including less peripheral islands such as Fynen, face difficulties in defining their 'regional food culture', whereas peripheral and small islands have successfully marketed place-specific quality food products, for example Læsø salt and Samsø potatoes.

Bornholm and Bornholm food producers, however, should not rest on their laurels. As long as it is unclear WHAT it is that constitutes the quality in Bornholm regional foods and as long as we know as little as we do about what engages consumers in different quality turns, Bornholm and other peripheral islands may soon experience consumers who have lost interest and moved on to new consumption trends.

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TOURISM ON ISLANDS

– a way to Economic Development?



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Introduction

The income and employment situation within economic sectors such as agriculture, fishery and other traditional industrial production areas have for many years experienced development challenges on islands and in peripheral areas. Development within the tourism sector is considered as a possible and promising strategy for many islands and peripheral municipalities.

The main purpose of this chapter is to focus on the tourism development programmes on a selected number of peripheral Danish islands. The chapter tries to shed light on the possibilities in tourism development on the islands and gives an analysis based on economic models. By applying the rather reliable data from tourism statistics and tourism surveys, we give a description of the expected economic benefits on the local economies by increasing the tourism demand on the islands.

Background information about the overall economic situations on the Danish islands described in this chapter can be found on page 31. The information is based on statistical data at municipal, regional and national level. Denmark is a country of islands. Therefore, we have based our research on a number of peripheral islands and compared them with a number of urban areas. The peripheral Danish islands which are treated in this chapter are: Bornholm, Samsø, Læsø, Fanø, Ærø, Langeland, Lolland/Falster (Guldborgsund municipality) and Morsø.

The chapter has the following sections: in the first section the tourism status on the islands is compared with the urban tourism situation followed

by a description of the tourism supply and demand situation as well as the economic impact of tourism on the selected Danish islands is discussed. The relative shares of tourism on the islands and in the selected peripheral areas reveal that tourism plays a relatively important role for the island economies. In the second section, we describe the efforts made by the islands' and peripheral municipalities by discussing the role of European Structural Funds on local tourism strategies. The third and final section gives an evaluation of development programmes and the effects of strategies and discusses whether local areas have benefitted from them.

The income problem on the islands

As seen in Figure 1. the usual earning problem for islands and remote regions is that gross value added per employment is lower than the average earning in Denmark. Firstly the income is below the general income level in the country as a whole¹ and secondly, island inhabitants have difficulties keeping pace with the general income development in the country. This is partly due to the prevailing economic structure on the islands, while a contributory explanation is due to the lack of earning potential due to decrease in population on the islands.

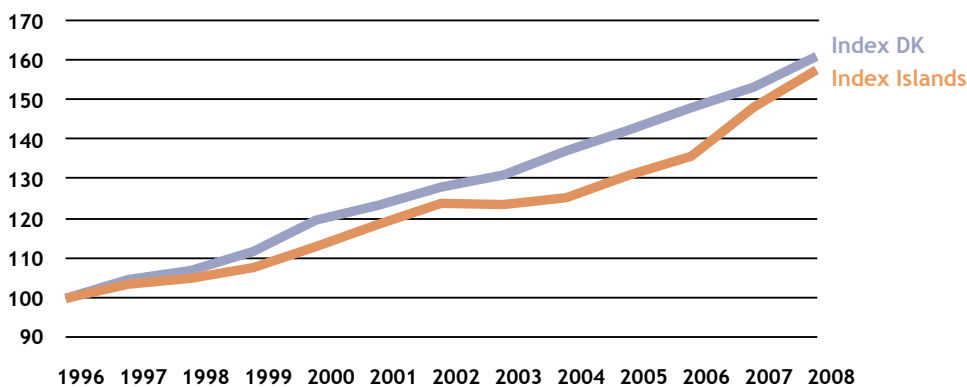


Figure 1: The income problem on the islands in the study (Index)

The importance of tourism on the islands

We have analysed tourism demand data, namely the number of bed nights and tourism revenues on the islands, to give a picture of local tourism. Secondly, we have compared the tourism supply and demand shares on the islands with the shares in urban areas. The relative shares of tourism supply and demand give a fuller description regarding the importance of tourism at the regional level.

¹ Island Gross value Product is only 88% of national Gross Value Product (1988)

Tourism demand analysis

What are the dominant accommodation choices for tourists' overnight stays on the islands and which products do tourists consume on the islands? Since there are huge differences in tourists' consumption patterns and levels depending on the type of accommodation, tourist bed nights on the islands compared with tourism in Danish cities are shown by the accommodation. This information will help us to understand tourism demand specific to the Danish islands.

%	Hotels	Holiday centre	Camping	Hostels	Summer cottages	SUM
Bornholm	17.2	9.2	14.5	2.3	56.8	100
Fanø	0.0	8.1	13.5	0.0	78.4	100
Læsø	2.0	8.7	12.2	3.6	73.5	100
Samsø	4.7	0.0	32.7	1.9	60.6	100
Ærø	27.8	0.0	26.6	5.7	39.9	100
Guldborgsund	5.5	10.5	18.9	1.6	63.4	100
Langeland	6.2	4.1	29.7	0.6	59.4	100
Lolland	4.8	60.0	10.2	0.7	24.3	100
Morsø	3.8	21.9	44.8	1.9	27.5	100
København	75.9	0.0	15.1	8.5	0.5	100
Århus	58.4	0.0	16.0	2.6	23.0	100
Aalborg	30.5	0.0	14.9	1.2	53.3	100
Odense	74.1	0.0	19.1	6.8	0.0	100
Esbjerg	26.5	14.0	30.1	6.1	23.3	100
Vejle	39.1	0.0	41.1	3.4	16.4	100
Denmark	20.8	6.7	23.1	2.2	47.2	100

Table 1: Shares of tourist bed nights by accommodation types on islands and urban municipalities
Data source: TOEBBE data 2006 and own calculation.
Note: accommodation types shown here include the main commercial types.

Table 1 shows that summer cottages are the main accommodation type on the selected Danish islands compared to the urban regions, where hotels are the dominant accommodation type for tourists. Comparing tourist choice of accommodation between domestic and foreign tourists, foreign tourists

prefer to stay in summer cottages. On average, 67% of foreign tourists stayed in summer cottage on the islands, while 48% of domestic tourists stayed in summer cottages. 54% of total tourists choose summer cottages on the islands. The exception is the peripheral area of Lolland; the main accommodation type here is holiday centres (60%). Staying at camping sites is also popular on the islands, but is a little lower than the national average (23%).

%	Hotels	Holiday centre	Camping	Hostels	Summer cottages	SUM
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København	75.9	0.0	15.1	8.5	0.5	100
Århus	58.4	0.0	16.0	2.6	23.0	100
Aalborg	30.5	0.0	14.9	1.2	53.3	100
Odense	74.1	0.0	19.1	6.8	0.0	100
Esbjerg	26.5	14.0	30.1	6.1	23.3	100
Vejle	39.1	0.0	41.1	3.4	16.4	100
Denmark	20.8	6.7	23.1	2.2	47.2	100

Table 2: Shares of tourism revenue from overnight tourists by accommodation types on islands. Note: accommodation types shown here include the main commercial types.

Table 2 shows the same patterns for accommodation types: the dominant accommodation type on the islands is summer cottages, while in the urban municipalities hotels are the main accommodation type, apart from a few exceptions like Aalborg and Vejle. Tourists' average consumption at summer cottages and camping sites are lower than average consumption of hotel tourists, and at the same time summer cottages and camping sites have less employment

per tourist than hotels. In general tourism income and employment creation by the same number of tourist bed nights is therefore lower on the islands than in urban regions.

The economic and employment effects of tourism on the islands

This section is intended to show the economic importance of tourism on the islands compared to the economic importance of tourism in other areas of Denmark. We have chosen to compare tourism on the selected islands and peripheral areas with tourism in the major cities in Denmark and tourism in Denmark as a whole.

The problem in measuring the economic importance of tourism is that – in popular terms – tourism to a great extent can be termed a demand-oriented phenomenon rather than be defined as a classic industry or specific sector in the economy. The reason is that tourism has greater economic importance for many other sectors of the economy than if measured solely based on the traditional tourist industries, such as the hotel and restaurant businesses. In this study we have tried to address this problem by using the so-called tourism satellite accounts, which is a method to make tourism accounts for the total tourism revenue in a country or region.

“Tourism Satellite Account (TSA)” is a special account that deals with a specific set of statistics for human activities called tourism. United Nations World Tourism Organisation (UNWTO) defines tourism as “specific types of trips: those that take a travel/trip outside his/her usual environment for less than a year and for a main purpose other than to be employed by a resident entity in the place he/she visited”. Firstly, tourists should be distinguished from the residents and non-residents of a country. Secondly, the TSA is a “satellite” to the national accounts, meaning it is a special account addressing only tourism activities, whilst, at the same time, it remains consistent and linked with the national accounts. Finally, the TSA is a set of accounts, namely a set of tables that is arranged in accordance with internationally agreed formats.

The term Tourism supply share is an indication of the share of the employment in the tourism branches, for example, hotels, restaurants, travel agencies and other tourism services. From table 3 we can see that tourism supply shares in the island municipalities are much higher than the average in Denmark. The peripheral municipalities are also higher than the average in Denmark; however, most urban municipalities are lower than the average, except Copenhagen.

Tourism demand share is calculated by the share of tourism expenditure in the total local private consumption. In other words, it shows directly how much tourism consumption accounts for in the local consumption. Table 3 shows that the island municipalities have much higher shares of tourism demand compared with the average (9.4%) of Denmark. The tourism demand share at

	TOURISM SUPPLY	TOURISM DEMAND	
Bornholm	9.5	20.5	ISLAND/PERIPHERAL MUNICIPALITIES
Fanø	15.2	64.6	
Læsø	17.8	31.4	
Samsø	14	17.7	
Ærø	11	10.4	
Guldborgsund	4.9	7.4	
Langeland	6.4	21	
Lolland	5.3	8.7	
Morsø	5.7	5	
København	7.1	23	URBAN MUNICIPALITIES
Århus	4.2	7.3	
Aalborg	4.8	11.2	
Odense	4.7	6	
Esbjerg	4.2	3.8	
Vejle	4.4	8.8	
Denmark	4.84	9.42	

Table 3:
Tourism supply and demand shares on the islands

the small island municipality of Fanø is 64.6%, which is due to the fact that while there are only 3200 inhabitants on the island, there are over 1 million tourist bed nights on the island. The same reason resident-tourist ratio can explain the higher tourism demand shares on Læsø and Bornholm.

Tourism economic and employment impacts can be seen both by the absolute contribution by tourism and by the relative contribution to the economies. Seen from the absolute number of employment numbers created by tourism, island tourism creation is very small. (It might create only a couple of hundred employment positions). However, if we measure tourism creation from the relative point of view – i.e. the share of tourism employment creation in the total employment, tourism plays an important role in island employment.

Table 4 shows the shares of the employment generated directly, indirectly and induced by tourism in total local employment. For example, tourism generated 18% of direct employment on Fanø, while tourism generated 6,3 % of direct employment on Bornholm.

	DIRECT EFFECT				TOTAL EFFECT * (direct, indirect and induced)			
	municipality		Denmark		municipality		Denmark	
	number of jobs	(%)	number of jobs	(%)	number of jobs	(%)	number of jobs	(%)
Bornholm	1216	6.3	1360	7.1	1514	7.9	2385	12.4
Guldborgsund	485	1.8	692	2.6	586	2.2	1156	4.4
Lolland	385	2.0	602	3.1	456	2.4	1035	5.3
Fanø	203	18.0	307	27.1	234	20.7	526	46.5
Langeland	168	3.0	365	6.6	189	3.4	660	11.9
Ærø	71	2.7	104	4.0	83	3.2	177	6.8
Samsø	51	2.8	82	4.5	61	3.3	158	8.6
Læsø	74	6.8	106	9.8	86	8.0	182	16.8
Morsø	65	0.7	145	1.5	78	0.8	263	2.6
Denmark	55333	2.0	71571	2.6	69850	2.5	126890	4.6

Table 4: Tourism job creation on the islands
(in absolute number of jobs, and in % of employment in parentheses)

Notes: the table indicates absolute number of jobs in the tourism sector. Percentages indicated in parentheses, are the percentage of job generated by tourism divided by the total numbers of employment in the municipality.

*Total effects are effects including direct, indirect and induced effects generated by tourism.

The direct tourism impact is calculated by a modelling approach². The Danish regional economic model, LINE, is applied in the analysis. When we experience fluctuations in tourism demand, the model responds to such changes at the place of tourism demand/ the tourism destination). The changes in tourism demand bring changes in production sectors that directly provide products or services to tourists. For example, more tourists stay at hotels, the hotel sector will increase their production – not only engage more persons at the hotels, but hotels will also need to buy an increased number of other products, such as food, drinks, laundry, and furniture. This is called intermediate consumption, which is directly increased by the increase in tourism demand. These products can be bought from other regions than the place of tourism demand, providing

² This is because we do not have statistical inventories showing induced effects of different aspects of tourism.

an increase in production in other regions. Therefore Table 4 indicates both the direct employment effects in the local municipality as well as the total effect, including other regions.

In Table 4 it is also possible to see the shares of employment generated totally (i.e. directly, indirectly and induced effects) by tourism in local employment. It shows, for example, that tourism has generated 20% of employment in Fanø municipality. If we added the employment generated in other regions by tourism on Fanø, it accounts for 45% of the employment on Fanø all together. This means that tourism on Fanø creates employment for the other regions that equals 25% of employment on Fanø. Tourism on Bornholm has generated 1513 jobs (about 8% of employment on Bornholm), at the same time it also creates 870 jobs (about 4.5% of employment on Bornholm) in other regions. In general, the figure shows that most of the selected islands have higher shares of tourism employment generation than compared to the average (4%) level in Denmark.

Tourism development programmes

Support for business development, including supporting the development of tourism is spread across a number of supranational, national, regional and municipality support systems and programmes. Therefore, it is exceedingly difficult to obtain an overview of the overall public support for the tourism sector in Denmark. As regards EU support, however, a central database of the various funded projects has been established and therefore this study will focus on EU-funded aid projects.

However, there are several methodological problems related to quantification of the extent of support targeted tourism on the selected islands. One methodological hindrance is that EU support may be targeted several economic sectors and industries, thus making it difficult to pinpoint project support specifically targeted the tourism sector. The other is related to projects which cover larger areas than the selected islands, making it difficult to assess direct benefits to the islands.

Secondly, many EU funded projects vary widely in their structure and goals. Some projects have primarily targeted support for physical investments where other projects have primarily focused on marketing and competency building.

Finally, it should be noted that the EU financed projects represent only a (small) part of total investment targeted development of tourism on the islands. Thus, for example, national investment in the islands’ infrastructure (in the form of roads, bridges and road connections), in most cases have a much greater impact on the islands’ tourism sector than ever so many projects in areas such as skills development or marketing.

There is no doubt that the level of EU structural Funds partially targeted

tourism development projects on the islands is a poor measure of overall support for tourism on the islands.

The European Regional Development Fund (ERDF) 2000-2006 programme was designed to enhance business development and transition in disadvantaged areas through grants to private and public projects. The ERDF was directed towards the development of framework conditions and business development for especially small and medium enterprises.

The European Social Fund (ESF) 2000-2006 programme was designed to enhance business development and transition in disadvantaged areas through grants to private and public projects. The Social Fund was directed towards skills development. One important aim was to reduce unemployment, encourage integration of vulnerable groups in employment and to train and develop the skills of the workforce. In addition the aim was to identify future competency skills.

ERDF Projects

In the period 2000-2006 a total of 154 projects in Denmark focusing on tourism development in one or another extent received ERDF funding. 27 of these projects specifically mention the island communities/municipalities as a part of those targeted by the project. In many of the projects, tourism only constituted a smaller part of the project purpose.

