

Preparatory Reading:

Sustainable Scottish Communities Workshop



Workshop dates: 10-11 November at University of St. Andrews School of Management

Introduction

Project Scope: This project aims to explore what sustainable community could mean in Scotland in 2025. A key output of the project is a robust set of credible scenarios that considers what the sustainable community could look like in the future.

What to expect at the workshop & beyond: A two day workshop will be held in St Andrews at the School of Management on 10 and 11 of November, 2009. First, attendees will converse about the key issues dealing with sustainable communities in Scotland. We will then identify ten key drivers for the future and plot these on a continuum based on uncertainty and importance. Next, we will explore how the drivers interact, creating between two and four distinctly different scenarios explaining the future of sustainable Scottish communities. This workshop promises to be an exciting experience with participation from experts in many fields.

The outcome of the workshop and subsequent written scenarios will guide policymakers as they make infrastructure and service policy decisions in the coming years. This document communicates several of the key issues we have identified within sustainability in Scottish communities.

How information was gathered: The information contained in this document is a summary of the knowledge gathered by several groups over the course of the project. Two student groups contributed, at the University of St Andrews and Edinburgh University. In addition, notes from several meetings with experts were incorporated. Lastly, areas requiring additional research were explored further by colleagues in the School of Management at St Andrews and the Scottish Futures forum.

What is Sustainability?

'Sustainability' has no single or agreed meaning. 'It takes on meaning within different political ideologies and programmes underpinned by different kinds of knowledge, values and philosophy' (Huckle 1996: 3). A 'weak' view of sustainable development looks to continuing economic growth on terms that favour existing financiers and corporations (while maintaining the support of the majority of voters in countries like the UK). A strong view 'represents a revised form of self-reliant community development which sustains people's livelihoods using appropriate technology' (Huckle 1996: 4). The former would fit in with what we might now describe as the mainstream of politics in many northern countries; the latter represents a greener and more holistic vision. It echoes the concerns of E. F. Schumacher (1973) when he argued for a concern with appropriate scale, wholeness and connectedness.

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Issue 1: Energy

“It's this simple: wind farms the size of London, or safe, clean nuclear plants”

Non Renewables:

- Diesel- European imports are expected to double by 2020 to 67 million tonnes per year
- Natural Gas- Large supplies could be secured from Russia, but investment must be made in the exploration as well as stabilising the political situation between Russia/Europe
- Coal- Becoming a cleaner option with the advent of carbon capture and storage. Other than CO₂ emissions, burning coal creates a material called coal ash. In the U.S. 130 million tons of waste from coal ash is produced every year. In the UK much of this material is ‘recycled’ for use in concrete, road cover, etc. The big problem is this ash material contains hazardous substances such as mercury, arsenic, lead and other toxic materials which can seep into groundwater and are toxic to inhale.

Renewable Energy:

- Wind-The UK is currently the biggest producer of offshore wind power.
Funding: Wind is far more expensive than other forms of power, for instance, building offshore wind farms, would cost 3 million GBP per megawatt of capacity, gas burning plants are 1/6 the cost to build. Therefore, government incentives have to push for wind energy if we are to reach the target of 15% renewable energy by 2020. Although wind has many advantages, unless large scale wind farms are implemented, the servicing cost for these turbines can be very high.
- Wave-This newly emerging technology could provide Scotland with a booming business in wave energy along with new jobs.
Funding: When wave technology was first developed the Scottish government offered incentives to companies which made Scotland the home of wave energy development. Now, however, the funding is gone, and companies are beginning to move elsewhere, for instance: Ireland.
- Rivers-Both the natural flow of rivers can be harnessed to produce energy as well as low impact hydro plants where a section of a river is diverted for power usage as opposed to the high environmental impact of dams.

Nuclear- Proponents say its clean, emissions free, and has a good safety record.
However, concerns are: safety, radioactive waste disposal, terrorism security, health impacts.

New Technology/Funding

Combined heat and power plants harness wasted heat generated by traditional power plants to produce more energy.

Wood and Pellet stoves are becoming more efficient and use waste materials/highly renewable sources of wood to produce energy.

Solar technology is becoming more efficient with new affordable solar shingles and other products, along with producing energy, these technologies are now being used to just directly heat buildings. This type of technology is low cost because of increased competition to make this technology affordable for residential consumers.

Other technologies include using waste to generate power, both through both incineration and capturing landfill gases to power energy plants, this reduces the emissions of the harmful gasses into the atmosphere and the dependance on fossil fuels.

Cost of renewable technology development is a deterrent to widespread implementation and is compounded by decreasing government subsidies and grants for these technologies.

There is a need to form a consistent choice for incorporating alternative energy/electricity models between individual systems for each house or a collective heat/electricity source powered through alternative energy.