Social Fund Projects

The European Social Fund is EU capital to support innovative projects at work in member countries. The projects serve as methodological and other project experiments which supplement the ordinary Danish efforts in the labour market. The objective is to strengthen employment and regional growth. The fund intermediates approximately 500 million DKK per year. In the period 2000-2006 a total of 32 Social Fund projects focusing on skills development in tourism received support. 8 of these projects specifically mention some of the selected islands

	Support 2000-2007 mio. DKK	Support pct. of tourism revenue 2000	Support pr. inhabitant in 2000 DKK
Bornholm	21.6	1.80%	491
Samsø	6.6	10.30%	1547
Morsø	2.9	1.80%	127
Fanø	0.7	0.20%	218

Table 5: Tourism support, EU financed projects in the period 2000–2007

municipalities as part of the target group for the project. Again, in many of the projects tourism only constitutes a smaller part of the project purpose.

Table 5 shows an overview of the islands that have given the largest amount of economic support to their tourist sector with the use of EU funds. In addition, the island of Lolland and the municipality of Guldborgsund, covering part of Lolland and the island of Falster, have also used EU funds targeted the development of their tourism sector, but to a lesser extent than the islands mentions in the table. Measured in absolute values Bornholm leads in terms of economic support, but in relation to tourism revenue as well as in relation to number of inhabitants on the island, the table shows that the island of Samsø–without comparison – is at the top of the list.

In any case it is seen that the volume of aid projects is limited. The total funded projects in eight years represents only between 0.2 and 10% of tourist revenue in a single year. With so few investments it is already at the starting point doubtful whether it is possible to register any measurable effect of efforts.

Evaluation of effects

A general question is how to measure the effect of the support? The final goal of the different support schemes is often “to improve living condition or the quality of life for inhabitants on the island or in the peripheral areas”. Not necessarily the easiest targets to evaluate, but usually a boost in the level of earnings is seen as a good indicator of improved living conditions. In this study, the implemented funding schemes, however, are of such a limited size that we cannot expect a discernable effect neither for the general income level nor with respect to income levels in the tourist industry in general. Therefore we have used an indirect indicator, namely the number of bed nights. It is indirectly assumed that an increasing number of bed nights are a prerequisite for increased income and improved living conditions in the selected islands. We realize the use of indirect indicators is debatable.

In relative terms Ærø, Guldborgsund and Morsø have the greatest increase in the number of bed nights but in absolute and relative terms Bornholm and Samsø have the highest support level.

In this study there is no relation between the level of EU support and the registered change in the number of bed nights and thus it hasn’t been possible to show any effect of the support. The main problem in this study has been to find credible proof for actual public investments within the tourism sector. We have no doubt that public investment in the islands’ tourism sector have been considerably greater than those we have been able to detect in this study. The problem is obtaining reliable and valid data for the type and extent of public investment compared to the provision of reliable data concerning employment- and earnings consequences from a change in tourist volume.

	2002	2008	Change
Bornholm	1,564,082	1,581,726	1.10%
Fanø		479,415	
Læsø	105,736	89,996	14.90%
Samsø	104,433	106,595	6.60%
Ærø	40,907	78,057	90.80%
Guldborgsund	606,613	918,468	51.40%
Langeland	359,127	489,880	36.40%
Lolland	1,182,852	1,040,242	-12.10%
Morsø	218,763	324,806	48.50%

Table 6:
Comparable number of bed nights at the start and end of the EU structural funds programme on the islands in the study

There is obviously some uncertainty associated with quantification of tourists’ consumption patterns, but the biggest uncertainty is, however, to identify public investment and other actions affecting the islands’ tourism. In practice, the most important investments for island tourism can easily “be hidden” in a public infrastructure project, which (formally) does not mention tourism as a specific target for the concerned actions.

The study shows a need for the development of methods for identification and categorization of public policies with potential impacts on tourism.

Conclusion and final remarks

Danish islands and peripheral areas suffer from depopulation and lower gross value-added per employment than the average earning in Denmark. We argue in this article that tourism is one of the better strategies for islands and peripheral municipalities to create further development. This point of view is supported by the evidence showing that tourism plays a relatively more important role on the islands and peripheral municipalities than in Denmark as a whole, through our analysis of tourism supply and demand, and tourism job creation. The tourism demand analysis has also shown that tourism on the islands is dominated by summer cottage and camping accommodation types. In the other words, island tourists are relatively lower budget tourists than hotel tourists and business tourists. In order to raise tourism revenues on Danish islands, one solution could be to increase the quality of the tourism industry service in order to attract more high value tourists.

The questions raised in this article concern how to find better ways to improve

investment and competitiveness in the tourism industry on peripheral Danish islands. We have investigated EU funded projects on the islands and peripheral municipalities. These projects include the European Regional Development Fund (ERDF) and the European Social Fund (ESF). It is shown that by absolute value of EU support funding, Bornholm received the highest absolute support among the selected islands. However, when we measured EU funding in relation to tourism revenue and in relation to number of inhabitants on the island, Samsø has received much more economic support per tourism revenue and per inhabitant, than any other of the selected islands. For example Samsø got 5.7 times more funding per tourism revenue than Bornholm or 3.15 times more funding per inhabitant than Bornholm.

The focus in the final section of this chapter has been to discuss the linkage between the EU funding on the tourism sectors and effects of support on the economy. We identified problems to obtain reliable data for the direct linkage. Firstly, it is difficult to associate public funding with changes in tourism volume – how can changes in tourism revenue which might be caused by different factors, such as public investment, private investment and destination marketing be distinguished from each other? Secondly, many important investments on the islands may not be indicated directly as tourism projects, for example public infrastructure improvements; therefore, it is impossible to associate them directly with tourism industries.

This study is based entirely on register data and should allow the implementation of a reliable and comparable study between public tourism investments on the one hand, and secondary effects on earnings and employment on the other. The study has proved that we may undertake parallel efforts (for example in the form of interviewing tourist operators in selected areas) to qualify the available register data to get a reliable data base.

SECTION

IV

Island Sustainability: Capacity Building and Knowledge Promotion

CONTRIBUTING TO A SUSTAINABLE ISLAND



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As the world changes, unique communities are more precious and islands have an edge in preserving and enhancing their special qualities and assets.

Isolated islands increasingly offer themselves as labs, microcosms, and prospective models for larger ecosystems. Their relative geographic isolation and generally smaller sizes present cultural, natural resource, economic and energy management microcosms. These potential island models are addressing similar issues that may be examined for their applicability to other islands and even larger geographies. All islands generally face the same challenges: energy, water, waste management, and sustainable economic development.

The general nature of islands tends to isolate them from resources, assistance, communications and collaborative opportunities. Islands, however, may offer demonstration sites and potential sustainable solutions to common challenges. On Maui and Bornholm energy generation, efficiency and conservation invite public and private interest to explore new relationships to production, distribution storage and other challenges. Bornholm's theme of the "Bright Green Island" mirrors the hopes of our Maui island community.

Since 1990, University of Hawai'i (UH) Maui Community College, now University of Hawai'i Maui College (UHMC), has identified institutional and island-wide sustainability as a priority. Starting with a commitment to improve the well-being and conditions on Maui and other islands in the world, UHMC seeks to identify common priorities shared between Bornholm and Maui islands as a basis for deepening the exploration and discovery of such understanding with still more islands. It may be useful to note that our islands are antipodes. They sit almost exactly on the opposite sides of the world...in time zones exactly 12 hours away.

The Centre for Regional and Tourism Research (CRT) on Bornholm, in cooperation with Roskilde University, will initially frame the parameters of 'capacity building' and characterize the backgrounds on the respective islands. This specific discussion reports on UHMC's elevation of 'sustainability' to an island-wide goal to coincide with broad community interest and potential benefit. The higher education experience on Maui may be of special interest for our partners on Bornholm.

On Maui, 'Capacity Building' emerged from a recognition of sustainability needs, opportunities and aspirations that required education at all levels. Starting with the downturn in the fishing industry on Bornholm and the economic decline in tourism and agriculture on Maui, the leadership of both islands began re-examining the future of our two islands. For Maui, capacity building required UHMC's alignment with community, political, and business priorities. Leveraging Maui's notoriety as Conde' Nast's "top island in the world," the largest economic sector, tourism, understood the connection between the visitor experience and sustaining the island's natural and cultural assets. Complementing visitor industry and community recognition of environmental challenges, strengthening resident choices through education began early in Hawai'i and continues to grow. The high costs of gasoline and electricity in Maui County compared with the rest of the state and country continue to motivate our state and tri-isle community's concern.



*Kahoolawe, Lanai, Maui (largest in the foreground)
and Molokai (Islands Pictured Left to Right)*

In 1853, the first high school west of the Rocky Mountains on the mainland United States was established on Maui, Lahainaluna High School. Over the past five decades, public, private and higher education in tri-isle Maui County expanded dramatically.

In fall 2011, UHMC enrolled 4,529 students and represents the largest part of a ten campus University of Hawai'i System outside of Oahu, the most populous island in the state and the location of Honolulu. UHMC's focus on institutional strategies for introducing and designing renewable energy solutions, including energy conservation, energy efficiency, and renewable energy generation and storage, stem from our island-, county- and state-wide as well as national and global energy concerns.

Our UHMC 2003-2010 Strategic Plan proposed to create a college or institutional example of a 'sustainable' institution...examining all planning, learning, financing, facilities maintenance and human resources support. Over the past twenty years, the college has challenged its architects to design and renovate the campus to include the most recent technologies that reduce energy consumption and extend the life of buildings on a campus within 100 meters from the ocean and its balmy but corrosive breezes. Large five-foot eaves that cool the sides of structures with 75 year-rated tiled roofs (that will hopefully last much longer) were constructed to help reduce long-term air conditioning costs. Initially-expensive but salt-tolerant copper gutters were installed to prevent costly continual replacements using other materials. Sustainable materials, technological and design solutions have been part of doubling the square footage of campus facilities over the last two decades. In the past year, UHMC contracted with an energy services company to complete an investment grade or comprehensive energy audit and a plan for photo voltaic, wind, and other possible energy generation, efficiency, conservation and storage solutions for our campus. These technical responses might also be appropriate for islands at or close to Maui's latitude. Recycling and sustainable approaches to campus landscaping are further being discussed as part of the campus-wide sustainability implementation effort. These approaches form the basis for responding to students' interest in authentic courses and programs offering practical, working examples of how a college might teach by example.

Complementing and partially building upon a two-year Sustainable Construction Technology associate degree, a new 'Sustainable Sciences Management' bachelor's degree in applied sciences is under development. The degree program will include installation, maintenance, measurement and verification of performance data, and will prepare graduates to integrate the full range of management and technical considerations in designing, financing, implementing and evaluating comprehensive sustainable solutions for small- and mid-sized businesses, 80 percent of the state's economy.

The high cost of shipping manufactured products between islands and outside of Hawai'i makes large volumes of the goods exported essential. Therefore, agricultural exports such as sugar have continued to dominate goods shipped from Maui to the mainland United States. Pineapple exports have disappeared from Lanai and have declined on Maui. Sugar still dominates the export landscape with seed corn growing rapidly over the last ten years. The island economy has attempted to diversify its reliance on the visitor industry to encourage high technology based on astronomy and space surveillance from one of the world's best viewing sites atop Mt. Haleakala. However, the economic recession over the past two years has affected most businesses and particularly the real estate and construction sectors.

As the economy recovers, Maui's economic future will depend upon the small business and innovative sectors that are agile and responsive to resident and visitors' tastes, changes, likes and dislikes. Like Bornholm, the resilience of the arts is evident in small galleries, shops, boutiques, theater companies and new dining alternatives that are more affordable. More Maui products are being produced for visitors and residents as gifts including jewelry, jams, cookies, etc. that express a unique Maui brand or flavor.

More 'green technology' businesses are also emerging. From wind farms to solar photo-voltaic and solar hot water heating companies, more 'green' businesses are finding a home on Maui. With the high cost of energy, more hotels are actively employing strategies and people that can save electricity and water, reduce waste, and generally find or add value to their services and guest experiences without adding costs. State and county governments are also looking to designate agricultural land that would be devoted to increase food production as a larger sector of the economy. Lower agricultural water rates and other incentives to reduce dependency on imported and more expensive food and increase the food security of our islands are being considered.

For UH Maui College, the near-term sustainability emphasis will be on efficiently managing our electricity consumption even as our enrollment grows in record numbers, over one-third in three years. Generating renewable energy from photo-voltaic panels covering a parking lot, rooftops, and eventually walkways will be part of a comprehensive energy management strategy. To connect our sustainability philosophy with our overall campus and curricular decisions, the College seeks to educate its students and island communities by demonstrating energy- and cost-savings through real examples that will yield real-time measurable data for each of our initiatives. The connection between cost of electricity consumption and educational funds to improve the quality of learning, technologies, facilities, and services will be highlighted on kiosks around the campus. Details of photo-voltaic panel electricity production, building power consumption and air-conditioning temperatures will be

dynamically reported to indicate the relationships among building occupant choices, electricity consumed, and added costs and/or savings generated. This information will be available on our UHMC website, available to students and faculty, and monitored by the appropriate staff. These specifics will further serve as student and community tools to accelerate the learning and acceptance of the power of demonstrations to inspire and sustain change in island energy solutions.

In addition to our latest Sustainable Science Management four-year degree, the UHMC Sustainable Living Institute of Maui (SLIM) and our Continuing Education non-credit programs have been offering "community-based renewable energy management," residential photo-voltaic installation and hot-water heating workshops. Added linkages with such industry partners as Johnson Controls Inc. provide national expertise. The College created a "request for proposal" to forge the first major renewable energy industry-higher education partnership in the state.

To keep abreast of the latest renewable energy-related innovations, UHMC enjoys a relationship with the University of California at San Diego and its research and development initiatives. UHMC faculty and students increasingly access emerging and applicable solutions for Maui and other islands provided by UCSD and its networks. UCSD assistance with assessments of UHMC's proposed solutions for energy management has been invaluable. Their willingness to partner in grant applications has been a further indicator of the growing value of this partnership.

Key to UHMC and Maui's future will be partners in government, industry, research, and other similarly-oriented entities like those on Bornholm. As the antipode of Bornholm, or the exact opposite side of the world in time, UHMC and our Maui community will benefit from what continues to be discovered and uncovered on our islands and in communities between us. We look forward to learning more from you and to sharing our progress with the "Bright Green Island" on the other side of the world.

For a comprehensive case study on sustainable energy and sustainable living on Hawai'i please see Joie Taylor's chapter in this book.

MOLLY

establishing university driven development on an island



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The education project 'Master in Experience Leadership in Peripheral Areas', colloquially known as MOLLY, is a project that seeks to develop methods of offering Master's degree programmes to peripheral areas and islands that are far from learning centres and educational institutes.

This article is a description of how the Centre for Regional and Tourism Research in practice has worked with the development of a model for organising and offering university education, which can contribute to how Bornholm and other peripheral areas may fully utilise and adapt to the potentials ingrained in the development of an increasingly complex knowledge society and the continuous individual demand for meaning and experiences within both work and private life spheres. The Master's degree programme takes its point of departure from a theoretical research-based background and is locally rooted in a practice-based close cooperation between a number of players and stakeholders across several sectors as well as across public and private enterprise. The article is also a description of the challenges, achievements and perspectives the programme has resulted in for a peripheral area such as Bornholm.

The current educational landscape in Denmark

Knowledge and the employment of persons with a higher education within trades and businesses which do not traditionally use people with a higher education, is considered to be a major growth driver both in Denmark and internationally. At the same time, globalisation and technological developments lead a growing demand for human resources with, not only a higher education, but theoretical and practical skills that meet society's demands for new skills, new knowledge inputs and, not least, new methods which in an increasingly global world can ensure the continued competitiveness of both public and private companies and organisations.

Both the demands of globalisation and Denmark's desire to be internationally competitive in terms of knowledge, has led to a strong tendency to strengthen university research and disseminate research-based teaching at university colleges. This has resulted in a wave of mergers throughout post-secondary education institutions in Denmark. Thus, a number of institutions which offer the 'professional bachelor education programmes' have merged and research resources have been allocated to them. The same situation characterises the universities, a number of which have merged, primarily in the major urban areas, in order to create research environments that are competitive internationally. This has resulted in, among other things, an increase in the number of published international articles, as well as a higher ranking on international publication lists.

The Danish Ministry of Science, Technology and Innovation is, meanwhile, working to help the universities gain a larger share of the continuing education programmes targeting the highly educated. Seen as a whole, the result of the different changes is an increase in size and strength of universities and a centralisation of the universities in the major urban areas. Moreover, it has resulted in universities being generally more oriented towards business, while there is an increased focus on subjects that provide access to research funds or possible institutional collaborations and synergies. Thus, the past few years have witnessed a trend toward increased amalgamation between research and business interests.

Frameworks for development on Bornholm

Globalisation and increased international competition also put their stamp on the market economy on islands such as Bornholm and other peripheral areas. The challenge in relation to the attraction, retention or training of the highly educated is particularly strong in Denmark's peripheral areas, while the job market and thus career opportunities remains limited. There is often a lack of large private companies or organisations with a tradition for employing highly

skilled labour which can be a driving force for development. On Bornholm this has increased pressure on the island's traditional industries, which in turn has resulted in job loss within the fishery and agricultural sectors as well as industrial production.

This development has led to a marked demand for upgrading competences among the local unskilled labour force, but has also meant a permanently high unemployment rate and a steadily declining population. Bornholm's future can, in this perspective, be seen as a continued loss of jobs and businesses.

Company closures and job loss is, however, only one dimension of development frameworks on Bornholm. Development conditions progress continuously; new opportunities are created, leaving a growing demand for authenticity and experiences in the work sphere as well as the private sphere. Bornholm, which through tourism is known in advance by the consumer, provides the setting for conceptualising the simple, authentic life, which can comply with consumers' demands for experiences and identity. This provides new market opportunities in relation to products and innovations within service and experience production, including the development of physical products and event production as well as initiatives and activities that can attract new inhabitants. The utilisation of these potentials requires organisations and companies that are able to conceptualise such opportunities and have the ability to develop. The problem is, however, that these companies and organizations are often quite small and lack the necessary knowledge and management resources to utilise the potentials of the experience economy. Tapping of the island's potentials thus depends on local, national or international players in the experience economy that are able to spot these opportunities and are willing to invest in them. For both Bornholm and the Danish peripheral areas in general it is a basic condition that innovation and development only happens in a community or partnership between smaller companies and that public/private collaboration is the prerequisite for creating the necessary strength behind development initiatives.

Therefore, strengthening the skills levels, specifically among local public and private managers and leaders, is necessary in order to fully exploit the potentials and opportunities which the experience economy and other changes in peripheral conditions create on Bornholm and in other peripheral areas.

Education and knowledge environments on Bornholm

Denmark has no tradition for utilising the location of universities in remote areas as part of a regional development strategy. There is no university on Bornholm that can be the backbone of or even support the development of the skills that are so vital in utilising the island's growth potentials. Instead, the





Danish government—as part of a national effort—established a local research centre, The Centre for Regional and Tourism Research (CRT), in 1994 on Bornholm. The Centre has since its inception developed a range of competencies within the fields of regional development, tourism and experience economy, but its core competence is the fusion or integration of these disciplines and their application in specific regional strategies

as well as in relation to knowledge input into corporate and organisational local development processes. Therefore, from the Ministry of Science, Technology and Innovation, from within the CRT and not least from the surrounding Bornholm community there is an expectation that CRT's knowledge production could and should be utilised and be part of education programmes at the higher level.

Bornholm's location and limited population size has in itself been a major barrier for establishing vocational and higher-level education programmes on the island. The local education landscape is characterised by educational programmes that target the island's own labour force, which in this context translates into public welfare professions such as teaching, nursing and social work—professions that have a sufficiently large local volume to ensure availability of jobs on the local labour market after graduation.

Experiences have been gained with education programmes developed by and academically and financially anchored in large educational institutions and research environments elsewhere in Denmark—primarily in the metropolitan areas. This has been the case for shorter academy educations, bachelor programmes as well as parts of Master's degree programmes, which were taught in a combination of e-learning and classroom teaching.

On this backdrop, strategic educational theorising, planning and prioritisation can be characterised as operating within two primary areas of implementation with the possibilities and limitations they carry:

1. The establishment of education programmes covering the current competency needs in relation to a local labour market.
2. The creation of a higher education environment through the development of unique educational programmes based on the island's specific conditions.

With these two priorities as a joint point of departure, combined with the co-location of all university degree programmes, the intention has been to create synergy between higher education programmes, which could function as a platform for future developments. However, it must be noted that although both strategies have been followed, their implementation has not been sufficient to fulfil local educational needs, let alone to create a basis for establishing a higher education environment in a way that could support the development of

unique educational programmes that can strengthen and utilise Bornholm's opportunities in a globalised framework. It is on this basis, that the Bornholm university level education initiative should be seen.

A new method for university level education on Bornholm

In 2005 and 2006, The Regional Municipality of Bornholm attempted to identify the island's role in tomorrow's culture and experience economy, including an assessment of whether Bornholm possessed the necessary competencies while also identifying possible development strategies. The study's conclusions made it clear that Bornholm managers and developers did not possess sufficient skills to play an active role in the experience economic society of the future. Furthermore, the study concluded that this was the case for both the private enterprise and public institutional sectors, and that a major barrier was the lack of access to local educational programmes adhering to these knowledge skills.

With financial support from the European Social Fund, a 1-year pilot project called 'Innovation Management in the Periphery' was established in 2007. The objective of the project was to implement a Master's degree programme in cooperation with Roskilde University and the University of Southern Denmark, which in cooperation delivered modules and content for the programme. The CRT was lead partner in the project and responsible for programme coordination and contributed to the curriculum with specialist knowledge and regional case studies.

The target group for the educational project included both leaders in the private, public and NGO sectors. This was not only a necessary condition in order to create volume due to the limited number of potentially qualified people on the island, but was simultaneously a deliberate policy to create networks and synergies across business sectors often isolated from each other. Thus, a new forum for project development was created springing from a focused idea of getting together managers and developers across sectors with direct executive authority. This was crucial for the stated objective of creating project ideas applicable to the real world and visible results.

The academic emphasis was on creating a common understanding of the development frameworks and potentials in relation to the existing political and economic conditions in peripheral areas and on providing students with models and methods to analyse and understand innovative processes both in relation to the development of products and organisations.

The project hit an unfulfilled need for academic training and education on the island, and more than 40 people applied for admittance, of which 25 were accepted into the programme. Over a year the class met weekly at CRT to receive classroom teaching. This resulted in a number of project collaborations across



sectors and the creation of new creative ideas and new network relationships extending far beyond the actual training.

Experiences gained from the project

Overall, the pilot created a number of lessons that could be used directly in the development of more permanent education programmes at the Master's level on the island. Most importantly has been clarifying that there is a market for continuing education, which takes it point of departure in the specific conditions of regional development in peripheral regions as well as the development and testing of academic course content, and finally, the establishment of a cooperative structure between CRT, Roskilde University and the University of Southern Denmark.

This project has also given the CRT new opportunities to activate its research resources in a local context. The Centre could draw on its knowledge of business development in peripheral areas, tourism, regional foods and experience economy as well as utilise its university networks.

A deeply rooted knowledge on Bornholm's specific geographic and economic conditions linked to knowledge about the general trends that characterise the knowledge society and experience economy, gave the chance to organise a pedagogy and course content that could be adapted to the target group. It also strengthened the interaction between research and industry and helped Bornholm's companies and organisations take advantage of opportunities in lieu of continued market changes, and changes in conditions for regional development.

With this kick-off, the prerequisites were in place to test the feasibility of developing a model of Bornholm as both recipient and provider of education at university level. This was done through the establishment of the training project, Master's degree programme in Experience Leadership in Peripheral Areas, colloquially called MOLLY.

Development of the master's degree programme in Experience Leadership in Peripheral Areas

It was essential to develop a university level education that was based on a range of disciplines where Bornholm and CRT had particular expertise and simultaneously had a course content, which was directly relevant for Bornholm and other outlying areas. In this respect, it was only natural to look towards Roskilde University's 'Master's degree programme in Experience Leadership'. The relevance was further reinforced by the already established cooperative relations from the project 'Innovation Management in Peripheral Areas' and especially of the trust-based and social relationships, which were judged essential for implementing and carrying out the project as well as securing

mutual success.

In 2008, MOLLY received financial commitment from Bornholm's Growth Forum supported by local educational institutions as well as the nationally based Regional Technology Centre.

The goal during the project's 3 ½ year period was to create a model for how academic and research-based training activities could play a role in peripheral areas, both locally, nationally and in relation to the proximate international neighbourhood, including the Oresund Region. Both Bornholm and other Danish peripheral areas should have the opportunity to offer training at Master's degree level: programmes based on the special growth conditions of the specific region ensuring easier access to continuing education and training at university level. One method was the testing of educational e-learning methods, building on continually improving IT and broadband technologies. This allowed the training project to create a model and a method that could enhance the educational upgrading and to provide liaison between Bornholm and the major urban areas through higher education at the university level. At the same time, the goal was to strengthen the overall educational level of Bornholm, both at the individual level and at regional level with regards to continuing education.

In short, the goal was to anchor Bornholm and CRT as player in and provider of education at university level, including offering full diploma and Master's degree courses or modules thereof. Seen in a long-term perspective, this would contribute significantly to the development of a higher education environment on the island in which individual players acted as both supplier and recipient of knowledge and learning within the Danish education system.

Implementing MOLLY in peripheral areas

In 2009, Bornholm, through CRT, in a binding cooperation with Roskilde University, offered a full two-year Master's degree programme in Experience Leadership on Bornholm. The agreement meant that the education was institutionally and legally offered by Roskilde University, assuring formal ECTS accreditation, but physically and developmentally anchored on Bornholm—and with a special focus on the conditions pertaining to Danish peripheral areas.

Academically and pedagogically the training course has been a mixture of theoretical lessons in innovation theory and methods, marketing, business strategy and place branding as well as social and management theory. In addition, teaching has been based on specific development and innovation processes in the students' places of work or in surrounding Bornholm areas. A total of 18 students, with an even gender composition and an average age in



the mid-40s, have completed the course and passed their final exams in May 2011. The students represent the management level in a series of Bornholm's public, private and NGO companies, people who would not normally meet each



other as the classroom composition crossed several industry and enterprise sectors. During the course period, students have created a special network that is based on professional academic challenges, personal development and mutual trust.

This is the case not least because the training focused on delivering results on 3 levels:

- It should be important for the individual
- It should be important for the individual's business
- It should have an impact on Bornholm.

This was possible because the students represented the management level and thus possessed executive authority in their enterprises: they could help create visible results on Bornholm.

Examples of projects and areas that the students have focused on:

- Experience-based enterprise development
- Development of branding and communication strategies
- Corporate Social Responsibility
- Management and motivation of volunteers
- Network theory, social entrepreneurship and attraction of resource persons
- In addition to developing events that unite business and experiences.

At company level, the project has meant that the overall leadership skills have been developed by offering private and publicly employed managers and middle management core skills at university level within central and relevant disciplines. The educational project has also put focus on the need to secure qualified employees at management level, including the establishment of new training courses, and finally created the framework for increased innovation, knowledge sharing and knowledge building as well as specific innovation skills in the local business community.

As a research institution with a special knowledge on regional development conditions in peripheral areas, partly based on analysis at regional and enterprise levels, and partly based on the experience of linking research to concrete business development strategies, the project has given CRT an opportunity to translate this knowledge into implementation and facilitation of Bornholm's skills needs in conjunction with the university level teaching.

In a national perspective, this meant that CRT's professionalism and strong networks in peripheral development, experience economy and tourism could be offered to other peripheral areas in Denmark and The Nordic Countries.

Both the academic benefits and the visible results as well as the academic

networks that have been established has resulted in other Danish and Nordic peripheral areas spotting the MOLLY project and the activities that have been undertaken on the island.

Further development of MOLLY

The next step in terms of the objective was therefore an assessment of the preconditions and the methods needed to continue the MOLLY programme nationally and internationally, while at the same time maintaining the local anchoring and retaining the harvested experience achieved with classroom-based teaching of a local group within a region.

Several models were under consideration and in particular two models were contemplated closely both on their own and in combination. The first model implied that the training could be offered on Bornholm or at a university campus and be a combination of e-learning and physical presence. This model could be targeted leaders in Danish peripheral areas and would thereby achieve a greater critical mass. On the negative side, the students would have to invest more resources both privately and professionally in the form of time and direct expenditures. This was one of the central barriers that had been eliminated when the course was offered locally: in itself a powerful argument for the great educational interest we observed among Bornholm managers.

The second model implied that the programme be offered as a full e-learning course from both Bornholm and Roskilde University. This model's strength was greater temporal flexibility, but simultaneously had a weakness in relation to reduced opportunities for networking and for the creation of trust both among students and between teachers and students. This was confirmed by the experience of the pilot and MOLLY projects on Bornholm, which showed that creation of a local network based on the education programme gave the students a common and local frame of reference and created new local trust-based relationships. Neither of the two models could offer this, while being accessible at a reasonable resource level for students residing in Danish peripheral areas.

The conclusion was that education had to come out to the periphery in the same manner as the programme had come to Bornholm. This resulted in the development of the 'MOLLY Caravan', a method whereby the education programme is rooted on Bornholm, but offered to other Danish peripheral areas through the creation of Master's degree programmes taught locally in a specific peripheral location. Teaching takes place in a combination of classroom training, e-learning-based education, company visits and lectures at the university.

Thus, the caravan model is given the chance to draw on the positive experiences gained through the pilot project, and it has been possible to create the proper



preconditions for valuable networking across sectors and between companies that do not normally work together.

On this basis, the students are given a shared academic knowledge and theoretical tools that can be used in a commonly known reality in the local community, and this can in turn support unleashing the potential that the experience economy has for peripheral areas. Results from Bornholm have also made visible that working project-based in the classroom with real development projects, allow such projects to be realised for specific opportunities, initiatives and activities. Lessons from Master's programmes at Danish universities in metropolitan areas have shown that Master's degree classrooms are traditionally composed of students from a wide geographical area and from companies and institutions whose challenges and circumstances are very different. Against this backdrop, the MOLLY programme may be unique in the Danish Master's market, because it is the only education programme offered locally in a specific peripheral area. It may even be assumed that it is the only Master's programme where students, have the opportunity to describe issues that may have a direct effect on the single locality.

Requisites for the MOLLY caravan

The MOLLY Caravan has, however, a number of requisites, advantages and disadvantages. It requires first and foremost a strong institutional anchoring both on Bornholm as a supplier, but also in the peripheral area that receives and facilitates the education caravan. At the same time, the caravan continues to be strongly dependent on the university, which has the formal accreditation

for the degree programme, but which may not see peripheral areas as a key business area.

All the while one must be aware that despite a number of comparable characteristics in peripheral areas, there is a local agenda to be considered. There are also competing universities in the community where the MOLLY Caravan is, and these need to be taken into account or involved. The MOLLY Caravan's

strength is, however, the experiences won through its development process on Bornholm. This makes the caravan model difficult for others to replicate. We have, therefore, the belief that when an institution in an outlying area is identified, the local goodwill is present and, once established, reciprocal, trust-based and person-borne relationships are in place, the possibility exists for the MOLLY Caravan to be activated.

This means that peripheral areas choosing to invest in the MOLLY Caravan can expect the MOLLY graduates to bring the local area new research-based knowledge and a new network across sectors and companies, drawing from a group of leaders that have acquired a number of tools and knowledge. These

networks can be used to develop new products or manufacturing processes, and they have the potential to conduct sound projects that describe local problems and development potentials. Additionally, participation in the MOLLY Caravan means that local areas form networks with other caravan destinations and with Bornholm through student networks that are based on a perception of the shared 'peripheral experience' that originally created the programme. Finally the MOLLY Caravan gives access to a number of researchers and educators at universities in the Danish metropolitan areas as well as local, regional and national business leaders with experience and knowledge on innovation management and the experience economy.