Issue 2: Food & Water

“around one fifth of all the UK’s greenhouse gas emissions are from the food system”

Global Food Competition - the global food market means prices from other regions may be less expensive than those in the immediate area, even including shipping cost. This is detrimental to local farmers and contributes to emissions in the shipping process.

Local vs. Imported Food/Greenhouse Gas emissions - 20% of emissions in the UK are from the food system. Local does not necessarily mean environmentally friendly though, developing countries’ farming methods oftentimes are much more environmentally friendly than the mechanised labour/chemical fertiliser in the developed world.

Agriculture within rural development - High-input farming has shown clear signs of unravelling the fabric of the rural environment. Economic recession, problematic land restitution and structural changes have caused out-migration and a disruption of traditional patterns of land use that are threatening formerly man-created and managed ecosystems. A study of the ten accession countries published by the Institute for European Environmental Policy highlighted 'land abandonment' as the most serious issue concerning rural development and harmonisation of agriculture with biodiversity.

Rising Food Prices - Compared to 2005 levels, the price of maize will increase by 40%, wheat 20%, and rice 14% by 2016-17.

Sustainable farming methods/Land Management - Some companies are adding larger numbers of naturally occurring fungi to the soil in order to bring nutrients to soil especially for difficult to grow crops. This may reduce the reliance on harmful artificial fertiliser and chemical pesticides. Although pesticides remain a large issue for farmers trying to sustain an economically difficult business especially in the industrialised world.

Factory vs. Small scale farms - large factory farms were shown in many studies to be hazardous to the environment through a number of factors. First, these farms reduce large amounts of air pollutants from the large scale animal operations. Not only are people in surrounding areas at risk for developing health problems associated with these pollutants, but the animals and farm workers inhale a large amount of these pollutants as well, creating severe and chronic health problems for workers and animals.

Food biodiversity - Large scale production has dramatically narrowed the species of plant and animals we consume. As a result, animals are bred for very particular conditions, often making them less resistant to disease, forcing farmers to use antibiotics and climate-controlled housing, thereby raising costs.

The key for food production/diversity is to provide enough good quality food, while balancing environmental, economic and social factors.

Water- The demand for water will continue to rise in the developed world- 10% by 2025. Suggestions for increased use of rainwater in construction such as using rainwater to flush toilets and use of greywater in gardens is suggested.

Changing patterns of snowfall are affecting flooding patterns and making flooding more prevalent. Also, in Scotland, the west is becoming wetter in the winter months and the east becoming drier in the summer months.

Issue 3: Transport

"Many Scots drive to work without being aware of the alternatives"

Transport is one of the most information rich areas in sustainability research. Innovation in the transport sector is rapidly developing.

The Transport Scotland Corporate Plan 2008-2011

Road and Rail: *"Reducing greenhouse gas emissions and achieving changes in both the means and patterns of travel are key challenges in securing sustainable economic growth and a greener Scotland. Government's Strategic Target is reducing emissions by 80% by 2050.*

Action on Climate Change:

- A number of road maintenance schemes over the Plan period using the latest sustainable construction techniques and recycling processes.
- The Scottish High Level Output Specification (HLOS) outlines specification for a £3.6 billion rail blueprint for the period 2009-2014, aimed at offering more high quality public transport alternatives.
- Electric trains use 25 per cent less energy than equivalent diesel trains. When supplied from sustainable power generation, electric trains can offer emission-free transport.

Rural Transport - The accessibility of rural transport is of increasing concern in recent years with funding cuts. In many areas, private cars and taxis are the only option.

Increased Government Spending on Airports and Motorways - Large road building schemes and airport expansions were recently approved. The money spent on these roads does not directly benefit the 37% of households that do not own a car.

Lack of Funding for Active Travel - The lack of bike lanes, walking paths and investment in bicycle stands etc. does not encourage people to choose these healthy, carbon cutting modes of transport.

Public transport - New projects for public transport include the Edinburgh tram lines, with 20-50% of passengers previously travelling by car, making Edinburgh 'greener', less congested, and reducing noise/emissions. However, rural public transportation is of increased concern because bus links to small villages are often the first cut in tight budget times.

Air Travel - Large populations in emerging economies will contribute to the rise in air travel which is projected to grow 4.8% each year to 2025.

Biofuels - promoted by GM for use in their “FlexFuel” vehicles, corn and rapeseed are common sources of biofuel. Shown to be a viable option, however, no processing plants for rapeseed exist in Scotland.

Fuel Cells/Electric Cars - This rapidly increasing technology is seeing improvements to the point of widespread implementation. By 2020 an estimated 100,000 electric cars will require large infrastructure developments, as charging points are needed throughout the country.

Congestion charges - a charge for driving into the centre of cities. London was the first city in the UK to institute this charge. Similar charges were rejected by Edinburgh and Manchester voters.