The MOLLY Caravan arrived in Western Jutland on February 1, 2011.

The MOLLY caravan as a method for lifelong learning at university level for danish and international islands

Many isolated islands have, just as Bornholm, a demography and population base that makes it difficult to establish and sustain a university environment as well as continuing education at university level. On such islands the MOLLY Caravan may be seen as an obvious organisational model that can be used for many professional training areas.

Based on the Bornholm experience it is our assessment that the caravan model is dependent on the ability to adapt academic content to local conditions – facilitated by or anchored in a local or national knowledge institution with expertise within the special conditions of islands. It is also our assessment that the experience economy, in a general educational perspective, has obvious relevance for many islands and peripheral areas. This is due to the fact that areas with a large tourism sector, like Bornholm, have an experience economy potential or challenge, depending on how you look at the ever-changing demand patterns. Therefore we believe that the caravan model's university-anchored method for continuing education based on experience economy and targeting local decision makers, business leaders and regional development agents in peripheral areas or on islands can be a strong starting point for the utilisation of the experience economy's societal perspectives.





TEACHING ISLAND STUDIES:

A Case from Prince Edward Island



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On my first day teaching island studies to undergraduates at the University of Prince Edward Island (UPEI) in Atlantic Canada, I encountered many blank faces as I tried to explain the meaning of island studies. The definition of nissology, generally accepted as ‘the study of islands on their own terms’, failed to clarify the matter for many young students. I suspected some had enrolled in the course to escape a cold, blustery Prince Edward Island winter, but tropical island fantasies were not the only reason to take the course. For scholars, island studies requires a re-centering of focus from mainland to island and the giving of voice and platform to the expression of island narratives in all their diversity. This chapter will describe how I interpreted this academic call for studying islands ‘on their own terms’ in my classroom. Written in an autobiographical style, it documents my teaching experience as I challenged students to think, search, comprehend and synthesize more broadly within the global study of islands in all their reality while still having fun with islands of the imagination.

Even though the field of island studies has ‘come of age’ in the past two decades, little has been written specifically about teaching island studies per se. Sunderlin & Xu have described how their natural history course at Lafayette College in Pennsylvania successfully used themes of isolation and island biogeography to aid entry-level undergraduates in developing critical and creative thinking. I too was about to demonstrate that using integrated transdisciplinary material such as island studies can be an effective strategy for developing academic curiosity in early undergraduate education.

The case of Island Studies at the University of Prince Edward Island

The value of teaching island studies was officially recognized by the University of Prince Edward Island over a decade ago when specific courses in the subject were first introduced at the undergraduate level. A further commitment was made by UPEI when it created its wide-ranging Master of Arts in Island Studies (MAIS) program in 2003. This rigorous graduate level program encourages intensive debate and public policy focused research on local, regional, global and transdisciplinary themes concerning islands. The context is quite different at the undergraduate level which is the topic of this chapter.

The Island Studies Minor program is a component of a Bachelor degree, drawing material from across a wide range of disciplines including geography, sociology, education, economics, political studies, biology, ecology, literature and history. The calendar reads, "As an interdisciplinary program, UPEI's Minor in Island Studies encourages students to make critical connections among studies from diverse fields: obliged to focus on islands, they can witness how the different disciplinary foci can come to connect and converge on specific events or locations."

For young undergraduates facing student loans and tough economic circumstances, an uncharted career in island studies is beyond imagination due to their preoccupation with all the trials and tribulations of gaining maturity, achieving good grades and acquiring skills for the workplace. Even if they wanted to, few pursue the dedicated undergraduate Minor Program in Island Studies at UPEI when other applied career options seem more secure and attainable. Instead, the introductory one-semester core course of the Minor Program (Island Studies 201), has been a popular elective for many undergraduates, providing a broad-ranging, interdisciplinary alternative to applied and more narrowly-focused courses in other disciplines. The course also exposes them to new research taking place in the Masters Program.

The one-semester Island Studies 201 course can be taken as an elective in any discipline and year. Fifty-five students enrolled in my class in 2009, a significant number for a small campus. They came from a broad spectrum of disciplines and interests ranging from liberal arts, education and science to business, journalism, nursing and veterinary medicine. Many students in upper years chose this course as their final and perhaps only Arts elective. The class consisted of men and women largely in their late teens and early twenties, full time and part time, distributed roughly equally among first, second, third or fourth years.

Given the size of my class and the heterogeneity of stages and disciplines, I explored a variety of active learning strategies and in-class group work in my first year as a teacher. Energized by having just completed the Masters Program in Island Studies, my approach was to provide a synthesizing framework in

which my lectures could be opportunistically complemented by those from a variety of guest lecturers whenever possible. The course filled 26 lectures, 75 minutes each, twice weekly from January to mid-April. Since it offered an opportunity for graduate students in the Masters Program in Island Studies to present their emerging research, my students were exposed to a broad range of new work as well as lectures by eminent visiting scholars in island studies from around the world.

Early experimentation

As a new professor faced with a much larger enrolment on day one than the seminar-style course first anticipated, I found myself on a steep learning curve. Early in the term I had carefully structured the class into small groups which were named by ocean or sea as a frame for the course materials; each group was given 30 minutes to present their work at the end of the semester. This gave each member of each group five minutes to talk about his or her term paper concerning an island or archipelago within the ocean or sea of their group. For example, a local rugby player in the South Pacific group reported on the relevance of the Tongan rugby team to national identity; another in the Mediterranean group reported on eco-tourism in Corsica, having hiked there.

The students gained confidence in their presentation and evaluation skills as each student shared with the rest of the class specific knowledge they had gained from their own term paper research. Throughout the term the ocean groups generally bonded; I often asked them to report orally by group and encouraged students to support each other. This sharing strategy was relatively successful in ensuring that the geography and diversity of islands around the world were represented in some fashion. The young adults were given agency to respect their own knowledge, improve their communication skills, and become exposed to thinking about islands in new ways. It was hoped that the course would resonate with their personal experience on an island or mainland, whether as a permanent or temporary resident (since they were all university students on an island). As life on islands unfolded week by week from many different perspectives, various philosophies, methods, tools and drivers of research were encountered or demonstrated so that a critical appreciation of issues in island studies and research in general could be gained and owned. Given the limited travel and life experience of the students and their general lack of any recent background in geography, small group work was a successful strategy enabling voice, especially for first and second year students who were placed in groups with more senior students.



Even though final presentations varied according to student ability and motivation, I observed that almost all of the students had grown in their knowledge, communication skills and appreciation of islands. Overall, the time spent organizing and coordinating the students and their groups that first year, along with nurturing, evaluating and administering a very full and wide-ranging course outline was clearly a challenge, both for the students and an inexperienced sessional instructor. The following summer, I benefited greatly from attending the acclaimed UPEI Faculty Development Summer Institute on Active Learning and Teaching which is held annually. This is a week-long intensive program which attracts faculty from universities and colleges across North America. Heading into my second year of teaching, I adopted an open source course management system known as Moodle which was being implemented at UPEI, adapting it for Island Studies. Moodle enabled my students to have immediate online access to the syllabus, readings and materials on reserve in the library as well as slide presentations and class notes.

Experiential learning

Because the field of island studies is broad-reaching and interdisciplinary, many topics were sampled to create an overarching awareness of the subject without venturing too deeply into any one theme. The start of each class was signalled by short soundtracks of traditional and contemporary music from islands, highlighting cultural diversity. At the beginning of the term, as another experiential component to explore islandness, students were given several outdoor exercises to introduce rudimentary observation, reflection



and note-taking for research purposes. I asked them to take a solitary walk on their own time along the local boardwalk by the sea to reflect upon boundedness and to imagine being on the edge of any island; they were then to write a paragraph both before and after reading a short chapter of DH Lawrence's *The Man Who Loved Islands*. The same reflective process was used to prepare for a guest lecture on social networking and social capital. Individual written responses to the exercises were original, subjective

and generally enthusiastic, ranging from precise and observant descriptions of sights and sounds to an outpouring of thoughtful essays and poetry about islands and PEI in particular. The experience aided in penetrating the students' awareness and interest in island issues early in the term. It also aided my understanding of the students' capabilities and needs—indeed, the frigid

January walks in island studies became a hallmark of the course and a way to discuss, understand and connect with islands and academic work in new ways.

Course themes

Four main themes provided convenient divisions for more focused short-answer written assignments. In addition to required readings which were discussed briefly in class, optional articles were suggested in most topics for advanced students. In the first series of lectures on Social and Cultural themes, topics included islands in human imagination, insularity, islands in the past, human migration patterns, contemporary migration issues, population strategies (case of Prince Edward Island), social capital, the social economy, and islands in pop culture and literature.

Next, students were led through Physical and Environmental themes until the mid-term break. This was after island climate, culture and social life had been literally 'experienced', and a grounded appreciation of the scientific method had been introduced during the first theme. It was hoped that such a counter-intuitive ordering of themes could disrupt established patterns of thinking about islands—away from being merely peripheral spaces, GIS coordinates or exploitable resources. At the same time, students were introduced to practical and applied tools and matters of map work, latitude and longitude, island geology and landscape, island environments, biodiversity, gender issues in Pacific islands, artisanal fisheries and sea plant harvesting, and a case study from the island of Dominica on human health and well-being.

The third theme of Politics and Public Policy began with a keynote lecture on power and powerlessness, formal and informal political power and jurisdiction as a resource by Dr. Godfrey Baldacchino, Canada Research Chair in Island Studies. Further lectures in this theme followed on governance and public policy; politics, land-use and traditional medicine on Chiloe Island, Chile; international relations of small island states; offshore banking and taxation strategies; Åland as a sub-national island jurisdiction in Finland; and colonial influences in the Caribbean and Latin America. One lecture focused on the legacy of early colonial expansion and imperialism on land use, natural resources and human resources in islands today. What might have been excessively challenging for inexperienced undergraduates earlier in the term turned out to be a generally successful assignment on public policy in Prince Edward Island, generating passionate discussion in light of their newly emerging understanding of island conditions and resources. My class also attended presentations by MAIS Graduate Students during the UPEI Research Days to identify and connect with islands research by fellow UPEI students.

The final theme, Economics, was left until the end of the course since it was fairly straightforward to understand. This was deliberately done to stimulate

critical thinking in difficult subjects in the earlier weeks of the course and to counter the usual dominance of economic themes in decision-making. It was also a theme which was more likely to receive attention in other courses. At this late period in the term, many students were struggling with their workload, becoming saturated with information and assignments from all angles. Topics in this theme included manufacturing on islands, types of island economies, island branding, tourism and municipal governments in small places.

The course wrap-up was devoted to hearing each student give a précis of their 10-page term papers. As far as possible, they were to corroborate their findings with primary data gathered directly from the island or community they chose for study in order to reinforce what they learned about the research process and methods. Written work and participation were evaluated on



critical thinking, content and presentation. Topics ranged widely, often expressing a local rather than global focus. One young student reflected upon his own experience to critique youth programming in Prince Edward Island; he had gathered federal and provincial secondary data for PEI and Newfoundland which he corroborated through personal contact with deputy ministers and social workers; he then delivered his own creative and credible alternative recommendations for

change. Another wrote a grounded, intense personal account of the crisis in the hog industry in PEI. Some students tackled issues globally or on islands far away: one provided an excellent review of the scientific literature in analyzing conflict over traditional dolphin harvesting practices on a remote island of Japan; one researched plate tectonics while another reported on air quality issues due to fallout from volcanoes in Hawai'i.

Outcomes

I could see from the diversity of papers, class participation and my interviews with each student that many were taking ownership of their projects. By the end of the course, I was encouraged that many seemed more confident in their understanding of islands as nuanced, paradoxical spaces; bright students were even beginning to think of islands as conceptual platforms useful for analysis.

Despite issues with literacy which surfaced throughout the course for some students, the calibre of the final papers was impressive. While some frustration was expressed over the counter-intuitive sequencing of course themes, term evaluations by the students included such comments as "I was frustrated at the beginning, but ended up enjoying the course" and "I really enjoyed the uniqueness of the class, the topics and the guest speakers". Overall I was very pleased to see the growth and achievement of my students given the prodigious

scope and breadth of interdisciplinary material they were required to digest. Several spoke to me about being empowered to proceed to graduate education as a result of finding island studies material that speaks to their situation on Prince Edward Island. While they plan to do advanced study within traditional disciplines like history, political science or environmental management, they hope to pursue ideas from island studies. What other students learned first-hand about island environment, social capital and networking, for instance, will also surely sensitize them to appreciate small-scale context when, as professionals, they treat patients, listen to clients, hear children, advertise tourism, investigate stories, engineer traffic flows and so on.

Conclusion

After evaluating all the papers, experiential exercises and class discussions, as well as conversing with students, I conclude that island studies has significant potential to transform and motivate on a personal level. Having students directly experience spatial and ecological concepts by walking along the sea and reflecting upon boundaries of various kinds, and then relating academic theory to their own intrinsic knowledge, can be a successful strategy for awakening an island standpoint. Students deepen their knowledge of social concepts when they are provided with a structure to reflect upon their own realities and engagement with others. Guest speakers from the local community, graduate students in the Master's Program and island studies scholars from abroad bring exposure to new ideas, enhancing the richness of the course offering. For many of my students, island studies is a rare integrated learning experience in undergraduate university education. This experience becomes possible when the course is part of a dedicated higher education program which provides and draws upon human resources in the local as well as international community, in this case, the island studies community.

When designing a survey course in island studies, it is important to provide a unifying theme for the whole semester. This can be accomplished with a flexible yet comprehensive framework of themes like the four-part one described earlier in this chapter. Otherwise, important aspects of island studies scholarship, a complex field to interpret, can dissolve into a confusing stream of anecdotes and footnotes easily overwhelmed in a competing multitude of other disciplines. Island studies courses in the Minor Program at UPEI have been kept strategically focused and significantly energized due to the presence on campus of a centre for island studies scholarship that connects directly with island communities locally and elsewhere.



The complex problems of today need liberal education systems to provide opportunities for interdisciplinary approaches and experiences that teach students to think and synthesize beyond singular, unique or solitary causes and effects. A program in island studies can certainly provide a broad interdisciplinary approach. The study of the world's islands in all their diversity is now a broadly-based, grounded, integrated and demonstrative field of study. As well as benefiting individual students, a dedicated program in island studies can highlight specific issues unique to small island communities attempting to navigate large-scale globalizing forces in these complex times.

There is no limit to the topics that can emerge which are salient and empowering for island communities and individuals; these ideas need to be critically examined in light of island studies scholarship which can include such topics as place identity, community values or jurisdictional and local capacity. A dedicated island studies program can highlight and quickly penetrate key “pillars” of sustainability that work in combination, namely economic viability, environmental responsibility, social justice and cultural vitality. Island studies shows us the way forward and provides an effective knowledge base for designing well-rounded undergraduate education programs of critical importance to small local communities.

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SECTION

V

Green Islands: Sustainable Energy and Sustainable Living

SUSTAINABLE ENERGY AND SUSTAINABLE LIVING ON ISLANDS

A Case Study on Hawai'i



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Challenges and initiative implementation for sustainability in Hawai'i

This chapter addresses the challenges of switching to alternative and renewable energy on small islands in the search for sustainable futures (including green energy production, reduction of carbon footprints, and island eco-branding experiences).

The energy goals set forth by the Hawai'i Clean Energy Initiative (HCEI) in 2008 has set the stage for making Hawai'i a global model for energy independence and sustainability. To become sustainable and energy independent, islands are met with the task of overcoming typical challenges of distribution, storage, and integration while addressing issues that are specific to isolated communities and islands that include responding to energy needs of a fluctuating tourist population, lack of on island human resources and work force, and the development of appropriate energy policies. This chapter will discuss the unique challenges facing an island community while describing the changes that have been made and the challenges that are yet to be overcome.

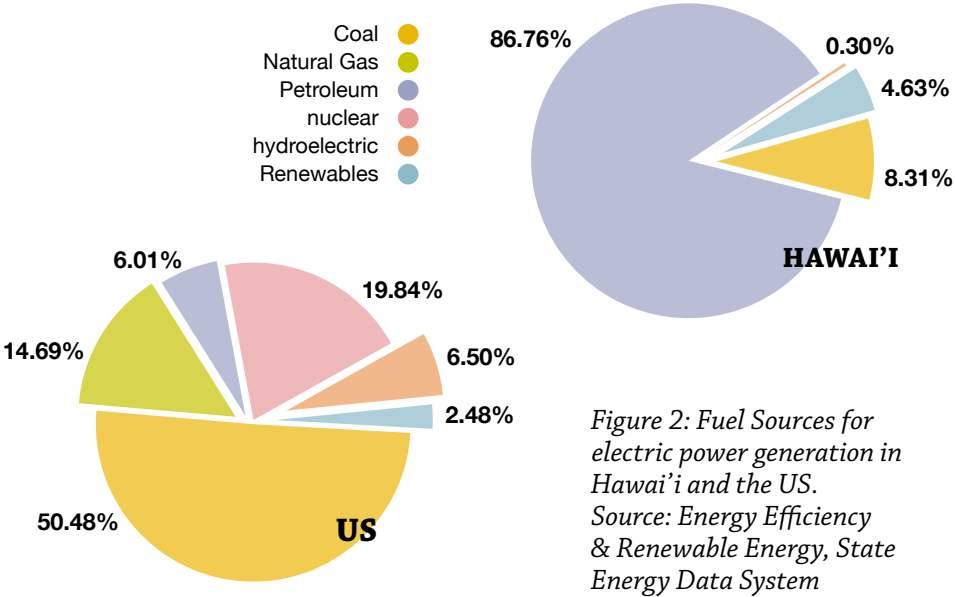
Background

Anyone watching U.S. renewable energy or energy efficiency initiatives in the last two years would know of Hawai'i and its scurry to decrease the highest energy rates in the nation and fossil fuel dependence. Hawai'i is the most isolated archipelago in the world located from nearest land masses at 2,390 miles from California; 3,850 miles from Japan; 4,900 miles from China; and 5,280 miles from the Philippines. Shipping costs contribute a large portion to fuel costs on the islands. The tourist population per island influences peak energy demands, however smaller populations experience increased residential electricity costs per person due to a lower demand on equally expensive commodities.

	Area	Population	Tourist Population 2009 (air + ship)	Peak Demands (MW)	Residential Electricity Costs 2009 cents/kWh
Big Island	4028 mi ² (10,432.5 km ²)	175784	1.3 mil	200	32.7
Maui	727.2 mi ² (1883.5 km ²)	143691	2 .0 mil	220	32.6
Oahu	596.7 mi ² (1545.4 km ²)	905034	4.1 mil	1200	21.5
Molokai	260 mi ² (673.4 km ²)	7404	53 k	6	32.6
Lanai	140.5 mi ² (364 km ²)	3193	67 k	3	32.6
Kauai	562.3 mi ² (1456 km ²)	63689	1.0 mil	3	* 22.0
Niihau	69.5 mi ² (180km ²)	130			
Kaho'olawe	44.6 mi ² (116 km ²)	Uninhabited			

Figure 1: Overview of electricity costs and peak demands per island

In 2005, when the cost of oil reached \$60/barrel, nearly 95% of energy sources were from fossil fuels, petroleum (87%) and coal (8 %) where the remainder of the states in the United States on average used less than 60%. In Hawai'i, alternative fuel sources including municipal solid waste, geothermal, small scale hydroelectric, bagasse, wind and solar contributed only 5% combined. Increasing oil prices and the large dependence on fossil fuels caused the State of Hawai'i to establish a Renewable Portfolio Standard (RPS), a law requiring that 20% of electricity sales come from certifiable energy efficiency or renewable energy by 2020. The Department of Energy recognized the efforts of the State of Hawai'i and joined in partnership with the state to create the Hawai'i Clean Energy Initiative (HCEI) to meet the state's energy needs from 70% clean energy (indigenous renewable and efficiency) by 2030.



The move toward cleaner energy will also address the Global Warming Solutions Act that Hawai'i passed in 2007 which calls for a return to 1990 levels of carbon emissions by 2020. Clearly, the motivation for clean renewable energy has both economic and environmental implications. Each Island has already begun to make this move toward clean energy.

The challenges

The State has begun to employ more renewable energy and has met with a few challenges along the way, some of which have solutions and others still need to be explored.

Financial

Both residential and commercial solar systems can be expensive. The estimated cost for an average sized home on Maui can be as much as \$20,000. Commercial systems can be over \$500,000. Infrastructure or facilities for utilities including transmission lines, substations and transformers can also be expensive. Most projects are built in remote areas where the infrastructure to bring the power to the grid and to store intermittent energy is expensive and adds to the cost of the electric power.

Resolution: net energy metering, tax incentives and rebates

Net Energy Metering allows a customer to export surplus electricity to the utility grid and receive credits at full retail value to offset purchases over a year. This would provide a faster return on investment for families and businesses

that install renewable systems. The standard interconnect agreement allows reduction of the amount of energy required from the utility by energy produced from the customer system. Any surplus exported to the grid will not be credited. This allows for utilities to accept more renewable energy onto a system, while reducing the financial demand on the utilities.

Property Assessed Clean Energy Bonds have also been proposed to address financial concerns by giving customers State Issued loans that are paid back through property tax bills.

State Tax incentives include the Renewable Energies Technology Income Tax Credit that offers three options: a payback of 35% of installed non-refundable costs, a payback of 24.5% installed refundable costs, 35% of installed cost refundable only for very low income (<\$20,000 adjusted gross income or pension only).

Both residential and commercial rebates on purchases for clean energy, energy efficiency and renewable systems are available through the utilities companies. The rebates include paybacks on ENERGY STAR® Appliances, High Efficiency Water Heaters, Solutions Compact Fluorescent Lights, Central Air Maintenance, and solar water Heating.

On October 13, 2010 the State of Hawai'i established rates for the feed in tariff (FIT), a performance based incentive that provide cash payments based on the number of kilowatt-hours (kWh) or BTUs (British Thermal Unit) generated by a renewable energy system. Eligible systems for the FIT include: Solar Thermal Electric, Photovoltaics (PV), Wind, Micro and Pico Hydroelectric.

Intermittency

Hawai’ian Electric stated in February 2010 that it wants to suspend adding new photovoltaic systems to the grid because the growing number of renewable-energy systems pose a threat to the reliability and stability of its transmission system. Because the sun doesn’t shine 24hours a day and neither does the wind blow, these sources of renewable energy are intermittent and therefore unreliable. High levels of intermittent energy cause technical and management challenges for the grid as they can cause power outages. Electricity from small, diversely located variable PV installations are prone to tripping off line when there are disturbances on the grid. Hawai’i Island has already experienced outages that would not have happened or would have impacted fewer customers without the high percentage of PV on the island grid.

Resolutions: working groups, research, and planning

In February of 2010 Hawai’ian Electric Company (HECO) proposed a plan to form a Reliability Standards Working Group including representatives from the utilities companies, renewable energy developers, national experts and the

State. This group will be dedicated to finding solutions to the technical and commercial challenges identified.

HECO will also be conducting extensive research to study ways to increase and effectively manage more photovoltaic generation while maintaining reliability on utility grids through a research grant totaling \$2.9 million won from the California Solar Initiative Research Program. The dedication to this research shows HECO’s commitment to finding solutions to the challenges of intermittency.

Policy and regulations

Because of the intermittent nature of wind and solar power, the Public Utilities Commission (PUC) has established regulations to curtail the potential negative impacts. The regulations can only be modified by the PUC. As a result of Rule 14 interconnection study, Rule 18 is applied to net energy metering arrangements and sets limits to the amount of distributed generation on a single circuit. By current PUC order, the cap on the total power producing capacity of generators that can sign up for NEM (Net Energy Metering) is summarized below by island:

Island	System Cap	Reserved
Oahu	1% of Utility Peak	40% of system cap reserved for systems of 10 kW or below
Maui	4% of Utility Peak	30% of system cap reserved for systems of 10 kW or below
Hawai’i Island	4% of Utility Peak	30% of system cap reserved for systems of 10 kW or below

The PUC, by rule or order, can change this percentage.

Systems over 100KW on Oahu would not meet these requirements. Rule 18 poses a challenge to residential and commercial customers who purchased expensive systems expecting to see a quicker return on investment through net energy metering. Rule 18 limits the amount of financial return a user would see for their solar or wind system and creates difficulty for families or businesses with financial limitations.

Rule 14 adds another financial burden. Rule 14 requires a standard interconnection study to be done whenever a system output exceeds 10 % of the circuit. Costs of this study have been reported to be as much as \$100,000. Rule 14 has also proposed an additional 5% of grid-wide cap, and 33% minimum load restriction.

Resolution

Solutions to regulations imposed by the utilities are yet to be explored. It has been suggested that perhaps state regulation of PUC would provide additional opportunities for customers.

Workforce

Increased renewable systems on grid will change utilities to being energy distributor of intermittent sources that the current workforce may not be skilled to manage. Increasing the size of grid systems also poses a threat to the vitality of the utilities companies, reducing the need for energy management by utilities. If incentives and rate pay agreements such as NEM provide substantial paybacks to customers, the utilities may lose profits that are used to maintain employees and build new systems.

Resolution: Education and training

Education and training opportunities designed specifically for energy management and sustainability are ongoing throughout the state with the University of Hawai'i. Both credit and non-credit training programs offer workforce development in several areas including: renewable energy technology, small business and residential energy management, solar installation, sustainability in the tourist industry, waste management, water resources management. A new employment sector is emerging from State and Federal funds dedicated to energy efficiency, green building, and energy management. Programs at the University of Hawai'i have partnered with many of these employment sectors to ensure employment for existing students and to provide ongoing training for current employees.

Through the support of State and Federal funding new possibilities emerge for research and development, particularly within the areas of smart grid development, bio-fuel and fuel cells. It may be possible for utilities companies to leverage funding opportunities and shift towards exploring new technologies through research and development, and therefore maintain employees and build new systems.

Scale

Renewable energy resources are not shared equally among islands. Oahu has the most people (thus the greatest electricity demand and lowest costs) but few renewable resources and little unused land suitable for renewable energy projects.

Hawai'i Island has geothermal energy, a resource no other island enjoys, but the Big Island can only use a fraction of its geothermal potential because of a small population.

Resolution: Transmission and storage

Any transmission solution for a dispersed system would be expensive, however plans to develop inter-island energy transfer networks through sea cables have been discussed. Improving storage usage and technology could be a solution for problems of scale as well as intermittency. Efficient storage will increase the possibility of using maximum energy production while reducing cost to users, so that scale is eliminated as a factor.

Land availability and land use

Many large-scale renewable systems or alternative fuel sources such as solar and wind farms or crops require large amounts of land. For Hawai'i, a place of ecological fragility and high biodiversity, tourist conservation is a top priority and land is scarcely available for large projects. The map below shows how much land on each island is reserved for conservation and thus prohibits development or project planning. For a place like Oahu in particular, which has the highest energy demands, the largest urban population, but the least land available to develop, this poses a real challenge. Land is not largely available for large scale projects for wind, solar, or biomass. Zoning and permitting often pose challenges to renewable energy developers.

See <http://hawaii.gov/dbedt/gis/maps/slud.pdf>

Since Native Hawai'ian culture upholds a land based theology, the cultural appropriateness of many projects also comes into question. Since the 1990s, there has been opposition to geothermal energy on the Big Island using the Volcanoes, which is home to a Native Hawai'ian goddess, Pele. However, Puna Geothermal responded to the concerns through dialogue and by offering Native Hawai'ians 20% of royalties. Recent opposition to geothermal energy efforts have since diminished.

Electricity costs may remain high

Hawai'i might eliminate the use of petroleum, however a few of the top reasons for high energy costs on the islands are still applicable for renewable energy sources:

1. Six separate systems (per island) are not connected and have different operating structures
2. Small electrical systems are more expensive to operate
3. A small population increases the cost per person
4. There are greater storage needs for smaller populations and smaller scale
5. As islands cannot get power through a national grid like mainland utilities, they must maintain greater power reserves as back-up, which increases costs.

Although the State of Hawai'i might succeed in attaining its 70% clean energy by 2030, residents should consider that they might be seeing increased energy costs on their monthly electricity bills.

Transportation

Because Hawai'i is so isolated and has a tourist driven economy, as long as there are no other fuel alternatives to petroleum for air and shipping, Hawai'i will remain a heavily dependant petroleum state. According to HECO "Only about 27% of Hawai'i's imported petroleum is used to make electricity. About one third of imported oil is used for jet fuel and about one third goes for gasoline and diesel for automobiles and boats. Although using renewable energy will reduce Hawai'i's use of oil to produce electricity, it won't eliminate the need to import crude oil or refined products to Hawai'i as long as fuel is needed for ground and air transportation." A big challenge is that technologies for jet fuel alternatives are underdeveloped.

Solution

The State has begun plans for introducing more electric vehicles onto the islands through grant programs, rebates and additional incentives. Hawai'i has already partnered with automobile companies such as Nissan to meet the needs of clean energy drivers. Rental car agencies such as Enterprise are also doing their part to meet the HCEI goals. However fuel alternatives remain the biggest challenge to be overcome.

The future looks promising through recent research using plants and crops such as jatropha, algae, and other bio-fuels. The US Department of Agriculture and the US military are researching crops and algae from Hawai'i that can be used for military fuel. The Air Force recently flew a military jet on a biofuel blend of oil from camelina, a plant related to mustard, and conventional JP-8 jet fuel. On December 30, 2008, Air New Zealand flew the first successful test flight with a Boeing 747 running one of its engines on a 50:50 blend of jatropha oil and jet A-1 fuel. In January of 2009, Air New Zealand and Continental Airlines have run tests in further demonstrating the viability of jatropha oil as a jet fuel. As this research continues and technologies become more efficient, Hawai'i will possibly find that it has met with, learned from, and overcome all of the challenges that an island or any country might face while progressing to a cleaner, more efficient, and higher quality of energy and living.

Conclusions

Hawai'i holds a great potential for becoming a model of sustainability for the United States and for islands worldwide. Many of the identified challenges present opportunities for growth. For example, the financial challenges for consumers and the utilities sector have been partially addressed by a series of tax incentives, net metering and rebates; however costs for energy would still remain high because of the structure of distributed systems in an island setting. Issues that are particularly significant for islands such as land availability and land use will need to be continually considered when designing large-scale projects that would provide more significant power with less disruption to the structure of an island grid. The transportation challenges on Hawai'i have yet to be addressed. Research and development for jet fuel alternatives may yield partial solutions, however city planning and lifestyle changes would need to be explored to relieve residential automotive dependency on petroleum.

As the challenges are identified and addressed, techniques, research, and resulting development could serve as guidance for efforts in isolated locations with goals for becoming energy independent and sustainable, while addressing global climate change. In spite of the challenges, progress is being made on the island. Positive growth for renewable energy has developed over the past twenty years, and continued sustainability and meeting the Hawai'i Clean Energy Initiative goals looks promising.

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ISLANDS OF HOPE

Seeds for Wider Energy Transitions?



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*“Space” serves exactly this purpose, since this is the fantastic function:
an infinite reserve of eternity against time (...)
Space is our friend, our spiritual atmosphere, while time corrupts.*

Gilbert Durand, *Les structures anthropologiques de l'imaginaire*, 1969

Introduction: sustainable islands energy futures as guiding visions

Islands are excellent case studies for the concept of sustainability, and to show the value of systems thinking. Several present island-societies, amongst them those on Baltic Sea or European islands, offer the opportunity to develop a significant change in how sustainability is to be understood in a broader as well as in a deeper sense. In this discussion, we concentrate on geographical islands, although it should be borne in mind that there are instances where communities form an island bounded by factors other than geography such as common interest, socio-economic class, opportunity etc.