Alternative Public Transport

Car Sharing - allows people to pay into a car sharing club and pick up a car for limited use when needed has gained ground in areas of Canada, USA, and Europe. Benefits include: no maintenance, low cost compared with car ownership.

High Speed Rail - Hailed throughout Europe as a new green alternative to transport by air, this technology is actually fraught with issues. First, the expense and time involved in laying new high speed rail lines is considerable. Second, high speed trains are actually not as emissions cutting as most people think with a line between London and Manchester producing more emissions than an air route.

Bicycle - Many initiatives have generated great success, most notably the Velib bicycle scheme in Paris. This allows people to share bikes at a highly subsidised rate throughout the city. Users can pick one up almost anywhere and drop it anywhere else there is a stand, making cycling more accessible.

Bus Rapid Transit - Pioneered in South America, this system allows for what is often called an over-ground subway system. Tickets can only be purchased at stations and special bus lanes allow buses to deliver passengers faster than can oftentimes be achieved in a car. This system has been especially successful in Bogata, Colombia.

Currently most public transit and eco-friendly transport systems are effective in urban areas but cannot be implemented in rural areas. Instead, it is important to consider ways in which these rural areas can be connected via on demand services (call-for-a-ride minibuses) and expanded standard bus routes.

Issue 4: Waste

“The priority has to be waste prevention”

Recycling-Each year more Scots recycle and more material is recycled, yet the recycling rates are still relatively low. New goals need to be on slowing/stopping the generation of new waste material along with recycling campaigns.

The recycling process must be improved, from the way recyclables are collected (different systems in different municipalities) and how/where they are processed. Currently there is not enough capacity in plastics and organic processing. It is also critical that processing recyclables is an economically viable operation.

Future of Scottish Market for Recyclate- Prices for recyclate in Scotland are lower than the UK as a whole. Competition will increase for recyclate materials in coming years, therefore more of our waste needs to be separated and recycled, especially organics, textiles, wood and plastics.

Incineration- The information on incineration is wide ranging and differs by source. Incineration emits 30% more carbon than burning of coal and fossil fuels.

2.8 million tonnes (9%) of municipal waste and 100,000 tonnes (3%) of hazardous waste is processed by incineration in the UK. In 2002, incineration generated enough power for over ¼ million homes. In some areas of Scandinavia, vacuum systems have been installed to draw waste to incineration plants directly, eliminating the need for garbage trucks

New efficient incineration units are smaller, produce more energy from waste, and can be fit on ships and in large businesses. Incineration is relatively safe for hazardous materials, which are difficult to handle in containment sites. Alternatives to incineration include anaerobic digestion.

Landfill-very detrimental to the environment as one of the largest source of methane released into the atmosphere.

Consumption- If everyone on the planet consumed as much as an average Scotland resident, an additional 1.8 Earths would be required to support global resource consumption.

Issue 5: Economy

“Prosperity without growth”

Increasing inequality - 60 percent of workless individuals live in only 40 districts in the UK. The landscape of these problems has not changed dramatically despite education/training and work initiatives. Where we are born usually is a predictor of our job, health, life expectancy and earnings.

Narrow Focus of Efficiency Agenda - Budgets are set through analysis of the financial figures with little regard for collateral costs, savings and contributions. Policymakers rarely take into account human capital and natural resources and disregard the non-financial results of budget cuts (Example: increased crime rate and its effects on communities).

2008-2009 Financial Crisis - The recession is positive for reform in favour of a more sustainable society. Sustainable efforts provide a positive message as well as the overall cost saving of environmental schemes long term. However, the economic crisis also has resulted in a slowing of government funding making sustainability projects particularly vulnerable because they oftentimes rely on government subsidies.

Budgets for sustainability - The 2007 Scottish budget called for: £900m for rail and tram, £57.2 million a year to support bus services and £11 million a year on direct support for sustainable and active travel. In addition, a partnership with Ireland provides £5m for research into marine renewable energy.

Politics/SNP independence - The ability for Scotland to sustain itself economically if it were to become independent is doubtful. Even if all North Sea oil revenue came directly to Scotland, it would fall short of the budget needs. In addition, it is important to consider what would happen as oil collection slows, and the cost to retrieve oil grows. Also, national support for independence is quite low, at around 34%.

Trade - The UK is the world's fifth-largest trading nation, making it dependent on trading partners for raw materials including 1/3 of its food. Tax revenue continues to drop. This is due both to the dramatic financial sector losses as well as a decline in personal income/wealth. More restrictive borrowing and an uncertain job outlook mean that UK consumers will buy less in the coming fiscal year.

Issue 6: Education

“For young people today, obtaining educational qualifications is a necessary stepping stone for social mobility”

Narrow aims of higher education- The current focus of higher education is on the student as a future worker, making the demand for programmes equipping students with technical skills the most lucrative.