Späth and Rohrer have recently described how sentiments and discourses particular to a specific ‘energy region’ can be translated into a localised ‘guiding vision’ for energy sustainability and by that gain transformative power within the region. Although they considered localised mainland regions, small islands will often form just such energy regions and it is instructive to consider how each island’s specific shared heritage, sentiment and vision may influence the transformation to sustainable energy usage. Sustainable energy policies for

islands have not only to address the unique features of islands - but also to reduce the economic vulnerability of small island states by reducing the usage of increasingly expensive, imported fossil fuels. Islands may therefore be particular types of energy regions with different power of regional discourse on socio-technical low-carbon futures.

One of the major policy areas in moving to a sustainable energy future is the move to renewable energy generation and, related to this, the implementation of “Smart(er) Grid”. Smart Grid is an umbrella term that covers modernization of the electricity grid (both transmission and active distribution) using Information Technology providing two-way communication to facilitate more intelligent supply and demand management. Different (competing) Smart Grid architectures could transform the electricity industry and the relations between consumers, generators and prosumers.

Renewable energy generation on islands is not a new area of study, however it is important to describe how renewable energy generation integrates with the new Smart Grid initiative. On the one hand, renewable energy is a very good candidate as an end in itself for most islands. Indeed, the oceans that surround them — through currents, tides, waves, and thermal and salinity gradients — offer a source of renewable energy that remains underexplored as compared to solar, hydro, wind, biomass and biogas. On the other hand, islands are also often regarded as laboratories for, or precursors of, wider energy transitions and the Smart Grid innovation makes no exception.

The aim of this chapter is to introduce current work on transition to a Smart Grid on islands and research into the social learning and behaviours that would influence that transition.

Initially, we summarize key initiatives on renewable energy in islands. Secondly, we explain why islands can be characterised as niches and laboratories of wider energy transitions. Thirdly, we introduce a characterisation of the peculiarities of island energy systems. We then present a brief review of current Smart Grid case studies and the interesting experimentation in Bornholm, Denmark. Our hypothesis is that the reconfiguration towards Smart Grids is highly dependent on the behaviour of the actors who use it. To investigate this, a provisional agent based model (ABM), elaborated within the CASCADE project, is presented in the last section. This model facilitates the identification and modelling of the role of social learning and communities of practice particular to islands. Individual model case studies will be informed by stakeholders’ energy visions and be calibrated using data from current Smart Grid experimentation.

Our ongoing research intends to explore the co-benefits of island case studies for Smart Grid research and island energy self-sufficiency ultimately contributing to two relatively straightforward questions:

1. Are there any socio-technical energy systems and dominant designs more prone to emerge depending on the topologies and scale of islands?
2. How far can we learn and scale up lessons from the studies of island energy communities that are useful in other Complex Adaptive Systems with greater scale and interconnectivity?

Renewables and islands: a short summary of a long engagement

The Smart Grid is by no means the first renewable energy initiative to be trialled and adopted on islands. In terms of both feeling the impact of not moving to a sustainable energy future worldwide and the adoption of leading renewable energy visions, islands lead the way. For instance, the small island developing states (SIDS) have already been grappling with the current and projected effects of climate change through long lasting initiatives from the Global Sustainable Energy Islands Initiative (GSEII) and other consortiums of international NGOs and multi-lateral institutions.

In Europe, islands have been demonstrating the viability of emerging renewables since the 1980s and continue to lead the way - even aiming to achieve 100% renewable energy rapidly in cases such as Samsø (Denmark) or El Hierro (Canary Islands, Spain). From the Aegean Islands to the Western Hebrides and “ultra peripheral regions”, various networks of Island Authorities such as ISLE-NET (created in 1993) aim for sustainable energy visions at different, often ambitious, timescales. Since then various projects have demonstrated progress in areas such as technical viability, Sustainable Energy Communities and energy storage (with or without hydrogen promises...).

European islands have been front runners in raising public awareness of local and regional authorities in delivering the objectives of EU energy policy: affordability, sustainability and security of supply as well as local and regional sustainable development. European Islands now emphasize the need for appropriate funding mechanisms, for example to implement the Island Sustainable Energy Action Plans (ISEAPs) to achieve the European 20/20/20 Directive targets .

Islands as niches and laboratories for wider socio-technical transitions

A growing body of literature deals with the transition of socio-technical systems towards a low carbon world. A research agenda is proposed by the STRN - Sustainability Transition Research network, building notably on the Multi-Level Perspective (MLP) initially developed by Arie Rip and Rene Kemp and popularized by Frank Geels. The MLP offers a framework in which to study Socio-Technical Transition – how innovation (in technology, behaviour or practice) appears and changes the system.

The framework describes transition in terms of a socio-technical regime, which is the dominant mode of operation of the system within its socio-technical landscape. Many niches operate below the regime with different modes of operation. These niches have the potential to usurp the regime under certain circumstances, which describes a transition in the Socio-Technical System. Within such a framework, we are conceiving small islands as sites for niches which may (or may not) seed a change which transforms the regime.

One of the key aspects which has been acknowledged but until now has remained under-researched is that social learning is fundamental to analysis of Socio-Technical Transition. Indeed, it captures the means by which Socio-Technical Systems are produced or re-produced by their actors – through imitation or exchange of experience (Geels, 2005, pp.19-20). Such learning will heavily influence the growth of niches, in some cases to become the dominant regime.

In our research, we chose to focus on this aspect in considering transitions of the energy system and in particular in the electricity system's move to a "Smart Grid". Various definitions of smart(er) grid(s) coexist. We will rely on the definition of a Smart Grid by the EU Technology Platform on Smart Grids, defined as:

"Electricity networks that can intelligently integrate the behaviour and actions of all users connected to it - generators, consumers and those that do both – in order to efficiently deliver sustainable, economic and secure electricity supplies".

(Source: www.smartgrids.eu, 2006)

The move to Smart Grid describes a re-configuration of the electricity grid to incorporate communication links alongside the traditional power supply links, artificially intelligent devices and dynamic management of the grid. One of the goals of such a Smart Grid is to actively manage the load on the grid in order to smooth demand and to allow for intermittent renewable energy production.

The transition to the smarter grid concept is a restructuring of the electricity sector and there remain large technical and organizational questions. Many questions do not have ready answers. What are the effects of higher or lower proportions of variable demand on the evolution of technology required in the electricity grid? What are the effects of introducing micro-generation and/or active demand in large quantity to the grid? Are there "tipping points" in terms of quantity of various elements (such as electric vehicles for storage, smart houses, and so on) required to enable Smart Grid management? At what scale can self-sufficient decentralised systems emerge? How will the technical system (that is, the grid itself) change to meet the demands of the more distributed system as a whole? What intermediate term transition effects emerge that may be undesirable (such as system overloading by introducing "green" technologies such as heat pumps and EVs (Electric Vehicles), before

the grid and active demand management are capable of supporting them)?

Such questions may have different answers in different contexts. A first step is to understand a small system and to model it in a way which demonstrates whether observed phenomena are context specific or lessons may be learned for larger systems. Therefore, we focus now on small island electric networks and their peculiarities to provide insight into the transition to Smart Grid.

Peculiarities of island energy systems: investigating sustainable energy communities and active demand

Island networks with small scale intensify the technical challenges of grid operation, for instance peaks may be more sudden and difficult to manage. An island grid cannot always rely on interconnections with neighbouring networks and existing literature focused on sensitivity to external factors such as primary fuel supply. Each island's energy and electricity systems are particular; however one might attempt to formulate typologies of island energy systems even if contexts, economic development and vulnerabilities are different (Guerassimof et al., 2008). The European Insular Areas Typology identifies and systematically categorises the different types of renewable energy use that are appropriate for remote, ecologically sensitive, island areas.

Most of the attention so far has been on renewable energy generation. In the following paragraph, we focus on the peculiarities of islands when facing the implementation of the Smart Grid, altering energy use practices and reducing energy consumption.

Innovations in an emerging field, like the Smart Grid, create different alternative solutions and opportunities for both existing and new firms and industries. While not the only influencing factor, we focus on the identity of islanders and the role of social learning and the conditions which activate the potential of "active demand".

Identity of islanders and sustainable energy communities

Issues of ownership and identity must be considered when examining measures to encourage local generation and demand reduction/smoothing. Small islands in particular show an interesting dilemma with regard to identity. On the one hand, small islands wish to preserve their unique culture and identity, which leads to a desire to maintain the status quo. On the other hand, in energy terms, preservation of the status quo often means perpetuating reliance upon large mainland corporations or metropolitan authorities to supply energy either as electricity via interconnection or raw fuel. This relationship often gives large energy companies ownership of infrastructure and control over strategic decisions, local employment and tariffs. Kathleen Stuart, author of another article in this book studied the islands of Åland, Jeju and Prince

Edward Island. With regard to renewable energy generation on those small islands, she notes that this dilemma has led to patchy adoption when there is no support from a powerful champion within the small island jurisdiction. To realise the full benefits of Smart Grid technology on islands, then, it is clear that this dilemma needs to be addressed. Stakeholder engagement at all levels is crucial to enable energy efficiency and adoption of renewable and small scale generation whilst remaining aware of the need to preserve individual islands' identity. The pre-disposition to maintain the status quo is consistent with findings that small islands tend to lag behind in terms of technical efficiency.

Conditions to activate the potential of active demand

Research on energy communities tends to concentrate on one aspect of the social dimension, the “acceptance of renewable energy technology”, its definition and measurement. We are more interested in how communities can engage in designing solutions and in particular in active demand.

Active demand is a generic term to describe technical solutions both at the consumers' premises and at the power system level to enable active demand and to allow real-time response to requests from markets and/or other power system participants. Therefore the new innovations focus on:

- Interaction through real-time price and volume signals (via an Information Technology network)
- A new “demand approach” to foster the flexibility and active participation of consumers or prosumers
- Distributed intelligence and local optimization.

Various projects in the EU are addressing the issues around active demand and the different business models. In the following, we will present some Smart Grid demonstration projects, with a particular focus on Bornholm.

Early examples of Smart Grid deployment

Smart Grid deployment has commenced on islands of various sizes: Malta, Orkney, Bornholm or Jeju Island in South Korea are relatively small scale islands; Smart Grids in New Zealand, Ireland and Taiwan represent larger scales. Studies mostly concentrate on integration of large quantities of renewable energy; indeed in some islands (e.g. Ireland) the potential of renewable energy is larger than the prospects for consumption. Another important topic is the study of load management balancing the supply of electricity on the network with the electrical load by adjusting or controlling the load rather than the power station output. Special tariffs are sometimes designed to influence consumer behaviour.

An integrated case study on Bornholm, Denmark

Bornholm is an island situated in the Baltic Sea. With respect to area, electricity demand and population, Bornholm corresponds to approximately 1% of Denmark. Østkraft is the electricity distribution system operator supplying electricity to about 28,300 customers on the island. Of these, 302 consumers (1.08%) have a yearly demand above 100,000 kWh, which accounts for some 30% of the load. The peak load was 56 MW in 2007. Electrically Bornholm is only connected to the mainland power grid through a sea cable to Sweden. This gives a possibility of running in island mode, giving unique possibilities of studying the power grid (including the impact of electric vehicles). Bornholm also has a high share of wind energy in the consumed power; in 2008, the share was approximately 30 %. This makes Bornholm a small model of the expected society in Denmark in the year 2020, when Denmark is committed to reach a goal of 30 % renewable energy.

However, Bornholm has a more ambitious vision of becoming a “Bright Green Island” including the goals of becoming 100% based on renewable energy, utilizing Bornholm as an experimental facility for the future energy system and creating green jobs and development on the island. The starting point is one of the most ambitious energy strategies in Europe that lays out how 77 % of the island's energy supply will come from renewable energies by 2025. This combined with a strong public-private cooperation, the development and use of innovative energy-friendly technologies, a list of present and coming green projects, and a business plan that ensures the profitability of the transformation, makes the vision realistic.

The Danish EDISON project has been launched to investigate how a large fleet of electric vehicles (EVs) can be integrated in a way that supports the electric grid while benefiting both the individual car owners and society as a whole through reductions in CO2 emissions. The preliminary research will be used to conduct field tests on Bornholm starting in early summer 2011 and lasting about six months. The consortium partners include energy companies, technology suppliers and research laboratories and institutes. The aim is to perform a thorough investigation of the challenges and opportunities of EVs and then to deliver a technical platform that can be demonstrated on the Danish island of Bornholm. The field tests may bring solutions to the challenge of charging a large number of electric vehicles.

In addition, the EcoGrid EU project is scheduled to be running from early 2011 until the end of 2014 with the aim to convert the Bornholm electricity system to 50% renewable energy and demonstrate Smart Grid principles and devices. These projects have led to Bornholm being called the “Smart Grid lab for Europe”.

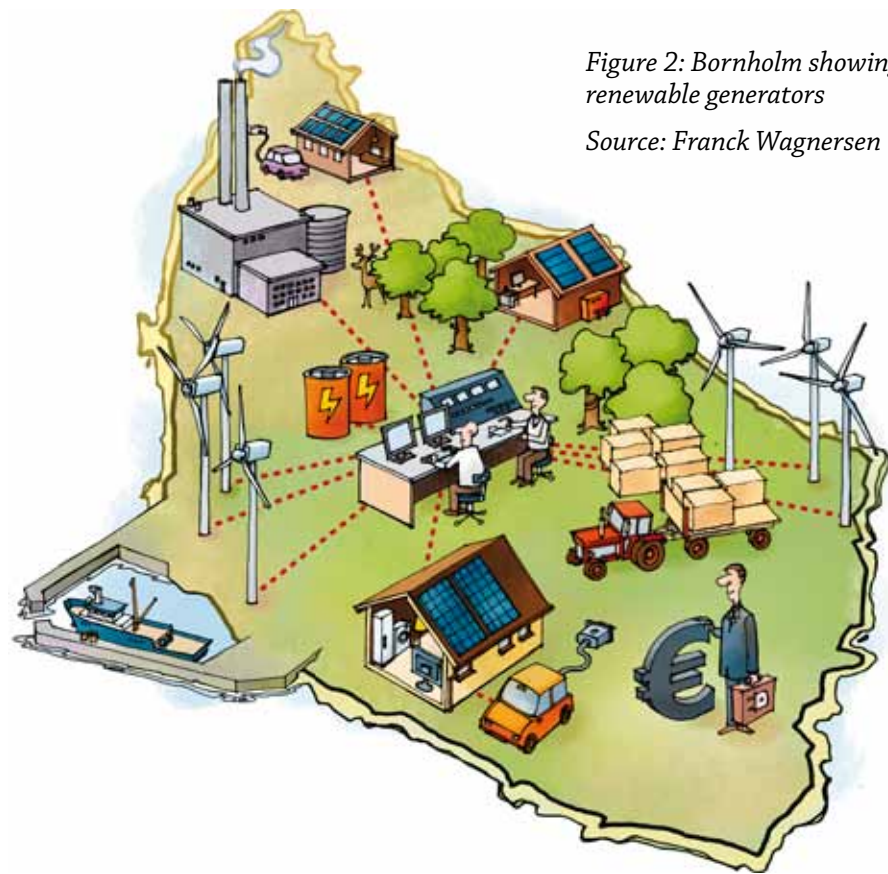


Figure 2: Bornholm showing renewable generators

Source: Franck Wagnersen

The use of Agent Based Models (ABM) could help to analyse and test a range of Smart Grid implementation strategies and policies.

Behaviour, learning and prospects for the use of Agent Based Models

In order to successfully model different energy regions, it is very important to include behaviour and learning of agents in a model of changing energy consumption. In the CASCADE project, we have outlined an Agent Based Model to incorporate behavioural and learning capabilities in a simulation to describe the transition of the electricity network to a Smart Grid. The model has the flexibility to incorporate heterogeneous “Energy Cultures” (as defined in the New Zealand research project by Stephenson et al, 2010) and social learning of consumption patterns and measure their impact on the dynamics of the consumption. At the time of writing, the ABM has been implemented at small, prototype scale and is able to simulate a dynamically managed demand in response to a signal. Initial trials confirm that individual and social behaviour is significant in the overall consumption and therefore system efficiency.

Differing theoretical foundations for behaviour have been implemented in the prototype and the comparison of their effects is under way. Central to

the question is how to represent the cognitive agents, individual and social learning or how they co-frame new business models. Calibration of the model utilising secondary data from studies of behaviour in relation to Smart Grid implementation will be an ongoing process which will be recursively refined as more studies become available.

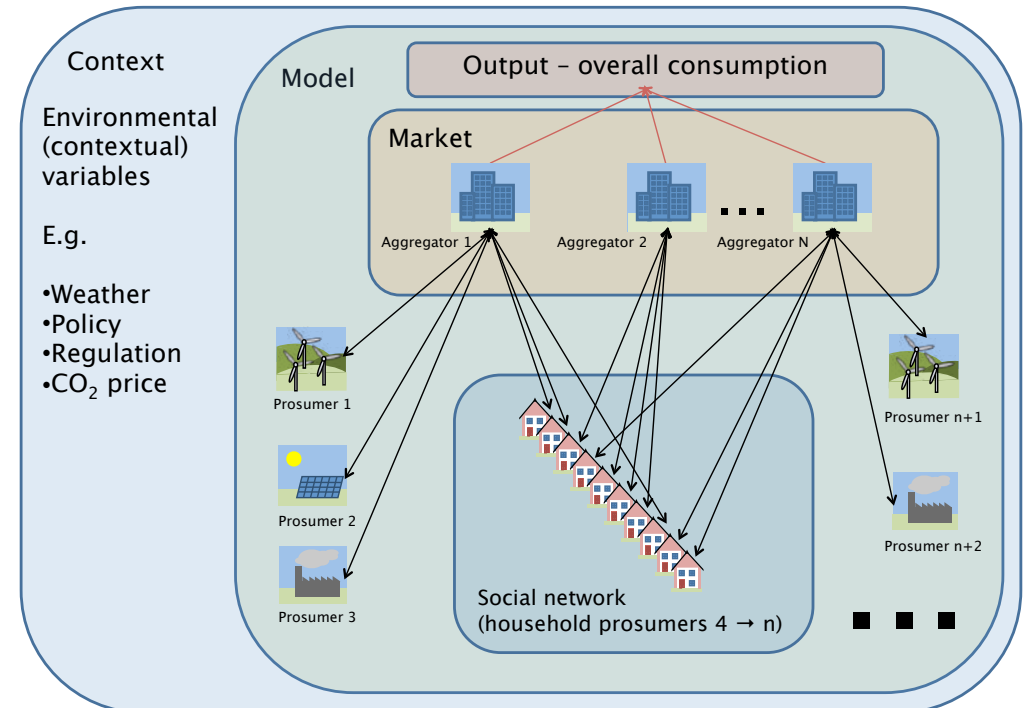


Figure 3: High level Smart Grid ABM representation. Source: Snape et al 2011.

This approach to modelling could yield interesting data for policy makers, regulators and funders alike when considering where to target incentives and financing in order to seed the changes which will yield most benefit. The advantage of the modelling approach is that, once calibrated and validated, findings may be scaled up to systems far bigger than those with which it is possible to conduct real-world trials.

Conclusion

The Smart Grid concept is challenging the conventional grid approach and in turn will alter social, economic and technological connectivities both within an island and between islands and other communities. Island case studies, with their specific peculiarities as described above, offer unique opportunities to model and study real world scenarios.

This chapter builds on an expanding literature trying to design novel approaches to modelling transition to a sustainable electricity generation system. The new CASCADE project will contribute to the issue of modelling the socio technical transitions, the role of agent behaviours and the impact of potential business models.

This chapter has outlined the suitability of simulating this transition via ABM which is novel within the electricity sector. It has also outlined the way in which such an approach is applicable to islands and how lessons could be learnt from a diversity of island case studies which can inform our understanding of the transition to a Smart Grid. In turn, the transition will benefit island communities as they have reduced dependence on connectivity to others either via direct electricity import or fossil fuel imports. Smart Grids are likely to also improve dependability of supply in territories where that is an issue.

Hopefully, Island case studies will provide some insights on how peculiarities of (low carbon) island communities regarding values, social dilemmas, sentiments and conventions may shape differently the Smart Grids of the future.

Acknowledgements

The authors would like to thank Godfrey Baldacchino for inspiring the title as well as internal reviewers and participants at the CRT /ISISA conference in Bornholm, August 2010 for their comments, Elie Bellevrat and Lena Bloemertz for critical review and challenging questions. Rynikiewicz and Snape conducted this research as part of the CASCADE (Complex Adaptive Systems, Cognitive Agents and Distributed Energy) project, funded by the UK EPSRC (Engineering and Physical Sciences Research Council).

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FROM ECOLOGICAL FOOTPRINT TO ECOLOGICAL FINGERPRINT

– sustainable development on Helgoland



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*Irgendwo ins grüne Meer
hat ein Gott mit leichtem Pinsel,
lächelnd, wie von ungefähr,
einen Fleck getupft: die Insel.
Und dann hat er, gutgelaunt,
Menschen diesem Fels gegeben
und den Menschen zugerant:
Liebt die Welt und lebt das Leben!*

James Kruess

Introduction

Have you ever thought about how many hectares of land are needed to support your lifestyle?

Do you know how much land is used to produce the food, furniture, or other fundamentals necessary for ordinary life?

And have you ever wondered how much energy is needed to transport these goods from their point of production to the consumer and finally to waste disposal?

Research has shown that on average, bread production in Germany generates about 955 grams of CO₂ emission per kilogram. 59% of this is directly linked to consumer behaviour, such as walking or driving to the store, the shopping bag we use, or whether we make toast or put the loaf in the deep freeze. An average person in Germany needs 4.2 so-called global hectares of land to support their current lifestyle. Contrast this to an average person in Tanzania who uses a mere 1.1 global hectares to survive.

Once used, energy is gone forever. Moreover, burning fossil fuels produces emissions which have an impact on our atmosphere, on the environment and in the long run on our climate. If done appropriately, however, the piece of land where cereals are produced can be used again and again, supporting not only the current but also future generations. Sustainability is the concept of dealing with the earth's resources in a way that is economically viable, ecologically sound and socially fair. The often quoted definition of sustainability from the Brundtland Commission is to: "meet the needs of the present without compromising the ability of future generations to meet their own needs." Sustainability is not about stopping consumerism, but about reflecting on the impact our actions have on the earth and on future generations. The world's population needs to use the earth's resources in order to survive. The problem is that we use more than can be reproduced or regenerated in an appropriate timescale.

Space is a limited resource

August 21 was World Overshoot Day for 2010—the day on which we exhausted our ecological budget for the year. On that day, humanity had used up all the ecological services that nature could provide in that year, from filtering CO₂ to producing the raw materials for food. From that point onwards, our needs could only be met by overspending, which we do by liquidating resource stocks and accumulating carbon dioxide in the atmosphere. It is hard to imagine what this actually means. Numbers, figures, data—we have only limited imagination to picture what our personal impact on the earth's capacity really is. To help us imagine this, the two Canadian scientists Mathis Wackernagel and William Rees developed the concept of Ecological Footprint (EF).

The Ecological Footprint is a geographical concept developed to illustrate the ecological overshoot of humans on earth, to better understand our earth's limited resources and to recognize the necessity to change towards a sustainable lifestyle. An Ecological Footprint assessment can work as an aid for policy-makers, and encourage the development of renewable energies and a more responsible lifestyle. It measures flows of energy and matter to, from and within a society in order to account how much productive land area is necessary to supply all the goods and degrade all the waste for that society. The result is the footprint this society leaves on earth.

Small islands per se have limited space and therefore depend on the import of goods for supply. Transportation is crucial for survival, and neither the island nor its population are to blame as this is simply a geographical fact. However, it is worth thinking about what sustainability means in this special case, where most of the products are imported from and how the reduction of ecological impacts may be linked to the islander's way of living and behaviour. Remember: More than half of the EF of a loaf of bread is connected to consumer behaviour.

We use the example of Helgoland in Germany to analyze the impact of small islands on the earth. First we explain the idea of the Ecological Footprint concept; then we report from our study about lifestyle on Helgoland before we ask the question: How big would Helgoland need to be in order to produce its own supply for the island population without changing the current standard of life? But is the Ecological Footprint really a viable concept for the special situation of small islands? Is it fair to use the Ecological Footprint on islands where almost everything has to be imported? How can we think differently about future sustainable development of islands and should the concept of Ecological Footprint be replaced?

The Ecological Footprint

Planet Earth is limited, its surface comprising about 510.1 million km². Its biocapacity is limited too, which is already being exceeded by human exploitation. Currently more resources are extracted than can be renewed by the natural system (measured within one year) and humanity's imprint on the earth's ecosystem is becoming more and more visible. The Ecological Footprint concept illustrates the ecological overshoot of particular groups of people, from the individual to the nation-state and the world. The EF calculates the necessary productive land and sea area to supply all goods and degrade waste for that specific society—measured in so-called global hectares: The area with global average productivity available/needed to supply the demanded resources.

Originally an educational tool, the EF concept has reached broad application in governmental assessments and regional planning. Additionally, it is useful commercially and at a company level. The weakness of the concept, however, is its broad generalisation and superficiality. How far do you go to determine the necessary global hectares for producing a TV-set? Once you start thinking about the parts to be assembled, the energy needed for their production, and the tools you will need to put everything together—which themselves need resources and energy to be produced etc., you realize you will get carried away and go on forever. Thus, the actual EF result alone is not accurate and therefore, can be criticised for being not very powerful. Besides it is very complicated to calculate.

Nevertheless, the EF has the advantage of being a geographical concept, pointing out the human/nature-interaction. Space is an imagined concept and it is not the absolute figure in itself which counts but the comparison of different societies and different lifestyles. Moreover, EF allows comparability between units. Our emphasis is on the case study of Helgoland but also on small islands in general where the constraint of limited productive space is even more acute than in continental societies.

The island of Helgoland, Germany

Helgoland is over 40 km off the German coast. It is composed of the main island of about 1 km², site of all permanent settlement of the roughly 1,200 inhabitants, and the dune of 0.7 km², the base of the airport and some tourism infrastructure. The main geological features are “bunter sandstone” and “shelly limestone” from the Lower and the Upper Carboniferous to Middle Permian age, uplifted and tilted by salt tectonics during the Triassic Period. The paramount elevation ends in the ca. 60 metre high rock massif of red sandstone: the well known symbol of the island “The Lange Anna”. Due to rough weather conditions, local vegetation is very hardy. The typical plant on the island is the “Klippenkohl”, a type of collard, which can be found in Germany only on Helgoland.



Helgoland's history is a history of changing occupation and changing strategic importance. As part of Schleswig it remained under the Danish crown until 1807 when it became a British colony. In 1890 Helgoland became part of the German Empire through the Helgoland-Zanzibar treaty and later developed into a massive marine base. After the evacuation of the island in World War

II, it was completely bombed by the British Royal Air Force in order to destroy all ammunition on the island. Until 1952 it remained British, when it was returned to Germany and resettlement began.

The traditional fishing sector is almost completely irrelevant for today's island economy, which is mainly shaped by tourism (hotels and duty-free shopping), science and administration. The Biological Institute Helgoland (BAH), a branch of the Alfred Wegener Institute for Polar and Marine Research in Bremerhaven, has a long tradition of studying biotic communities in the North Sea dating back to the late 19th century. It entertains six biological laboratories, an experimental aquarium and several guest houses for intern scientists on the island. The unique habitat of rocky tidal flats extending over 35 km² is home to the richest marine animal and plant life along the German coast.

No car traffic is allowed on the island and bicycling is only accepted for children under the age of 14. The deep sea island, way off the mainland, is an oasis of calm and fresh air, especially suitable for persons allergic to pollen. Due to the temperate marine climate no air conditioning is needed. Heating and hot water is organised centrally via district heating. Fresh water is scarce and especially in the summer months, when tourism is at its peak, the desalination plant has to provide the island with water. Food production is non-existent. Apart from a little private allotment gardening and a few sheep to stop the grass from flowering, every egg and every litre of milk has to be imported. In a nutshell, there are advantages and disadvantages to life on Helgoland, with impacts on energy needs and the basic provisions needed to sustain that life.

The Ecological Footprint of Helgoland

In order to calculate the Ecological Footprint of Helgoland we undertook an empirical study on the island in February 2009. The intention was to measure the global hectares needed for supporting the islanders' lifestyle but at the same time to find out about the islanders' ecological awareness and behaviour. For this purpose, expert interviews were conducted, data on transport, energy, infrastructure and import/export were collected and a population survey was carried out. Of the ca. 1,200 total population we questioned 308 inhabitants (half men, half women) about the type of building they lived in, their energy and water consumption, their waste separation activity, their consumption of durable goods and food, and other consumer preferences. We also wanted to find out about their travelling patterns and vision for Helgoland's future. To understand the island's land use, and to calculate the EF we mapped the settlement area of Helgoland, from which we designed a functional map (see figure 1).

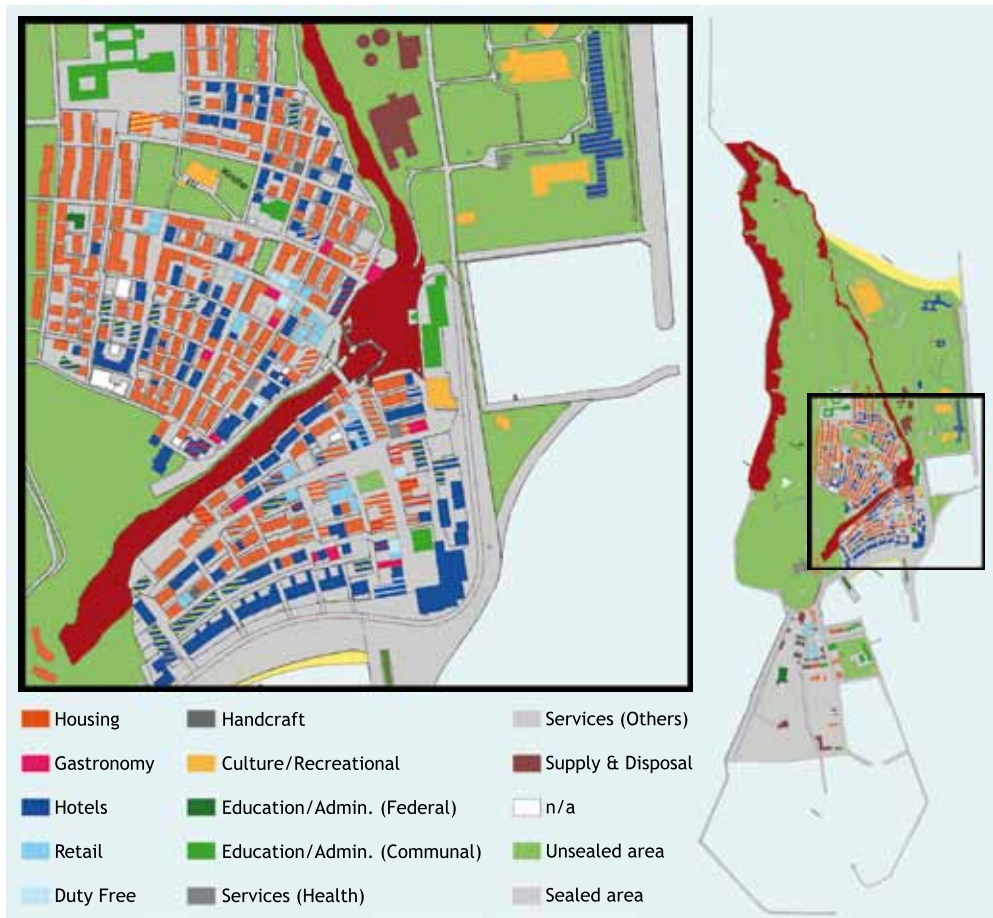


Figure 1: Functional Map of Helgoland (Jan Petzold 2009)

Space for housing in general is finite, which leads to a high density of buildings on Helgoland. Houses are mainly detached family homes and houses with three or more apartments. All buildings were constructed after the resettlement in 1952, with 96% built between 1952 and 1998. On top of the spatial limitation, house owners have only limited opportunities to restore or modernise their houses. This is due to the strict preservation order imposed by the German government to protect the only coherent “post-war building complex” in the country. This preservation act comes up against much criticism on the island. Designed to preserve the townscape, it causes problems for the necessary modernisation works such as insulation and making houses more energy efficient. Only about 40% of those surveyed stated they had invested in energy-saving restoration work.