Sustainable education- Scotland’s schools need to set an example of sustainable behaviour. Choosing locally sourced food, conserving resources and integrating into the community to serve others. Scotland’s schools can be used as a tool to educate young people about the importance of sustainability and the way sustainable communities work.

CIFAL Findhorn- A NGO associated with the United Nations that seeks to teach about sustainability partly through their eco-village in the UK. They have hosted seminars in cooperation with the Scottish government.

Scotland’s Colleges- It is important for Scotland’s colleges to evaluate the way they approach new programmes and funding. Understanding the changing landscape of employment opportunities will help the colleges tailor programmes to meet the needs of prospective students.

Education Qualifications- For young people today, obtaining educational qualifications is a necessary stepping stone for social mobility. However, a fifth of students across Europe leave school with no or very low qualifications.

Issue 7: Employment

“commuting can kill communities”

Social Capital / Human Capital - we are unable to continue to grow the tangible goods sector as quickly as we have seen over the past century. An attitude shift must take place wherein we begin to value other resources such as time, wisdom, experience, knowledge and nurture and reward them accordingly.

Effect of Recession on Employment - 2 million workers were laid off in 2008, the largest increase in unemployment since 1992.

Effect of commuting - long stressful commutes not only hurt the environment, but they also dramatically increase the stress level among workers, leading to health problems, adding cost to employers, decreasing productivity, and lost time in the commute.

Effects of hypothetically removing all traffic from Scotland's roads during the peak commuting hours in the morning:

- 34% decrease in Carbon Monoxide emissions
- 21% decrease in CO2 emissions

Some current trends/challenges:

- jobs have become more specialized making them harder to fill with local people
- families do not necessarily relocate to the workplace of the main worker
- high property prices in Scottish cities often prevent people living closer to work

Working from home - currently there are many preconceived ideas and misconceptions about working from home.

Company Benefits - must overcome the 'presence is productivity belief' because in reality people who work from home generally work more hours/are more productive.

Drawbacks-working from home can bring its own set of stresses, with workers feeling continually tied to their work, because it is located in the home, boundary lines are blurred.

New technology makes it possible to work from home more easily than ever. High speed internet access, teleconferencing equipment, and email, phone and fax mean that most work could actually be done outside of the typical office. To supplement this type of work arrangement, employees could physically come to work one or two days a week to stay connected.

Issue 8: Additional Important Information

“It is vital for our success that we create communities which provide new homes in the right place, of the right type and which contribute to reducing energy demand and impact on the environment”

EU policy - Deadline: 15% of all energy from renewable sources by 2020

UK Policy - the UK was the first country to draft a comprehensive climate change bill following the Kyoto agreements, this bill moves the UK toward a low carbon economy. Voters are often accepting of new policy as long as it is not expensive, especially a direct tax, such as fuel or congestion charges. The goal should be; some taxes on negative behaviours but also on incentivising positive actions.

Ageing Demographics - From 1991 to 2002 the median age of Scottish population rose from 35 to 39. The number of people aged 65 and older is expected to rise by about 60% from some 800,000 in 2002 to about 1.3 million by 2042. The number aged under 15 is expected to fall by about 30 per cent from 800,000 in 2002 to 620,000 by 2042.

SFF highlight 50% of Scotland’s population will be over 50 years old in the coming 20 years. Not a crisis but a challenge – many positive aspects. Needs - Co-housing schemes as in Denmark and United States, a more asset-based approach to life (education, work and retirement), more elder care responsibilities. Dependency ratios of those with money and financial assets not supporting those without (wealth redistribution)

Eco-towns/Green Building - The majority of the housing that we will live in for the first half of the 21st Century is already built, which means building efforts have to focus on making these existing structures energy efficient. Eco-towns risk being viewed as stark and artificial. While they contain all the necessary services, they do not contain that intangible piece that makes a place have character and sense of community. Also, natural building materials are eco-friendly including straw, earth, and untreated wood.

Rural challenges - rural regions face problems of decline with out-migration, ageing, a lower skills-base, lower than average labour productivity, isolation, lack of infrastructure and difficulties with public service provision, particularly in the most remote regions.

Community Building/Development - New home building is at a rate of <1% per year, this means new building initiatives will have little impact until the 2030’s. Communities are connected to other communities, counties, and countries. How can we be global citizens and still remain

sustainable? Eco-communities are a great example of the innovation that is taking place, but we need to find a widespread solution to retrofit existing buildings, neighbourhoods and communities to make them eco-friendly.

Public opinion/attitude-

A large part of changing behaviour is changing opinions and attitudes. Many questions persist about how to do this and what the 'look' of a society with truly sustainable vision would entail:

- What does it mean to be wealthier in an era of sustainability?
- Will social status come from a person's eco-friendliness or will it still be high-end consumption (e.g. high-performance cars).