Transport to the mainland is either by air or by ship, with frequencies highly dependent on the season and the weather. In 2008 there were about 3.600

air traffic landings mainly by small aircraft, landing on the airstrip of the dune. Ship traffic is organised through regular connections from the German mainland; freighters come once a week and passenger ferries travel daily from various coastal cities. In the winter season, however, there is no daily transfer and many times the ferries have to be cancelled due to bad weather.

Lifestyle and consumption in Helgoland is not specifically different from that of the mainland. Daily meat consumption by 52% of the people surveyed can be considered a normal average in Germany. Only 4% are not in the possession of a TV set. Far more than half of the population own a microwave, fridge, freezer, dish washer, tumble dryer, computer, and other electrical gadgets. According to our survey, the minimum is one such device each. The maximum found was 9 TV sets and 5 boats, mainly due to involvement in tourism.

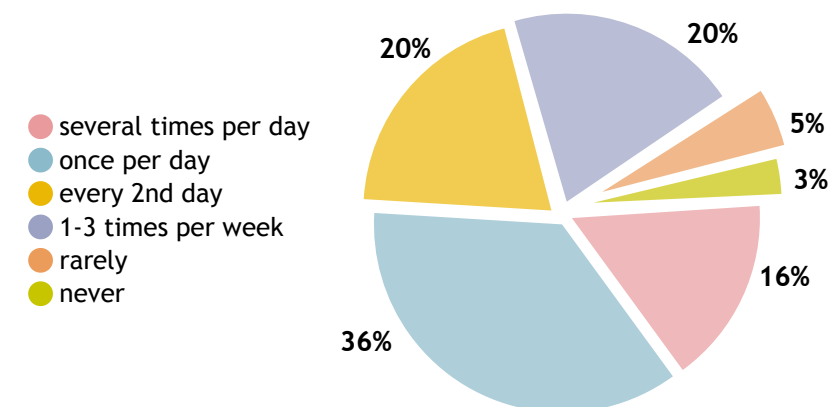


Figure 2: Meat consumption

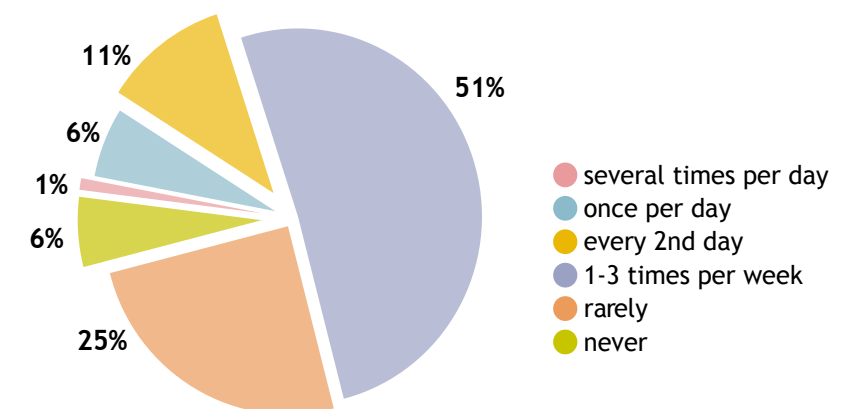


Figure 3: Fish consumption

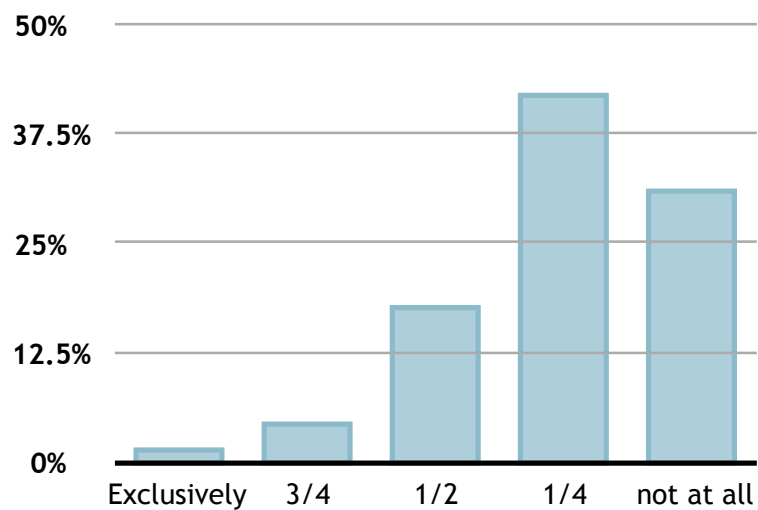


Figure 4: Organic food consumption

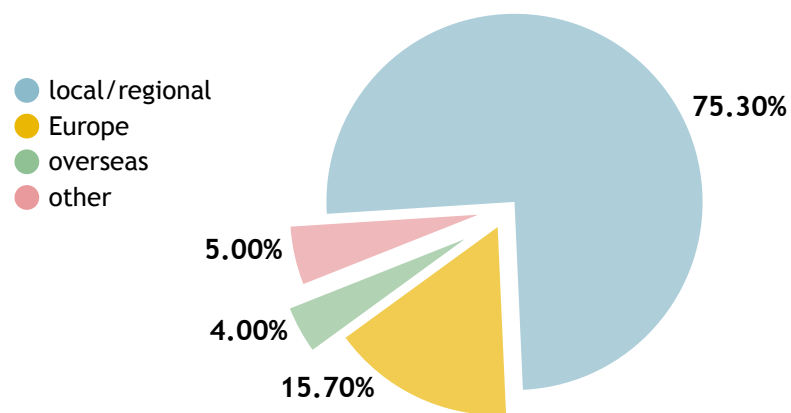


Figure 5: Origin of food

Surprisingly there is no significant fish consumption. This may be because the fishing sector has all but disappeared on the island – thus, fish can only be supplied by imports, like on the mainland.

When asked whether they preferred buying organically grown food, over 60% of respondents answered yes, however, there was a complaint that organic food was rarely available on the island. Less than 40% pay special attention to organic products when they shop. The origin of food is particularly important for the EF as well, as this can contribute to reducing transportation costs. More

than 75% of the people on Helgoland said they preferred products from nearby or from the rest of Europe. However, this is difficult to evaluate, since the majority of frozen foods have ingredients with unknown origin. Consumption of frozen foods on the island is high not only due to their longer shelf life, but also to the relative unreliability of supply especially in the winter months. Fresh food is available only from the weekly freighter.

Since the electricity connection to the mainland grid was established only recently at the end of 2009, all the power for electricity and heating was still generated on the island at the time of our survey. Experiments with wind power had failed in the past, so diesel generators were responsible for all power generation and heating. Fresh water is supplied by the local desalination plant. However, due to the high costs of desalination, tap water is more than double the price on the mainland (7.60 €/m³ and 1.40-3.10 €/m³ respectively). This also leads to less consumption (100 litres per person per day in contrast to 143 in Schleswig-Holstein on the mainland).

Separated waste is collected from the island once a week. Separation is similar to mainland standards (cardboard, recyclables, bulky waste, hazardous material, residual waste). According to our survey, 36% of the people separate everything, 61% everything except compost and 2% only glass. 1% admitted to not recycling at all. Significantly, there is 10 times more garbage in the summer months than the rest of the year.

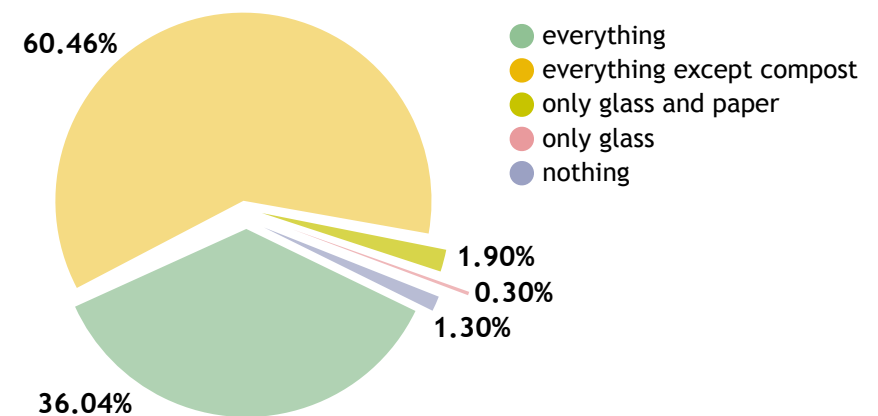


Figure 6: Which type of waste do you separate?

Based on the collected data and fed by the insights on lifestyle and consumption patterns in Helgoland we calculated the Ecological Footprint of the islanders of Helgoland. Table 1 below shows the result of the Ecological Footprint calculation, divided into land use (columns) and consumption (rows) categories. With 6.8 ha per capita, the EF of a Helgolander is about 1.5 times

that of the average German footprint. This is because the supply of goods and waste disposal needs shipping and energy generation depends on the diesel power plant. Furthermore, there is a high demand for heavy machines for shoreline stabilisation. Intensive tourism too is not only an important economic factor, but another reason for increased consumption figures. The footprint is significantly higher than the world average of 2.59 ha per capita. This is to be seen against a global biocapacity of only 1.81 ha per capita—not to mention the effects of non-sustainable production on the earth.

	Energy	Settlement	Crops	Grazing	Forest	Marine	TOTAL
Nourishment	545.60		317.64	1,596.28		760.52	3,220.04
- animal-based	276.18			1,596.28		760.52	2,632.98
- plant-based	94.28		63.52				157.80
- liquid	175.13		254.13				429.26
Housing	2,845.26	30.00					2,875.26
Transport	1,084.79						1,084.79
- Air traffic	164.56						164.56
Consumption goods	3,132.44		101.84	88.13			3,322.40
- Metals	71.62						71.62
- Aluminium	61.83						62.00
- Building material	423.21						423.21
- Machines, vehicles	2,575.77						2,575.77
- Clothing			88.13	88.13			176.25
- Other			13.72				13.72
Services							
TOTAL	7,608.09	30.00	419.49	1,684.40		760.52	10,502.50

Table 1: Consumption – Land use matrix (all values in hectares)

According to our calculation the Ecological Footprint of the island of Helgoland in total is 10,502.5 ha. With a total surface area of 170 ha, Helgoland uses around 62 times of its own surface per year in order to secure its current lifestyle. Looking at the spatial distribution of land use, almost three quarters are used for energy, followed by pasture and agricultural land. Energy has the biggest spatial need because of the multifarious variations of energy use, for heating, for production, for transportation, for water supply etc.

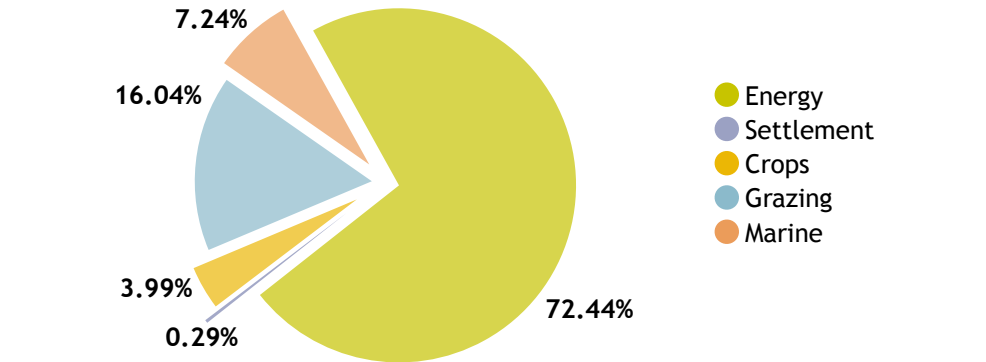


Figure 7: Land use in Helgoland according to categories

Islands’ Ecological Fingerprints

Helgoland is only an example and may be not even a very typical one for small islands. However, it can be used to increase awareness of the limits and potentials of sustainable living on small islands. Due to their particular circumstances small islands will always need more resources than they can provide for themselves. As explained above, the Product Carbon Footprint of a loaf of bread is largely dependent on consumer behaviour. The production of cereals, milling and baking, other ingredients, packaging, distribution—all these components together make up less than half of the impact of a loaf of bread. The islander, however, has no real way of influencing the production section of the footprint. And if there are no organically grown or local products available on the island, choices are even less. Unreliable supply chains make it necessary to store goods, for example by freezing them, which increases costs. And to go shopping for electrical gadgets or clothing means a trip to the mainland. Sustainability is difficult in insularity and isolation. Is it fair to calculate the Ecological Footprint of a small island?

Each activity and demand for resources does leave a footprint on the earth which can be measured in global hectares. Small islands will always need more global hectares to sustain themselves than their size would allow. What matters beyond the Ecological Footprint, however, is what islanders do to contribute to a sustainable lifestyle. Their possibilities to act will depend on the island itself – e.g. its size or distance to the mainland –, but more importantly, on the attitude that accompanies resource use and the effort that is made to reduce one’s impact on global resources. Whilst choices are limited, they do exist for islanders, just like they do for mainland societies, in what consumer and lifestyle choices they make. These choices lend islands a distinct fingerprint: large or small, high or low, intense or weak, the ecological fingerprint is a measure of the particular attitude, self-image and intrinsic values an island chooses for itself with respect to global resource use.

Rather than the footprint, it is thus the fingerprint of an island which should be measured to indicate the prevalent island attitude and its active contribution to sustainability. The specific fingerprint of an island location should then be compared to similar circumstances—to other small islands which are confronted with similar problems and potentials. The Ecological Fingerprint of small islands can create awareness and foster policies or stimulate sustainable action on small islands faced with special challenges.

In consequence, to achieve long-term sustainability any results should be translated into policy measures. However, to effectively apply strategies for reducing human imprints on the earth and thus moving towards long-term sustainability, it is necessary to know more about the ecological awareness of the islanders and to analyse the detailed features of island society's resource flow. Results can be integrated in development strategies, to ensure that planned actions do not increase but decrease the existing impact on the earth. For this reason the approach of the Ecological Fingerprint focuses on human behavioural change towards a more sustainable lifestyle. In the end what small islands leave on earth is their special fingerprint either green, or blue or red.

Further reading

Global Footprint Network: *Advancing the science of sustainability*. Here you can calculate your personal Ecological Footprint: <http://www.footprintnetwork.org/en/index.php/GFN/page/calculators/>

Märkisches Landbrot – mein Konsumerverhalten: *Den Einfluss auf den Product Carbon Footprint (CO₂e-Fußabdruck) meines Einkaufs*. Here you can calculate your personal footprint for a loaf of bread: <http://landbrot.de/pcfml/index.php>

Ratter B (2009) *Der ökologische Fußabdruck von Helgoland – Ergebnisbericht der empirischen Untersuchungen auf Helgoland*. See: <http://www.fussabdruck-helgoland.de>.

Wackernagel M and Rees W (1996) *Our Ecological Footprint. Reducing Human Impact on the Earth*. Gabriola Island, British Columbia: New Society Publishers.

The outcome of the EF calculation means little in itself and becomes powerful only when compared to other similar cases. Small islands may differ greatly globally, so that a comparative assessment of the Ecological Footprint can be helpful to gain insights into sustainable lifestyles on small islands.

An online survey for calculating the Ecological Footprint of small islands is available here for use by all policy-makers, scientists and activists.

See: <http://islands-footprint.com/>

Since the site's launch in February 2011 we have already had answers from islands such as Aldabra (Seychelles) and the Isle of Wight (UK). We invite you to fill in the online form and view the results for the island you are interested in.

The objective of this study is to analyse the applicability of a generalised Ecological Footprint calculation method for small islands. Hopefully, it will contribute to a deeper understanding of sustainability on small islands. Please join in....

